



Darebin Creek Management Plan



Prepared by

Thompson Berrill Landscape Design Pty Ltd

June 2007 – Updated January 2017

Table of contents

	Page #
1.0 INTRODUCTION	1
1.1 Project scope	1
1.2 Project methodology	1
2.0 BACKGROUND INFORMATION	2
2.1 Relevant regional and strategies	2
2.2 Geology / geomorphology	8
2.3 Community consultation outcomes	8
2.4 Management responsibilities along Darebin Creek corridor	9
3.0 OVERALL ISSUES AND RECOMMENDATIONS	12
3.1 Adjoining land use	12
3.2 Community use and recreation	13
3.3 Environment	18
3.4 Cultural heritage	20
4.0 REACH ISSUES AND RECOMMENDATIONS	22
4.1 Reach 1 Grants Road to Lehmanns Road	22
4.2 Reach 2 Lehmanns Road to Railway reserve	29
4.3 Reach 3 Railway reserve to Metropolitan Ring Road	37
4.4 Reach 4 Metropolitan Ring Road to Plenty Road	45
4.5 Reach 5 Plenty Road to Bell Street	52
4.6 Reach 6 Bell Street to Yarra River	60
REFERENCES	68
APPENDICES	
A Community Consultation Summary Report	
INDEX OF DRAWINGS	
DCM-01 Reach 1 Grants Road to Lehmanns Road, Updated January 2017	
DCM-02 Reach 2 Lehmanns Road to Railway Reserve, Updated January 2017	
DCM-03 Reach 3 Railway reserve to Metropolitan Ring Road, Updated January 2017	
DCM-04 Reach 4 Metropolitan Ring Road to Plenty Road, Updated January 2017	
DCM-05 Reach 5 Plenty Road to Bell Street, Updated January 2017	
DCM-06 Reach 6 Bell Street to Yarra River, Updated January 2017	

1. Introduction

1.1 Project scope

The project study area includes the length of the main stem of Darebin Creek from its source in Woodstock to the confluence with the Yarra River along with consideration of the major tributaries. The intent of this Plan is to replace the outdated Lower Darebin Creek Concept Plan (1994) and Middle Darebin Creek Concept Plan (1996).

The project brief called for the plan to be a strategic guiding document addressing the following issues:

- long term protection and restoration of the Darebin Creek and its immediate surrounds
- waterway corridor interface issues, including implementation of Council Stormwater Management Plans (SWMP)
- open space design and management, including the hierarchy of visitor points along the corridor
- protection and improvement of landscape character and condition of the open space
- opportunities for education and community involvement
- planning and development issues and the impact these have on the creek corridor including developing a set of key principles for these.

The project will rely on existing available research material to inform the plan and it is recognised that there is no scope for broader involvement by a multi-disciplinary team to undertake original research and review for this plan.

1.2 Project methodology

The project is prepared for the Darebin Creek Management Committee and has a Project Steering Committee that meets on four occasions during the project to guide the Plan's development. The Project Steering Committee is made up of representatives from the City of Whittlesea, City of Darebin, City of Banyule, City of Yarra, Melbourne Water, Latrobe University, Friends of Darebin Creek, the Darebin Parkland Association and the Darebin Creek Management Committee. There are six phases to the project as follows:

1. Site Assessment and Research Phase
2. Consultation and the Research Phase, which includes an Information Leaflet Questionnaire. This was copied and distributed by the Darebin Creek Coordinating Committee. The results of the questionnaire were summarised and the key issues incorporated into the Issues Paper.
3. Issues Phase, which includes identifying the main issues to be addressed in this Management Plan.
4. Draft Management Plan that will include recommendations for the issues identified in Phase 3.
5. Community Consultation on the Draft Management Plan.
6. Final Management Plan, incorporating comments from the Community Consultation Phase 5 into the Final Plan.

This report has been updated in January 2017 to incorporate the changes that the Committee has identified since the preparation of this Management Plan in June 2007.

2. Background information

2.1 Relevant regional and local strategies

2.1.1 Regional strategies and policies

Healthy Waterways Strategy, 2013

Melbourne Water

The Healthy Waterways Strategy (HWS) will guide Melbourne Water's investment in waterways, wetlands and estuaries from 2013/14 to 2017/18 and will replace the Regional River Health Strategy and Addendum. The HWS identifies priority areas and management actions to improve waterway health from 2013 through to 2018 and sets out targets to measure the effectiveness of these actions. The HWS recognises that Melbourne Water is one of the many organisations, community groups and individuals working to care for the waterways, and this document identifies actions that Melbourne Water has primary responsibility for. The management activities aim to balance the environmental, social and economic values and address both short and long-term issues.

A key change between the HWS and the RRHS is that Melbourne Water has included Amenity as one of the key seven values that Melbourne Water actions aim to support. The key values are:

- Macroinvertebrates
- Fish
- Platypus
- Frogs
- Vegetation
- Birds
- Amenity

For the Darebin Creek specifically, the Healthy Waterways Strategy identifies the following for the rural reach:

- The management objective for the rural reach is to improve amenity.
- The future management vision for the rural reach is that by 2030 stock will be excluded from the streamside areas, revegetation and weed management programs will have been implemented and removal of fish barriers in the lower Yarra River catchment and on Darebin Creek will have improved fish passage.
- Eight of the expected 15 frog species have been recorded in the rural reach including the Growling Grass Frog, and one of the expected 32 fish. Insufficient bird surveys have been undertaken at a management unit scale to include any results for this in the strategy.

For the urban reaches of the Darebin Creek, the Healthy Waterways Strategy identifies the following:

- The management objective for the urban reach is to maintain and improve amenity including priority areas for amenity being identified in the locations around Bundoora Park and La Trobe University in the Cities of Darebin and Banyule.
- The future management vision for the urban reach is that in 2030 fish barriers will have been removed in both the lower Yarra River catchment and on Darebin Creek

and supporting an urban tolerant community of native fish including several Galaxias species, Short-finned Eel and Flat-headed Gudgeon.

- 13 of the expected 15 frog species have been recorded in this reach with endangered and vulnerable species including the Bribons Toadlet, Growling Grass Frog and Southern Toadlet present.
- Nine of the expected 32 fish species are present, three of which are native.
- 46 of the expected 113 streamside birds have been recorded.

Plan Melbourne Metropolitan Planning Strategy

Victorian Government, May 2014

Plan Melbourne replaces Melbourne 2030 as the Victorian Government's metropolitan strategy. The Metropolitan urban growth boundary has been defined in this strategy and encompasses the majority of the main stem of Darebin Creek. The creek is located within the Northern Subregion in Plan Melbourne in which there is forecast to be significant population growth, employment growth and major infrastructure projects. The North Growth Corridor Plan prepared by the Metropolitan Planning Authority articulates the extent of change and growth in the Darebin Creek catchment.

Relevant to the Darebin Creek, Plan Melbourne recognises the importance of open space, natural features and biodiversity conservation to the liveability and character of Melbourne. It notes that '*As the city grows, it will be important to maintain the health of urban waterways and enhance our biodiversity values....*' (page 123, Plan Melbourne). The Plan notes that open space waterway corridors will be protected from inappropriate development.

Linking People and Spaces, 2002

Parks Victoria, 2002

This strategy was prepared by Parks Victoria in parallel with the Melbourne 2030. This report outlines a strategy and vision for the continued growth and improvement of Melbourne's open space network. Although the Linking People and Spaces is primarily focused on meeting the recreational needs of the community, it also supports many of the environmental priorities identified in Victoria's Biodiversity Strategy. Within this strategy the Darebin Creek Shared Trail is identified as part of the Metropolitan Trail Network with a high priority given to closing the gaps in the lower sections of the trail between John Cain Memorial Park to the Main Yarra Trail at Willsmere Park. Extending the Darebin Creek Trail north from Bundoora Park to the Metropolitan Ring Road is a medium priority, with closing the gap from the Metropolitan Ring Road to the existing trail at Mill Park being a longer-term priority.

Northern Regional Trails Strategy 2016

Arup Pty Ltd, 2016

Melbourne's north is undergoing significant population growth and change combined with an economic shift from a traditional manufacturing based economy. The seven municipalities in Melbourne's north have developed this strategy to set an appropriate direction and priorities for shared trails in the region in the context of this growth and change. In summary, the Strategy identifies 96 new trails to expand the network of 120 off-road existing regional trails, 29 of which have been identified as priority projects. The Strategy has been fully endorsed by all seven Councils.

Biodiversity Conservation Strategy for Melbourne's Growth Corridors

Victorian Government, 2013.

This Strategy has been prepared based on the Melbourne Strategic Assessment which evaluated the impacts of the State Government's program *Delivering Melbourne's newest sustainable communities* on matters of National environmental significance. The Strategy informed the preparation of the Growth Area Framework Plans, providing high level guidance on how the areas of biodiversity will be managed and spatially identify how the outcomes will be delivered. This includes identifying land within the growth corridors that is required to be protected due to the sub-regional species strategies and prescriptions for matters of national environmental significance. Below is a summary of key points relevant to the Darebin Creek catchment:

- Growling Grass Frog Conservation Corridor along Darebin Creek. These areas will be protected and managed primarily for the Growing Grass Frog in accordance with the requirements of the Sub-regional Species Strategy for the Growling Grass Frog. The corridors will also include areas managed for floodplain and stormwater infrastructure and areas of open space for passive recreation.
- The future Grassy Eucalypt Woodland Reserve (at least 1200 hectares) outside the urban growth corridor in the Woodstock/Wollert area, extends over Darebin Creek between Lehmanns Road in the south and Donnybrook Road in the north.

2.1.2 Local strategies

Epping North East Local Structure Plan

City of Whittlesea, 2005

This plan sets broad directions for urban development within the Epping North area covering issues such as the pattern of urban development, a neighbourhood based approach to more detailed local structure planning, open space, provision of a broad transport network, protection of environmental features, servicing and provision for community, commercial and recreational facilities. Findon Creek a main tributary to Darebin Creek which flows through the eastern section of Epping North East Local Structure Plan area.

Whittlesea Rural Review

City of Whittlesea, 1999

This document is an assessment of the rural land at the City of Whittlesea and contains background information on geology, soils, cultural heritage, land management practices etc. This has informed the existing conditions section of the report for the rural reach.

Whittlesea Green Wedge Management Plan, 2011-2021

City of Whittlesea (2011)

The City of Whittlesea Green Wedge area forms part of the broader network of green wedges around Melbourne and they define Melbourne's outward growth. In Whittlesea the Green Wedge contains the rural communities of Eden Park, Kinglake West, Woodstock (part) and Yan Yean. Almost half the Green Wedge Area is public land used for closed water catchments, national parks and state forests. This Management Plan identifies a vision, objectives and actions for the sustainable management of the Green Wedge area. It identifies the values and features of the green wedge, the areas that should be protected and maintained and the current issues and proposed opportunities for action.

Draft Darebin Natural Heritage Strategy 2015-2025

Darebin City Council, 2015

This strategy articulates Council's vision and identifies a range of activities to protect and enhance Darebin's natural heritage assets over the next 10 years. It relies on the research undertaken in 2011 which identified areas of significant natural heritage assets in the municipality. The Darebin Creek corridor contains sites of natural significance ranging from National Significance including Bundoora Park, CH Sullivan Park, the creek corridor between Banksia Street and John Cain Memorial Park. Darebin Parkland and the section of creek between Bundoora Park and Plenty Road are identified as being of State significance.

Darebin Council's bushland crew manage Darebin Creek as a natural heritage site in collaboration with DCMC and Friends Groups. This involves maintaining existing remnant indigenous vegetation via a combination of burning (in grassland areas), weeding and replanting activities as well as maintaining, mapping and recording changes over time.

The term Natural Heritage refers to the complex interaction of ecological and anthropological forces that give rise the rich biodiversity, landscapes and activities prior to their interruption by the arrival of European settlement. The natural heritage significance is determined by the degree to which these forces and interactions are able to continue today and in the future.

Darebin Creek Planning and Development Guidelines

David Lock & Associates, 2000

These Guidelines were prepared for the City of Darebin and is an Incorporated Document in the Darebin Planning Scheme. Future development proposals along the Darebin Creek in the City of Darebin area need to demonstrate consistency with these guidelines.

Darebin Creek Northland Ecological Improvement Study

Darebin City Council, prepared by AECOM

The aim of this study was to assess and make recommendations to improve the ecological health of Darebin Creek adjacent to Northland Principal Activity Centre precinct in Reservoir. This area extends from Tyler Street in the north to Gower Street in the south. Key findings include creating an active interface between Darebin Creek and the Northland Shopping Centre as part of the future Entertainment Precinct to be established as part of the structure plan. The recommendations included preparing a master plan for the interface between the creek and adjoining land use through the structure plan study area. The study promotes incorporating relevant planning policies and frameworks to encourage non structural WSUD elements and investigate optional measures to secure future funding for these works as development occurs.

2.1.3 Precinct Structure Plans

The following precinct structure plans are listed in alphabetical order.

Donnybrook/Woodstock Precinct Structure Plan, November 2015

This Plan was prepared by the Victorian Planning Authority and with assistance from the City of Whittlesea, Shire of Mitchell, Government departments and agencies, service authorities and major stakeholders. It is a long-term plan for urban development and

describes how the land is expected to be developed. The area is bounded by the reservation for the future E6 to the north, Merriang Road to the east, the Sydney-Melbourne railway line to the west and Donnybrook Road to the South. Key objectives relevant to the Darebin Creek include:

- Plan sensitive urban interfaces to Darebin Creek.
- Retain, protect and enhance the environs of Darebin Creek.
- Create high-quality habitat for the Growling Grass Frog along the Darebin Creek corridor and support other environmental habitat values.
- Plan for the long-term conservation and enhancement of areas for biodiversity (this includes the large conservation area associated with Merri Creek to the north of the Darebin Creek catchment).
- Create accessible high-amenity landscape corridors along Darebin Creek.
- Deliver an integrated water management system.

Epping Central Structure Plan

Epping Central is the Principal Activity Centre for Whittlesea and serves a regional role in the provision of retail, health facilities and other services. It is strategically located between the southern established areas of Thomastown, Lalor, Epping, Bundoora and Mill Park and the growth areas in the High Street – Epping Road corridor to the north, particularly Epping North and Wollert.

Significant growth is planned within the centre including 2,000 to 4,500 new dwellings, 40,000 to 80,000 square metres of office floor space and up to 113,000 square metres of new retail floor space.

Darebin Creek provides a valuable open space corridor for the local community, however improvements to open space quality and connectivity are required.

The vision plan included in the Structure Plan highlights some open space and public realm improvements relevant to Darebin Creek include:

- Improve the Darebin Creek linear parkland to become a 'revitalised' open space providing a green link between Epping Central and the surrounding region.

Epping North East Precinct Structure Plan #33

This PSP is completed and approved and is located entirely within the City of Whittlesea, between Harvest Home Road in the south and Craigieburn East in the north. The boundary extends both east and west to join the boundary with the Aurora Development area. There are 450 hectares of residential land and longer terms there will be around 4,980 dwellings (as per DCP).

Key open space features in this PSP area relevant to Darebin Creek include:

- Linear open space corridor along Findon Creek, primarily set aside for flood and drainage purposes with wetland/retarding basin features directly adjoining it. Findon Creek flows generally in the north south direction through the eastern portion of the precinct in proximity to Bindts Road.
- 17 Conservation open space reserves, set aside to protect Stonk Knolls, Native Grasslands and River Red Gums.
- 3 Passive open spaces, co-located with conservation reserves and Findon Creek.

Harvest Home Local Structure Plan

Prepared in 2002, a large proportion of this LSP has been built. Harvest Home Road defines the LSP to the north, the Transmission Easement to the south and Epping Road

to the west. Findon Creek and an upper reach of Darebin Creek flow through the area. A commercial/community facility is located centrally in the LSP area on the east side of Findon Creek, with the balance proposed as residential land use.

Key features relevant to the open space network relevant to Darebin Creek include:

- Findon Creek and Darebin Creek form drainage and environmental corridors through the site and a linear open space function.

Quarry Hills Precinct Structure Plan, June 2016

This Plan was prepared by the City of Whittlesea in collaboration with the Victorian Planning Authority and with assistance from Government agencies, service authorities and major stakeholders. It is a long term plan for urban development and describes how the land is expected to be developed. The area is bounded by the reservation for the future E6 to the west, Lehmanns Road to the north, Quarry Hills to the east and the transmission easement to the south. Key objectives relevant to the Darebin Creek include:

- Ensures development protects and enhances the historical, landscape and environmental characteristics of the site including the hills and ridgelines associated with Quarry Hills and the Darebin Creek Environs.
- Protect and create high quality habitat for the Growling Grass Frog within the Darebin Creek corridor.
- Protect and enhance interfaces with Darebin Creek.
- Deliver an integrated water management system.

