



Chain of Trails Master Plan

September 2014 ref 13275



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Acknowledgments



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The consultant team wishes to acknowledge the working committee and key stakeholders for their collaboration in preparation of this report.

Working Committee

A cross-departmental approach to the development of the Master Plan was adopted by council staff from Urban Planning and Leisure Services, Infrastructure Services and Governance and Strategic Planning. The study was managed by Emily Moskwa, Recreation Planning and Development Officer, with significant support from Lois Dunkerley, Community Engagement Officer for the City for the City of Campbelltown. Staff from the Community Services and Social Development Department of the City also provided feedback on the Master Plan.

Key Stakeholders

- Members of the Campbelltown community and visiting trail users who provided feedback on the condition of the trails and gave suggestions for future improvements as part of the initial stage of community consultation
- The City of Campbelltown's Access and Inclusion Advisory Committee

Consultant Team

Swanbury Penglase

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Third Creek

In December 2013, Swanbury Penglase in association with Tonkin Consulting were engaged by the City of Campbelltown to undertake an assessment and Master Plan of the Chain of Trails, including Third, Fourth and Fifth Creek within the Council boundaries. The purpose of the Master Plan is to identify opportunities for the future upgrade along the 10km of trails. The aim is to establish a more accessible trail experience from the hills to the River Torrens Linear Park. The recommendations provided in this report will assist the City of Campbelltown in developing a staged upgrade and works program.

Specifically the report includes these major components:

- Project Background
- Current Conditions of the Trails
- Proposed Alignment Options
- Biodiversity and Aesthetic Values
- Materials and Furniture Options
- Signage Assessment and Upgrade

This Master Plan is supported by a Background Report that provides information to support the recommended upgrade strategy for the Chain of Trails. The main purpose of the Background Report is to outline the findings from a review of relevant publications, plans and policies, and to provide response to the feedback from the first phase of community consultation. It also summarises consultation undertaken internally within Council.

Background and Purpose

The City of Campbelltown recognises that the existing trails have some significant issues with regard to accessibility and safety, in part due to traffic management, creek erosion and past planning. The development of the Chain of Trails Master Plan will provide the City of Campbelltown with a strategic overview to guide future upgrades and redevelopment of the trails and adjoining reserve areas.

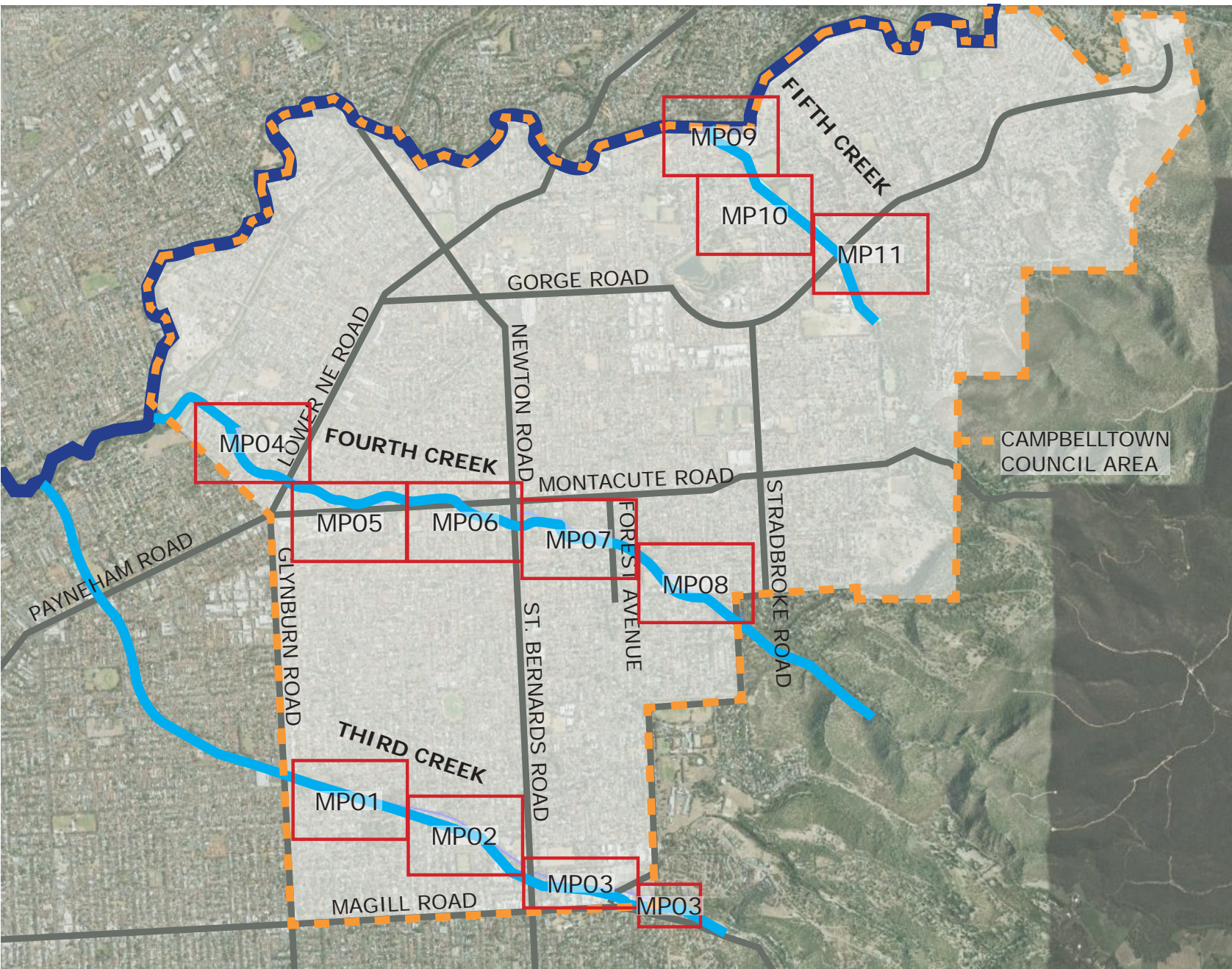
The Master Plan identifies specific areas with poor access, safety concerns, and high aesthetic and/or biodiversity value with the aim to improve the overall amenity of the trail and to improve its capacity to cater for a wide range of users. The Master Plan endeavours to balance growing community needs, open space appearance, trail functionality, cultural sensitivities, environmental sustainability and economic realities. It proposes alternative trail alignments, materials, signage upgrades and additional amenities to help meet these needs. The enhanced development of the creek line trails will create valuable recreational, community and educational assets. While it does not commit Council or any other body to undertake any of the identified improvements, it will support future grant funding applications as appropriate.

Vision

The overall vision for the Chain of Trails is to provide the Campbelltown community and its visitors with a safe and enjoyable creek line trails and nature experience.






Study Area

The study area covers the Third, Fourth and Fifth Creek reserves within the boundaries of the City of Campbelltown. The Third Creek areas assessed covers the area between Glynburn Road, Tranmere and Braeside Avenue, Magill. Fourth Creek investigations were carried out between the River Torrens Linear Park and Schultz Road, Rostrevor. Fifth Creek crosses the plains for a short distance from the River Torrens Linear Park and to Montacute and Gorge Roads, mainly through Athelstone. The eastern extents of Fifth Creek, through Wadmore Park/Pulyonna Wirra were also investigated. Additionally, investigations were further carried out along the continuation of the creeks in adjacent Council areas to identify opportunities for further linkages.



Chain of Trails Location Plan

LEGEND

-  RIVER TORRENS
-  THIRD, FOURTH AND FIFTH CREEK
-  COUNCIL BOUNDARY
-  MAJOR ROADS
-  PAGE LAYOUTS

Objectives

The objectives of the Master Plan were developed through early discussions with the City of Campbelltown and a refinement of the Project Brief.

- To produce a Master Plan that is simple, robust and elegant, allowing the activity of the creek reserve to dominate whilst providing amenity to its users
- To improve safety, access and connectivity, within the trail and through its continuation to adjacent Council areas
- To enhance the biodiversity value of the trail
- To develop options for trail linkages and optimal trail alignments for pedestrians and bicycles
- To identify and address erosion issues and gradient issues
- To create site responsive landscape approach, including appropriate material selection to minimise visual impacts on adjacent residences
- To develop a framework for trail signage, identifying best routes and key areas of cultural/environmental significance
- To coordinate and collaborate with Council and the Community to ensure a cohesive approach to the project.

Process and Community Consultation

The methodology for the trail Master Planning process was developed in conjunction with the City of Campbelltown Project Officer and Community Engagement Officer early in the project in order to coordinate comprehensive consultation with key stakeholders and the community. Further refinement to the methodology was made after the initial site assessment and consultation with Council.

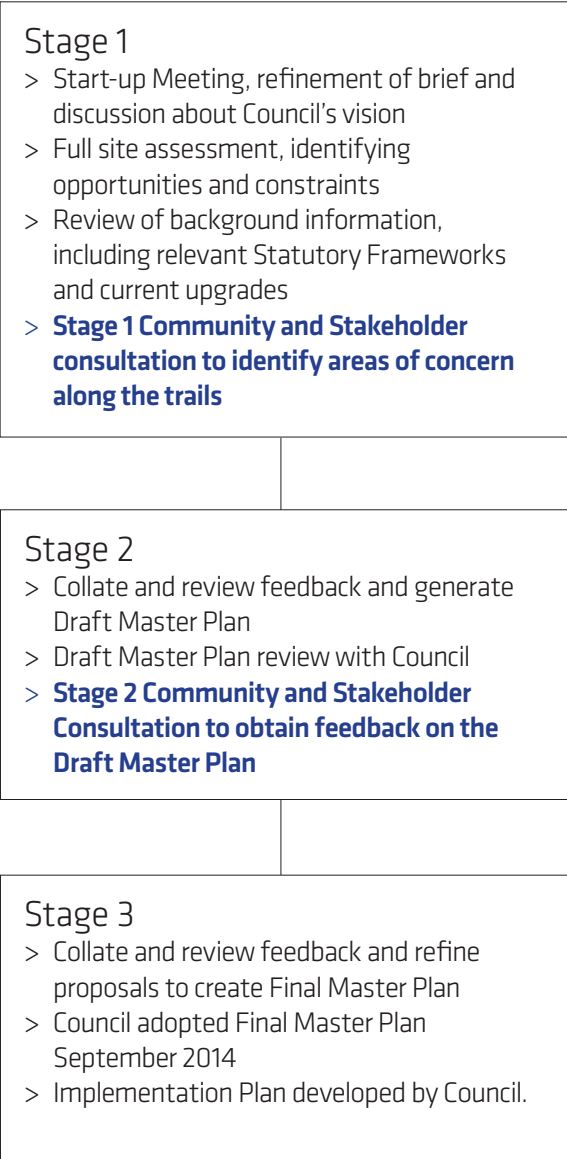
Key Recommendations

- Upgrade signage, including directional, destination, warning and interpretive types.
- Conserve and enhance biodiversity value including revegetation and weed management.
- Improve connections through improved signage, safer, more accessible pathways, formalised road crossings and public amenities at suitable locations.
- Mitigate and design for flooding and erosion control considering environmental, social and economic sustainability.
- Improving road crossings and addressing CPTED (Crime Prevention through Environmental Design) issues.
- Staged path surface upgrades.

Implementation of the Master Plan

- An implementation Strategy is to be developed by Council based on priorities and funding availability. This strategy will also identify the works funded through the Council's Annual Budgets and those requiring additional external funding.
- All proposals are subject to further investigation and research as to feasibility and constructability during a detailed design phase. Further consultation with relevant stakeholders will also be required.

The following diagram outlines the process undertaken to develop the Master Plan.



Significance of the Trail

The Third, Fourth and Fifth Creek trails are important biodiversity and recreational corridors from Morialta and Black Hill Conservation Parks in the east to the River Torrens Linear Park in the west. Trails provide opportunities and experiences for the local and wider community for a diverse range of activities such as jogging, cycling, walking and picnic gatherings. With enhanced access, safety and infrastructure improvements, they have the potential to generate visitor interest and attraction.

Heritage

Whilst some information is available currently in regards to the built and environmental heritage in the City of Campbelltown, there is little information about the indigenous history in the creek areas. Campbelltown Council has undertaken a preliminary investigation into the indigenous cultural and environmental history of the City with aspirations to continue this research.

Statutory Framework

Although the City of Campbelltown only has the authority to undertake works within its own Council boundaries, the Master Plan makes considerations for adjacent councils to continue any upgrade works along the creek lines. Adjacent local government authorities that may be influenced by the Chain of Trails Master Plan and potential future improvements include Adelaide Hills Council, and the Cities of Norwood Payneham and St. Peters, Burnside, Tea Tree Gully, and Port Adelaide Enfield. Black Hill Conservation Park under governance of the State Government Department of Environment, Water and Natural Resources (DEWNR) may also be influenced by the Master Plan. There is opportunity to extend the upgrade to trails into these Council areas.

In our recommendations and future implementation of the Master Plan for the creek trails, it is imperative to recognise the existing environmental values along the Third, Fourth and Fifth Creeks. The Master Plan maximises and protects the biodiversity principles embedded in Council's Strategic Plan and Environmental Management Plan, the Wadmore Park/Pulyonna Wirra Management Plan and the adjacent River Torrens Linear Park and Morialta Conservation Park Management Plans. Consideration has also been given to the Council's Magill Village Master Plan, Pedestrian Access and Mobility Plan, Local Area Traffic Management Plan and a number of recent OPAL projects.

An overview of the key considerations from these and other relevant documents is provided in the Background Report.

The Master Plan is guided by Austroads Part 14 – Guide to Traffic Engineering Practice – Bicycles, Australian Standards for walking trails (AS 2156.162) and Trails SA's Sustainable Recreational Trails - Guidelines for the Planning, Design, Construction and Maintenance of Recreational Trails in South Australia. More specifically, these guides and standards are applied to the recommendations for the width, location and materials for the trails.

In March 2014, The City of Campbelltown signed the International Charter for Walking. By signing this Charter, Council commits to adopting the eight Strategic Principles of the Charter, each of which are reflected in the Chain of Trails Master Plan. The Principles are:

1. Increased inclusive mobility
2. Well designed and managed spaces and places for people
3. Improved integration of networks
4. Supportive land use and spatial planning
5. Reduced road danger
6. Less crime and fear of crime
7. More supportive authorities
8. A culture of walking

*For a detailed description of key considerations and frameworks referenced during the report process, please refer to the Chain of Trails Master Plan Background Report



Fourth Creek

Existing Conditions

The site assessments revealed that the trails traverse a variety of environmental conditions. In some areas, the creek is completely inaccessible, wedged between the boundary fences of residential properties. These areas occur mostly along Third Creek where the creek was previously channelled for flood mitigation. In other areas, the trails are completely open and take on any number of alternate routes through parks and recreation reserves. Combined with a lack of effective signage along the trail, this has resulted in a number of concerns regarding accessibility and connectivity of the trails.

The existing trail through certain sections can be described as compacted natural surface. This surface would not be considered a shared path as required for user numbers, but it is generally free of rocks, tree roots and other obstructions.

The width of existing access routes along parts of the trails are, in most cases, a narrow path no more than 1m wide. In most areas this is restricted by steep banks and creek reserves less than 3m wide on either side.

The paths are well used, particularly through Fourth Creek and are popular with pedestrians, joggers and the occasional cyclist and skateboarder. Popularity has increased with recent upgrades, for example the southeastern paved sections, and is expected to grow with future upgrades and anticipated population growth in the City.

The existing bridges and channels along the creeks are in good condition, but certain sections may need localized maintenance.

Third Creek

After the downpour from Norton Summit in 1981, causing extreme flood damage, many of the sections along Third and Fourth Creeks were redesigned. While the City of Campbelltown subsequently acquired various parcels of Fourth Creek land to develop the linear park, parts of Third Creek were channelled and piped underground. One of the challenges of this project is to revitalise these sections of the Third Creek trail, particularly around Shakespeare Avenue Magill, to create stronger connections and increased biodiversity value along the trail while continuing to manage existing stormwater flow. The Gums Recreation Ground in particular has important heritage value, with one of the only remaining Red Gum populations along the creek.

Fourth Creek

Located along Fourth Creek are several schools, parks and reserves, heritage sites and the Lochiel Park Golf Course at Geoff Heath. Efforts by the Council and adjoining schools in recent years, together with local environmental groups and

volunteers have seen a restoration of native vegetation and the establishment of paths to the eastern end of the trail. The strong cultural and environmental history along this trail also contribute to its recreational value. Fourth Creek is the primary focus of investigations and upgrades, building on its existing popularity.

Fifth Creek

Fifth Creek has been the least affected by harsh stormwater treatments in the past and offers a well vegetated corridor. Its connection from the River Torrens to Black Hill and Morialta Conservation Parks is vital. Way finding around private properties, pedestrian access and signage are some of the key issues identified for this trail.

Resident Treatments to the Creek Reserve

Currently, there are no Council guidelines regarding resident contributions to the creek reserve. Some residents have embraced the opportunities provided by the creek reserve but the outcomes are disparate. During the implementation of the Master Plan, the Council will endeavour to work and communicate with residents to ensure the delivery of a collective vision for the Chain of Trails and that future trail developments befit the circumstances adjacent resident properties.



Fourth Creek

Design Principles

To guide the process of the trail assessment and identification of upgrades, the following design principles were adopted. The trail shall:

- Be safe and accessible to a greater proportion of the community by addressing existing issues, including access from existing footpaths, impediments of private properties, traffic concerns, creek crossovers and road crossings.
- Improve linkages and connectivity for pedestrians and cyclists to other trails and nearby attractions, including identification of places of key cultural/ environmental significance, by improving signage and way finding.
- Protect and enhance the existing biodiversity value of the trails and increase the biodiversity value of other parts.
- Be sustainable in the long term, using robust materials suitable to the natural riparian environment with low maintenance requirements.
- Consider solutions that discourage access 'off trail' and incorporating CPTED (Crime Prevention through Environmental Design) principles, giving residents greater privacy and safety.

Implementation of Sustainable Trail Development Principals

The following sustainable trail development strategies are incorporated in the design of the master plan from Trail SA's *Sustainable Recreation Trails document – Guidelines for the Planning, Design, Construction and Maintenance of Recreational Trails in South Australia*.

- Sustainable trails do not require extensive infrastructure. The trails shall make the most of natural features without introducing infrastructure that may compromise the natural appeal and character of the area
- The need for infrastructure is minimised which minimises environmental and visual impacts as well as offering a cost saving
- The trails offer loops or alternative tracks where possible to provide a variety of experiences
- New water crossings are minimised by utilising existing crossings where possible to minimise environmental impact and possible erosion
- Provision of amenities is important to the success of a trail, new amenities shall be provided at control points/existing recreation facilities and based on the anticipated number of users
- New structures/shelters shall be designed to minimise their visual impact and on-going maintenance requirements
- Signage strategy shall be developed, incorporating interpretive signage which can be useful as these forge an emotive and intellectual connection for the users to engage with the environment. It is an integral part of nature-based experiences
- The proposed trail upgrades shall promote environmental benefits which may also encourage community groups to get involved in the construction and maintenance of the trails

Creek Rehabilitation and Water Management

The Campbelltown Open Space Directions and Strategies Report as well as the *River Torrens Linear Park Management Plan* have made reference to future developments of Water Aquifer, Storage and Recharge and increased Water Sensitive Urban Design under major recreational reserves and areas surrounding the creeks. The Max Amber Sportsfield is one of the sites that has been considered for a wetland reserve. The implementation of these strategies will reduce the water flow into the creeks and increase the output water quality in to the River Torrens.

In the Morialta Conservation Park Management Plan, Fourth and Fifth Creeks have been identified as major habitat and biodiversity corridors towards River Torrens Linear Park. It has also been suggested that Fourth Creek in particular should be returned to its natural state as it contains a high number of plant and animal species of conservation significance, especially reptiles and amphibians.

Connections

To improve connections of the trail, consideration has been given to purchasing additional land as required to not only improve pedestrian access and connections but also reinforce wildlife corridors and habitat connections.



Fifth Creek

Trail Classification and Usage

The Chain of Trails should be designed to meet Class 1, 2 and 3 in accordance to AS 2156.1-2001. These classifications are used to establish an asset value, levels of maintenance and identify changes over time. A summary of the classifications can be found below:

Class 1

- Generally a broad, hard surfaced track suitable for wheelchair use
- Width: 1200mm or more. Well maintained with minimal intrusions
- Grades in accordance with the AS 1328 series. Steps allowed only with alternate ramp access
- Management intervention: high (Inspection interval of 30 days or less)

Class 2

- Generally a modified or hardened surface
- Width 900mm or more. Well maintained with minimal intrusions
- Grades generally no steeper than 1:10. Minimal use of steps
- Management intervention: moderate to high (Inspection interval of 90 days or less)

Class 3

- Generally a modified surface, sections may be hardened
- Width: Variable and generally less than 1200mm. Kept mostly clear of intrusions and obstacles
- Grades may exceed 1:10 for short sections but generally no steeper than 1:10. Steps may be common
- Management intervention: moderate (Inspection interval 6 months or less)

Given the popularity, a relatively wide creek reserve and recent upgrades, the predominant character of the Fourth Creek trail has been designed to meet Class 1 standards which is a well maintained and generally accessible trail that adheres to AS1428 Accessibility Standards. Due to the width limitations and steepness of the existing creek banks, a consistent path width is difficult to achieve throughout the entirety of the trail and therefore, some areas are less accessible, appropriate signage should indicate alternate routes.

Third and Fifth creek trail will likely be of Class 2 and 3, to maintain the natural character of the trails and due to difficult terrain and restrained widths. Future trail infrastructure, including signage, boardwalks and balustrades shall be developed in accordance to AS2156 Walking Tracks.

Due to reasons mentioned above, the provision for bicycling along the creek lines are limited to areas where banks can sustain a path of 3m (plus 0.6m verges each side), as regulated by Austroads Part 14 – Guide to Traffic Engineering Practice – Bicycles. As an alternative, bicycles can be routed through adjacent street networks with appropriate signage and width to navigate between various creek sections, although, off-road cycling near schools and recreational nodes should be considered.

Mountain Bicycling and Skate boarding have been identified as common activities along the trails. Whilst the trails do not specifically cater for these activities, they can be considered in future upgrades of the potential Activity Areas identified within the Master Plan Maps, or as separate tracks along side the main trail. For further information refer to Trail Design - Path Width.

Pedestrian Access and Mobility Plan (PAMP)

The PAMP classifies the Chain of Trails as Secondary Recreation Routes with the following characteristics:

- These are urban recreation routes having a local rather than regional value
- Less likely to support shared use, unlike River Torrens Linear Path
- Less urban in form, having unsealed surfaces, which may function as destinations as much as routes

The PAMP refers to the Chain of Trails Master Plan's key considerations including personal security and ancillary infrastructure (amenities) – seating, lighting, shade, way finding signage, connections to the street network and access to transport corridors.

Path Materials

The use of low-key path materials is recommended as a general rule, particularly in high biodiversity areas due to lower construction impacts on natural habitats. This includes Cement Stabilised Earth and Cement Stabilised Gravel. Where a wider path can be achieved or there may be more frequent use, Bitumen and Asphalt surfacing can be considered in order to reduce erosion and ongoing maintenance costs. Concrete and block paving options should be limited to high traffic and low biodiversity areas due to the high impact of its construction process. Where connectivity is a high priority over a narrow creek area, decking or a board walk structure is recommended. Material options and characteristics are outlined in the Trail Surface Treatments Summary, included in this report.



Fifth Creek

Path Width

As the use of the trail increases, it is expected that wider pathways will be required to minimise conflict between user groups. However, there are limitations to this approach:

- The cost associated with developing a wide paved path or other structures over the creek to achieve a wider path width;
- Steep bank contours, existing erosion issues, and narrow reserve widths;
- Increased maintenance requirements associated with a broader and well-used path; and
- Austroads compliant shared path requires a clear path width of 3m (plus 0.6 verges each side).

These issues make an all access shared path unrealistic, although it is not recommended that cyclists are restricted from all paths. The predominant use for the design of the path should be for pedestrians, noting that alternate routes for cyclists can be offered and directed through signage. Where cyclists are to share the creek trail, safety signage can be applied to warn of blind spots and intersections.

We recommend that the majority of pathways are pedestrian oriented shared recreation tracks. The community can be educated about using the track safely, including keeping left when walking, users to warn each other when over-taking, slowing at black spots/pinch points and an awareness of track signage.

If mountain biking is a desired outcome for the area, designated trails will need to be identified separate from the main trails to avoid conflict. Whilst the Third, Fourth and Fifth Creek trails are important thoroughfares for Mountain Bicyclists between other tracks, it is important that the main track is not promoted as a Mountain Bicycling trail. It should be made clear that the trails are to be shared between all users and that other users should take care when passing pedestrians along the trail. In accordance with Australian Standards (refer table below), trails for mountain bicycling do not require substantial widths thus there is some opportunity to create a low maintenance track for Mountain Bicyclists parallel to the main track to act as designated cycling tracks and overpassing lanes to avoid pedestrian conflict. It is recommended that during the detailed design of the path upgrades, Council consult with cycling groups to negotiate future cycling opportunities.

In accordance with the Pedestrian Access and Mobility Plan, the minimum desired width for paths is 1.5 metres which allows a comfortable passing of pedestrian users. The Chain of Trails Master Plan will adopt the PAMP recommendation with a minimum width of 0.9m at squeeze points and for high vegetation areas to minimise the impact of the trail upgrades on existing vegetation and habitat. Where paths cannot achieve the minimum recommended 1.5m, boardwalks cantilevered over the creek should be considered to provide access.

Designated shared use paths shall be a minimum of 3m (plus 0.6m verges each side). If the minimum recommended widths are not achievable through the full length of expected cycling sections, bypass lanes and/or signage should be provided to warn of blind spots and intersections.

Future trail upgrades should aim to maximise accessibility within the

	Accessibility	Recommended Width	Recommended Grade
AUSTROADS Part 14	Shared Use	3m with 600mm verges each side	min. 12% (~1:8.3) varies based on length.
AS1428.1	All Access	1m min. single direction 1.8m min passing space	1:20
PAMP	Generally Wheelchair accessible	2m (1.5m Desired Min.)	1:20
AS2156 Class 1	Sections not wheelchair accessible	1.2m	1:20
AS2156 Class 2	Not recommended for wheelchair	0.9m	generally 1:20 short distances no steeper than 1:10
AS2156 Class 3	Not recommended for wheelchair	Variable (generally <1.2m)	generally no steeper than 1:10 steeper than 1:10 in short sections

sustainable trails development principals, based on Australian Standards and PAMP guidelines as summarised above: Detailed engineering and environmental investigations will be required to establish possible path widths.

Soil Cap and Rehabilitation

It is the intention of the Master Plan to enhance and improve biodiversity along the trails. Concrete drains and pipe works installed in the 1980s along Third Creek greatly detract from the environmental heritage and prohibit biodiversity along the creek. Whilst these are necessary to deal with stormwater loads, it might be possible to provide an engineered soil cap over the concrete structure. This would allow planting above the drains as well as a pedestrian path over the creek. In addition, water remediation in the form of planted swales can be incorporated, to increase water quality and the sustainability of the development.



Glen Osmond Creek Before Trail Revitalisation



Glen Osmond Creek Before Trail Revitalisation



Glen Osmond Creek After Trail Revitalisation



Glen Osmond Creek After Trail Revitalisation

Trail Maintenance and Whole life Costs

It is important to note that maintenance costs will increase with the development of the trail. While it is difficult to predict the actual annual costs associated with maintenance, the data provided in relation to the different types of surface materials can act as a guide to maintenance needs. While there is a preference for natural surface finishes, they do require more frequent maintenance to remain safe and accessible. In contrast, low maintenance materials have a higher capital cost and a greater environmental impact.

Trail Surface Treatments Summary

Cement-Stabilised Earth Surface

Lifespan: Approx. 3-5 years (dependent on proximity of trees, topography and soil geology)
Character: If conditions permit, there is potential to incorporate soils from the site to achieve a site specific aesthetic. A range of imported soil colours can also be used to match its surroundings. It has a low initial cost on installation and requires minimal disturbance to the existing site.
Maintenance requirements: The surface earth will gradually erode. Bends in the path alignments and highly trafficked areas will form depressions which may turn to puddles after heavy rain. If left untreated, these low points can become hard after drying and cause tripping points. Maintenance works on a cement-stabilised earth path are required every 3-6 months, however they are easily repaired and spot treatments are possible without affecting other areas of the trail. This surface requires increased maintenance over its lifespan.