South Morang Local Structure Plan

Adopted by the City of Whittlesea in February 1997, this LSP is one of the oldest applicable in the municipality. The boundary of this LSP extends west to the current western extent of Quarry Hills Regional Parkland, east to Plenty Gorge Park, south to Gorge Road, and then generally following transmission easements and Findon Road to the south. South Morang and Mernda are the major growth areas in the Plenty Valley Growth Area.

The majority of the area within the South Morang LSP have been developed, with small pockets of development still occurring. There have been numerous land owners and Development Plans prepared and approved guiding the delivery of the on-ground works. The residential area within the LSP was proposed to accommodate a population of between 20,000 to 25,000 hectares (7,600 dwellings), along with an employment area of approximately 40 hectares. Key open space features relevant to Darebin Creek included:

- Linear open space following watercourses, ridgelines, transmission easements and Melbourne Water pipe tracks.
- Hendersons Creek including water quality treatment wetlands and linear open space system along the waterway.

Wollert Precinct Structure Plan, April 2015 Exhibition

This Plan was prepared by the City of Whittlesea and the Victorian Planning Authority with the assistance from Government agencies, service authorities and major stakeholders. It is a long term plan for urban development and describes how the land is expected to be developed. The total area is 1,434 hectares of land bounded by Craigieburn Road East in the south, Summerhill Road in the north, Curley Sedge Creek in the west and the reservation for the future E6 to the east. Key objectives relevant to the Darebin Creek catchment include:

- Create high-amenity indigenous landscape corridor along Findon Creek.

- Maximise the retention of scattered River Red Gums and other remnant indigenous trees through responsive subdivision design.
- Orientate development towards open spaces to maximise their activation and passive surveillance.
- Plan sensitive urban interfaces to historic and Aboriginal cultural heritage and natural assets including the local conservation reserves and the future Grassy Eucalypt Woodland Reserve that directly abuts the northern extent of this PSP.
- Create a range of off-street pedestrian and cycle links that promote the use of waterways as green transport links.
- To deliver an integrated water management.

2.2 Geology/geomorphology

The headwaters of the Darebin Creek rise in the Lower Devonian sediments north of Woodstock and through the Quaternary Newer Basalt to the area east of Wollert (Melbourne Parks and Waterways, 1994). The Creek drains the volcanic plains to the north of Melbourne cutting down through the Quaternary basalt plains changing from a relatively shallow valley form in the north to a deeply incised valley and gorge landform in the south.

In the upper reaches the creek is diverted by Silurian sediments around Quarry Hills and these are visible in the valley downstream of Bridge Inn Road. In the lower reaches from Darebin Parklands and Rockbeare Park the basalt plain ends and the creek valley is bordered by Silurian sedimentary terrain which is visible as rock escarpments along the creek in Darebin Parklands and near Napier Waller Reserve. The majority of the Darebin Creek in the urban sections of the catchment has been modified and is contained in a trapezoidal earth-lined channel. The stream returns to the natural channel in the vicinity of Darebin Road in Thornbury. (Melbourne Water, 2000 and Melbourne Parks and Waterways, 1994).

2.3 Community Consultation Outcomes

An Information Leaflet with attached questionnaire was prepared for the project and distributed by the Darebin Creek Management Committee. A total of 96 completed questionnaires were returned, with 5 separate questionnaires from the rural landholders returned. The following is a summary of the Information Leaflet questionnaire outcomes, with a more detailed report on these attached as **Appendix A**.

- The majority of questionnaires were received from residents in the lower reaches of the catchment including Ivanhoe, Alphington, Heidelberg West and Bundoora.
- The majority of respondents are in the 40 to 54 age range and 49% male and 49% females responding, and 2% not answered.
- The most popular section of the open space corridor is from Bell Street to the Railway, Darebin Parklands and Plenty Road to Bell Street section. These areas are the closest to where the majority of respondents live.
- The main activities in the creek reserves are walking and cycling. Darebin Parklands has a more diverse range of activities including dog walking, enjoying nature, BBQ's, picnics, meeting friends and attending events. This reflects the larger size of Darebin Parklands and the provision of a diverse range of passive recreation facilities.
- 86% of respondents value the bushland character, followed by the native fauna, exercise, the creek, break from the urban environment, indigenous vegetation and the views.

- The main issues the respondents nominate they would like addressed are:
 - litter and pollution in the creek including improving water quality;
 - restricting motorbikes on the shared trail;
 - weed management;
 - the gap in the trail connection to the Yarra River
 - shopping trolleys in the waterway
 - development is too close to the open space corridor

2.4 Management responsibilities along Darebin Creek corridor

The following table briefly outlines management responsibilities for the different agencies and land owners along the Darebin Creek. These are listed in alphabetical order.

AGENCY/LAND OWNER	MANAGEMENT RESPONSIBILITIES
City of Banyule	<ul style="list-style-type: none"> • Council own the majority of the public open space along the creek and are responsible for the provision and ongoing maintenance of the land and the infrastructure assets associated with it. • Banyule has a bushland crew that undertake vegetation management including revegetation and maintenance works in the open space corridor along the Creek. • On Melbourne Water land along the waterway, Council are responsible for the provision and maintenance of recreational assets. • Jointly fund the Darebin Creek Management Committee.
City of Darebin	<ul style="list-style-type: none"> • Council own the majority of the public open space along the creek and are responsible for the provision and ongoing maintenance of the land and the infrastructure assets associated with it. • Darebin has a bushland crew that undertake vegetation management including revegetation and maintenance works in the open space corridor along the Creek. • On Melbourne Water land along the waterway, Council are responsible for the provision and maintenance of recreational assets. • Jointly fund the Darebin Creek Management Committee. • Compliance and incentive programs for rural property owners in the Darebin Creek catchment including post plan compliance and rate rebate assessments.

AGENCY/LAND OWNER	MANAGEMENT RESPONSIBILITIES
City of Whittlesea	<ul style="list-style-type: none"> • Council own the majority of the public open space along the creek and are responsible for the provision and ongoing maintenance of the land and the infrastructure assets associated with this. • Whittlesea parks staff undertake revegetation and maintenance works in the open space reserves that adjoin the creek. Currently Council do not maintain the linear open space along the Darebin Creek and tributaries where no trails are located. In growth areas, Council only maintains creeks and waterways if there is a clear community benefit such as passive recreation. Maintenance obligations are detailed on a Melbourne Water Maintenance Agreement. • On Melbourne Water land along the waterway, Council are responsible for the provision and maintenance of recreational assets. • Jointly fund the Darebin Creek Management Committee.
City of Yarra	<ul style="list-style-type: none"> • Council currently do not own or manage any land along the waterway corridor. • When the future Lower Darebin Creek trail is constructed downstream of Sparks Reserve to the Yarra River, Council will become the land owner and manager of the trail and the associated linear open space corridor. • Jointly fund the Darebin Creek Management Committee
Darebin Creek Management Committee	<p>The Committee is jointly funded by four Councils in the catchment and La Trobe University. The Committee is responsible for:</p> <ul style="list-style-type: none"> • Coordinating implementation of the former Concept Plans, and the new Darebin Creek Management Plan. • Facilitating actions between different Councils, with the actual on-ground works completed by the Council staff or contractors. • Dedicated staff who manage and implement works at Darebin Parklands. • Facilitating community involvement in works along the Creek. • Applying for funding to implement the recommendations in this Plan. • Commenting on planning proposals along the creek. • Undertakes a catchment wide Education Program.
La Trobe University	<p>La Trobe University is a major land holder adjoining the Darebin Creek downstream of Plenty Road. Their responsibilities include:</p> <ul style="list-style-type: none"> • Jointly fund the Darebin Creek Management Committee. • Directly manage the La Trobe University owned land which includes remnant woodland and constructed wetlands adjoining the waterway corridor.

AGENCY/LAND OWNER	MANAGEMENT RESPONSIBILITIES
Melbourne Water	<ul style="list-style-type: none"> • Melbourne Water is the drainage authority for the entire catchment area of Darebin Creek and manage the bed and banks of the waterway. The Darebin Creek Waterway Management Activity Plan is Melbourne Water's management document that guides capital and operational works along the urban reaches of the waterway.
Private land holders	<p>There are private land holders who own land adjoining both sides of the waterway in the rural areas to a lesser extent in the urban reaches. These land holders do not manage the land for public access, but are responsible under the <i>Catchment and Land Protection Act 1994 (CALP Act)</i> to:</p> <ul style="list-style-type: none"> • Manage noxious weeds and pest animals. • Land management practices to be consistent with the requirements of the <i>CALP Act 1994</i>.
Victorian Government	<p>The Victorian Government has a regional open space planning responsibility for the shared trail along the length of Darebin Creek. Responsibilities include:</p> <ul style="list-style-type: none"> • Jointly fund the construction of the shared trail and associated infrastructure. • Planning and design of the shared trail downstream of Darebin Parklands. • Purchase of land to facilitate the provision of the shared trail downstream of Sparks Reserve, Ivanhoe included in public acquisition overlays.

3. Overall issues and recommendations

The study area has been divided into 6 management reaches which are described in Section 4 of the Management Plan. There are some issues that are common to many or all of the reaches of the Darebin Creek, and these are described in this section. Further detailed description of the Overall issues as they occur in the specific reaches are described in Section 4.

3.1 Adjoining land use and landscape character

3.1.1 Adjoining land use

Rural land holders own the creek corridor upstream of the urban areas. Some current land management practices cause a decline to the waterway values.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.1.1.1	Rural land management practices including uncontrolled stock access to creek, on-stream dams and lack of indigenous vegetation and biodiversity limit the habitat values of the creek corridor	Whittlesea City Council and Melbourne Water to coordinate programs to support rural landholders in the Darebin Creek catchment to improve land management practices. This includes fencing stock access from the stream, providing off-stream stock watering points, weed control and revegetation of the riparian zone with appropriate indigenous vegetation.	WCC MW	High
3.1.1.2	Future urban development	<ul style="list-style-type: none"> Whittlesea City Council to continue to require improved interface treatment between development and the waterway, including requiring adequate development set back with sufficient space for protection of sites of cultural and environmental value, appropriate recreational infrastructure without impacting on the waterway values and development interface including orientation of development to the waterway corridor with road frontages to increase passive surveillance. This is consistent with the directions in the City of Whittlesea Open Space Strategy (2015). WCC to review adequacy of existing planning mechanisms to achieve protection of the cultural, environmental and recreational values of the waterway corridor in existing and future development areas. 	WCC VPA	Ongoing
3.1.1.3	Existing urban development	<p>In future planning applications for development adjacent to the Darebin Creek, demonstrate they meet the following:</p> <ul style="list-style-type: none"> Adequate set back of development from the creek to ensure there is a suitable width that can protect and improve ecological values, drainage and flood management and provide for 	WCC DCC YCC BCC	Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		<p>complementary recreational use of open space.</p> <ul style="list-style-type: none"> Where feasible, improve passive surveillance of the creek corridor to improve the sense of safety and increase accessibility and use of the public open space corridors along Darebin Creek. 		
3.1.1.4	Gaps in the continuous open space corridor along Darebin Creek and its tributaries in the established areas.	Investigate options to establish a continuous open space corridor along Darebin Creek through the established urban areas on both sides of the waterway. This includes investigation and clarification of land ownership through sections of the waterway where public land ownership is unclear.	WCC	Ongoing
3.1.1.5	Encroachment on public land including unauthorised occupancy and structures in the waterway corridor.	Identify the locations of encroachment and liaise with relevant land holders to remove unauthorised structures and features from the public open space corridor.	DCMC MW (WCC) (BCC) (DCC) (YCC)	Ongoing
3.1.1.6	Filling and modification of the floodplain in rural land.	MW and WCC to develop mechanisms to discourage and regulate major earthworks in the creek and floodplain to reduce impacts on the floodplain capacity, ecological values and waterway health objectives.	MW, WCC and Land-holders	Ongoing

3.1.2 Landscape character

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.1.2.1	Conflict between environmental character and values and the personal safety and recreational use of the waterway corridor.	In future revegetation of the urban sections of the waterway corridor, carefully consider the density, species selection and locations in close proximity to entry points, paths and bridge crossings to retain adequate sightlines for community safety.	WCC BCC DCC YCC MW	Ongoing

3.2 Community use and recreation

3.2.1 Gaps in the Darebin Creek Trail

Since the preparation of the previous Middle and Lower Darebin Creek Concept Plans (Melbourne Parks & Waterways, 1996), which have guided the management direction for Darebin Creek since the mid-1990's, the public land management agencies have constructed many new sections of the Darebin Creek Trail. The construction of the additional sections of trail, along with the broader trends towards participation in informal recreation, particularly walking and cycling, has increased the community use of this trail. The outcomes from the questionnaire distributed as part of this Management Plan project highlighted that one of the key issues is the gaps in the trail. These gaps include:

- downstream of Darebin Parklands to the Main Yarra Trail;

- between Livingstone Street/Darebin Road and Grange Road (which has been designed by Council and is to be constructed in 2006/07 financial year); and
- between Rathcoun Road (adjacent to Bundoora Park) in Reservoir and Norris Bank Reserve in Thomastown.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.1.1	Gaps in the Darebin Creek Trail	<ul style="list-style-type: none"> • The Councils to continue to implement priority projects for the Darebin Creek Trail as identified in <i>the Northern Regional Trails Strategy (2016)</i>, seeking funding support for the Victorian Government where required. 	WCC BCC DCC YCC (Vic Govt)	Very High
		<ul style="list-style-type: none"> • Darebin City Council to design and implement the Darebin Creek Trail connection between Rathcoun Road and Tee Street, with assistance from Victorian Government as a priority project. 	DCC Vic Govt (WCC)	High
		<ul style="list-style-type: none"> • Upgrade sections of the existing Darebin Creek Trail from granitic sand to a concrete path surface in two locations - the M80 to Childs Road and from Childs Road to Findon Road. 	WCC Vic Govt	High

3.2.2 Destination points along the trail

There are a large number of open space reserves which adjoin the Darebin Creek with some more suitable as entry and destination points along the Trail than others. At this stage, it is anticipated the following reserves will be designated as major destination points and entry points onto the Darebin Creek Trail:

- Darebin Parklands, Alphington
- CH Sullivan and BT Barling Park precinct
- LaTrobe University Wildlife Sanctuary
- Bundoora Park, Bundoora
- Norris Bank Reserve, Bundoora
- Sycamore and WA Smith Reserves, Mill Park and Lalor
- Quarry Hills Regional Parkland, Quarry Hills

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.2.1	Some of the major destination open space reserves along the Darebin Creek Trail require design and upgrade.	Councils to develop detailed designs and implement works in the following reserves with the intent to upgrade these to become major destination points on the trail including:		
		<ul style="list-style-type: none"> • CH Sullivan and BT Barling Park precinct, in accordance with descriptions in Recommendation R1/5. 	DCC	Mod
		<ul style="list-style-type: none"> • Sycamore and WA Smith Reserves, Lalor in accordance with descriptions in Recommendation R3/3. 	WCC	Mod
		<ul style="list-style-type: none"> • Norris Bank Reserve Bundoora in accordance with descriptions in Recommendation R6/2. 	WCC	High
		<ul style="list-style-type: none"> • A new open space reserve in the urban growth area on Findon Creek, in accordance with descriptions in Recommendation R2/2. 	WCC (Developer)	Low

3.2.3 Long-term vision for the Darebin Creek Trail

Currently, the Darebin Creek Shared Trail is proposed through the existing and future urban reaches of the Creek to provide connectivity between these areas on a trail constructed on public land. The development and subdivision process allows the transfer of land ownership from private to public land. A longer-term vision is to establish a regional trail connection north of the extent of urban areas and potentially linking to the Merri Creek Catchment. This may include regional trail connections adjacent to the creek through rural land and potentially on the rural road network. Whilst it is not envisaged that a developed regional trail connection will be established within the useable life of this Management Plan document, there may be some strategic planning decisions that influence the long-term goal of achieving this link. By stating it at an early stage, it is intended that future opportunities to achieve this link are not lost during interim decisions.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.3.1	Regional trail connections north urban growth areas (north of Craigieburn Road).	<ul style="list-style-type: none"> Council and other agencies to seek long-term opportunities to improve regional trail connections adjacent to the creek north through rural land or on the rural road network. 	DCMC Councils Vic Govt	Ongoing

3.2.4 Shared trail design

There are sections of the existing shared trail that do not meet the current accepted standards for shared trail design, which include:

- Austroads Cycling Aspects of Austroads Guides.
- Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths
- Melbourne Water Shared Pathway Guidelines, 2009
- Australian Standard AS 1428.1-2001 Design for access and mobility Part 1: General requirements for access - New building work

Given the existing level of development adjacent to the creek and the narrow width of the open space reserve along it with steep topography, it will not always be possible to meet the current standards, particularly for accessibility. There are, however, some sections of trail where changed vegetation management practices could significantly improve lines of sight and safety for shared trail users. There are also some issues of remoteness and poor lines of sight along the path which can lead to personal safety concerns which may limit the use and access to existing sections of trail. Some sections of trail require review to identify works that can address these issues to improve the overall accessibility of the existing trail to the community.