Cement-Stabilised Gravel Surface

Lifespan: Approx. 5 years (dependent on proximity of trees, topography and soil geology)
Character: A range of aggregates are available to suit its surroundings. As it is a natural material, it is suitable for the majority of the creek trail applications, especially in tight and constricting spaces. Similar to the cement-stabilised earth surface, it has minimal environmental impact.
Maintenance requirements: Gravel will gradually erode, even with cement stabilisation. Bends in the path alignments and highly trafficked areas will form depressions which may turn to puddles after heavy rain. If left untreated, these low points can become hard after drying and cause tripping points. Maintenance works on a cement-stabilised gravel path are required every 6 months, however they are easily repaired and spot treatments are possible without affecting other areas of the path. This surface requires increased maintenance over the life of the trail.

Bitumen Spray Seal

Life Span: Approx. 10 years (dependent on proximity of trees, topography and soil geology)
Character: Although this surface does not offer any natural aesthetics it has a much more durable surface than gravel alone. It has a greater environmental impact, however this is still much less than asphalt or concrete surfacing. Maintenance requirements: This is a much harder wearing surface finish and can be applied on top of cement-stabilised gravel surface. The effects of weathering and pitting are greatly reduced, although they can still occur in high traffic areas. This finish can be spot treated without affecting other areas of the path. Increased maintenance is required over the lifespan of the path however routine maintenance is only required every 6-12 months.



Example of Compacted Earth



Example of Compacted Gravel



Example of Bitumen Spray Seal

Hot Mix (Asphalt Surfacing)

Lifespan: Approx. 30 years (dependent on proximity of trees, topography and soil geology)
Character: Unnatural material that may not be suited to high biodiversity areas as it has a high environmental impact. It is suited to heavy traffic conditions or high priority access areas.
Maintenance requirements: Hot mix bitumen is a highly durable and hard surface material with relatively low ongoing maintenance costs. It is, however, more susceptible to erosion than concrete, particularly in areas with high rainfall and where the surface is laid on steep slopes. Ongoing maintenance is relatively low and can be undertaken while the trail remains open. In terms of balancing construction costs with ongoing maintenance, hot mix asphalt paths are a good alternative to concrete/paved surfaces, but as it is subject to longitudinal cracking it is generally not the preferred surface material.



Example of Asphalt Surfacing

Unit and Continuous Concrete Paving

Lifespan: Approx. 40 years (dependent on proximity of trees, topography and soil geology)
Character: Unnatural and hard aesthetic. It is only suitable for very high-traffic or priority access areas.
Maintenance requirements: Concrete may shift vertically over time due to natural ground movement which may require some maintenance to remove trip hazards. Remedial works may be required to replace affected bays. The replacement process is quite labour intensive and may require closure of sections of the trail. A concrete path should be maintenance free for the first 15 years, incurring fewer costs once completed. If the total maintenance and construction costs are considered, a concrete path is the cheapest alternative. A concrete path may be expected to require 0.5% of its length to be replaced each year after 15 years from first installment.



Example of Unit Paving



Example of Unit Paving



Example of Continuous Concrete Paving

Concrete Paving Variations



Example of Continuous Concrete Paving with Aggregate Finish



Example of Coloured Concrete Paving

Decking and Boardwalks Timber

Lifespan: Approx. 50 years
Character: Natural feel and can be responsibly sourced. It is costly to install but a possible solution to otherwise inaccessible areas. Not recommended for low passive surveillance areas as timber structures tend to attract vandals and can be easily damaged by fire.
Maintenance requirements: Maintenance is relatively low, but will require frequent oiling and repair after vandalism. Replacement members may be required from time to time due to accidental damage. Regular maintenance is necessary every 6 months.



Example of Boardwalk Timber

Decking and Boardwalks Composite Plastic

Lifespan: Approx. 80 years
Character: Recycled plastic materials can be selected which have good timber replicate qualities. This is a good option for low surveillance areas as the material is fire retardant and vandal resistant.
Maintenance requirements: This material requires minimal ongoing maintenance and the whole life cost is considered to be very low. Once constructed, only infrequent replacement members may be required due to accidental damage. Better quality materials can be sanded back if vandalised and are non-combustible.



Example of Boardwalk Composite

Fencing and Balustrading

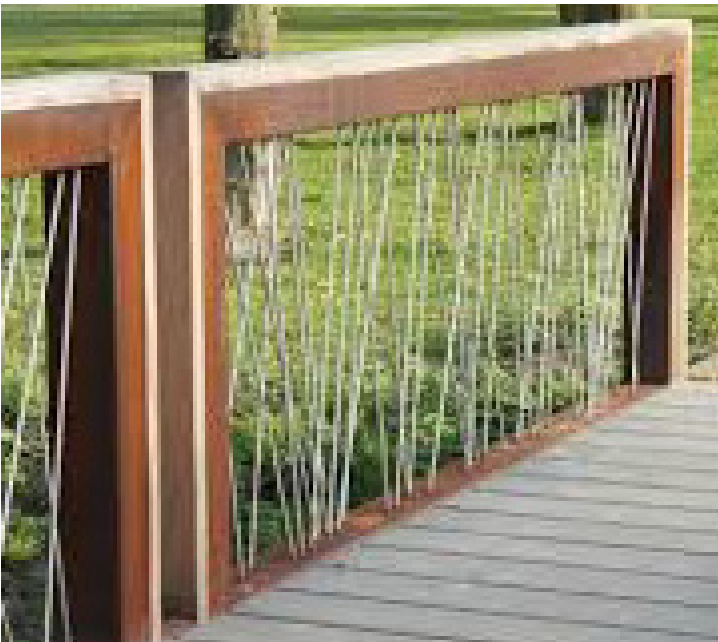
Existing fencing and balustrading is minimal and often lacking. Due to the extent of erosion issues surrounding each of the creek lines, additional balustrading is recommended where paths abut steep falls. These areas are identified on the Master Plan Maps.

Fencing and balustrading materials should be consistent with the remainder of the trail development and should meet Australian Standards, ensuring that it is of a high quality material and finish, and of a natural character. Timber or composite plastic products are recommended for areas immediate to the creek. Traffic barriers or safety fencing will require engineering assessment/works for any future upgrades.

Fencing can incorporate art work elements in keeping with the principles outlined in the Campbelltown Arts and Cultural Development Policy. A consistent fencing style can further enhance the trails identity.



Example of Fencing and Handrail



Example of Stylised Fencing

Road Crossings

Pedestrian crossings are not consistently present along the creek trails. In order to improve the safety and connectivity of the trails, new crossing locations have been indicated on the Master Plan. Refer to Artistic Impression 2 for illustrated example. In many cases, existing crossings are indeed available but they are not clearly directed at trail users, which could be improved with better way-finding (also indicated on the Master Plan Maps, as described in the following section).



Example of Good Road Crossing



Example of Raised Paved Road Crossing

As a part of the Master Plan Report, a signage assessment was undertaken. The following page outlines the existing signage conditions and proposed new signage types. Three types of signage have been identified as being required along the trails: Directional, Destination and Warning. Interpretive signage is also desired. Recommended locations have been provided on the Master Plan Maps.

Existing Signage

Existing signage throughout the trails are, overall, in a poor condition and often lacking. Directional signage currently provided on the trails are often pointed to the wrong direction due to vandalism.

Existing way finding maps are also worn and illegible. It is recommended that a complete signage upgrade be undertaken, which will in turn, assist in the safety, access and connectivity of the trails.

Appearance and Design

Existing signage consists of a steel post and plate construction such as those seen in street signs. It is more suited to distant reading and uncomfortable to read at close proximity. These signs can be easily bent by vandals, becoming an inaccurate guide if they are pointed in the wrong direction. As such, “*Guidelines for Producing Trail Signage – February 2003*” produced by the Tourism Commission and Recreation Trails Signage and Interpretation Working Group is recommended for the upgrade of trail signage. The Pedestrian Access and Mobility Plan adopted by the Council in 2014 also outlines key signage strategies and considers a Council-wide initiative to improve way-finding. Key considerations for the Chain of Trails Signage:

- As a predominantly pedestrian trail, a shorter type directional sign is more suited to the trail such as on a bollard or a board at approximately 0.9m (recommended) or up to 1.5 metres high. If designed correctly as shown on the following page, it can limit the ability of vandals to turn the directional marker
- Clear and attractive signage suited to the natural setting of the trails and which provides a unique identity for the Chain of Trails, may benefit from having its own stylised logo or branding
- Uniform text colour, size and font, and consideration for the type of information provided to improve legibility and consistency throughout the trail. Signage should comply to Australian Standards 2156.1-2001 Walking Tracks: Classifications and Signage
- Provide trail width and length information on directional and destination signage to assist users in navigating the trails
- Useful and more accurate signage location and positions
- Anti-vandal protection such as secure fixings, engraved texts, anti-graffiti coatings and use of fire-retardant materials

Signage Implementation

Importantly, trail markers should inform users of trails options so that they may select a preferred direction. Warning signs and upgrades to existing signage shall be addressed as a priority, as these will prevent accidents and injuries. Trail entry and directional signage are helpful for pedestrians and cyclists to determine their desired routes, especially in places where it is confusing or lacking in signage. The suggested destination signage and maps, whilst not a necessity, can aid in the accessibility and navigation for pedestrians and cyclists making their experience along the trails more enjoyable. “*Guidelines for Producing Trail Signage – February 2003*” produced by the Tourism Commission and Recreation Trails Signage and Interpretation Working Group provides a valuable guide for cost management and funding strategies.

Signs shall be located at major trail heads, intersections and significant features, placed with consideration of approach, speed, and space to manoeuvre without obstruction or blocking the pathway for other users. It should also offer clear visual lines to other trails signs and minimise the potential impact on the views of the surrounding landscape.

Signage Type Examples

Directional Signage

These signs are constructed as arrow guides to direct users along the optimum trail path or to the continuing path. They can also indicate the distance remaining along the trail, the trail surface material and any nearby facilities such as toilets or picnic settings. Some examples of these can be seen on the following images.

Destination Signage

In the form of trail maps, these signs can be added to trail heads or any major entry points along the trail. They give the users a guide to what services or amenities are available along the trails and the upcoming path surface material so they may plan their journey or locate conveniences.

Warning Signage

Warning signs such as “Give Way”, “Blind Spot Ahead”, or “Intersection” can warn different user groups of potential conflict or hazards, especially cyclists that are sharing narrow paths with pedestrians. Other signage to improve track safety may also include keeping left when walking, cyclists to warn pedestrians when over taking and slowing at black spots/pinch points.

Interpretive

Interpretive signs are an integral part of walking trails. They provide educational material about the natural or cultural features, such as Indigenous, Heritage or Local Biodiversity which can forge a connection for the users to their environment. This can aid the success of the trail development and promote environmental awareness.

Artworks

In line with Council’s Arts and Cultural Development Policy, local artists may be engaged to provide artworks that reflect on the local culture and heritage which may promote further community awareness and involvement in the ongoing development of the trails. Artworks and interpretive signage can create a unique identity and a sense of place that bring about a community bond and ownership and may, for example be based on Campbelltown’s market gardening heritage, sites of indigenous significance or local plant and animal specials.

Heritage

We recommend further investigations in all aspects of heritage prior to implementation of the Master Plan. Where appropriate this information will also be provided to trail users in the form of interpretive signage and art works. The Master Plan Maps capture the locations of Heritage significance along the trails. This is especially important along the Fourth Creek Heritage Trail.

Electronic Compatibility

Other enhancements to signage and artworks may be digital information, QR readers linked to information sheets, interactive maps and web pages online.



Examples of Existing Signage

Signage Examples



Existing amenities along the trails consist primarily of seating and shaded tree areas. There were very few toilets identified during the site assessments. Two of the toilets that were clearly made available for trail users were in Denis Morrissey Park along Fourth Creek and along the Magill Interpretive Trail at Nightingale Reserve. Other existing toilets that are available for trail users have been identified on the Master Plan Maps. Shelter structures, water fountains and barbeque facilities were not made available or visible to trail users. Existing lighting can only be seen adjacent sports or recreation reserves.

Location of Amenities

To increase the accessibility and usability of the trail, the following amenities are recommended along the trails:

- Bench seating - Every 300 metres or less
- Picnic settings - In open and visible areas with good shade or shelter
- Barbeque settings - Barbeque facilities can be considered within larger reserves, such as near playground areas or dog parks
- Drink fountains - Based on the location of existing and future infrastructure, proposed water fountains are proposed to be installed generally every 2-3kms, near large park reserves, playgrounds and rest areas
- Toilets: Based on regular walking speed, a toilet is recommended for every 30 minutes of the trail or every 2 km
- Lighting: Due to the close proximity to residences, night lighting is not appropriate for all areas of the trail. A timed lighting system (for example, one that would turn off at 10pm) could be implemented in most instances to avoid disturbance to local residents. Solar lighting is recommended in all areas. It provides better environmental outcomes as well as long term cost savings. Some examples of solar lighting can be found in the Furniture and Fixings Palette included in this report.

- Where possible, lighting to the trail is recommended to encourage evening walking or jogging, particularly useful in the winter months when it becomes dark before 6pm. Crime Prevention through Environmental Design (CPTED) Principals must also be considered whilst addressing lighting needs. Areas of low visibility containing public amenities require lighting to deter vandalism and other crime.
- Shade is readily available along all the creek trails due to the vast number of trees along the creek reserve. During the future detailed design and implementation of activity nodes, it is recommended that additional shade be considered, especially if there will be any tree removal for structures.

The Master Plan does not identify specific areas for lighting or night activity, but it is recommended that future Council investigations explore this opportunity especially at key nodal points or Activity Areas.

Key Nodal Points

Key nodal points have been identified on the master plan where high traffic paths come to a junction, or at major entry points to the creek trails. At these points, paths may be widened and boardwalk/deck structures may be installed to accommodate amenities such as seating and lighting.

Land Acquisition

To increase the size and enhance the quality of key nodal points, land acquisition may be considered especially where a creek reserve has poor profile, access and surveillance. This opportunity to contribute to linear connections along creeklines and environmental corridors has the potential to improve usable recreation space, establish better links to community facilities or other open space, and add to biodiversity and aesthetic values.




Fourth Creek

Examples of Furniture and Fixings

Due to the predominantly natural setting and aesthetic value of the creeks, the materials, surface finishes and furniture should have natural characters to be suitable for its context.

SHELTERS AND
BUILT FACILITIES



SEATING



BOARDWALKS AND
DECKS



Sturt River Linear Trail
Adelaide



Lakeway Redevelopment
Perth



Dunstan Grove
Adelaide

KEY NODAL POINTS



The Lurie Garden
Millennium Park, Chicago




Guadalupe River Trail
San Jose



Tanghe River Park
China

FIXINGS



Key Nodal Point - Artist Impression 1



Indicative key nodal point treatment to Montacute Road entry to Fourth Creek Trail South Side



Solar amenity lighting to cater for evening use

Key node point extending creek trail entry with deck structure to promote interest to use trail amenities



Increase vegetation around the creek area to improve biodiversity and aesthetic value

Inclusion of artwork fence along creek to enhance its identity as a part of the Chain of Trails

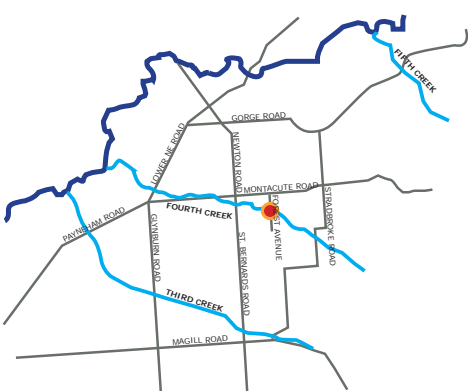
Consistent trail signage creating a sense of identity for the Chain of Trails

Upgraded paved surface to indicate entry to trail walk and public interest

Key Nodal Point - Artist Impression 2



Indicative traffic slowing and entry treatment at Forest Avenue junction to Fourth Creek Trail



Designated pedestrian crossing and traffic island to increase ease of use and safety

Consistent trail signage creating a sense of identity for the Chain of Trails

Key node point expanding creek edge with deck structure to promote interest to use trail amenities



Increase vegetation in and around the creek area to improve biodiversity and aesthetic value

Designated pedestrian crossing and traffic island to prioritise pedestrian use

Pram ramps at main crossing points to increase accessibility

Paved intersection surface to indicate pedestrian oriented zone and to slow traffic. Additionally, this paving could be raised to further reduce traffic speeds. (Subject to traffic engineers) Refer to Trail Design - Road Crossings.

Increase planting along creek edge to increase biodiversity

Inclusion of artwork feature panels in fencing further enhancing the amenity of the trail

The creek lines can be described as exhibiting a range of biodiversity and aesthetic values. These values have been defined by assessing the various sections of the creeks according to visual amenity, views and vegetation quality.

Areas of dense vegetation and high biodiversity value have been identified on the Master Plan Maps to be protected and enhanced. Areas which have the potential to increase biodiversity value have also been highlighted in the Master Plan Maps.

The following plant palette illustrates plants suitable for future planting along the creek reserve and trails, however future planting are not limited to these. Those species not present on this list are not necessarily weed species and may provide other amenities for uses along the creek. We recommend that specialist advice be sought prior to upgrade, removal or installation of plants.

High Biodiversity and Aesthetic Value

Third Creek contains some very valuable environmental assets such as The Gums Recreation Ground, the University of South Australia Magill Campus, and the Magill Interpretive trail at Nightingale Reserve. The Master Plan Maps have highlighted these areas as having high vegetation quality and good views which, for those reserves under local government management, could be further enhanced with increased amenities such as picnic facilities and toilets.

Fourth Creek has a very well developed native vegetation program around Stradbroke Primary School to the southeast end of the trail. This also extends through to Denis Morrissey Park and the Campbelltown City Council office building and Function Centre. Although distant from other densely vegetated areas, Lochiel Park Golf Course to the northwest also remains a valuable nature reserve. The value along this creek will be increased amenity and weed management.

Fifth Creek sections from the River Torrens Linear Park continue to provide high biodiversity values of the well-established trail through to the Max Amber Sportsfield. Overall, this trail has good biodiversity and aesthetic qualities and will be further enhanced through upgrades to trail surface and amenities.

Low Biodiversity and Aesthetic Value

Third Creek contains many sections which are directly adjacent to roads or confined between private property boundaries. Although the sections adjacent Richardson Avenue contain some vegetation, its vegetative and physical connection into The Gums Recreation Ground can be improved. The main concern for Third Creek is the concrete culverts and issues around naturalising these structures. As suggested in the Trail Materials section of this report, explorations can be made to provide a soil/nature cap over the concrete culverts. An increase in vegetation and amenities such as bench seating in other areas such as Boord Reserve and areas adjacent the Vine Street power transformer, will lead to better biodiversity and aesthetic values.

Fourth Creek is mainly lacking in biodiversity and aesthetic qualities to the northwest sections. Extending the management plans made from the southern sections can easily remediate these situations. With future upgrades, increased amenities such as seating, picnic opportunities, drink fountains and toilets would improve the trail experience.

There are only a few pockets of Fifth Creek that have low biodiversity and aesthetic value. With increased vegetation and amenities in general, this could be easily transformed to a socially and environmentally sustainable trail. Specifically these areas are the empty grass areas west of the Max Amber Sportsfield and the section between Gorge Road and Manresa Court Athelstone.

Green and Habitat Corridors

As well as conserving and enhancing the areas surrounding the creek and adjacent parks, we recommend that future upgrades and detailed design will consider the biodiversity and environmental values of the greater Campbelltown Council Area as well as adjacent Council areas.

Weed Management

Whilst the Council do not currently have a Weed Management Plan for the Chain of Trails, the information on weed eradication and control contained within the *Wadmore Park/Pulyonna Wirra Management Plan (2013-2018)* in conjunction with the *River Torrens Linear Park Eastern Section Management Plan (2011)* offers suitable guidance for the management of weeds along the Third, Fourth and Fifth Creek line reserves. We recommend that Council conduct a weed survey and seek specialist advice to form a Weed Management Plan for the Chain of Trails.



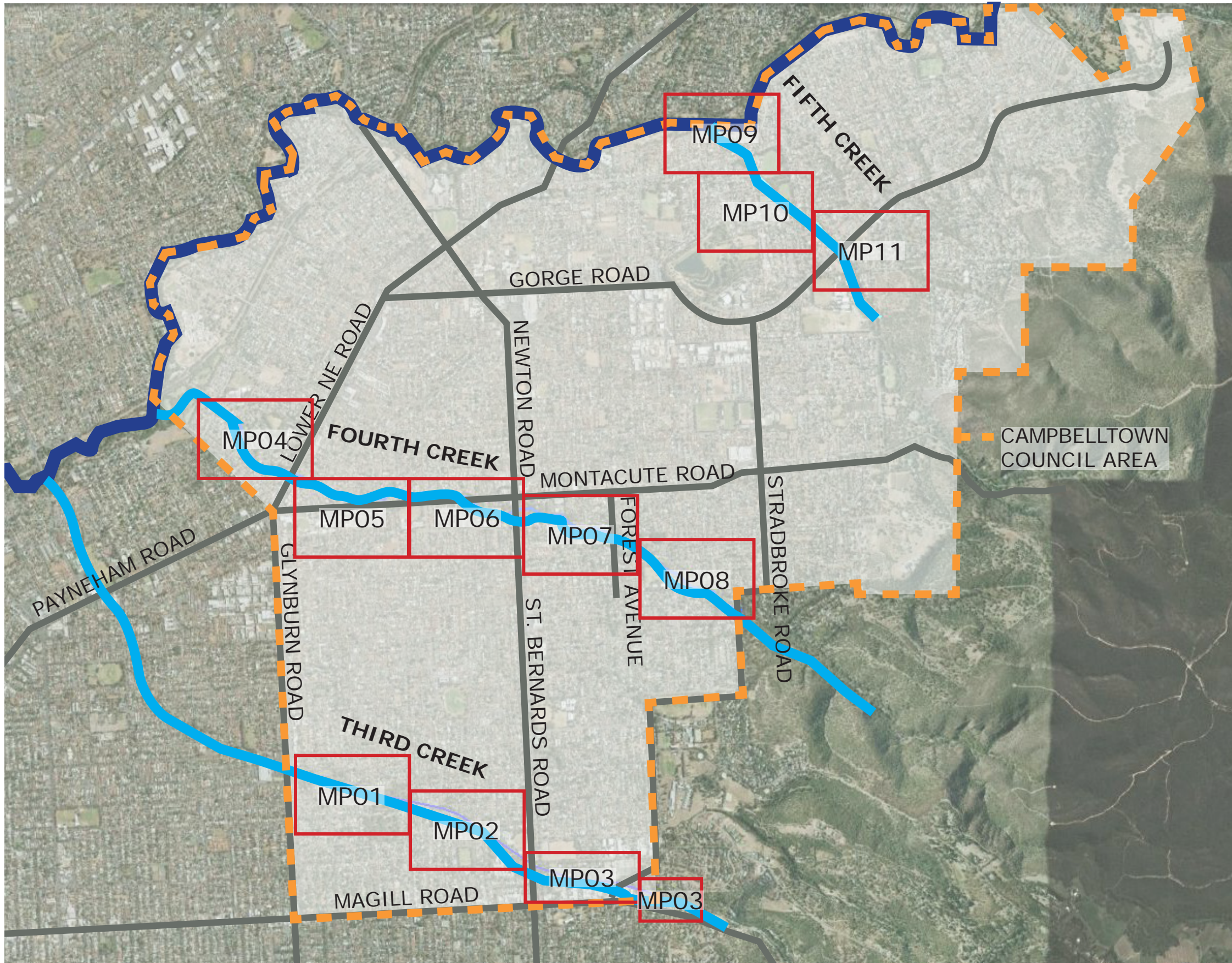
Fourth Creek

Planting Palette



In line with the City’s Landscape Principles, an emphasis should be placed on reflecting pre-European plantings and using Indigenous and native plantings across the City. Native grasses should be used to replace weed species over time in the Creekline and Biodiversity Zones in reserves that have a natural focus where possible. Climate change adaptation and drought tolerant plantings should also receive an emphasis where enhancements are to increase the biodiversity value of an area. This plant palette serves as a guide to future planting. Detailed design and future assessment is recommended prior to removal or replanting.

TREE		Acacia pycnantha Golden Wattle		Allocasuarina verticillata Drooping Sheoak		Banksia marginata Silver Banksia		Callitris gracilis Southern Cypress Pine		Eucalyptus camaldulensis var. camaldulensis River Red Gum		Eucalyptus leucoxylon South Australian Blue Gum		Eucalyptus fasciculosa Pink Gum		Melaleuca lanceolata Dryland Tea Tree		
SHRUB		Acacia acinacea Wreath Wattle		Bursaria spinosa Sweet Bursaria		Dodonaea viscosa Hopbush		Dianella revoluta var. revoluta Black-anther Flax-Lily		Xanthorrhoea quadrangulata Squared Leaf Grass Tree		Grevillea lavandulacea var. lavandulacea Lavender Grevillea		Hardenbergia violacea Native Lilac				
GRASSES AND GROUNDCOVERS		Burchardia umbellata Milkmaids		Danthonia sp. Common Wallaby Grass		Ficinia nodosa Knoby Club-Rush		Juncus bufonius Toad Rush		Lomandra nana Small Mat-Rush		Poa crassicaudex Thick-Stem Tussock Grass		Themeda triandra Kangaroo Grass		Stipa tenuifolia Angels Hair		Cyperus vaginatus Flat-sedge
		Anthropodium strictum Chocolate Lily		Bulbine bulbosa Bulbine-Lily		Calostemma purpureum Pink Garland-Lily		Crassula decumbens var. decumbens Spreading Crassula		Hibbertia riparia Guinea-flower		Kennedia prostrata Scarlet Runner		Leptorhynchos squamatus Scaly Buttons		Linum marginale Native Flax		
		Olearia ramulosa Twiggy Daisy-bush		Pultenaea acerosa Bristly Bush-Pea		Scaevola albida White Fan-Flower		Vittadinia blackii Narrow-leaf New Holland Daisy		Vittadinia gracilis Woolly New Holland Daisy		Vittadinia sulcata New Holland Daisy		Wahlenbergia stricta ssp. stricta Tall Bluebell				



Master Legend



- AREAS NEAR THIRD CREEK TRAIL THAT HAVE ALSO BEEN INVESTIGATED IN COUNCIL'S VILLAGE MASTER PLAN
- LAND CURRENTLY UNDER SCHOOL OWNERSHIP. THIS AREA REQUIRES FUTURE NEGOTIATION WITH ST. IGNATIUS' SCHOOL FOR PUBLIC ACCESS
- EXISTING PAVED PATH
- EXISTING GRAVEL PATH
- EXISTING GOAT TRACK
- EXISTING PATH TO BE UPGRADED, SUBJECT TO DETAILED DESIGN. IF THE UPGRADE TRAIL WILL HAVE SIGNIFICANT IMPACT ON ADJACENT RESIDENCES, COUNCIL SHALL CONDUCT FURTHER CONSULTATION DURING DETAILED DESIGN. (THIS SYMBOL IS USED IN CONJUNCTION WITH EXISTING GRAVEL PATH OR GOAT TRACK). REFER TO REPORT SECTION: TRAIL DESIGN
- PROPOSED NEW PATH, WHERE NO EXISTING TRACKS HAVE BEEN IDENTIFIED. NEW PATH MATERIAL SUBJECT TO DETAILED DESIGN. REFER TO REPORT SECTION: TRAIL DESIGN
- EXISTING MAINTENANCE TRACK TO BE KEPT CLEAR.
- DENSE EXISTING VEGETATION. REFER TO REPORT SECTION: AESTHETIC AND BIODIVERSITY VALUE
- PROPOSED IMPROVEMENT TO BIODIVERSITY. REFER TO REPORT SECTION: AESTHETIC AND BIODIVERSITY VALUE
- EXISTING BRIDGE
- PROPOSED NEW BRIDGE, SUBJECT TO DETAILED DESIGN AND APPROPRIATE COMMUNITY CONSULTATION
- EXISTING DESIGNATED PEDESTRIAN CROSSING IN GOOD CONDITION
- PROPOSED FORMAL PEDESTRIAN CROSSING, SUBJECT TO DETAILED DESIGN AND ENGINEERING. REFER TO REPORT SECTION: TRAIL DESIGN - ROAD CROSSING
- EXISTING BALUSTRADES
- EXISTING FENCING