This project has not done a thorough shared trail design audit to assess the safety and risks associated with it. Councils may do this to better understand and address their risk exposure with the existing shared trail.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.4.1	Existing trail design requires review in some locations, particularly in the existing urban sections to improve trail user safety.	<ul style="list-style-type: none"> Undertake a review of the existing shared trail design and make recommendations to improve the safety and use of the trail. 	Councils DCMC	High
3.2.4.2	New sections of the shared trail need to comply with current standard	<ul style="list-style-type: none"> All new sections of trail including proposed creek crossings are to be designed to meet the current trail standards noted in 3.2.4. 	Councils Vic Govt	Ongoing

3.2.5 Motorbikes

Throughout the length of the creek's public open space corridor trail bikes are an issue. To allow for all-ability access, it is necessary to have access widths at least 1.0 metres (preferably 1.2 metres) into the trail and paths, which also allows access to trail bikes. There is a special squad of Reservoir Police called 'Solo' which police patrol on trail bikes and fine illegal trail bike users. Whilst this is effective, their resources are limited and they patrol a much broader area than Darebin Creek and are not able to patrol regularly.

Increasing public use of the trail and sense of ownership of the creek corridor will potentially assist in reducing motorbike use, but is not likely to remove it totally. Despite the high usage levels of the Darebin Parklands area, motorbikes do access this area, particularly in the late afternoon/early evening.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.5.1	Motorbike access to the shared trail and the linear open space reserves.	<ul style="list-style-type: none"> Liaise with Reservoir Police to determine a suitable level of patrol by the 'Solo' squad to provide some deterrence to motorbike access. 	Council Police	High
		<ul style="list-style-type: none"> Ongoing improvements to facilities along the creek corridor and an increase in community use, will assist in deterring use of the creek corridor by motorbikes. 	Councils	Ongoing
		<ul style="list-style-type: none"> Improve the design interface with adjoining properties to increase passive surveillance of the creek corridor from adjoining properties. 	Councils	Ongoing
		<ul style="list-style-type: none"> Install trail bike exclusion gates where required to minimise access. 	Councils	High

3.2.6 Community use and involvement

The Friends of Darebin Creek is a well organised and involved group based in the lower part of the Catchment. Currently there is no formed Friends Group for the middle and upper catchments. It has been identified there is a need for community involvement in the middle and upper reaches as this is beyond the resources of the existing Friends of Darebin Creek. The Darebin Creek Parklands Association has a 40+ year history of advocacy and involvement in the creation and restoration of Darebin Parklands.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.6.1	Friends of Darebin Creek and Darebin Parklands Association provide a large amount of support for the care and ongoing improvement of the lower Darebin Creek.	Continue to support the Friends of Darebin Creek, and the Darebin Parklands Association.	DCMC	Ongoing
3.2.6.2	Lack of community involvement in the upper reaches of Darebin Creek.	In the future consultation as part of the Masterplans for the major reserves along the creek, identify opportunities to establish Friends Groups based around the major reserves in the corridor, to assist with community involvement in the care and ongoing works in the Creek corridor. Utilise the structure and programs already established by the	DCMC Councils	Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		existing Friends of Darebin Creek to assist with the set up of new groups.		
3.2.6.3	Schools are located near the Darebin Creek corridor along its length and there is an opportunity to continue to involve them in creek improvement works, including stormwater.	Develop a program to involve schools in the ongoing improvement works to the creek corridor. This includes ongoing involvement of some, and establishing new programs in the remaining schools. Deliver specific education programs to schools and the broader community on stormwater issues including through the City of Whittlesea 'Storming for cleaner water program'.	Councils MW	High

3.2.7 Signage

The Cities of Darebin and Banyule jointly prepared a signage strategy for the section of the creek corridor included in these municipalities. The DCMC have installed signs along the creek downstream of Plenty Road at all the major stormwater drain outfalls, with the EPA phone number and drain numbers to list on them. It has been identified there is a need for consistent signage along the Creek with the suggestion that the City of Darebin signage be used as the guide.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.2.7.1	Lack of interpretive and directional signage along the Darebin Creek linear reserve.	Implement the Signage Strategy prepared by Cities of Darebin and Banyule and confirm if this Signage Strategy is relevant for the entire creek corridor and its tributaries, including appropriate signage in the rural reaches.	DCMC Councils	Ongoing

3.3 Environment

3.3.1 Flora

Weeds

Throughout the catchment, weeds are an ongoing management issue, particularly the control of declared weeds including:

- Alligator Weed
- Artichoke Thistle
- Blackberry
- Boxthorn
- Chilean Needle Grass
- Flax-leaf Broom
- Golden Rod
- Gorse
- Serrated Tussock
- Tradescantia

The presence of these weeds in the catchment limits the quality and presence of indigenous vegetation and impacts on habitat values of the stream corridor. Weeds are transported into the waterway corridor by a range of means including transported down the waterway in normal and flood flows, from the surrounding catchment area via the stormwater system, wind, birds and human access. In the rural catchment there are numerous private land holders and their land management practices vary, making weed management difficult to manage.

The ongoing management of these weeds relies on coordination between the public land management agencies and private land-holders.

The Darebin Creek Waterway Management Activity Plan (DCWMAP) has identified staged woody weed removal from the creek including Desert Ash, Willow and Boxthorn in priority locations along the waterway. Additionally, the DCWMAP has identified control of a range of garden escapee weeds including Tradescantia. It is appropriate that the Council weed management programs in the adjoining open space coordinates with Melbourne Water's weed removal program where appropriate.

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.3.1.1	Weed management in the rural catchment.	Council and Melbourne Water to liaise to confirm an appropriate method of coordinating a suitable funding program to support rural land holders in the future management of weeds.	MW WCC (DCMC)	High
3.3.1.2	Weeds in the predominantly urban areas within the municipality of Whittlesea.	Council to prepare and implement a weed management plan to target control of declared weeds in the open space corridor adjoining the creek, and adjoining open space and surrounding streets where applicable. This plan is recommended to be prepared in conjunction with the indigenous vegetation management plan recommendation 3.3.1.4, add reference to Council's emphasis on 6 pest plants as per the Weeds Local Law, and include new emerging weeds such as Lobed	WCC	High & Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		Needle Grass.		
3.3.1.3	Weeds in the predominantly urban areas within the municipalities of Banyule and Darebin.	Agencies to prepare and implement a coordinated weed management plan to target and control declared weeds in the open space corridor adjoining the creek, and adjoining open space and surrounding streets where applicable. This plan is recommended to be prepared in conjunction with the indigenous vegetation management plan recommendation 3.3.1.4 and consider fauna habitat values included in 3.3.2.1. Targeted control and monitoring of Serrated Tussock around Plenty Road is specifically addressed in E2/5.	DCC BCC MW	High & ongoing
3.3.1.4	Protect and improve areas of remnant indigenous vegetation, including encouraging natural regeneration where appropriate.	<ul style="list-style-type: none"> WCC to prepare an indigenous vegetation management plan for the Darebin Creek open space corridor including vegetation mapping and develop prioritised actions to protect and expand these areas through appropriate revegetation and regeneration in conjunction with 3.3.1.2. WCC to implement the indigenous vegetation management plan for the Darebin Creek open space corridor. DCC continue to undertake works in accordance with vegetation management plans prepared as part of the Natural Heritage Study. BCC to continue to undertake works in accordance with existing vegetation management plans. 	WCC WCC DCC BCC	High Ongoing Ongoing Ongoing

3.3.2 Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.3.2.1	Woody weeds may be providing fauna habitat, particularly avifauna in the exotic shrubs and trees, and removal without established replacement vegetation will potentially impact on these values.	Future woody weed management programs will need to consider potential impact on the fauna values, and therefore appropriate staging of works to allow establishment of suitable replacement habitat prior to woody weed removal will be required. This will require consideration in the preparation of the Weed Management Plan in Recommendation 3.3.1.3.	WCC DCC BCC MW	Ongoing
3.3.2.2	Instream fauna values	Melbourne Water is responsible for instream fauna values and this plan supports measures to improve these values over time.	MW	Ongoing

3.3.3 Geological/geomorphological

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.3.3.1	Relatively shallow natural stream form in the upper catchment through private rural land has been modified with on-stream dams and crossing points.	As part of liaison with rural land holders to control weeds, and exclude stock access from streams, improve their understanding of the natural waterway, and minimise new crossing points.	WCC MW	High

3.3.4 Water quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.3.4.1	Stock access to the stream in rural reaches is contributing to poor water quality.	As part of the Stream Frontage Management Plan, encourage rural landholders to exclude stock access to the stream with fencing and provide off-stream stock watering points.	MW (WCC)	High & Ongoing
3.3.4.2	Extensive residential development in the northern growth areas has the potential to create additional impacts on stormwater quality.	Council to ensure that urban development meets current best management practice standards in relation to stormwater quality management prior to discharge into Darebin Creek.	MW Councils	High & Ongoing
3.3.4.3	Untreated urban stormwater runoff entering the stream requires at source control measures as part of the SWMP.	Council to investigate opportunities to improve urban stormwater runoff through investigating at-source controls where possible as part of implementation of the <i>Watershed: Moving Towards a Water Sensitive Darebin</i> . This includes litter, sediment and water borne pollutants.	BCC DCC WCC	Ongoing
3.3.4.4	Industrial pollution entering the stream predominantly downstream of La Trobe University land.	Council and EPA to target an education program with the industrial land holders in the lower reaches of Darebin Creek to prevent industrial discharge and spills entering the creek, as part of the implementation of the SWMP. Refer to Recommendation E10/5.	BCC DCC EPA	High & Ongoing

3.4 Cultural heritage

3.4.1 Aboriginal cultural heritage values

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.4.1.1	Aboriginal archaeological values are poorly understood along the Darebin Creek.	<ul style="list-style-type: none"> Prior to any works that will cause disturbance to the ground being undertaken within at least 200 metres of the waterway, investigate the need to prepare a Cultural Heritage Management Plan to manage the impact of proposed works. Prepare an overall Aboriginal cultural heritage study of the Darebin Creek (an overview) to record the existing documented values to allow these values to be incorporated into future 	BCC DCC WCC MW Vic Govt Land-holders DCMC	Ongoing Mod

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		interpretive signage. This will include liaison with the local Aboriginal community to seek input and on the extent to which these values can potentially be interpreted.		

3.4.2 Non-indigenous (European) cultural heritage values

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
3.4.2.1	Historical (European) cultural heritage values are well documented, however, there is no on-site interpretation of these values.	<ul style="list-style-type: none"> Continue to protect the Historical cultural heritage values through appropriate planning scheme protection via overlay controls. Incorporate Historical cultural heritage values into future on-site interpretive signage (refer to Recommendation 3.2.7.1) 	DCMC	Mod

4. Reach issues and recommendations

4.1 Reach 1 Grants Road to Lehmanns Road

This reach extends from the headwaters of the Darebin Creek in Donnybrook through to Lehmanns Road. In accordance with the existing planning directions as part of Plan Melbourne Metropolitan Planning Strategy (2014) this reach will retain some areas in rural use, while others are planned for urban development. The City of Whittlesea in conjunction with the Victorian Government is in the process of preparing PSPs for areas identified for future urban growth. This includes the Wollert PSP #1070 between Lehmanns and Summerhill Roads and the Woodstock PSP #1096 north of Donnybrook Road and west of Epping Road the proposed Outer Ring Road. For the location of Reach 1 recommendations refer to Drawing DCM-01.



PHOTO 4.1~1 Headwaters of Darebin Creek near Grants Road (2007)



PHOTO 4.1~2 Shallow valley form and landscape character upstream Donnybrook Road (2007)



PHOTO 4.1~3 Downstream Donnybrook Road, Red Gum Woodland landscape character (2007)

4.1.1 Adjoining land use and landscape character

4.1.1.1 Existing Conditions for Reach 1

- Located wholly within the City of Whittlesea.
- Currently, land adjoining both sides of the creek is predominantly rural use along with some quarrying activity.
- The land north of Donnybrook Road is identified for urban development and included in the Donnybrook/Woodstock PSP #1096.
- The Silurian sandstone in the hills at the top of the catchment in the vicinity of Grants Road differs from the majority of the creek downstream, which flows through predominantly Newer Basalts. The land is largely cleared of overstorey vegetation.
- South of Donnybrook Road to Summerhill Road there is extensive areas of remnant Red Gum overstorey which is outside the urban growth boundary. Currently this area is included in the investigation area for the proposed 1,200 hectare Grassy Eucalypt Woodland Reserve, identified in the *Biodiversity Conservation Strategy (Victorian*

Government, 2013). These Red Gums were identified as a site of High Faunal Significance (Beardsell, 1997), noted to have an average age of between 100 to 200 years old with some individual trees estimated to be over 500 years in age. The presence of these mature Red Gums contributes significantly to the landscape and environmental value of the Darebin Creek.

- An Environmental Significance Overlay is included over the creek and adjoining rural land between Donnybrook and Lehmanns Road. This recognises and protects the Red Gum Grassy Woodland values in this area. **Refer photo 4.1~3.**
- Upstream of Bridge Inn Road the land is gently undulating and the creek is a relatively shallow valley form, which steepens as it approaches Bridge Inn Road. As the valley steepens the creek becomes more incised and defined and there are natural escarpments south of Bridge Inn Road.
- Land management practices vary between landholders with some improving the environmental values including restricting stock access to streams and improving habitat values with wetlands. Other land management practices that impact on the creek include uncontrolled stock access to the stream, rubbish dumping in the waterway to control erosion, on-stream dams and lack of indigenous vegetation along the stream corridor.

4.1.1.2 Adjoining land use and landscape character issues and recommendations for Reach 1

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/1	Poor land management practices in the headwaters of Darebin Creek, upstream of Donnybrook Road. This includes on-stream dams, stock access to the creek, erosion rubbish and lack of indigenous vegetation.	In the areas that are to remain in rural use, MW to liaise with private landholders as part of the Stream Frontage Management Program to support the program to fence stock access to the stream and provide alternative stock watering points. Support the revegetation of the stream side zone that will assist with stabilising the erosion gully.	MW Landholder	Very High
LU2/1	Land north of Donnybrook Road is included in an Extractive Industry Interest Area and land use adjoining the creek could potentially change to permit extraction of stone resource in this area.	In the future Woodstock PSP #1096 planning process, WCC to advocate to ensure that if additional extractive industries are established on adjoining land, that adequate buffer zones to the creek are established to protect the natural waterway values, in accordance with Best Management Practice.	WCC	Ongoing
LU3/1	Land north of Donnybrook Road is highlighted for future development and is located with the Woodstock PSP #1096 area.	WCC to include requirements that a suitable open space corridor be set aside along both sides of Darebin Creek as part of the Woodstock PSP #1096 process. The reserve is to provide adequate space to allow for creek rehabilitation along with an additional width of suitable open space outside of the creek rehabilitation areas to provide for linear shared trail access and other recreational spaces along the corridor that encourage community use compatible with the ecological values. Additionally, WCC to include suitable development guidelines that provide road frontage or demonstrate how excellent public access will be achieved from the adjoining development to the open space corridor.	WCC	Very High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU4/1	The Wilkes Court area has smaller land holdings and land practices vary between them, leading to inconsistent management of the natural values of the creek corridor in this area.	WCC to liaise with landholders in Wilkes Court, and encourage land holders to encourage regeneration of the remnant Red Gums, control weeds and undertake revegetation along the streamside zone. There are existing values in this area, including the values at the wetland nursery site, and there is potential to build on these through liaison with landholders.	WCC	High & Ongoing
LU5/1	The quarry and landfill site upstream of Bridge Inn Road has been in operation for many years and is potentially impacting on the water quality values of the creek. There are elevated salinity levels at Bridge Inn Road, however, the source of these elevated salinity levels is unknown.	EPA to investigate the source of elevated salinity levels in the vicinity of Bridge Inn Road and take appropriate action to address this when the source is found.	EPA DCMC	Very High
LU6/1	There are proposals to expand the extractive industry land use downstream of Bridge Inn Road on the western side of the creek.	WCC to ensure that adequate buffer zones to the creek are included in any future permits to expand the extractive industry in this in area in accordance with Best Management Practice.	WCC	Ongoing
LU7/1	Adequacy of environmental protection of the Darebin Creek under the existing Environmental Significance Overlay - ESO1.	Review the existing ESO1 and adequacy to protect the waterway values.	WCC	High
LA1/1	The remnant Red Gums contribute significantly to the landscape character of the Creek, however, there appears to be limited regeneration of these species. If no recruitment of these trees occurs it will lead to a decline in the landscape character in the longer term.	WCC to liaise with rural land holders to encourage regeneration of Red Gums, by precluding stock access from selected areas to allow some natural regeneration of species.	WCC DCMC	High

4.1.2 Community use and recreation

4.1.2.1 Existing conditions for Reach 1

- The Darebin Creek Management Committee has sought funding to work with the rural landholders to undertake indigenous revegetation projects within the catchment.
- Some landholders are participating in the Melbourne Water stream frontage management program, restricting stock access to the Creek.
- Whittlesea City Council has incentive programs to encourage landholders to undertake revegetation and stream protection works on their land.
- Land-holders in the catchment were mailed a questionnaire, and only five of these were completed and returned.

4.1.2.2 Community use and recreation issues and recommendations for Reach 1

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CU1/1	Currently there are at least three agencies providing incentive programs to landholders including the Darebin Creek Management Committee, Council and Melbourne Water and potentially other groups may be providing incentive programs as well including Landcare, WACMAC (Whittlesea Agricultural Society, Arthurs Creek District, Merriang District and Cottles Bridge Landcare Groups) and DEPI. This may be limiting the participation by landholders due to confusion as to the responsibilities of the different agencies, and the lack of resources to effectively publicise and encourage participation.	<ul style="list-style-type: none"> • DCMC to liaise with all land managers who offer incentive programs to develop an appropriate joint approach for the Darebin Creek catchment. • DCMC or suitable alternative agency as agreed to then establish the liaison program with landholders in the Darebin Creek catchment to advise of appropriate incentive programs to improve the environmental values of the creek. 	<p>DCMC (WCC, Landcare, DEPI, MW, WACMAC)</p> <p>DCMC Landholders</p>	<p>Very High</p> <p>High</p>
CU2/1	Land holders identified via the questionnaire, that the creek is ephemeral, and they would like to see permanent flows in the creek. Suggestions included deepening the creek, and restricting on-stream dams in the catchment.	<ul style="list-style-type: none"> • DCMC or appropriate agency (refer CU1/1) to include education of landholders on the natural ephemeral nature of the creek as part of the future liaison program developed in CU1/1. 	Refer CU1/1	Refer CU1/1
CU3/1	Future change in land use from rural to urban use.	As part of the future Precinct Structure Planning for this land use change, ensure that an adequate open space reserve width is set aside to allow for recreational use and access to both sides of the waterway corridor additional to the reserve required for waterway rehabilitation.	WCC, VPA	Very High

4.1.3 Environment

4.1.3.1 Existing Conditions for Reach 1

Flora

- Upstream of Donnybrook Road the creek corridor is identified a part of Conservation Area 34 Growling Grass Frog in the *Biodiversity Conservation Strategy for Melbourne Growth Corridors (2013)*. Outside the Creek Corridor, the catchment has little, if any, remnant indigenous vegetation, however revegetation was being undertaken in this area in 2007. **Refer photos 4.1~1 and 4.1~2.**
- The Darebin Creek Management Committee have liaised with the land holders upstream of Donnybrook Road to encourage revegetation in the area and reduce stock access to streams.
- Downstream of Donnybrook Road there is remnant Red Gum Grassy Woodland adjoining the creek which is a key landscape and environmental feature of this reach.

This is included in the Investigation Area for the proposed 1,200 hectare Grassy Eucalypt Woodland Reserve, located outside the areas rezoned for urban growth.

- There are extensive areas of woody weed invasion including Gorse, Hawthorn and Blackberry.
- Melbourne Water has encouraged land owners to fence the creek corridor to prevent stock access as part of the Stream Frontage Management Program. Some land holders have participated in the program.

Fauna

- The Red Gums that form part of the Investigation area for the future Grassy Eucalypt Woodland Reserve were noted as being of very high habitat significance and regional faunal significance by Beardsell in 1997. This area is recognised for the mature stands of remnant Red Gums and native grasslands that provide habitat for a range of fauna including waterbirds, bats, frogs and reptiles. This area provides an important east-west habitat link between the Summerhill Road conservation area and Craigieburn Grasslands on Merri Creek, and the Plenty River corridor including Mernda and the Yan Yean catchments. **Refer photo 4.1~3.**
- South of the Summerhill Road the Darebin Creek and Findon Creek supports Plains Grassy Woodland and River Red Gum Woodland. The Woollert PSP identifies local conservation reserves to protect these values along the waterway and in other reserves away from the creek corridor.

Geological / geomorphological

- Immediately downstream of Bridge Inn Road to Lehmanns Road there are natural geomorphological features which require protection. The creek flows along the contact zone between Newer Volcanic basalt and much older Silurian sedimentary rocks and the different geological structure is clearly visible (Melbourne Water, 2000). At the time the Waterway Activity Management Plan was written these features were not recorded as significant, however, the Plan recommended further investigation into their significance is required.



PHOTO 4.1~5 Gorse infestation in the upper catchment of Darebin Creek

Water quality

- The Port Phillip and Westernport Regional River Health Strategy (Melbourne Water et al., 2005) notes that water quality is very poor in the rural sections of the Darebin Creek catchment.

4.1.3.2 Environment issues and recommendations for Reach 1

Flora

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/1	The headwaters of the creek upstream of Donnybrook Road has minimal indigenous vegetation, with stock access to the creek in some locations.	Refer to Recommendation LU1/1	Refer LU1/1	Refer LU1/1

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E2/1	Weed management on private land, particularly large infestations of woody weeds including Hawthorn, Blackberry and Gorse.	Refer Recommendation CU1/1 and 3.3.1.1.	Refer 3.3.1.1	Refer 3.3.1.1
E3/1	Downstream of Donnybrook Road the rural land use will be retained. This includes extensive stands of remnant River Red Gums that contribute to the environmental character of the waterway. The proposed future E6 Arterial has the potential to impact on these remnant Red Gums.	WCC to advocate to maximise the protection of the remnant River Red Gums in the future design of the E6 Arterial Road. WCC to advocate for clarity from the Victorian Government on the status of the 1,200 hectare Grassy Eucalypt Woodland Reserve Area, including how the area will be managed to ensure protection of these values.	WCC VicRoads DCMC WCC DELWP	High
E4/1	Downstream of Donnybrook Road the rural land use will be retained. This includes extensive stands of remnant River Red Gums that contribute to the environmental character of the waterway.	DCMC and MW to continue to implement appropriate Stream Frontage Management Programs specifically to encourage protection and regeneration of remnant River Red Gums on rural land.	DCMC MW	Ongoing
E5/1	Scattered remnant Red Gums along Findon Creek between Summerhill and Lehmanns Roads require protection in future urban development.	WCC to include requirements that a suitable open space corridor be set aside along both sides of Findon Creek as part of the Wollert PSP #1070 process. The reserve is to provide adequate space to allow for the protection and regeneration of the remnant River Red Gums, and suitable open space outside of the regeneration areas to provide for linear shared trail access and other recreational spaces along the corridor that encourage community use compatible with the ecological values.	WCC, VPA, MW	Very High

Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E6/1	Inappropriate land management practices such as removing rocks, and dumping rock and other material in the floodplain are impacting on habitat and floodplain values.	As part of the liaison with rural land-holders to improve land management practices (refer LU1/1 and CU1/1), advise of the inappropriateness of filling the floodplain, and impact on fauna values by removing rocks.	WCC MW DCMC	Refer LU1/1 & CU1/1
E7/1	The NEROC Study identified that the reach between Donnybrook Road and Bridge Inn Road had high habitat significance, however the current level of significance is unknown.	As part of the liaison with rural land-holders to improve land management practices (refer LU1/1 and CU1/1), advise of the inappropriateness of filling the floodplain, and impact on fauna values by removing rocks.	DCMC DELWP	Very High

Geomorphology and Water Quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E8/1	Environmental impacts (particularly water quality and	Refer LU4/1	Refer	Refer

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
	stream flow) of quarrying activities in the catchment.		LU4/1	LU4/1
E9/1	Stock access to the stream causing erosion, loss of vegetation and impacts on water quality.	Refer LU1/1	Refer LU1/1	Refer LU1/1
E10/1	Dumping of fill changing the natural valley form of the creek.	Refer to E6/1	Refer E6/1	Refer E6/1

4.1.4 Cultural values

4.1.4.1 Existing conditions for Reach 1

- The Wurundjeri people lived in this region and it is likely that there were a series of campsites throughout the area including along the creek. There is no survey of Aboriginal Archaeological sites in the region (City of Whittlesea Rural Review, 2000). The creek and adjoining lands would have cultural significance for the Wurundjeri given they are relatively undisturbed.
- Non-indigenous settlement of the area is linked with the development of Victoria as a whole. Agricultural, pastoral and some quarrying activities dominated early development and there are some homesteads and other features remaining in the region from this early settlement.
- Heritage overlays protect some of the non-Indigenous cultural heritage sites including:
 - Darebin Creek Monier Bridge, bluestone bridge over Darebin Creek on Bridge Inn Road, **refer photo 4.1~4.**
 - Schultz Farm 'Pine Grove Farm' in Lehmanns Road, Wollert which includes bluestone dairy and milking sheds, weatherboard residence, bluestone stable, bluestone underground tank and drystone walls (Planning Scheme,2006)
 - Schulz Farm 'Ivy Bank' on Bridge Inn Road, Wollert includes bluestone and weatherboard house, bluestone pigpens, bluestone barn, drystone walled milking shed, mud and lathed barn, cypress windrows, pines, bluestone walled dam. Tree controls protect the Cypress windrows and pines (Planning Scheme, 2006).



PHOTO 4.1~4 Bluestone bridge over Darebin Creek on Bridge Inn Road

4.1.4.2 Cultural values issues and recommendations for Reach 1

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/1	Lack of information and survey work regarding Aboriginal archaeological values along the Darebin Creek.	Undertake further investigation into these values prior to any ground disturbance works within the area of sensitivity, in accordance with the current legislation and requirements for the preparation of Cultural Heritage Management Plans. Refer also to Recommendation 3.4.1.1	Landholder	Ongoing

4.2 Reach 2

Lehmans Road to Railway Reserve

This reach extends from Lehmans Road in Wollert, south to the recently constructed railway from Epping through to South Morang. It includes Darebin Creek and Findon Creek, which is a main tributary to the Darebin in this area. This reach is changing from rural use to urban use, and the land use change is guided by a combination of existing and new structure plans. This includes the Epping North East PSP #33, Quarry Hills PSP #1094, Harvest Home LSP, Epping Central Structure Plan and South Morang LSP.

This reach is included in the Darebin Creek Waterway Management Activity Plan (Melbourne Water, 2000), and the majority of it was included in the Middle Darebin Concept Plan (1996).

For the location of recommendations for Reach 2 refer to Drawings DCM-2A and DCM-2B.



PHOTO 4.2-1 VIEW OF DAREBIN CREEK ADJACENT LANCIA COURT (2007)



PHOTO 4.2-2 VIEW OF DAREBIN CREEK UPSTREAM TOWARDS HARVEST HOME ROAD (2007)



PHOTO 4.2-3 VIEW OF FINDON CREEK UPSTREAM OF FINDON ROAD (2007)

4.2.1 Adjoining land use and landscape character

4.2.1.1 Existing conditions for Reach 2

- This reach is located within the City of Whittlesea.
- Between Lehmans Road and Harvest Home Road the land is currently in the process of being developed for residential use and is included in the Epping North East PSP #33 and Quarry Hills PSP #1094.
- The land adjoining Findon Creek between Harvest Home Road and Findon Road is included in the Epping North East Structure Plan and requirements relevant to Darebin Creek include:
 - Development adjacent to Darebin and Findon Creek is to face the waterway, with road frontages at the interface between the open space corridor and development/

- Protect the remnant indigenous vegetation identified during the Structure Plan investigation, and undertake additional surveys when required/
- Undertake Aboriginal archaeological surveys prior to future development.
- Provide an open space corridor adjoining the waterway including open space beyond the area that is subject to 1:100 year flows to provide for recreational use.
- Incorporate water sensitive urban design principles into future stormwater management from the urban areas.
- Downstream of Findon Road the reserve either side of the creek is primarily Melbourne Water owned land with two smaller parcels of council owned land. The Darebin Creek Reserve between Park Street and McDonalds Road on the west side of the creek, and Peppercorn Park on the east side of the creek are referred to as the Darebin Creek District Park.
- Downstream of Findon Road the adjoining land is predominantly residential use, along with Epping Secondary College. Whilst there are some sections where the road adjoins the waterway, a large proportion of the interface treatment between the waterway corridor and residential use is rear boundary fence lines.
- The Melbourne Water Pipe track connects into the Darebin Creek reserve immediately upstream of the railway reserve.
- There is a proposal to extend Dalton Road north across the disused railway to Findon Road, and this will be aligned directly adjacent to the western side of Darebin Creek (*Status of this proposed is still required from Whittlesea*).
- Epping Secondary College is located to the eastern side of the creek.

4.2.1.2 Adjoining land use and landscape character issues and recommendations for Reach 2

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/2	The area between Lehmanns Road and Harvest Home Road is included in the Epping North East Precinct Structure Plan (PSP). This area is currently undergoing urban redevelopment in accordance with the PSP.	WCC to ensure that adequate open space reserve width is set aside along Findon Creek to protect and improve the environmental and recreational values, consistent with the principles set out the in Epping North East Structure Plan.	WCC DCMC	Very High & Ongoing
LU2/2	The land east of the proposed E6 Outer Ring Road is anticipated to redevelop in the near future. This land is the subject to the Quarry Hills Precinct Structure Plan, which is currently in preparation. The length of Darebin Creek in the PSP has been identified as a conservation reserve for the Growling Grass Frog.	As part of the Quarry Hills PSP process, WCC is to include requirements that a suitable open space corridor is to be set aside along both sides of Darebin Creek adjoining the GGF conservation reserve. The reserve is to provide adequate space to allow for the protection and regeneration of the remnant River Red Gums, and suitable open space outside of the regeneration areas to provide for linear shared trail access for both sides of the creek and other recreational spaces along the corridor that encourage community use compatible with the ecological values.	WCC	Very High & Ongoing
LU3/2	Future road crossings over Findon Creek may have an impact on the creek values.	Future road crossings to minimise the impact on Findon Creek's values, and provide safe shared trail access across or under the roads to meet Austroad and Melbourne Water trail guidelines. This includes consideration of the GGF habitat connectivity.	WCC	Very High & Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU4/2	Future E6 Arterial road reservation currently extends over a significant length of the Creek. This section of creek includes remnant River Red Gums and the natural creek morphology which will be potentially impacted by the construction of this road.	WCC to advocate to ensure the future E6 Arterial Road design: <ul style="list-style-type: none"> • Demonstrates minimal impact on the environmental values of the Darebin Creek. • Minimises interruption to habitat connectivity between Findon and Darebin Creek corridors. • Integrates suitable east-west pedestrian and cycle access to ensure good connectivity between the future residential communities. 	WCC	Very High
LU5/2	Epping Secondary College is located directly adjoining the creek corridor is an opportunity for promoting community ownership of the creek.	MW and WCC to continue to involve the Epping Secondary College in future revegetation along the creek, along with other educational programs to increase student's awareness of the creeks values.	WCC MW DCMC	Ongoing
LA1/2	The remnant Red Gums along Findon Creek and Darebin Creek contribute to the landscape character upstream of McDonalds Road.	Remnant Red Gums to be retained and allow natural regeneration to protect the natural landscape character. Ensure open sightlines are retained along the path as regeneration grows.	WCC DCMC	Ongoing
LA2/2	Visual dominance of rear boundary fence lines along the waterway corridor, particularly where this is on both sides of the creek corridor detracts from its landscape and environmental character.	WCC to undertake strategic placement of overstorey and ground layer vegetation along the corridor to break up views of fence lines whilst retaining safe sightlines along paths. Refer to Recommendation 4.2.3 for further recommendations on revegetation.	WCC	Mod

4.2.2 Recreation and community use

4.2.2.1 Existing conditions for Reach 2

- An existing shared trail has been constructed along the Darebin Creek corridor from Porsche Court downstream to the railway reserve.
- Sections of shared trail have been completed along the recently developed area of Findon Creek. The existing urban area south of the transmission line trails have not been constructed. A picnic shelter area has been constructed upstream of Hayston Boulevard providing a local recreation point on the creek for this community.
- The Epping North East Structure Plan illustrates a linear open space corridor along Findon Creek between Harvest Home Road and Lehmanns Road with connections to larger areas of active open space adjoining the creek corridor. Future open space facilities for regional trail users will need to be established in the northern end of this reach, potentially in conjunction with the remnant Red Gum Woodland area.
- Downstream of Findon Road the main adjoining open space reserves in this reach is the Darebin Creek Epping District Park, which includes Peppercorn Park. There is an existing Landscape Masterplan for the Darebin Creek Epping District Park, which includes the open space along Findon and Darebin Creeks from Findon Road to McDonalds Road, however, works have not been fully implemented.
- Melbourne Water has undertaken revegetation works with the Epping Secondary College near the school grounds.