- EXISTING BENCH SEAT
- PROPOSED BENCH SEAT LOCATION. APPROXIMATE LOCATION ONLY, FINAL LOCATION TO BE CONFIRMED DURING DETAILED DESIGN. REFER TO REPORT SECTION: AMENITIES
- EXISTING PICNIC TABLE
- PROPOSED PICNIC TABLE LOCATION. APPROXIMATE LOCATION ONLY, FINAL LOCATION TO BE CONFIRMED DURING DETAILED DESIGN. REFER TO REPORT SECTION: AMENITIES
- EXISTING GYM EQUIPMENT
- CONNECTION TO NEARBY ACTIVITIES THAT MAY BE OF INTEREST TO TRAIL USERS. THE CONNECTION TO THESE ACTIVITIES SHALL ALSO BE MADE CLEAR ON FUTURE MAP AND DIRECTIONAL SIGNAGE. REFER TO REPORT SECTION: SIGNAGE AND ARTWORKS
- STEEP GRADE ON EXISTING PATH (Med. 10-16%). THESE AREAS WILL REQUIRE DETAILED DESIGN AND ENGINEERING TO RESOLVE GRADE ISSUES AND MAY REQUIRE REGRADING TO CONFORM TO RELEVANT STANDARDS AND GUIDELINES. REFER TO REPORT SECTION: TRAIL DESIGN
- STEEP GRADE ON BANKS (Med. 45-60%). THESE AREAS WILL REQUIRE DETAILED DESIGN AND ENGINEERING TO RESOLVE ANY EROSION ISSUES AND TO INVESTIGATE APPROPRIATE SAFETY BARRIERS FOR TRAIL USERS. REFER TO REPORT SECTION: TRAIL DESIGN - FENCING AND BALUSTRADES
- EROSION ISSUES IDENTIFIED TO BE INVESTIGATED BY COUNCIL.
- EXISTING PLAYGROUND
- GOOD VIEW POINT INDICATES THAT THESE AREAS MAY BE SUITABLE FOR FUTURE REST OR PICNIC AREAS.
- CURRENT UPGRADE AREAS - BANK STABILISATION AND REVEGETATION UNDERTAKEN BY THE COUNCIL.
- PROPOSED NEW ACTIVITY AREA. THESE MAY INCLUDE REST AREAS OR PICNIC AREAS, DEVELOPMENT OF SKATE OR CYCLING ACTIVITIES OR FUNCTION/COMMUNITY EVENT SPACES. SUBJECT TO DETAILED DESIGN AND APPROPRIATE COMMUNITY/RESIDENT CONSULTATION. REFER TO REPORT SECTION: AMENITIES AND FURNITURE AND FIXINGS PALETTE.

- ITEM OF HERITAGE SIGNIFICANCE. ITEMS IDENTIFIED ON CURRENT COUNCIL DOCUMENTS. IT IS PROPOSED THAT THESE ITEMS WILL BE INCLUDED IN FUTURE TRAIL SIGNAGE FOR EDUCATION PURPOSES, SUBJECT TO OWNER CONSULTATION. REFER TO REPORT SECTION: CONTEXT AND EXISTING CONDITIONS - HERITAGE
- RESIDENT TREATMENT ON RESERVE AREA. PLEASE REFER TO REPORT SECTION: CONTEXT AND EXISTING CONDITIONS.
- PROPOSED DRINK FOUNTAIN LOCATION. APPROXIMATE LOCATION ONLY, FINAL LOCATION TO BE CONFIRMED DURING DETAILED DESIGN. REFER TO REPORT SECTION: AMENITIES
- EXISTING TOILETS
- PROPOSED TOILET FACILITIES. APPROXIMATE LOCATION ONLY, FINAL LOCATION TO BE CONFIRMED DURING DETAILED DESIGN. REFER TO REPORT SECTION: AMENITIES
- PROPOSED LOCATION OF DIRECTIONAL SIGNAGE. REFER TO REPORT SECTION: SIGNAGE AND ARTWORKS
- PROPOSED LOCATION OF DESTINATION SIGNAGE. REFER TO REPORT SECTION: SIGNAGE AND ARTWORKS
- PROPOSED LOCATION OF WARNING SIGNAGE. REFER TO REPORT SECTION: SIGNAGE AND ARTWORKS
- KEY NODAL POINT. THESE ARE KEY ENTRY POINTS TO THE TRAIL FROM LOCAL HUBS, SERVICE FACILITIES OR MAJOR ROADS. PLEASE REFER ALSO TO ARTISTIC IMPRESSION 1 AND 2 FOR FURTHER INFORMATION.
- EXISTING CONDITIONS TO BE CONSIDERED
- PROPOSED AMENDMENTS TO BE READ IN CONJUNCTION TO THE MASTER PLAN REPORT

The following documents were referenced during the development of the Master Plan. These documents and any updates to these documents, as well as any future references as deemed relevant, will require consideration during the implementation of the master plan

Policies

- Access & Inclusion Policy
- Active Ageing Policy
- Arts and Cultural Development Policy
- Asset Management Policy
- Footpath Development and Maintenance Policy
- Heritage Management Policy
- Physical Activity and Sports Policy
- Playground & Exercise Equipment Development and Maintenance Policy
- Public and Environmental Health Policy
- Public Consultation Policy
- Risk Management Policy
- Road Verge Development and Maintenance Policy
- Tree Management Policy
- Youth Policy

Strategic Documents

- Paradise Interchange projects (current)
- Skate Park projects (current)
- OPAL projects (current)
- Towards 2020 (Strategic Plan 2010-2020)
- Wadmore Park / Pulyonna Wirra Management Plan (2013-2018)
- Animal Management Plan (2011-2016)
- Transport Action Plan (2006-2016)
- Access and Inclusion Plan (2010-2015)
- Local Area Traffic Management Plan for the suburb of Campbelltown (2014)
- Pedestrian Access and Mobility Plan (2014)
- Environmental Management Plan 2020 (2014)
- Magill Village Master Plan (2014)
- Campbelltown Memorial Oval Master Plan (Draft 2014)
- Development Plan (2013)
- Open Space Directions and Strategy (2012)
- Infrastructure and Asset Management Plan (2012)
- Recreation, Leisure and Sports Needs Analysis (2006)
- Chain of Trails Master Plan Background Report
- Strategic Bicycle Plan (2007)

External Documents

- Austroads Park 14 – Guide to Traffic Engineering Practice – Bicycles
- Australian standards for walking trails AS2156.1&2
- International Charter for Walking
- State Legislation
- Trails SA’s Sustainable Recreational Trails Guidelines for the Planning, Design, Construction and Maintenance of Recreational Trails in South Australia
- River Torrens Linear Park Management Plan
- Morialta Conservation Park Management Plan
- Torrens Catchment Hydrological Study
- Guidelines for Producing Trail Signage - February 2003 (Tourism Commission and Recreational Trails Signage and Interpretation Working Group)



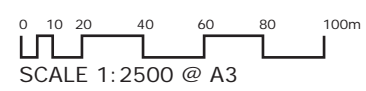
- 1 PROPOSED FORMALISED PATH IN THE WIDER RESERVE AREA.
- 2 PROPOSED PATH THROUGH RESERVE LEADING TO GUMS RESERVE. LOCALISED DEGRADATION REQUIRING MINOR MAINTENANCE.
- 3 PROPOSED INCREASED VEGETATION OR RECREATION FACILITIES SUCH AS PLAYGROUNDS, PICNIC AREAS, EXERCISE NODES ETC.
- 4 EXISTING SMALL ROCK WEIR POSSIBLY CAUSING CRACKING IN CREEK BED, REQUIRES MINOR MAINTENANCE.
- 5 IN THIS SECTION, RESIDENTS HAVE PLANTED RIGHT DOWN TO CREEK EDGE.
- 6 PROPOSED BRIDGE TO LINK SOUTH SIDE PATH TO NORTH SIDE PATH IN ORDER TO CONTINUE ALONG CREEK EDGE. EXACT LOCATION TO BE DETERMINED.
- 7 TIMBER RETAINING WALL REACHING THE END OF ITS SERVICE LIFE - ALTERNATIVES TO BE CONSIDERED.
- 8 PROPOSE EXTENSION OF ROCK WALL AND INCREASE IN VEGETATION TO AID BANK STABILITY.
- 9 LARGE AREA AROUND CREEK THAT HAS RECENTLY BEEN FLOODED. MINOR ISSUE THAT MAY REQUIRE MITIGATION MEASURES IN THE LONG TERM.
- 10 MINOR SCOURING BUT WELL VEGETATED.

- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
 - EXISTING GRAVEL PATH
 - EXISTING GOAT TRACK
 - EXISTING PATH TO BE UPGRADED
 - PROPOSED NEW PATH
 - EXISTING MAINTENANCE TRACK
 - DENSE EXISTING VEGETATION
 - PROPOSED IMPROVEMENT TO BIODIVERSITY
 - EXISTING BRIDGE
 - PROPOSED NEW BRIDGE
 - EXISTING DESIGNATED PEDESTRIAN CROSSING
 - PROPOSED FORMAL PEDESTRIAN CROSSING
 - EXISTING BENCH SEAT
 - PROPOSED BENCH SEAT LOCATION
 - EXISTING PICNIC TABLE
 - PROPOSED PICNIC TABLE LOCATION
 - EXISTING BALUSTRADES
 - EXISTING FENCING
 - EXISTING GYM EQUIPMENT
 - CONNECTION TO NEARBY ACTIVITIES
 - STEEP GRADE ON EXISTING PATH (Med. 10-16%)
 - STEEP GRADE ON BANKS (Med. 45-60%)
 - EROSION ISSUES
 - EXISTING PLAYGROUND
 - GOOD VIEW POINT
 - CURRENT UPGRADE AREAS - BANK STABILISATION AND REVEGETATION
 - PROPOSED NEW ACTIVITY AREA
 - ITEM OF HERITAGE SIGNIFICANCE
 - RESIDENT TREATMENT ON RESERVE AREA
 - PROPOSED DRINK FOUNTAIN LOCATION
 - EXISTING TOILET FACILITIES
 - PROPOSED TOILET FACILITIES
 - PROPOSED DIRECTIONAL SIGNAGE
 - PROPOSED DESTINATION SIGNAGE
 - PROPOSED WARNING SIGNAGE
 - KEY NODAL POINT
 - EXISTING CONDITIONS TO BE CONSIDERED
 - PROPOSED AMENDMENTS

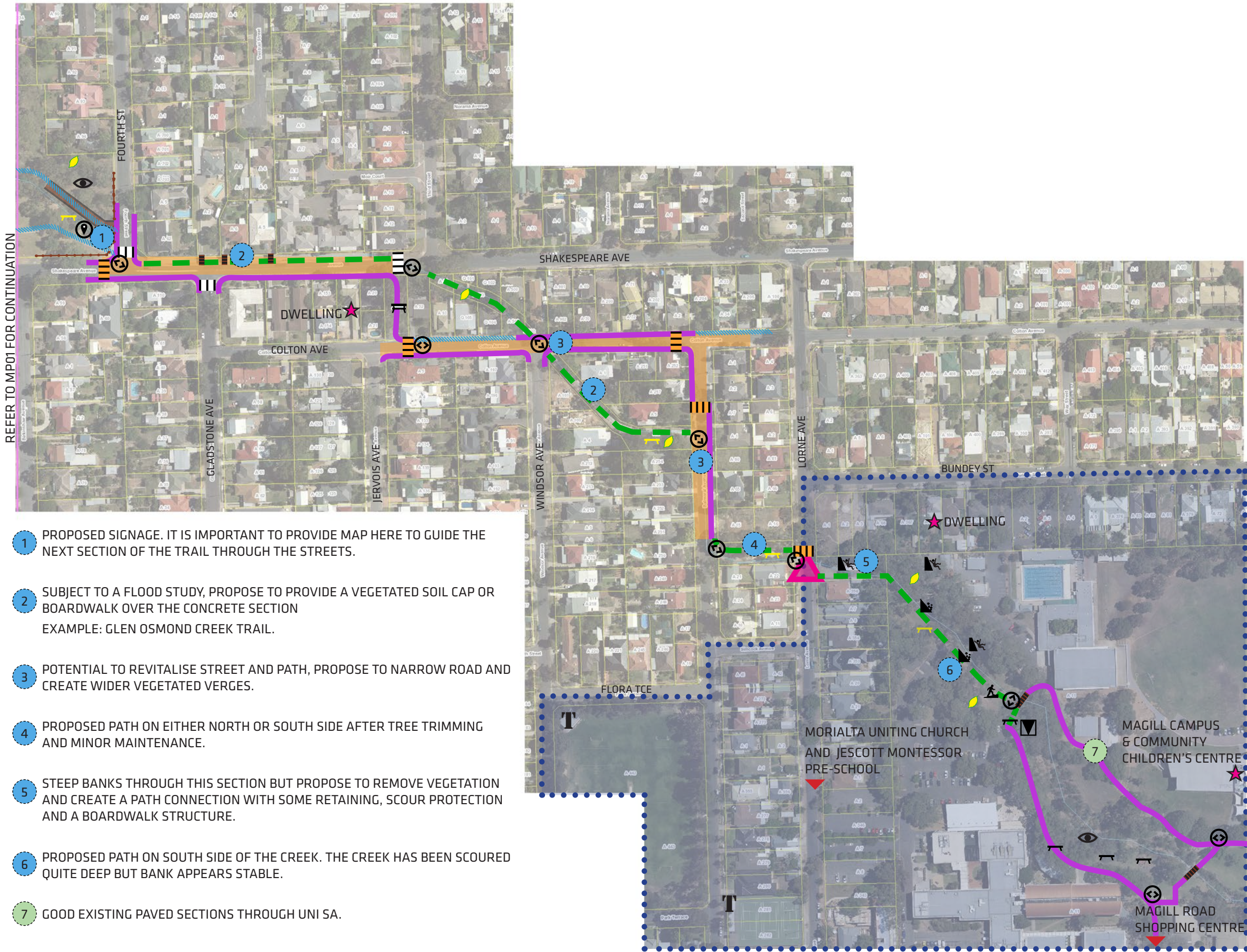
REFER TO MP02 FOR CONTINUATION

THIRD CREEK TRAIL - MAP 1 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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13275 MP01B



REFER TO MP01 FOR CONTINUATION

REFER TO MP03 FOR CONTINUATION

- 1 PROPOSED SIGNAGE. IT IS IMPORTANT TO PROVIDE MAP HERE TO GUIDE THE NEXT SECTION OF THE TRAIL THROUGH THE STREETS.
- 2 SUBJECT TO A FLOOD STUDY, PROPOSE TO PROVIDE A VEGETATED SOIL CAP OR BOARDWALK OVER THE CONCRETE SECTION
EXAMPLE: GLEN OSMOND CREEK TRAIL.
- 3 POTENTIAL TO REVITALISE STREET AND PATH, PROPOSE TO NARROW ROAD AND CREATE WIDER VEGETATED VERGES.
- 4 PROPOSED PATH ON EITHER NORTH OR SOUTH SIDE AFTER TREE TRIMMING AND MINOR MAINTENANCE.
- 5 STEEP BANKS THROUGH THIS SECTION BUT PROPOSE TO REMOVE VEGETATION AND CREATE A PATH CONNECTION WITH SOME RETAINING, SCOUR PROTECTION AND A BOARDWALK STRUCTURE.
- 6 PROPOSED PATH ON SOUTH SIDE OF THE CREEK. THE CREEK HAS BEEN SCoured QUITE DEEP BUT BANK APPEARS STABLE.
- 7 GOOD EXISTING PAVED SECTIONS THROUGH UNI SA.

- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
 - EXISTING GRAVEL PATH
 - EXISTING GOAT TRACK
 - EXISTING PATH TO BE UPGRADED
 - PROPOSED NEW PATH
 - EXISTING MAINTENANCE TRACK
 - DENSE EXISTING VEGETATION
 - PROPOSED IMPROVEMENT TO BIODIVERSITY
 - EXISTING BRIDGE
 - PROPOSED NEW BRIDGE
 - EXISTING DESIGNATED PEDESTRIAN CROSSING
 - PROPOSED FORMAL PEDESTRIAN CROSSING
 - EXISTING BENCH SEAT
 - PROPOSED BENCH SEAT LOCATION
 - EXISTING PICNIC TABLE
 - PROPOSED PICNIC TABLE LOCATION
 - EXISTING BALUSTRADES
 - EXISTING FENCING
 - EXISTING GYM EQUIPMENT
 - CONNECTION TO NEARBY ACTIVITIES
 - STEEP GRADE ON EXISTING PATH (Med. 10-16%)
 - STEEP GRADE ON BANKS (Med. 45-60%)
 - EROSION ISSUES
 - EXISTING PLAYGROUND
 - GOOD VIEW POINT
 - CURRENT UPGRADE AREAS - BANK STABILISATION AND REVEGETATION
 - PROPOSED NEW ACTIVITY AREA
 - ITEM OF HERITAGE SIGNIFICANCE
 - RESIDENT TREATMENT ON RESERVE AREA
 - PROPOSED DRINK FOUNTAIN LOCATION
 - EXISTING TOILET FACILITIES
 - PROPOSED TOILET FACILITIES
 - PROPOSED DIRECTIONAL SIGNAGE
 - PROPOSED DESTINATION SIGNAGE
 - PROPOSED WARNING SIGNAGE
 - KEY NODAL POINT
 - EXISTING CONDITIONS TO BE CONSIDERED
 - PROPOSED AMENDMENTS

THIRD CREEK TRAIL - MAP 2 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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architects of human space

SEPTEMBER 2014

13275 MP02B

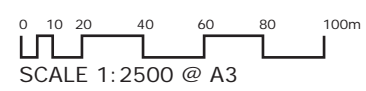


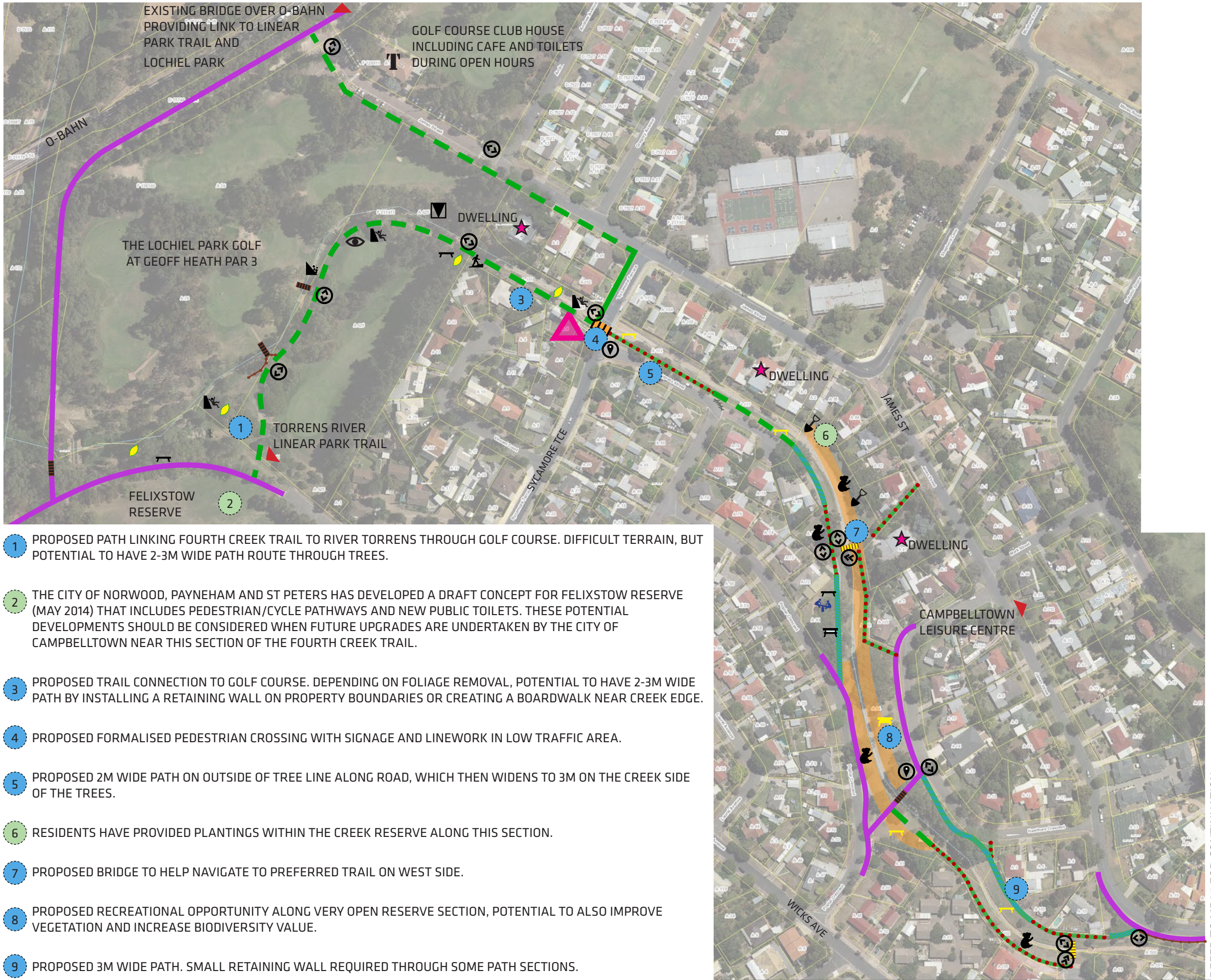
- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
 - EXISTING GRAVEL PATH
 - EXISTING GOAT TRACK
 - EXISTING PATH TO BE UPGRADED
 - PROPOSED NEW PATH
 - EXISTING MAINTENANCE TRACK
 - DENSE EXISTING VEGETATION
 - PROPOSED IMPROVEMENT TO BIODIVERSITY
 - EXISTING BRIDGE
 - PROPOSED NEW BRIDGE
 - EXISTING DESIGNATED PEDESTRIAN CROSSING
 - PROPOSED FORMAL PEDESTRIAN CROSSING
 - EXISTING BENCH SEAT
 - PROPOSED BENCH SEAT LOCATION
 - EXISTING PICNIC TABLE
 - PROPOSED PICNIC TABLE LOCATION
 - EXISTING BALUSTRADES
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 - EXISTING GYM EQUIPMENT
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 - STEEP GRADE ON EXISTING PATH (Med. 10-16%)
 - STEEP GRADE ON BANKS (Med. 45-60%)
 - EROSION ISSUES
 - EXISTING PLAYGROUND
 - GOOD VIEW POINT
 - CURRENT UPGRADE AREAS - BANK STABILISATION AND REVEGETATION
 - PROPOSED NEW ACTIVITY AREA
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 - RESIDENT TREATMENT ON RESERVE AREA
 - PROPOSED DRINK FOUNTAIN LOCATION
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 - PROPOSED AMENDMENTS



- 1 PROPOSED EXTENSION TO WINGWALL TO ASSIST LOCALISED SCOURING.
- 2 DOUBLE LANE ROAD INCLUDES PARKING. PROPOSED MEDIAN STRIP AND CROSSING REFUGE.
- 3 EXACT LOCATION AND NATURE OF PROPOSED BRIDGES AND PATHS TO CONNECT NIGHTINGALE AND BOORD RESERVES SUBJECT TO FURTHER INVESTIGATION IN RELATION TO LIKELY FLOODING, DETAILED DESIGN AND FURTHER CONSULTATION WITH NEIGHBOURING RESIDENTS.
- 4 PROPOSED PLATFORM PEDESTRIAN BRIDGE OR BOARDWALK ACROSS WIDE CHANNEL.
- 5 PROPOSED PEDESTRIAN BRIDGE ADJACENT TO EXISTING DRIVEWAY BRIDGE CROSSOVER.
- 6 PROPOSED RECREATION NODES SUCH AS SEATING OR PICNIC FACILITIES ADJACENT NEWLY VEGETATED SECTION.
- 7 CURRENTLY NO OPPORTUNITY TO PROVIDE TRAIL ALONG CREEK IN THIS AREA. CREEK IS HEAVILY VEGETATED AND NARROW. PROPOSE FUTURE INVESTIGATIONS TO DETERMINE VIABILITY OF A BOARDWALK OR REDIRECTION IF BOARDWALK IS NOT VIABLE.
- 8 PROPOSED CONTINUATION OF TRAIL ALONG MAGILL ROAD. KEY NODAL POINT AND FUTURE TRAFFIC AND ENGINEERING STUDIES REQUIRED TO DETERMINE FEASIBILITY TO IMPROVE PEDESTRIAN CROSSING AND PATH ALONG MAGILL ROAD.
- 9 PRIVATE NO-THROUGH ROAD TO RESIDENCES. NO FORMAL PEDESTRIAN PATH, PROPOSE PATH ADJACENT MAGILL ROAD.
- 10 PEDESTRIAN PATH TO MAGILL ROAD FROM PRIVATE ROAD IS NOT FEASIBLE DUE TO STEEP TERRAIN AND DENSE VEGETATION. APPROX. 6M DROP FROM MAGILL ROAD TO PRIVATE ROAD.
- 11 THIRD CREEK RESERVE CONTINUES WITH WELL VEGETATED BANKS. PROPOSED INTEGRATION OF TRAIL TO SOUTH BANK WITH MINOR DISTURBANCE TO EXISTING ENVIRONMENT.

THIRD CREEK TRAIL - MAP 3 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN



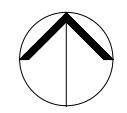


- 1 PROPOSED PATH LINKING FOURTH CREEK TRAIL TO RIVER TORRENS THROUGH GOLF COURSE. DIFFICULT TERRAIN, BUT POTENTIAL TO HAVE 2-3M WIDE PATH ROUTE THROUGH TREES.
- 2 THE CITY OF NORWOOD, PAYNEHAM AND ST PETERS HAS DEVELOPED A DRAFT CONCEPT FOR FELIXSTOW RESERVE (MAY 2014) THAT INCLUDES PEDESTRIAN/CYCLE PATHWAYS AND NEW PUBLIC TOILETS. THESE POTENTIAL DEVELOPMENTS SHOULD BE CONSIDERED WHEN FUTURE UPGRADES ARE UNDERTAKEN BY THE CITY OF CAMPBELLTOWN NEAR THIS SECTION OF THE FOURTH CREEK TRAIL.
- 3 PROPOSED TRAIL CONNECTION TO GOLF COURSE. DEPENDING ON FOLIAGE REMOVAL, POTENTIAL TO HAVE 2-3M WIDE PATH BY INSTALLING A RETAINING WALL ON PROPERTY BOUNDARIES OR CREATING A BOARDWALK NEAR CREEK EDGE.
- 4 PROPOSED FORMALISED PEDESTRIAN CROSSING WITH SIGNAGE AND LINEWORK IN LOW TRAFFIC AREA.
- 5 PROPOSED 2M WIDE PATH ON OUTSIDE OF TREE LINE ALONG ROAD, WHICH THEN WIDENS TO 3M ON THE CREEK SIDE OF THE TREES.
- 6 RESIDENTS HAVE PROVIDED PLANTINGS WITHIN THE CREEK RESERVE ALONG THIS SECTION.
- 7 PROPOSED BRIDGE TO HELP NAVIGATE TO PREFERRED TRAIL ON WEST SIDE.
- 8 PROPOSED RECREATIONAL OPPORTUNITY ALONG VERY OPEN RESERVE SECTION, POTENTIAL TO ALSO IMPROVE VEGETATION AND INCREASE BIODIVERSITY VALUE.
- 9 PROPOSED 3M WIDE PATH. SMALL RETAINING WALL REQUIRED THROUGH SOME PATH SECTIONS.

- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
 - EXISTING GRAVEL PATH
 - EXISTING GOAT TRACK
 - EXISTING PATH TO BE UPGRADED
 - PROPOSED NEW PATH
 - EXISTING MAINTENANCE TRACK
 - DENSE EXISTING VEGETATION
 - PROPOSED IMPROVEMENT TO BIODIVERSITY
 - EXISTING BRIDGE
 - PROPOSED NEW BRIDGE
 - EXISTING DESIGNATED PEDESTRIAN CROSSING
 - PROPOSED FORMAL PEDESTRIAN CROSSING
 - EXISTING BENCH SEAT
 - PROPOSED BENCH SEAT LOCATION
 - EXISTING PICNIC TABLE
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REFER TO MP05 FOR CONTINUATION

FOURTH CREEK TRAIL - MAP 1 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN



REFER TO MP04 FOR CONTINUATION



- 1 PROPOSED SUITABLE TRANSITION BETWEEN PATH AND ROAD BY REGRADING PATH TO A SUITABLE SLOPE.
- 2 PROPOSED WIDENING OF PATH IN THIS SECTION.
- 3 HEAVY CREEK BED EROSION. MAINTENANCE REQUIRED, POTENTIALLY EXTEND SCOUR PROTECTION WITH ENGINEERING ADVICE.
- 4 PROPOSED REORIENTATION OF PRAM RAMP TO IMPROVE ACCESS.
- 5 EXISTING PAVED PATHS IN GOOD CONDITION.
- 6 PROPOSED UPGRADE OF EXISTING PATH TO PROPERTY BOUNDARY WITH RETAINING STRUCTURE TO INCREASE WIDTH TO MIN. 1.2M.

- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
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REFER TO MP06 FOR CONTINUATION

FOURTH CREEK TRAIL - MAP 2 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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0 10 20 40 60 80 100m
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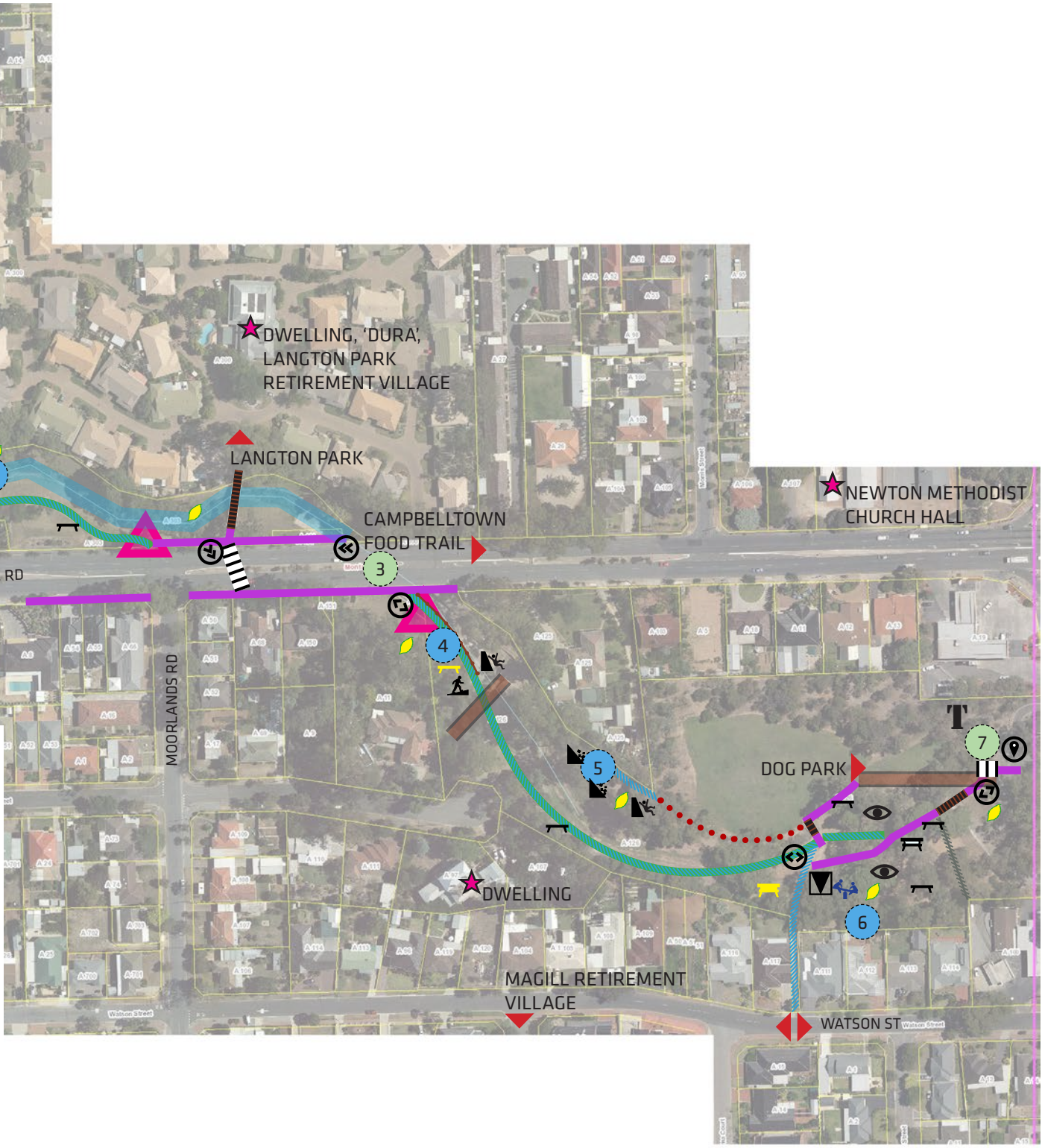
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REFER TO MP05 FOR CONTINUATION



- 1 PROPOSED RETAINING ON CREEK SIDE TO WIDEN PATH TO AT LEAST 1.2M TO COUNTER STEEP GRADE.
- 2 PROPOSED WIDENING OF PATH IF FOLIAGE AND TREES ARE TRIMMED BACK.
- 3 CROSSING NOT POSSIBLE AT THIS POINT, THUS PEDESTRIANS MUST BE DIRECTED TO ROAD CROSSING NEAR BUS STOP, 30M AWAY.
- 4 PROPOSED WIDENING OF PATH IN THIS AREA BY INSTALLING A BOARDWALK STRUCTURE TO PROVIDE BETTER ACCESS TO MONTACUTE ROAD. REFER TO ARTIST IMPRESSION 1.
- 5 EROSION ISSUES AT PROPERTY BOUNDARY AS A RESULT OF RUBBISH/ DEAD VEGETATION BUILD UP, AND LACK OF BANK STABILITY. REVETMENT WALL (EROSION CONTROL) MAY BE REQUIRED.
- 6 PROPOSED UPGRADE TO PLAYGROUND AND ADDITION OF BBQ/PICNIC FACILITIES TO DRAW MORE ACTIVITY INTO PARK.
- 7 EXISTING DESIGNATED PEDESTRIAN CROSSING IN CARPARK.

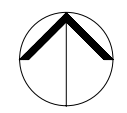


- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
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REFER TO MP07 FOR CONTINUATION

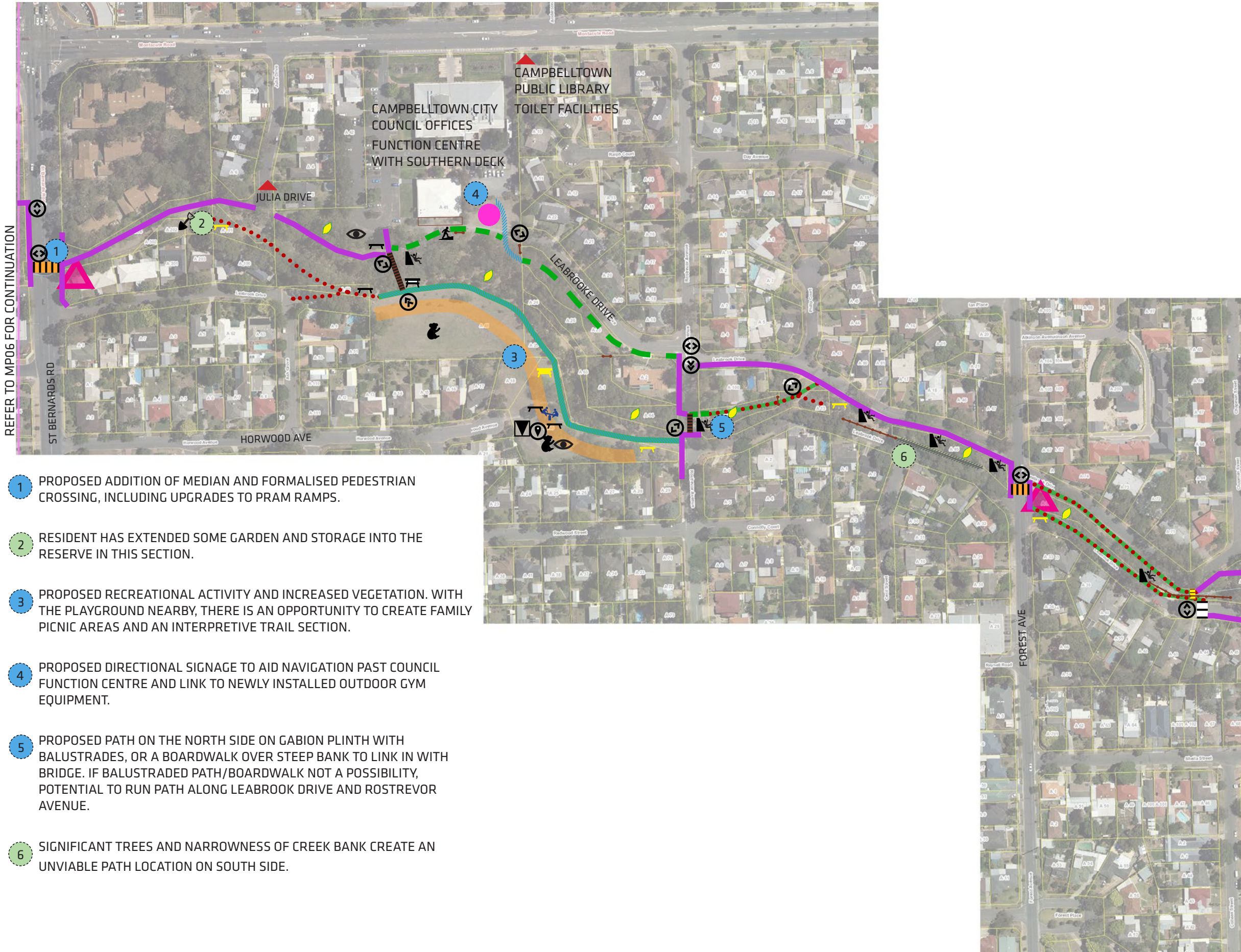
FOURTH CREEK TRAIL - MAP 3 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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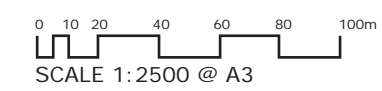
- 1 PROPOSED ADDITION OF MEDIAN AND FORMALISED PEDESTRIAN CROSSING, INCLUDING UPGRADES TO PRAM RAMP.
- 2 RESIDENT HAS EXTENDED SOME GARDEN AND STORAGE INTO THE RESERVE IN THIS SECTION.
- 3 PROPOSED RECREATIONAL ACTIVITY AND INCREASED VEGETATION. WITH THE PLAYGROUND NEARBY, THERE IS AN OPPORTUNITY TO CREATE FAMILY PICNIC AREAS AND AN INTERPRETIVE TRAIL SECTION.
- 4 PROPOSED DIRECTIONAL SIGNAGE TO AID NAVIGATION PAST COUNCIL FUNCTION CENTRE AND LINK TO NEWLY INSTALLED OUTDOOR GYM EQUIPMENT.
- 5 PROPOSED PATH ON THE NORTH SIDE ON GABION PLINTH WITH BALUSTRADES, OR A BOARDWALK OVER STEEP BANK TO LINK IN WITH BRIDGE. IF BALUSTRADED PATH/BOARDWALK NOT A POSSIBILITY, POTENTIAL TO RUN PATH ALONG LEABROOK DRIVE AND ROSTREVOR AVENUE.
- 6 SIGNIFICANT TREES AND NARROWNESS OF CREEK BANK CREATE AN UNVIALE PATH LOCATION ON SOUTH SIDE.

- LEGEND**
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 - PROPOSED WARNING SIGNAGE
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 - PROPOSED AMENDMENTS

REFER TO MP08 FOR CONTINUATION

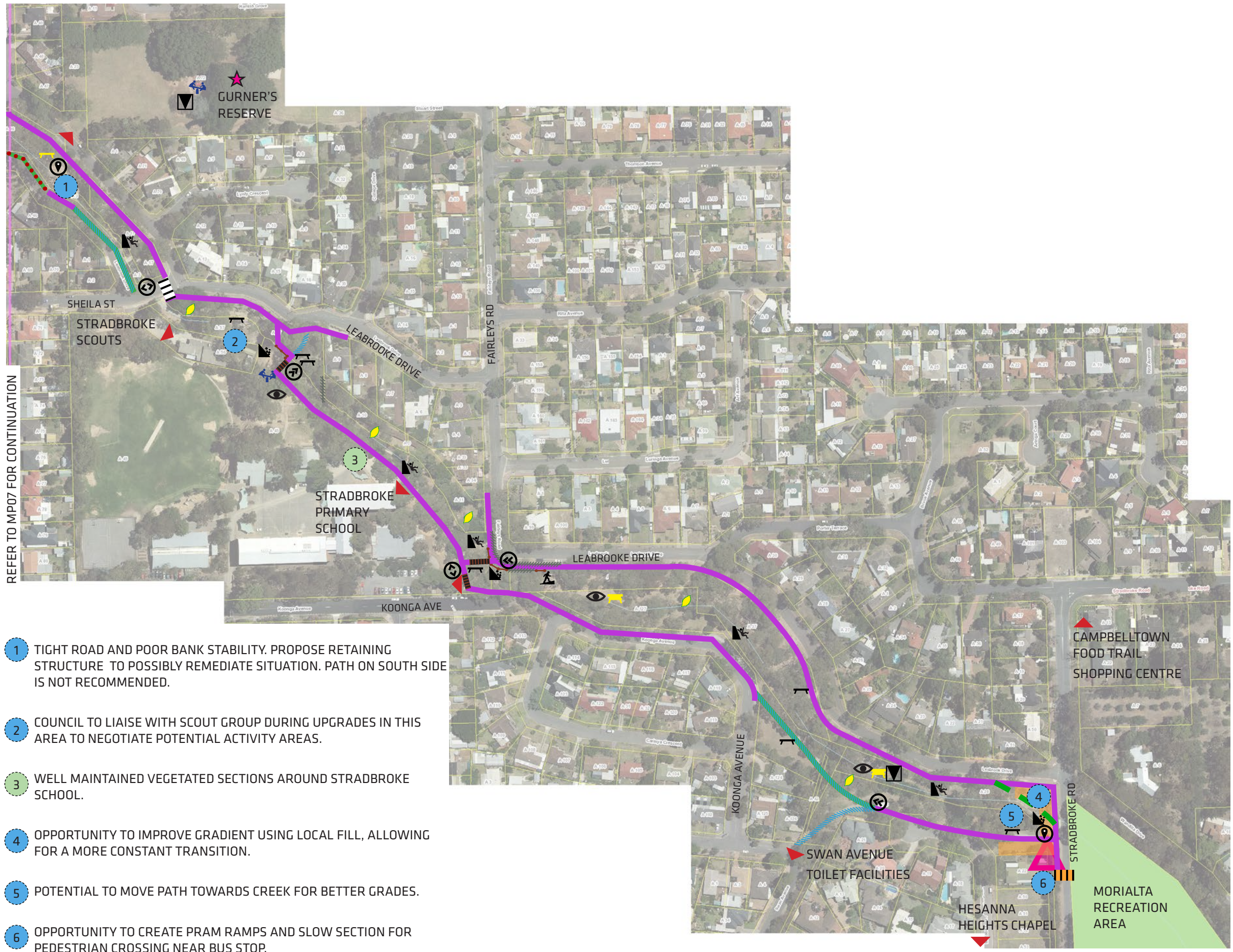
FOURTH CREEK TRAIL - MAP 4 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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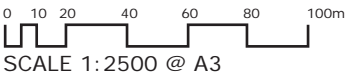
REFER TO MP07 FOR CONTINUATION