- The community consultation outcomes did not identify high usage levels in the open space corridor, however, there was a low return rate of the questionnaires in this area.
- A shared trail has been constructed along the Epping to South Morang railway connecting to the Darebin Creek Trail.

4.2.2.2 Recreation and community use issues and recommendations for Reach 2

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R1/2	Future regional connection between Quarry Hills Regional Parkland, Darebin and Findon Creeks.	Investigate future opportunities to establish a regional trail link from the northern extent of urban development (in the vicinity of Lehmanns Road) in an easterly direction to Darebin Creek and Quarry Hills Regional Parkland, and incorporate the planning of this link into future development and land use agreements. There is potential for this to establish a large looped trail link that connects back to the Darebin Creek via Hendersons Creek.	WCC	High
R2/2	There will be a need for a major visitor facility within the Findon Creek corridor to provide a destination and resting point on the future shared trail between Lehmanns and Harvest Home Roads.	WCC to require major visitor facilities including future picnic and BBQ facility with toilets in the northern end of the future growth area between Harvest Home Road and Lehmanns Road. This will cater to the new population and the regional trail users. These facilities should be established at the time the shared trail is constructed through this area.	Develop WCC (Vic Govt)	High to Mod
R3/2	Informal recreational facilities to facilitate future access to the creek corridor will be required as part of new urban areas.	Future development to provide adequate informal open space infrastructure including regular footbridge crossings of the creek to meet the recreational needs of the new population and designed to meet the current safety design standards.	Develop (WCC)	High
R4/2	Future development to allow adequate space for recreational facilities as well as environmental values.	Ensure adequate provision of open space adjoining the creek corridor in future urban development to allow recreational facilities to be located adjacent to the waterway corridor without conflicting with environmental values.	Develop (WCC)	High
R5/2	Darebin Creek Parklands requires a Masterplan (between Findon Road and Rufus Street).	Prepare a Masterplan for Darebin Creek Parklands with consideration of the following: <ul style="list-style-type: none"> • change mowing regime to allow natural recruitment of Red Gums in adjoining open space; • revegetation to the natural escarpments; • establish a seating area at the confluence of Findon and Darebin Creeks taking advantage of the elevated views to Quarry Hills from this location; • thin out the mid-storey vegetation from revegetation along the creek in Peppercorn Park; • plant selective indigenous overstorey to the perimeter of the reserve to break up views of rear boundary fence lines. Care to be taken to avoid screening properties and interrupting safe lines of 	WCC	High & Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		sight along paths; • develop and improve the design of picnic and BBQ facilities at Peppercorn Park as the regional facility along the shared trail; and • improve the safety of trail crossing points over Greenbrook Drive.		
R6/2	Existing shared trail between Findon Road and Hendersons Road is unsealed and requires upgrade to a concrete surface as per the recommendation in the <i>Northern Regional Trails Strategy</i> .	WCC to prepare the detailed design for the upgrade of the shared trail between Findon and Hendersons Roads.	WCC (Vic Govt)	High
CU1/2	Signage including interpretation and directional signage requires coordination to improve community use and understanding of the creek corridor.	• Refer to Recommendation 3.2.7.1.	Refer 3.2.7.1	Refer 3.2.7.1

4.2.3 Environment

4.2.3.1 Existing conditions for Reach 2

Flora

- The upper section of this reach has remnant scattered remnant Red Gums.
- There are woody weeds including Gorse, Hawthorn and Blackberry.
- Scattered remnant Red Gums are present in the existing urban areas and will require ongoing protection.
- Council have undertaken revegetation and planting in the adjoining open space reserves, and Melbourne Water has undertaken revegetation works with the Epping Secondary College students.
- The existing open space reserves are predominantly mown grass to the edge of the riparian zone, including under large remnant Red Gums.

Fauna

- Darebin Creek from Lehmanns Road to the Transmission line is identified as a conservation area for protection of the Growling Grass Frog habitat.
- The area in the vicinity of Findon Road was identified as having medium faunal significance in the NEROC study (Beardsell, 1997). Specifically, it is noted that the Darebin Creek drainage line supports Red Gum Grassy Woodland and Escarpment Shrubland vegetation.

Geological / geomorphological

- Darebin Creek is in a relatively natural state from Lehmanns Road downstream to Findon Road, noting that the natural morphology is to be retained. (Melbourne Water, 2000).

- Development downstream of the Transmission Lines is too close to the stream resulting in the need for retaining wall construction close to the creek, modifying the natural valley form (Melbourne Water, 2000).
- A number of stony knolls along Findon Creek were identified as part of the Epping North East Structure Plan, and this plan has retained some of those in open space reserves.
- A natural escarpment remains immediately upstream of McDonalds Road on the west side of the stream and downstream of McDonalds Road the valley form changes to wider shallower valley form.

Water quality

- The Port Phillip and Westernport Regional River Health Strategy (Melbourne Water et al., 2005) notes that water quality is very poor in the rural sections of the Darebin Creek catchment, largely caused by high nutrient levels from the adjoining rural land use, although the influence of urban development is anticipated to change this.
- The Epping North East Local Structure Plan requires that future development incorporate water sensitive urban design principles to treat future urban stormwater runoff prior to entering the Findon Creek (City of Whittlesea, 2005).

4.2.3.2 Environment issues and recommendations for Reach 2

Flora and Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/2	Impacts from future residential development on flora and fauna values, particularly where development is too close to the waterway.	<ul style="list-style-type: none"> • In future development applications WCC to ensure protection of the remnant indigenous vegetation and appropriate revegetation program to provide an effective buffer between development and Findon Creek, whilst retaining sight lines for safety. • Protect the Stony Knolls and improve with appropriate vegetation management with the intent to provide fauna habitat. • Establish open space habitat corridor links between Findon Creek and adjoining Red Gum Grassy Woodland areas to protect flora and fauna values consistent with the Epping North East Precinct Structure Plan #33. • Refer to Recommendation LU2/2. 	<p>WCC Developer</p> <p>Developer WCC</p> <p>Developer WCC</p>	<p>High & Ongoing</p> <p>High & Ongoing</p> <p>High</p>
E2/2	Darebin Creek between Lehmanns Road and Findon Road has been identified as a Conservation Reserve in the Quarry Hills PSP #1094. This will be transferred to the Crown and confirmation of a suitable land manager is required.	WCC to ensure adequate width of open space corridor is set aside outside of the conservation area to allow regeneration of Red Gums to encourage mixed age class of the Red Gums in the future, and the provision of compatible recreational use including the shared trail to both sides of the creek.	WCC Land-holders	High & Ongoing
E3/2	Remnant Red Gums in the existing open space reserves between Hayston Boulevard and McDonalds Road are not regenerating due to mowing regime preventing natural regeneration.	Change mowing regimes to allow for natural regeneration of remnant Red Gums in existing public open space particularly between Hayston Boulevard road McDonalds Road.	WCC	High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E4/2	Residential development is too close to Findon and Darebin Creeks between Transmission Lines and Findon Road.	WCC to increase indigenous planting to buffer development from the creek corridor to provide increased habitat continuity through this section.	WCC DCMC	Mod
E5/2	Epping District Park Masterplan requires review.	<ul style="list-style-type: none"> In the future indigenous vegetation management plan for the Darebin Creek, integrate regeneration of the remnant Red Gums in adjoining open space to allow for recruitment of the existing trees. Additionally review the revegetation techniques to achieve some integration between the creek corridor and adjoining open space. This may include the need for ongoing community education regarding the natural vegetation and fauna habitat values along the waterway. 	WCC	High

Geology and Geomorphology

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E6/2	Development impacts on the natural geomorphological values, including: change to stream flows; stormwater outfalls/connections; provision of services, particularly the sewer, along the creek; and inadequate reserve widths to allow sustainable management of the waterway corridor.	<ul style="list-style-type: none"> During the development, ensure adequate development setback to minimise impacts on the natural creek morphology, adequate treatment of stormwater and space to establish wetlands where proposed, and setback for required services. 	WCC MW DCMC	High & Ongoing
E7/2	Natural escarpments in existing open space reserves require protection.	Ensure ongoing protection to the natural escarpments in existing open space reserves including appropriate revegetation with indigenous species to the escarpment and interpretive signage to prevent access to them.	WCC	Mod

Water Quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E8/2	In future development ensure suitable and adequate water quality protection measures are in place.	Council to ensure the principles outlined in the Epping North East Structure Plan are adhered to in the development plan approvals process, detailed design and construction phases.	WCC Devel- oper	Very High & Ongoing
E9/2	Existing urban runoff enters the creek without any pre-treatment contributing pollutant and litter loads to the creek.	Council to investigate opportunities for integrated water management projects in the existing residential catchment to improve water quality in Darebin Creek.	WCC DCMC	Ongoing

4.2.4 Cultural values

4.2.4.1 Existing conditions for Reach 2

- The Wurundjeri people lived in this region and it is likely that there were a series of campsites throughout the area including along the creek. All areas within 200 metres of the creek are identified as areas of archaeological sensitivity.
- There are two recorded Aboriginal archaeological sites in the vicinity of Findon Creek between Craigieburn West and Harvest Home Roads identified as part of the Epping North East Local Structure Plan investigations.
- Non-Indigenous settlement of the area is linked with the development of Victoria as a whole. Agricultural, pastoral and some quarrying activities dominated early development and there are some homesteads and other features remaining in the region from this time.
- Heritage overlays protect some of the non-indigenous cultural heritage sites including:
 - Hehrs Pine Park Farm on Epping Road, Wollert adjoins Findon Creek and includes the house, all outbuildings including milking sheds, dairy, machinery shed, shearing shed, stables, drystone wall, mature pines, peppercorn trees and paving between buildings. Tree controls protect the mature Peppercorns and Pines (Whittlesea Planning Scheme, 2006).



PHOTO 4.2-4 HEHRS PINE PARK FARM, FINDON CREEK (2007)

4.2.3.2 Cultural values issues and recommendations for Reach 2

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/2	Future urban development needs to consider the existing Indigenous and non-Indigenous cultural values.	Consistent with the recommendations of the Epping North East Local Structure Plan, prior to future development, further investigation into and protection Aboriginal archaeological values is required.	WCC	Very High & Ongoing
CH2/2	Darebin Creek is identified as an area of Aboriginal archaeological sensitivity within 200 metres of the waterway.	Consistent with the Heritage Act 2006, a Cultural Heritage Management Plan or similar may be required prior to any works being constructed within the 200 metre corridor of Darebin Creek.	WCC AAV	Ongoing

4.3 Reach 3

Railway reserve to Metropolitan Ring Road

This reach extends from the railway reserve in Lalor to the Metropolitan Ring Road in Thomastown/Bundoora.

This reach is included in the Darebin Creek Waterway Management Activity Plan (Melbourne Water, 2000), and the majority of it was included in the Middle Darebin Concept Plan (1996)

Hendersons Road Drain (Hendersons Creek for the purposes of this plan), meets the Darebin Creek in this reach, and is included in this reach for context purposes. Detailed site visits and assessment of Hendersons Creek has not been included in this plan given that extensive water quality treatment wetlands and landscape improvement works have been completed at Mill Park. These improvement works have addressed the water quality, drainage and flooding issues identified in the Melbourne Water Waterway Activity Management Plan, and the earlier Darebin Creek Concept Plan (Melbourne Parks and Waterways, 1996). Please note the inset from this plan is shown on Reach 2B.



PHOTO 4.3-1 DAREBIN CREEK DOWNSTREAM BRAMBLE CRESCENT, GROWLING GRASS FROG HABITAT (2007)



PHOTO 4.3-2 DAREBIN CREEK UPSTREAM BRAMBLE CRESCENT (2007)

4.3.1 Adjoining land use and landscape character

4.3.1.1 Existing conditions for Reach 3

Darebin Creek

- Adjoining land use in this reach is predominantly residential use, with industrial use on the east side of the creek downstream of McKimmies Road (Boral Quarry).
- A Public Acquisition Overlay over some of the land directly adjoining the eastern side of the creek is in favour of VicRoads for the purposes of constructing a major north-south E6 arterial connecting to the Metropolitan Ring Road.
- Three larger open space reserves adjoin the creek corridor including WA Smith Reserve, Sycamore Reserve in Mill Park and Thomastown East Reserve in Bundoora. These reserves contain predominantly sporting facilities with the shared trail located towards the creek.

- Two schools adjoin the creek corridor, Lalor North Secondary College upstream of Childs Road and St Monicas Co-ed College a little further north on the western side of the creek. These are located nearby the TAFE College and Epping Station.
- The railway has recently been extended from Epping to South Morang with a future extension to Mernda.

Hendersons Creek

- Residential land use adjoins the majority of the Hendersons Creek with some large open space reserves including Mill Parks Wetland and Meadowglen Athletics reserves.

4.3.1.2 Adjoining land use and landscape character issues Reach 3

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/3	Poor interface between residential use and the Darebin Creek corridor and lower reaches of Hendersons Creek, which leads to poor passive surveillance of the corridor and inappropriate management practices and use.	Improve the management of these sections of reserves with increased council presence along the waterway. In future development applications for redevelopment of land adjoining the creek corridor, encourage development to face the waterway to improve passive surveillance and activate the interface between the creek and adjoining land use.	WCC DCMC	Ongoing
LU2/3	Construction of the north-south proposed E6 arterial road from Childs Road to the Metropolitan Ring Road will potentially have an impact on the Darebin Creek.	WCC to advocate during the preparation of the future E6 Arterial road design for it to minimise impacts on the natural values of Darebin Creek and include east to west pedestrian and cycle connectivity between Thomastown and Bundoora.	WCC DCMC	High
LU3/3	Parcels of land in the open space corridor are not formally transferred to Council as open space.	Council to investigate and confirm land ownership and transfer of land parcels to open space directly adjoining Darebin Creek, particularly downstream of Sycamore Reserve. Rezone to the appropriate land zoning when ownership is confirmed.	WCC Land-holders	Very High
LU3/3	The future long term redevelopment of the Boral Quarry site south of McKimmies Road.	In any future redevelopment of the Boral Quarry land ensure there is an active interface that allows for excellent public access while protecting and improving the environment values of Darebin Creek.	WCC Land-holder DCMC	High
LA1/3	Visual dominance of rear boundary fence lines along the waterway corridor which is emphasised by the lack of indigenous vegetation in some reaches.	Increase the presence of scattered indigenous trees in the open space corridor to break up the visual dominance of rear boundary fence lines, whilst retaining clear sightlines into the reserve and along paths for safety. Refer to Environment recommendations in this Section.	WCC DCMC	Ongoing
LA2/3	Concrete lined sections of Hendersons Creek reduces the visual and environmental character of the tributary.	Investigate opportunities to reduce the visual prominence of the concrete lined channel with revegetation to soften the interface. This will require consultation with Melbourne Water to confirm suitable species and densities.	WCC MW DCMC	Low

4.3.2 Recreation and community use

4.3.2.1 Existing conditions for Reach 3

- The existing shared trail extends from Hendersons Road to Sycamore Reserve. Downstream of Sycamore Reserve, the reserve width narrows on the western side of the creek and there is no public land on the eastern side. There are some parcels of land that were not formally transferred to Council as open space after completion of the subdivision process. The trail continues as an unsealed link between Sycamore Reserve and Thomastown East Reserve.
- The shared trail is unsealed from Hendersons Road to Sycamore Reserve. Upgrade of this section of trail to a concrete surface is a priority project in the *Northern Regional Trails Strategy*.
- WA Smith Reserve and Sycamore Reserve have structured sporting facilities including ovals, pavilions, cricket nets, car parking and playgrounds.
- Thomastown East Reserve includes tennis courts, sports pavilion, ovals, car parking and an unsealed shared trail connection adjacent to Thomastown East Reserve linking south to the residential area immediately north of the Metropolitan Ring Road. There are informal recreation facilities in the reserve adjacent the new residential area south of Thomastown East Reserve.
- Questionnaires identified that people use the Darebin Creek primarily for walking and exercise, however, there was only a low number of completed questionnaires from this area (approx 5% of total number of surveys returned).
- Large open space reserves are associated with the water quality treatment wetlands in South Morang on Hendersons Creek. The large wetlands are connected to the regional Quarry Hills Regional Parkland which is a natural open space reserve and provides a diversity of landscape characters from the low lying wetlands to the elevated views from Quarry Hills Regional Parkland.