- 1 TIGHT ROAD AND POOR BANK STABILITY. PROPOSE RETAINING STRUCTURE TO POSSIBLY REMEDIATE SITUATION. PATH ON SOUTH SIDE IS NOT RECOMMENDED.
- 2 COUNCIL TO LIAISE WITH SCOUT GROUP DURING UPGRADES IN THIS AREA TO NEGOTIATE POTENTIAL ACTIVITY AREAS.
- 3 WELL MAINTAINED VEGETATED SECTIONS AROUND STRADBROKE SCHOOL.
- 4 OPPORTUNITY TO IMPROVE GRADIENT USING LOCAL FILL, ALLOWING FOR A MORE CONSTANT TRANSITION.
- 5 POTENTIAL TO MOVE PATH TOWARDS CREEK FOR BETTER GRADES.
- 6 OPPORTUNITY TO CREATE PRAM RAMP AND SLOW SECTION FOR PEDESTRIAN CROSSING NEAR BUS STOP.

- LEGEND**
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 - EXISTING PAVED PATH
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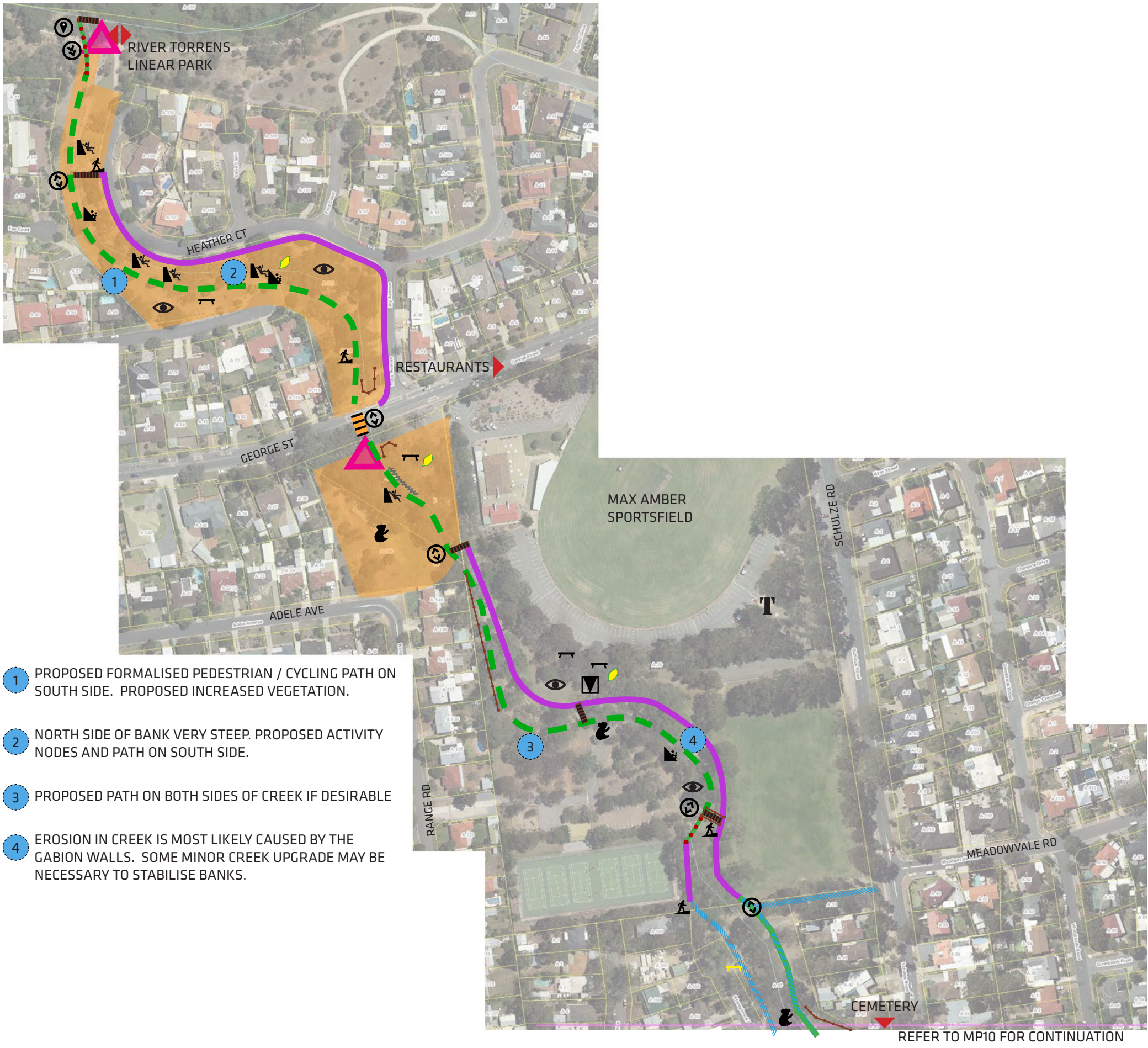
FOURTH CREEK TRAIL - MAP 5
CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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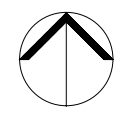
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- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
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FIFTH CREEK TRAIL - MAP 1 CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN







































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-
- THORNDON PARK RESERVE AND CAMPBELLTOWN FOOD TRAIL
- RESTAURANTS & SHOPPING CENTRE
- MANRESA DWELLING
- NEW HOUSING DEVELOPMENT SITE
- LOCAL HERITAGE - WILDFLOWER GARDEN
- ST IGNATIUS' COLLEGE
- MANRESA CT
- MARYVALE RD
- 1
- 2
- 3
- 4
- 5
- 6

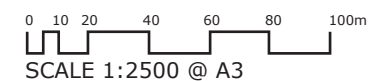
LEGEND

-  AREA WITHIN MAGILL VILLAGE MASTER PLAN
-  LAND CURRENTLY UNDER SCHOOL OWNERSHIP
-  EXISTING PAVED PATH
-  EXISTING GRAVEL PATH
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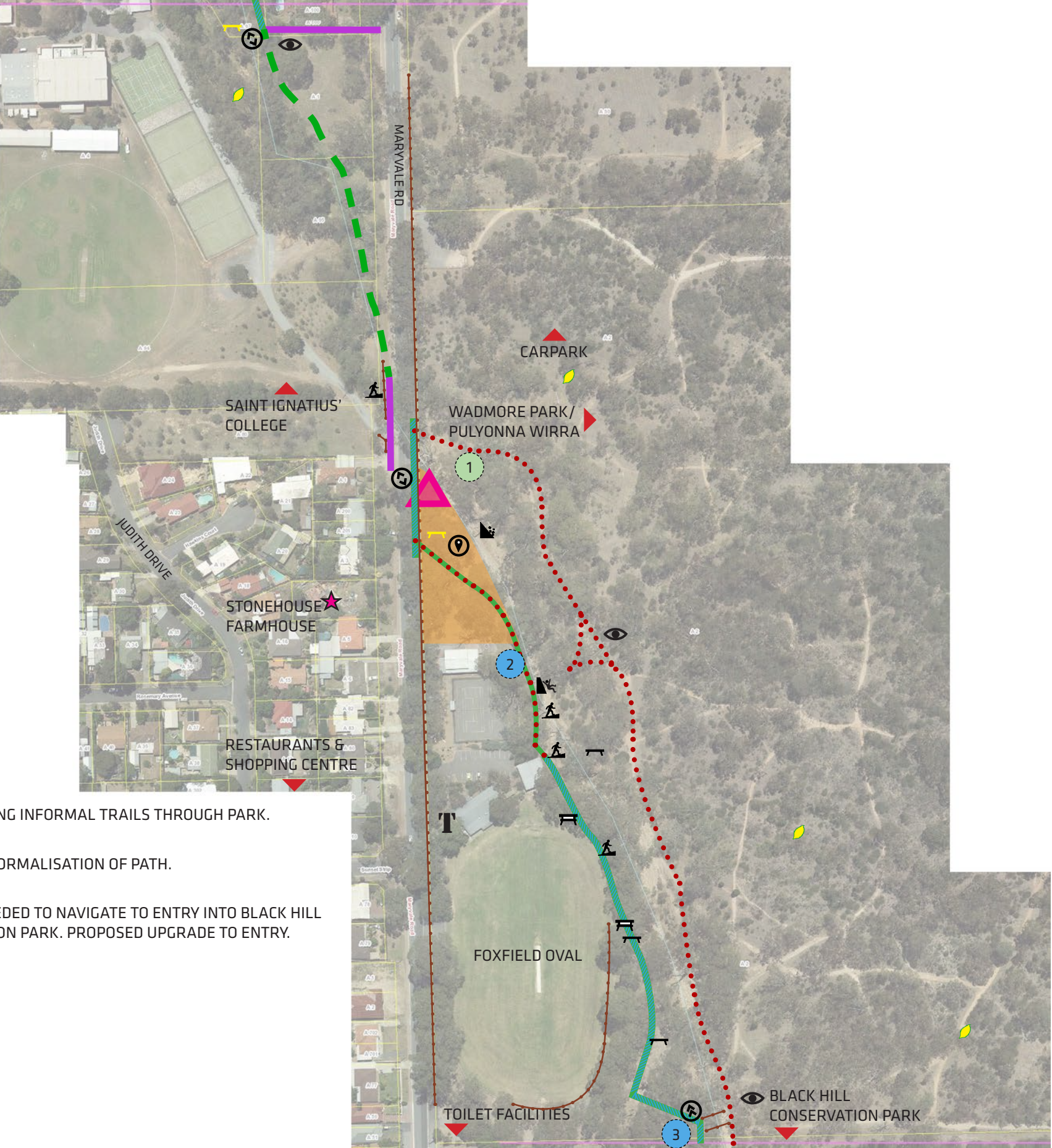
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REFER TO MP10 FOR CONTINUATION

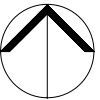
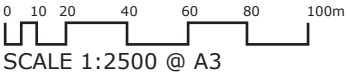


- 1 GOOD EXISTING INFORMAL TRAILS THROUGH PARK.
- 2 PROPOSED FORMALISATION OF PATH.
- 3 SIGNAGE NEEDED TO NAVIGATE TO ENTRY INTO BLACK HILL CONSERVATION PARK. PROPOSED UPGRADE TO ENTRY.

- LEGEND**
- AREA WITHIN MAGILL VILLAGE MASTER PLAN
 - LAND CURRENTLY UNDER SCHOOL OWNERSHIP
 - EXISTING PAVED PATH
 - EXISTING GRAVEL PATH
 - EXISTING GOAT TRACK
 - EXISTING PATH TO BE UPGRADED
 - PROPOSED NEW PATH
 - EXISTING MAINTENANCE TRACK
 - DENSE EXISTING VEGETATION
 - PROPOSED IMPROVEMENT TO BIODIVERSITY
 - EXISTING BRIDGE
 - PROPOSED NEW BRIDGE
 - EXISTING DESIGNATED PEDESTRIAN CROSSING
 - PROPOSED FORMAL PEDESTRIAN CROSSING
 - EXISTING BENCH SEAT
 - PROPOSED BENCH SEAT LOCATION
 - EXISTING PICNIC TABLE
 - PROPOSED PICNIC TABLE LOCATION
 - EXISTING BALUSTRADES
 - EXISTING FENCING
 - EXISTING GYM EQUIPMENT
 - CONNECTION TO NEARBY ACTIVITIES
 - STEEP GRADE ON EXISTING PATH (Med. 10-16%)
 - STEEP GRADE ON BANKS (Med. 45-60%)
 - EROSION ISSUES
 - EXISTING PLAYGROUND
 - GOOD VIEW POINT
 - CURRENT UPGRADE AREAS - BANK STABILISATION AND REVEGETATION
 - PROPOSED NEW ACTIVITY AREA
 - ITEM OF HERITAGE SIGNIFICANCE
 - RESIDENT TREATMENT ON RESERVE AREA
 - PROPOSED DRINK FOUNTAIN LOCATION
 - EXISTING TOILET FACILITIES
 - PROPOSED TOILET FACILITIES
 - PROPOSED DIRECTIONAL SIGNAGE
 - PROPOSED DESTINATION SIGNAGE
 - PROPOSED WARNING SIGNAGE
 - KEY NODAL POINT
 - EXISTING CONDITIONS TO BE CONSIDERED
 - PROPOSED AMENDMENTS

FIFTH CREEK TRAIL - MAP 3
CAMPBELLTOWN CHAIN OF TRAILS MASTER PLAN

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