4.3.2.1 Recreation and community use issues and recommendations for Reach 3

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R1/3	No path access into the open space corridor from Narina Park.	Design and construct path access into the Darebin Creek Trail from Narina Park to provide local access onto the trail. Other works to improve interface between Narina Park and the linear open space is to undertake some selective trimming to open up views into the creek and across to the remnant Red Gums.	WCC DCMC	Mod
R2/3	No provision for shared trail crossing at Childs Road.	Investigate provision of a safer crossing over Childs Road, either at grade, or under the road, pending future investigations of flood levels and safety.	WCC (Vic Govt) DCMC	Very High
R3/3	Major sporting reserves of WA Smith Reserve and Sycamore Reserve with existing paths and footbridge create a major recreational area in Mill Park, however there is poor integration between the sports reserves and the creek environment.	Prepare a Landscape Masterplan for these two reserves, including the linear open space reserve between Childs Road and McKimmies Road to resolve the following: <ul style="list-style-type: none"> • future sporting needs and facilities; • pedestrian and vehicle access and circulation; • safety of road crossing points; • interface treatment to the proposed E6north south arterial on the eastern side of the creek; • appropriate levels of revegetation in the 	WCC	Mod

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
		<p>adjoining open space, consistent with Melbourne Water's recent stream works; and</p> <ul style="list-style-type: none"> integration between the Darebin Creek environment and the sporting facilities with provision of informal facilities including seating, viewing area, picnic area/meeting place that is useable for the local community and regional trail users. 		
R4/3	Thomastown East Reserve has recently been upgraded and appears to be well developed.	Ensure ongoing maintenance of facilities to encourage community use and ownership of this section of the creek.	WCC	Ongoing
R5/3	Shared trail access along Hendersons Creek.	<p>Encourage access between Darebin Creek trail and Hendersons Creek trail with signage and ongoing improvements to planting (Refer E4/3).</p> <p>As part of the integrated signage strategy, provide directional and interpretive signage along Hendersons Creek to improve the recreational link between the two trails.</p>	WCC DCMC	Ongoing
R6/3	Henderson Creek Wetlands and Quarry Hills Regional Parkland are future regional destination points on the Darebin Creek Trail and requires appropriate signage.	Henderson Creek Wetlands and Quarry Hills Regional Parkland to be publicised as regional destination points on the trail system. In the longer term, investigate, establish and publicise the regional trail connection to the north via Quarry Hills to Findon Creek.	WCC (Vic Govt)	Mod
R7/3	Existing shared trail between Sycamore Reserve and Hendersons Road is granitic sand and requires upgrade to a concrete surface.	WCC to prepare detailed designs to upgrade the unsealed shared trail to a minimum 3m wide concrete shared trail between Sycamore Reserve and Hendersons Road.	WCC (Vic Govt)	High
CU1/3	Remnant Red Gums adjacent to St Monica's Co-education College have potential to increase St Monica's and the neighbouring Lalor Secondary College involvement in the Darebin Creek.	St Monica's Co-education College and nearby Lalor North Secondary College to be involved in the Darebin Creek corridor in this reach including in natural regeneration of remnant Red Gums adjacent to their school, revegetation, education of local community of the natural values of the creek corridor.	WCC DCMC	Very High
CU2/3	Restricting motorbike access to trails in this reach of the Darebin Creek needs to be addressed.	Consult with the Reservoir Police to achieve more frequent patrols of the Solo Squad to reduce illegal motorbike use of the reserves.	WCC DCMC	Very High
CU3/3	There is a need to improve community use and involvement in the creek corridor in this reach.	Investigate the potential to establish a Friends Group as part of the Landscape Masterplan process to be undertaken for WA Smith Reserve and Sycamore Reserve.	WCC DCMC	Mod

4.3.3 Environment

4.3.3.1 Existing conditions for Reach 3

Flora

- Generally there is a lack of indigenous vegetation throughout this reach with scattered small remnant areas of degraded Escarpment Shrubland including Sweet Bursaria, Rock Correa and Blackwood. There are scattered remnant Red Gums throughout the reach which require protection. There is a highly degraded area of Escarpment Shrubland with Kangaroo Grass and the nationally endangered Matted Flax-lily *Dianella amoena* (Melbourne Water, 2000) in the reach between McKimmies Road and the Metropolitan Ring Road, however, the actual location of this was not located on the Waterway Management Activity Plans.
- There are small sections of creek corridor with very little or no overstorey trees. Overstorey revegetation has been occurring through parts along the middle reaches of the creek at 8 to 10m intervals along the top of the bank to address the gaps.
- Revegetation has been undertaken adjacent to the Creek in Sycamore and WA Smith Reserves and Lalor North Secondary College.
- Extensive areas of Flax-leaf Broom on the Boral quarry land adjacent to Darebin Creek that requires control by the land owner.
- Extensive revegetation as part of the residential development immediately upstream of the Metropolitan Ring Road near Bramble Crescent. This includes establishment of a series of ponds for Growling Grass Frog habitat and dense revegetation of low ground layer sedge, wetland and terrestrial ground layer species.
- Remnant Red Gums have been retained in the residential development on the western side of the creek immediately upstream of the Metropolitan Ring Road. Landscape works has included plantings of indigenous vegetation in the adjoining reserves.
- Extensive water quality treatment wetlands constructed on Hendersons Creek with native wetland vegetation.
- The lower sections of Hendersons Creek have some scattered revegetation, but minimal indigenous vegetation.

Fauna

- Growling grass frog habitat adjacent to the Boral quarry site immediately upstream of the Metropolitan Ring Road in Bundoora.
- The Boral Quarry Land with Howy's land was noted as being of regional faunal significance (Beardsell, 1997) due to: the presence of a range of waterbirds at the Quarry wetlands; the habitat value of the Red Gum Woodland in Howy's land; and the presence of Growling Grass Frogs and Striped Marsh Frogs in the quarry wetlands and adjacent pools in Darebin Creek.
- Quarry Hills Regional Parkland and the associated wetlands in South Morang provide habitat for a range of native fauna connectivity further north and east to the Plenty River catchment.

Geological / geomorphological

- The creek has been modified to an earth lined trapezoidal channel between the railway reserve and the pipe track. It is more natural downstream of the pipe track adjacent to the Boral Quarry and Thomastown East Reserve to the Metropolitan Ring Road.

- Hendersons Creek has been extensively modified and is a concrete lined channel between the confluence with Darebin Creek and Hendersons Road, and an earth lined channel further upstream to the large constructed wetlands.
- MW has reinstated some pool and riffle sequences in the channel between Childs Road and Sycamore Reserve and will continue these downstream to the pipe track.
- Downstream of Sycamore Reserve the channel becomes more deeply incised with steep banks.
- Downstream of McKimmies Road the stream is in relatively natural condition.

Water quality

- Water quality sampling at Settlement Road revealed it is the most polluted site with organic pollution from unsewered developments evident in extremely high nutrient, BOD and *E.coli* levels (Melbourne Water, 2000).
- It is noted that high litter loads enter the creek from Hendersons Creek (Melbourne Water, 2000), however, these have been substantially addressed by the recent water quality treatment works in the catchment.
- There is an extensive system of constructed water quality treatment in the upstream section of Hendersons Creek in the South Morang area which addresses the water quality issues identified previously in the Darebin Creek Waterway Management Activity Plan.
- High litter loads entering the stream in the Lalor Main Drain which includes the Lalor Plaza shopping precinct in this catchment.
- High sediment and litter loads entering the Creek via the South Morang Drain are planned to be addressed by Melbourne Water with silt and litter traps.
- The residential development upstream of the Metropolitan Ring Road in Bundoora has water quality treatment to urban stormwater runoff prior to discharge into Darebin Creek.

4.3.3.2 Environment issues and recommendations for Reach 3

Flora

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/3	There is a lack of indigenous vegetation in the reach, especially indigenous overstorey.	Protect existing remnant Red Gums and allow natural regeneration of these species by ceasing mowing under them. Improve the environmental values associated with the Red Gums to further improve the vegetation and habitat values with additional revegetation and strengthen the existing remnants. A priority location for this to occur is adjacent to St Monicas Co-education College in Lalor (Refer CU1/3).	WCC	Ongoing
E2/3	Council have identified a lack of funding and resources to effectively manage this area.	Extensive areas of mown grass could be reduced to slashed grass and allow natural regeneration of Red Gums to create a natural scattered woodland character, thereby improving potential flora and fauna values, without increased funding. Council will need to develop and implement a community education program as part of the change to a more natural vegetation management regime in selected locations through this reach.	WCC DCMC MW	Very High & Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E3/3	Weed infestation including Gorse, Boxthorn, Blackberry and Flax-leaf Broom, predominantly downstream of Sycamore Reserve.	As part of the weed management plan (Recommendation 3.3.1.2), control weeds in this reach, including consultation with major land holder, Boral Quarry who own the majority of land on the east side of the Creek downstream of McKimmies Road.	WCC Land-holder MW	High
E4/3	Lack of indigenous overstorey along Hendersons Creek	Progressively plant scattered indigenous overstorey along Hendersons Creek, consistent with Melbourne Water's management objectives for this Creek.	WCC MW	Ongoing

Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E5/3	Growling Grass Frog is present in lower reaches of the creek downstream of McKimmies Road and requires protection from potential redevelopment of adjoining land and arterial road construction.	Protect the Growling Grass Frog habitat in the Creek and on adjoining land in any future redevelopment of the Boral Land and freeway construction.	WCC Land-holder MW	Ongoing
E6/3	Lack of continuity of indigenous vegetation, particularly overstorey along the Creek limits fauna habitat values.	Increase the presence of the indigenous overstorey particularly between Sycamore Reserve and the Yan Yean Pipe Track. These works are a higher priority as they will assist in ameliorating the impacts from the proposed E6 arterial road in the future.	WCC	High
E7/3	Continue to protect and restore the remnant Escarpment Shrubland vegetation, including protection of the nationally endangered Matted Flax-lily (Melbourne Water, 2000).	Melbourne Water to confirm the location of this escarpment between McKimmies Road and Metropolitan Ring Road.	WCC (MW)	Ongoing

Water quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E8/3	High litter loads from Lalor Main Drain which includes Lalor Plaza in its catchment.	Investigate the potential to install litter traps at Lalor Plaza as this was identified as a major litter source in the Waterway Management Activity Plan.	WCC DCMC	High
E9/3	High litter and silt loads entering Darebin Creek from Council drains	Council to continue to implement the Stormwater Management Plan which contains a number of strategies to reduce litter and silt loads in the catchment.	WCC	High

4.3.4 Cultural heritage values

4.3.4.1 Existing conditions for Reach 3

- The Darebin Creek has been modified through most of this reach.
- One non-Indigenous heritage feature is the Yan Yean water supply bridge. This provides the connection with the construction of the Yan Yean water supply for Melbourne in the early 1900's.

4.3.4.2 Cultural heritage issues - Reach 3

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/3	The Yan Yean water supply bridge is the only non-indigenous heritage feature in this reach.	In future interpretive signage strategy, include interpretation and water supply to Melbourne from Yan Yean Reservoir.	WCC	Low
CH2/3	Darebin Creek is identified as an area of Aboriginal archaeological sensitivity within 200 metres of the waterway.	Consistent with the Heritage Act 2006, a Cultural Heritage Management Plan or similar may be required prior to any works being constructed within the 200 metre corridor of Darebin Creek.	WCC, MW, AAV	Ongoing

4.4 Reach 4

Metropolitan Ring Road to Plenty Road

This reach extends from the Metropolitan Ring Road in Bundoora and Thomastown to Plenty Road in the Kingsbury and Reservoir area.



PHOTO 4.4-1 NORRIS BANK RESERVE AND DAREBIN CREEK, THOMASTOWN (2007)



PHOTO 4.4-2 BUNDOORA PARK (2007)



PHOTO 4.4-3 SHARED NEAR RATHCOWN ROAD (2007)



PHOTO 4.4-5 DOWNSTREAM DUNNE STREET (2007)



PHOTO 4.4-4 DOWNSTREAM RATHCOWN ROAD (2007)



PHOTO 4.4-6 KP HARDIMAN RESERVE (2007)

4.4.1 Adjoining land use and landscape character

4.4.1.1 Existing conditions for Reach 4

- The Creek from the Metropolitan Ring Road to Arthur Street is located in the City of Whittlesea, whilst downstream of Arthur Street the City of Darebin is the local planning authority.
- Public land adjoins the majority of the creek through this reach in a predominantly residential area.
- Reservoir District Secondary College adjoins the open space corridor immediately upstream of Plenty Road.
- The majority of land adjoining the creek in the City of Whittlesea is zoned Public Use 1, which generally refers to Melbourne Water owned land, and Urban Floodway Zone. The only large public open space in the City of Whittlesea section is Norris Bank Reserve.

- In the City of Darebin the land is largely zoned Public Park and Recreation Zone with some areas of Public Use Zone 1. An Environmental Significance Overlay extends over the creek corridor and adjoining residential land where it is located close to the creek. There are some parcels of land with Public Acquisition Overlays in favour of Council for public open space purposes. In the longer term this will expand the open space corridor on the west side of the creek between Arthur Street and Plenty Road.

4.4.1.2 Adjoining land use and landscape character issues and recommendations for Reach 4

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/4	Between the Metropolitan Ring Road and Arthur Street much of the land adjoining the creek appears to be owned by Melbourne Water.	Ongoing liaison between Melbourne Water and Council will be required to effectively manage these areas for drainage, flood protection, recreation and environmental values.	MW WCC DCMC	Ongoing
LU2/4	Freehold land extending to the creek resulting in a discontinuous open space corridor between Chenies Street and Rathcown Road.	Investigate opportunities to achieve a continuous public open space corridor through this reach as future development occurs.	DCC DCMC	Ongoing
LU3/4	Interface with adjoining land holders including encroachment into the reserve and poor land management practices.	Council to consult with landholders who have encroached into the Council reserve to negotiate removal of infrastructure and planting.	WCC DCC MW DCMC	Mod
LU4/4	Grazing access to the stream in the vicinity of Rathcown Road.	In consultation with MW, liaise with landholder to encourage fencing creek from stock access and provide alternative stock watering points.	DCC MW	High
LA1/4	Rear boundary fence lines to waterway in the City of Whittlesea are visually dominant and result in a lack of passive surveillance of the waterway corridor.	<ul style="list-style-type: none"> • WCC to discourage rear boundary fence lines to the creek in future development applications. • Plant scattered indigenous overstorey to break up the visual impact of fence lines, ensuring open sight lines from paths are retained. • WCC to develop guidelines for appropriate future redevelopment of existing properties with rear boundary fence lines to the Darebin Creek. Refer to Recommendation No.LU3/6. 	WCC DCMC WCC DCMC WCC DCMC	Ongoing Ongoing High
LA2/4	Rear boundary fence lines to waterway in City of Darebin are visually dominant.	<ul style="list-style-type: none"> • DCC to continue to implement the existing Darebin Creek Design & Development Guidelines where applicable through the planning system. • Plant scattered indigenous overstorey to break up the visual impact of fence lines whilst ensuring open sight lines from paths are retained. 	DCC DCMC DCC	Ongoing Ongoing

4.4.2 Recreation and community use

4.4.2.1 Existing conditions for Reach 4

- Norris Bank Reserve has been identified as a major community park in *City of Whittlesea Open Space Strategy*. It includes structured sporting facilities and informal recreational facilities including playground, picnic and BBQ areas, shared trail and revegetation areas. A Masterplan for this reserve is currently in preparation.
- Bundoora Public Golf Course is located downstream of Arthurs Road in the City of Darebin.
- Bundoora Park, including Mount Cooper, is located adjacent to the Golf Course and to its south. This reserve has a series of picnic areas, walking paths and the historic Coopers Settlement Heritage Village and is a major regional reserve for this area. The historical and natural landscape character contributes to its informal recreational use and value. There is an informal walking / maintenance track provided along the Darebin Creek through this reserve.
- CW Kirkwood Reserve and John Hall Reserve have formal sporting facilities in them.
- KP Hardiman Reserve is primarily an informal open space area with areas of scattered revegetation and no paths to the west. To the east the main shared trail is located adjacent to the creek along with the Kinsbury Tennis Club.
- Reservoir District Secondary College directly adjoins KP Hardiman Reserve.
- A shared trail is provided in some sections of this reach, including between Gronn Street and Rathcoun Road on the west side of the creek, and from Chenies Street to Plenty Road. The trail continues under Plenty Road, crosses the creek and continues on the west side.
- Questionnaires identified that people use the creek corridor primarily for walking (13%) followed by cycling (7%), and as a short cut or link.

4.4.2.2 Recreation and community use issues and recommendations for Reach 4

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R1/4	Norris Bank Reserve is a major regional reserve on the Darebin Creek Trail, and there is potential to improve integration between the creek and open space reserve and connectivity downstream of Settlement Road.	Council to liaise with MW and DCC during the preparation and implementation of the Landscape Masterplan for this major community park to ensure excellent integration of the recreational use and strengthening environmental values of Darebin Creek. As part of the Masterplan investigate options to improve pedestrian access into the park from the east and trail connectivity to the Darebin City Council section of trail downstream of Settlement Road.	MW WCC DCMC DCC	High
R2/4	KP Hardiman Reserve has potential to be improved as part of the linear open space reserve along the creek.	Council to develop a Concept Plan for KP Hardiman Reserve which addresses the following: <ul style="list-style-type: none"> • integrates secondary path access, protection and expansion of the <i>Danthonia</i> grassland restoration; • identifies opportunities to improve integration of the in-stream works proposed by Melbourne Water; • involve the community to improve community ownership of this section of the creek; • seating areas that take advantage of the elevation and views. 	DCC (MW)	Very High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R3/4	Lack of bridge and shared trail link between Tee Street and Rathcoun Road near Bundoora Park is identified as a priority project in the <i>Northern Regional Trail Strategy (2016)</i> .	Design and install a sealed shared path and pedestrian bridge connection between Tee Street and Rothcoun Road as per the priority recommendation D2 in the <i>Northern Regional Trail Strategy</i> .	Vic Govt DCC	High
CU1/4	Restrict motorbike access to the shared trail.	DCC and WCC Refer to Recommendation 3.2.5.1	Refer 3.2.5.1	Refer 3.2.5.1
CU3/4	Signage including interpretation and directional signage requires coordination to improve community use and understanding of the creek corridor.	Implement the Signage Strategy, Refer to Recommendation 3.2.7.1	Refer 3.2.7.1	Refer 3.2.7.1

4.4.3 Environment

4.4.3.1 Existing conditions for Reach 4

Flora

- Remnant River Red Gums in the Norris Bank Reserve, Bundoora.
- River Red Gum Grassy Woodland and large remnant and regenerating stands Red Gums and native grasslands in Bundoora Park are noted to be of State significance (Darebin City Council, 1996).
- Partially intact Brown-black Wallaby grass seasonal wetland in the conservation area of Bundoora Park (Beardsell, 1997).
- Remnant Red Gums through the Bundoora Public Golf Course.
- Some remnant Escarpment Shrubland and scattered Red Gums along the Darebin Creek corridor through this reach.
- Melbourne Water and the City of Darebin have revegetated the waterway corridor, particularly on the western side of the Creek opposite Bundoora Park and between Chenies and Dunne Streets.
- Remnant *Danthonia* grassland in KP Hardiman Reserve is currently managed by the Darebin City Council bush crew.

Fauna

- Regional faunal significance due to the sighting of Swift Parrots in 1991 (noted as a vulnerable species), the diversity of species including bats, Growling Grass Frog and the Common Spadefoot Toad (Beardsell, 1997).
- Range of waterbirds in the wetland area of Bundoora Park (Beardsell, 1997).
- Bundoora Park is noted as an important habitat link to the La Trobe University Wildlife Reserve.

Geological / geomorphological

- The stream has been modified to a trapezoidal earth lined channel throughout this reach.
- A significant geomorphological feature, a tessellated rockform, is present opposite Manoel Avenue (Melbourne Water, 2000).

- Downstream of Chenies Street the creek has been straightened and Council was investigating the potential to develop a wetland in the old meander (Melbourne Water, 2000).
- Melbourne Water is proposing some channel modifications including laybacks, construction of pools and riffles and revegetation through this reach adjacent to Bundoora Park and KP Hardiman Reserve.

Water quality

- Broadway Drain (immediately downstream of Dunne Street) is discharging silt and litter loads into the creek (Melbourne Water, 2000). *Status of proposed investigation to reduce this is required from Melbourne Water.*

4.4.3.2 Environment issues and recommendations for Reach 4

Flora

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/4	Lack of indigenous overstorey between Norris Bank Reserve and Bundoora Park.	Undertake revegetation of additional scattered indigenous trees in the open space corridor between Bundoora Park and Norris Bank Reserve to improve the habitat corridor and open space link.	WCC DCMC	High
E2/4	Degraded remnant Escarpment Shrubland vegetation on the west bank near Gronn Street requires improvement.	Council to protect by undertaking appropriate weed control and selective revegetation at the degraded remnant Escarpment Shrubland on the west bank upstream of Gronn Street.	DCC (MW)	Ongoing
E3/4	Bundoora Park is a regional open space with remnant indigenous vegetation that contributes to the habitat values of this area.	Protect indigenous vegetation in Bundoora Park and, where appropriate, allow additional regeneration and revegetation.	DCC	Ongoing
E4/4	Lack of indigenous overstorey vegetation along the Darebin Creek and adjoining open space reserves downstream of Bundoora Park. The Creek forms an important habitat link to La Trobe University Wildlife area and increasing the presence of indigenous overstorey along the creek will improve these links.	Undertake revegetation of additional scattered indigenous trees between Bundoora Park and Plenty Road to improve the habitat corridor values between La Trobe University Wildlife Reserve (south of Plenty Road) and Bundoora Park.	DCC DCMC	Very High
E5/4	MW is planning to undertake in-stream works to modify trapezoidal earth channel, in KP Hardiman Reserve and Council have not undertaken revegetation in this area until these works are completed. There are remnant <i>Danthonia</i> grasslands in KP Hardiman Reserve.	<ul style="list-style-type: none"> • Liaise with MW regarding timing for the in-stream works to modify the channel in KP Hardiman Reserve works and coordinate additional terrestrial revegetation works. • Continue to protect and improve the remnant <i>Danthonia</i> grasslands at KP Hardiman Reserve. 	DCC (MW) DCC	High Ongoing
E6/4	Serrated Tussock upstream of Plenty Road requires ongoing control.	Council to liaise with VicRoads to coordinate an effective control program in this area in accordance with best practice management. Refer also to Serrated Tussock Control in Reach 5 (Recommendation E2/5)	DCC VR	Very High & Ongoing

Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E7/4	Lack of indigenous overstorey limits habitat connectivity between Bundoora Park and La Trobe University Wildlife Reserve. Habitat values have the potential to be improved through extending the indigenous vegetation throughout the reach that will reinforce the existing values in Bundoora Park.	Improve the habitat values in this reach by increasing the presence of indigenous overstorey trees in open space adjoining the creek between Bundoora Park and La Trobe University, in accordance with Recommendation E4/4.	DCC	High & Ongoing
E8/4	Growling Grass Frogs require protection and future habitat expansion in Bundoora Park.	Council to continue to protect and plan for expanding the Growling Grass Frog habitat as part of the proposed dam to be installed in the Golf Course as part of Councils program for reduced water usage. This may include the provision of smaller connecting ponds to link the wetland habitat with the proposed dam.	DCC DCMC	Very High & Ongoing

Geology/Geomorphology

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E9/4	Protect the significant geomorphological feature (tessellated rockform) adjacent to Manoel Avenue.	Council to ensure protection of the feature in future open space management and potential trail alignment through this location.	DCC	Ongoing
E10/4	Rock escarpment upstream of Gronn Street requires protection in ongoing works.	Protect and in future trail alignment options ensure that adequate setback from escarpment is retained to minimise impacts, and avoid the need for handrails.	DCC	Ongoing

Water quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E11/4	Future re-set of the outfall from Broadway Drain to, as a minimum, trap silt prior to entering the creek, has the potential to integrate with adjoining open space.	MW to liaise with Council during the detailed documentation of the outfall design to integrate with the adjoining open space design.	MW DCC DCMC	High

4.4.4 Cultural Heritage

4.4.4.1 Existing conditions for Reach 4

- The archaeological survey undertaken by Luebbers and Associates as part of the Norris Bank Reserve Masterplan confirmed there is a scarred tree which is registered with AAV No. 7922-0575.
- Bundoora Park area is a rich source of stone artefact scatters which are residues of Aboriginal campsites. There are other stone artefact scatters along the Creek corridor between Settlement Road Tyler Street (in Reach 5) (Ecology Australia et al, 1999).

- Basalt/bluestone quarry (non-commercial) in Bundoora Park, with three areas of basalt removal in the nineteenth century recorded as being of medium significance (Ecology Australia et al, 1999)

4.4.4.2 Cultural heritage issues and recommendations for Reach 4

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/4	Aboriginal archaeological sites have been identified through this reach.	Protect Aboriginal archaeological sites by minimising major works and disturbance to areas that have not previously been modified in the open space corridor along the creek. In future works ensure consultation with relevant RAP and required Cultural Heritage Management Plans and prepared and/or monitoring of any works that include earthworks and disturbance to the ground.	MW DCC	Ongoing

4.5 Reach 5

Plenty Road to Bell Street

This reach extends from Plenty Road in Bundoora to Bell Street in Preston. For Reach 5, refer to Drawing DCM-05 for location of proposed recommendations.



PHOTO 4.5-1 CT BARLING PARK AND POOL & RIFFLE WORKS IN DAREBIN CREEK (2007)



PHOTO 4.5-2 ESCARPMENT & LA TROBE UNIVERSITY RED GUM WOODLAND (2007)



PHOTO 4.5-2 CH SULLIVAN PARK & REGENERATING STAND OF RED GUMS (2007)



PHOTO 4.5-3 ESCARPMENT ADJACENT TO DAREBIN CREEK NEAR LA TROBE UNIVERSITY (2007)



PHOTO 4.5-5 SHARED TRAIL UPSTREAM OF BELL STREET (2007)

4.5.1 Adjoining land use and landscape character

4.5.1.1 Existing conditions for Reach 5

- The creek is the boundary between the City of Darebin and City of Banyule for the majority of this reach downstream of La Trobe University.
- A public open space corridor adjoins the west side of the creek between Plenty Road and Wood Street. Downstream of Wood Street on the west side of the creek freehold land extends to the creek adjacent to Northland Shopping Centre. South of Murray Road there are sections of public and freehold land and a discontinuous open space corridor on the west.
- La Trobe University, including the large retarding basin wetland and conservation area, adjoins the east side of the creek downstream of Plenty Road.
- La Trobe University land extends to the creek and south of Crissane Road public open space directly adjoins the creek.
- The western side is predominantly residential use to Murray Road and changes to industrial use south of Murray Road.
- Downstream of La Trobe University the industrial precinct of West Heidelberg is identified as a significant pollutant source (Melbourne Water, 2000)



PHOTO 4.5-4 FOOTBRIDGE & LITTER NEAR NORTHLAND SHOPPING CENTRE (2007)

- Land use changes to residential use immediately south of the industrial precinct adjacent to Olympic Village Reserve.
- The wide system of open space in the northern part of this reach with native grasslands gives a natural open quality to the landscape.
- Downstream the open space reserve system narrows and has a poor interface to the creek.

4.5.1.2 Adjoining land use and landscape character issues and recommendations for Reach 5

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/5	Industrial and business land ownership to the Creek prevents public access along the open space corridor, limits consistency in land management practices and, in some locations, noise impacts on the recreational value and potentially the habitat values of the creek corridor.	In future applications for redevelopment of freehold land to the creek, require provision of public open space adjacent to the creek, consistent with the Darebin Open Space Strategy.	DCC	Ongoing
LU2/5	The East Preston Islamic College has constructed a bus parking area and other upgrade works with steep fill embankments and paling fence along the interface with the open space corridor. The embankment is difficult to effectively plant and manage, and visually this is a poor interface to the creek corridor.	Council to liaise with the East Preston Islamic College to: <ul style="list-style-type: none"> • Regrade the embankment to a sustainable grade and plant with appropriate vegetation that breaks up the visual dominance of the fence, while retaining clear lines of sight for access along the creek. • Encourage the College to be involved in creek improvement programs such as revegetation works. 	DCC DCMC	High
LU3/5	Poor interface treatment between adjoining industrial/business land and the Darebin Creek. This is particularly evident upstream and downstream of Murray Road. Issues including lack of vegetation and screening to buildings, weeds and storage areas at rear of buildings.	Councils to liaise with the land holders to: <ul style="list-style-type: none"> • In future redevelopment of all sites adjoining the creek, achieve an active interface to the creek corridor to improve passive surveillance and safety. • DCC to apply the Darebin Creek Design and Development Guidelines to any planning proposals or any subsequent guidelines. • Encourage land-holders to become involved in creek improvement works and encourage improvements to the interface treatment between their land use and the creek corridor. 	DCC BCC	High
LU4/5	The poor interface treatment between the Northland Shopping Centre and the Creek, particularly given this area of the creek receives relatively high levels of use with residents from Heidelberg West crossing the creek to the shopping centre and the Northland College of the Arts & Technology.	The Northland Ecological Improvement Study identifies opportunities to establish an active interface between the creek and the proposed redevelopment of the shopping centre. In the future redesign of this active interface, the landscape treatment will need to achieve an appropriate balance in design so as to complement and improve the natural, ecological, recreational values of Darebin Creek. Refer to Recommendation CU1/5.	DCC DCMC	Very High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LA1/5	The service infrastructure in the creek is visually dominant, particularly the sewer pits and some drainage outfalls. This is further compounded in locations where the reserve is narrow or private industrial land extends to the Creek.	In future service upgrade and modification works, investigate design solutions reduce the visual dominance of these structures in the natural creek environment.	YVW MW DCC BCC	Ongoing

4.5.2 Recreation and community use

4.5.2.1 Existing conditions for Reach 5

- The extensive open space system provides both informal recreation and structured sporting use.
- CT Barling Park, CH Sullivan Memorial Park and Olympic Park are the three main sporting reserves adjoining the Creek.
- La Trobe University sporting facilities adjoin the open space reserve contributing to the sense of open space.
- The sealed shared trail continues through this entire reach. It is located on the west side downstream of Plenty Road adjacent to CT Barling Park and CH Sullivan Memorial Park. It then crosses the creek and is located on the east side downstream of Dougharty Road.
- There are informal recreation facilities located in the adjoining reserves including playgrounds, picnic areas and local path networks linking to residential areas.
- The questionnaire identified a relatively high use of the Plenty Road to Bell Street section of the trail most frequently for cycling followed by walking.
- The Darebin Creek Northland Ecological Improvement Study (2011) identifies a range of issues and recommendations to improve the ecological values of the creek corridor between Tyler and Gower Streets.

4.5.2.2 Recreation and community use issues and recommendations for Reach 5

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R1/5	Lack of informal recreational facilities adjoining the creek corridor in CT Barling and CH Sullivan Memorial Parks precinct.	DCC to implement the recommendation from the Darebin Open Space Strategy and prepare a Masterplan for the District Open Space CT Barling and CH Sullivan Memorial Park addressing the following: <ul style="list-style-type: none"> • parking and access to the shared trail • local path connections to the shared trail including the condition and upgrade of footbridges (Refer R3/5) • picnic and BBQ facilities with views over the creek corridor • provision of seats • provision of play area which responds to the creek environment and can be used by visitors to the Darebin Creek Trail and the adjoining sports area • continued expansion of the indigenous vegetation integrated with informal and organised recreational use. 	DCC (LTU) (BCC)	Very High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R2/5	There are safety issues associated with the space on the eastern side of the creek between La Trobe University Reserve and Southern Road.	BCC to continue to improve the recreational use and access by improving safety within the open space which includes: <ul style="list-style-type: none"> • Improve access across the creek at key sporting and recreation nodes between CT Barling Reserve and La Trobe University sports fields. • Investigate potential for maintenance vehicle access over the creek at both Olympic Reserve and Sullivan Reserve. • Investigate opportunities to increase passive surveillance of adjoining residential and industrial land use as part of future development applications • Review vegetation management and densities near the shared trail and other entry paths into and through the reserve, including connections to the footbridges • Investigate opportunities to involve the community in the ongoing management of the site via the local schools including East Preston Islamic College. 	BCC (DCC) (LTU) DCMC	High & Ongoing
R3/5	The poor condition of existing footbridges.	DCC and BCC to undertake a condition assessment of existing footbridges and determine appropriate works to improve them.	DCC BCC	Very High
R4/5	Personal safety on the shared trail between Bell Street and Southern Road particularly in relation to adequate lines of sight in the steep topography and proximity of vegetation.	BCC to review the open space design between Southern Road and Bell Street including: <ul style="list-style-type: none"> • provision of alternative trail alignment between Gona Street and Bell Street which is at the top of the escarpment in the open space adjoining Liberty Parade; • review vegetation management and planting densities adjoining the shared trail to improve lines of sight; • confirm the safety of the trail under Southern Road and review vegetation planting and densities to improve lines of sight along the trail and from the adjoining road. 	BCC	Mod
CU1/5	Shopping trolleys and high volumes of litter near Northland Shopping Centre were specifically identified as a key issue in the questionnaire and via the site assessment work.	DCC to continue to implement the recommendations from the Darebin Creek Northland Ecological Improvement Study in relation to litter management.	DCC DCMC	Ongoing
CU2/5	Signage including interpretation and directional signage requires coordination to improve community use and understanding of the creek corridor.	<ul style="list-style-type: none"> • Refer to Recommendation 3.2.7.1 	Refer 3.2.7.1	Refer 3.2.7.1
CU3/5	Motorbikes illegally accessing the trail and	<ul style="list-style-type: none"> • Refer to Recommendation 	Refer..	Refer..

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
	reserves through this reach.			

4.5.3 Environment

4.5.3.1 Existing conditions for Reach 5

Flora

- Extensive Red Gum Grassy Woodland in the La Trobe University grounds which is of regional significance (Kern et al., 1999).
- Regenerating stand of Red Gum Grassy Woodland including indigenous grasses in CH Sullivan Reserve.
- Remnant Escarpment Shrubland is present on the escarpments in the northern areas of this reach (upstream of Doherty's Road).
- Stream restoration works including pools and riffle sequences adjacent to CT Barling Reserve include revegetation of the Plains Woodland riparian zone.
- Extensive revegetation areas downstream of Doherty's Road are beginning to naturally thin out with the senescence of Black Wattle in the beds of revegetation. This planting is predominantly indigenous overstorey and some smaller areas indigenous ground layer revegetation has been undertaken.
- Small patch of rare *Dianella amoena* (*location to be confirmed*).

Fauna

- The adjoining La Trobe University Wetland retarding basin and the Darebin Creek are noted to be of regional faunal significance due to the presence of waterbirds, Sugar Gliders, frogs (including the Growling Grass Frog and Striped Marsh Frog) and reptiles including Cunninghams Skink, Blue-tongued Lizard and the Tussock Skink.
- Potentially there are other faunal values which have increased in recent times since the revegetation has further established.

Geology/Geomorphology

- There are rock escarpments remaining through this reach, some with remnant and planted Escarpment Shrubland. A number of these exist between Plenty Road and Dougharty Road, and a large escarpment adjacent to Kia Court, on the west side of the Creek in Preston.
- Melbourne Water has undertaken some channel modifications including laybacks, construction of pools and riffles and revegetation through this reach adjacent to La Trobe University and CT Barling Reserve.
- The Creek has been modified to a trapezoidal earth lined channel and some future channel modifications are proposed in the vicinity of Olympic Park (Melbourne Water, 2000).

Water Quality

- The industrial precinct in West Heidelberg is a known source of pollution to the creek, particularly via the Mont Park drain.
- There are silt loads discharging into the creek from the Lillimuir Drain (near Crissane Road) which are thought to be contributed from the development in Macleod and Bundoora.

- A highly visible source of litter occurs in the vicinity of Northland Shopping Centre which is located adjacent to the Creek immediately upstream of Murray Road. The litter includes a large number of shopping trolleys as there is a footbridge opposite the shopping centre that leads to the residential area of Heidelberg West. Darebin Creek Management Committee have had clean up days at the site and removed large numbers of shopping trolleys from the Creek.
- Darebin Creek Management Committee has labelled all the drains downstream of Plenty Road to encourage accurate reporting of spills from the community.

4.5.3.2 Environment issues and recommendation for Reach 5

Flora

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/5	Protect the existing native grassland areas downstream of Plenty Road – Darebin Creek Northern Grasslands.	BCC to continue manage the grasslands in accordance with the Management Plan.	BCC	Ongoing
E2/5	Serrated Tussock is present immediately upstream and in the area downstream of Plenty Road.	DCC to coordinate development of a Serrated Tussock Control program in consultation with LTU, BCC and VicRoads, implement and monitor success.	DCC (LTU) (BCC) (VR)	Very High & Ongoing
E3/5	Lack of riparian vegetation in the section of creek where pool and riffle sequence were recently constructed by MW downstream of Plenty Road.	Undertake revegetation works in the vicinity of the riparian zone adjacent to the creek restoration works undertaken by Melbourne Water and La Trobe University adjacent to CT Barling Park	MW DCC BCC LTU DCMC	High
E4/5	Weed management.	Councils bush crews to continue develop and implement annual vegetation management programs to target weeds and works as required.	DCC BCC	Ongoing
E5/5	Vegetation management on the steep embankments between Murray Road and Bell Street make control of weed, including blackberry and fennel, and revegetation with indigenous species problematical.	DCC to review current training programs for working on steep escarpments, and prepare protocols for undertaking this works safety. BCC to contribute to the development of these protocols and both Councils to implement these guidelines and manage the steep escarpment areas accordingly.	DCC BCC	Very High & Ongoing
E6/5	The vegetation on the steep escarpment in the vicinity of Kia Court is difficult to protect and manage vegetation due to the narrow width of public land through this area.	DCC to liaise with adjoining land holders to investigate ways to improve maintenance access into this location. In the longer term, seek a wider public open space reserve in accordance with Recommendation LU1/5.	DCC	Very High

Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E7/5	The La Trobe Wildlife Sanctuary and wetland and grasslands requires ongoing management to protect and enhance the environmental values.	La Trobe University to continue to manage the habitat and environmental values on their land which significantly contributes to the environmental values of the corridor.	LTU	Ongoing

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E8/5	There are no recent fauna surveys in the downstream section of this reach and the habitat value of the revegetation is unknown.	BCC and DCC to undertake a fauna survey of the Darebin Creek corridor between Crissane Road to the Yarra River, and implement future recommendations from the survey.	BCC DCC DCMC	High

Water quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E9/5	High sediment loads entering the Creek via Lillimuir Drain are generated from development in Macleod and Bundoora.	DCC to continue to implement recommendations from the SWMP to require adequate at-source sediment control to minimise sediment entering the stream.	DCC	Very High
E10/5	Industrial spills occur in the catchment and whilst the reporting method has been improved by labelling all drains on site, EPA are under-resourced to attend and issue infringement notices.	BCC to implement recommendations from the SWMP to consult with the industrial land holders in the Heidelberg West precinct and implement appropriate on-site controls to minimise occurrence of industrial spills.	BCC (EPA)	Very High & Ongoing
E11/5	Litter load from Northland Shopping Centre including shopping trolleys requires control, particularly given the close proximity of the Shopping Centre and the Northland College of the Arts & Technology.	DCC to implement recommendations contained in the Darebin Creek Northland Ecological Improvement Study.	DCC DCMC	High
E12/5	Stormwater outfalls on the steep embankments between Murray Road and Bell Street cause localised erosion and interrupt the natural valley form.	BCC to undertake structural review of the outfalls and develop designs to minimise erosion and visual impact of these outfalls. Where appropriate, integrate water quality improvement works into the drain outfall designs.	BCC DCMC	High
E13/5	Council water quality treatment pond requires ongoing maintenance.	BCC to regularly monitor sediment pond downstream of Murray Road and maintain as required.	BCC	Ongoing

4.5.4 Cultural heritage

4.5.4.1 Existing conditions for Reach 5

- Aboriginal Affairs Victoria has completed surveys along the Creek through this reach.
- There are stone artefact scatters along the Creek corridor between Plenty Road and Tyler Street (Ecology Australia et al, 1999).
- Olympic Park was originally developed as part of the Olympic Village development for the 1956 Olympic Games held in Melbourne.

4.5.4.2 Cultural heritage issues and recommendations for Reach 5

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/5	Future works which alter land that has not previously been disturbed is likely to require preparation of a Cultural Heritage Management Plan prior to works being undertaken. Darebin Creek is identified as an area of Aboriginal archaeological sensitivity within 200 metres of the waterway.	Consistent with the Heritage Act 2006, a Cultural Heritage Management Plan or similar may be required prior to any works being constructed within the 200 metre corridor of Darebin Creek.	DCC, MW, AAV	Ongoing

4.6 Reach 6

Bell Street to the Yarra River

This reach extends from Bell Street in Preston to the Yarra River in Ivanhoe. For Reach 6 refer to Drawing DCM-06 for location of proposed recommendations.



PHOTO 4.6-1 OPEN SPACE ADJACENT TO LIBERTY PARADE WITH EXPANSIVE VIEWS OVER DAREBIN CREEK



PHOTO 4.6-2 ADJOINING DEVELOPMENT UPSTREAM OF SEDDON RESERVE IN IVANHOE (2007)



PHOTO 4.6-3 NEAR FORD CRESCENT WITH ESCARPMENT TO SEDDON RESERVE (2007)



PHOTO 4.6-4 DAREBIN CREEK SHARED TRAIL UPSTREAM OF DAREBIN PARKLANDS (2007)

4.6.1 Adjoining land use and landscape character

4.6.1.1 Existing conditions for Reach 6

- The creek is the boundary between the City of Darebin and City of Banyule for the majority of this reach to Heidelberg Road, where the western side of the creek changes to the City of Yarra.
- The suburbs include Ivanhoe, Thornbury, Fairfield and Alphington.
- Industrial and residential land use adjoins the waterway corridor.
- The western side has freehold land extending to the Creek in some sections restricting public access. The public land is owned by both Council and Melbourne Water, and the majority of the shared trail is located on this side of the creek through this reach.

- The eastern side has freehold land extending to the creek in several sections and the public land is Council owned.
- An Environmental Significance Overlay 2 extends over public and freehold land adjacent to Darebin Creek on the City of Darebin side of the creek.
- An Environmental Significance Overlay extends over public and freehold land adjacent to Darebin Creek on the City of Banyule side of the creek.
- A public acquisition overlay extends over freehold land adjacent to Darebin Creek downstream of Heidelberg Road on the western side. This is in favour of Victorian Government to acquire the land to provide for the shared trail and public open space link between the Darebin Creek trail and the Main Yarra trail.
- City of Darebin has Design and Development guidelines in place for the interface with development along the creek.
- Darebin Creek Management Committee has labelled all the drains downstream of Plenty Road to encourage accurate reporting of spills from the community.

4.6.1.2 Adjoining land use and landscape character issues and recommendations for Reach 6

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
LU1/6	Freehold land to the creek restricts public access and is the major limitation in being able to link the Darebin Creek Trail to the Main Yarra Trail.	In future applications for the redevelopment of freehold land to the Creek, require provision of public open space adjacent to the creek.	DCC BCC	Ongoing
LU2/6	Interface between adjoining residential use and the creek corridor. In particular there are areas where poor land management practices along the residential property boundary leads to spread of weeds into the waterway corridor.	Councils to liaise with the land holders to: <ul style="list-style-type: none"> • improve the interface treatment by modifying their land management practices where appropriate; • DCC to apply the Darebin Creek Design and Development Guidelines to any planning proposals; and • encourage business and industrial land holders to become involved in creek improvement works. 	DCC BCC DCMC	Mod & Ongoing
LU3/6	The deeply incised nature of the creek through this reach results in built form on adjoining land being visually prominent, and thereby having significant impact on the open space corridor values.	BCC to prepare development guidelines for the Darebin Creek corridor applicable specifically addressing the following: <ul style="list-style-type: none"> • improving passive surveillance of the open space corridor; • adequate set back minimise visual impact of built form from within the open space corridor when viewed from both sides of the creek; • no loss and where possible improvement to the habitat values of the corridor; • adequate set back of all built form from established trees (other than woody weeds) in the waterway corridor so as not to require trimming or removal of them; and • vegetation management including no use of plants that are known weeds in the waterway corridor, with a preference for indigenous vegetation. 	BCC DCMC	Very High
LU4/6	Napier Waller Reserve is surrounded by freehold land	Council to support the construction of the Darebin Creek Shared Trail as a means	BCC	High

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
	and public access for maintenance and recreational use is difficult.	of gaining access into the open space. Council will need to ensure security of access between the trail and the Napier Waller Estate to protect the cultural heritage values of the adjoining property.	DCMC	

4.6.2 Recreation and community use

4.6.2.1 Existing conditions for Reach 6

- The shared trail extends from Bell Street to the Railway in Alphington.
- The gap in the trail from the Sparkes Reserve to the Main Yarra Trail is currently under construction by the Victorian Government.
- Open space reserves between Bell Street and Darebin Road are predominantly structured sporting use including Cyril Cummins Reserve and Seddon Reserve.
- Darebin Parklands provides a major informal recreation destination on the trail and the community consultation process identified the reserve is well used for a range of uses including walking, dog walking, cycling, picnics, BBQ's, events, Mulberry picking etc. The Parklands are managed by a separate part of Darebin Creek Management Committee and a Masterplan for the Parklands was developed in 2009 to guide future works, in consultation for the Darebin Parklands Association.
- The Darebin Parklands Association is a friends group that has been involved in the development and restoration of the parklands for over 40 years.
- Sparks Reserve is an informal open space reserve with playground and open grassed areas.
- The existing public open space corridor along this reach is relatively narrow and the creek is deeply incised.
- The questionnaires identified that Bell Street to the Railway section of the shared trail is the most frequently used, however, it is noted that the largest number of questionnaires were returned from this section.

4.6.2.2 Recreation and community use issues and recommendations for Reach 6

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
R1/6	Lack of localised trail networks and informal recreational facilities (particularly seating) to improve access into the open space reserves between Banksia Street and Darebin Road.	BCC to prepare a Concept Plan for the open space reserves adjoining Darebin Creek south Banksia Street (Cyril Cummins Reserve) to Seddon Reserve. This includes: <ul style="list-style-type: none"> land ownership; secondary path links and seating to improve local use and access to the Darebin Creek corridor; and vegetation management. 	BCC	Mod
R2/6	Lack of continuity of public open space reserves along the creek corridor with private land ownership to the creek at several locations along the creek.	Refer Recommendation LU1/6	Refer LU1/6	Refer LU1/6
R3/6	Safety on the existing shared trail due to the grade separation between the adjoining residential areas and the trail. There are also sections where the dense revegetation works restrict safe lines of sight for trail users.	Councils to continue to improve the recreational use and access by improving safety within the open space which includes: <ul style="list-style-type: none"> investigate opportunities to increase passive surveillance of adjoining residential and industrial land use as part of future development applications; review vegetation management and densities near the shared trail and other entry paths into and through the reserve, including connections to the footbridges; and investigate opportunities to involve the community in the ongoing management of the creek corridor north of Livingstone Street via the local schools. 	DCC BCC	Ongoing
R4/6	Darebin Parklands is nominated as the most popular reserve on the Darebin Creek.	DCMC to continue to manage the reserve in accordance with the agreed Masterplan.	DCMC	Ongoing
R5/6	Gap in the shared trail from Sparkes Reserve to the Main Yarra Trail, which is currently in the process of being extended.	Vic Govt to complete the design and implementation of the shared trail link between Sparkes Reserve and the Main Yarra Trail.	Vic Govt (BCC) (YCC)	Very High
R6/6	Local access onto the proposed Shared Trail for residents of the City of Yarra.	Council to investigate opportunities to provide local access onto the Shared Trail via the old road reserve at Alphington Grammar.	YCC (Vic Govt)	Very High
CU1/6	Signage including interpretation and directional signage requires coordination to improve community use and understanding of the creek corridor.	Refer to Recommendation 3.2.7.1		
CU2/6	Friends of Darebin Creek contribute to the high community value and have an ongoing involvement in the lower reaches of the creek. There is potential to use this model in formation and running of other Friends Groups upstream	Council and DCMC to continue to support the Friends of Darebin Creek, and use this as a model for establishment of additional Friends Groups further upstream in the catchment.	DCMC DCC BCC	Ongoing

4.6.3 Environment

4.6.3.1 Existing conditions for Reach 6

Flora

- Extensive revegetation works along the waterway corridor between Bell Street and the Railway along with significant weed infestation along the Creek and adjoining land.
- Darebin Parklands and Rockbeare Park have extensive areas of revegetation. Darebin Parklands is noted as having State significance in the *Draft Darebin Natural Heritage Strategy 2015-2025*. Though largely restored vegetation, small patches and individual trees are remnant from pre-European settlement times.
- Woody weed removal from the waterway corridor and indigenous revegetation downstream of the Railway including at Sparks Reserve and through the creek adjacent to the Latrobe Golf Club.
- Escarpment Shrubland present on some of the steep escarpments in this reach.

Fauna

- Darebin Parklands is rated as being of regional faunal significance due to the diversity of waterbirds including breeding waterfowl, Sugar Gliders, presence of Growling Grass Frog in 1986 and some reptiles including the Red-bellied Black Snake, Southern Water Skink and Cunninghams Skink.
- Potentially there are other faunal values which have increased in recent times since the revegetation has further established.

Water quality

- Water quality sampling site at Heidelberg Road reveals there is some improvement from the water quality at Settlement Road (Reach 3). This may be due to dilution of polluted load, however, most of the State Environmental Protection Policy (SEPP) objectives were still exceeded.
- Poor water quality enters the stream at the Bell Street Main Drain due to the industrial and commercial land use in the catchment.
- Quarry Street drain outfall adjacent to Claredon Street in Fairfield contributes poor water quality and high litter load. This is due to the industrial and commercial land use in the catchment.
- Donaldsons Creek contributes relatively poor water quality, with high sediment loads. Previous investigations in the catchment have not revealed an obvious source, however, Council are currently viewing management practices at the Councils Depot which is located on the drain to identify if this may be a contributing factor.

Geomorphology

- Darebin Creek has been modified to a trapezoidal earth lined channel between Bell Street and Ford Crescent.
- Darebin Creek is a natural channel from Ford Crescent to the Yarra River.
- The eastern side of the creek as Silurian Sandstone mudstone rock escarpments in Darebin Parklands and further downstream near Napier Waller Reserve.

4.6.2.2 Environment issues and recommendations for Reach 6

Flora

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E1/6	Vegetation management along the open space corridor requires review to establish a realistic approach that is affordable and can be maintained by Council. This includes potential to reduce the large areas of mown grass where possible and allow progressive weed management and revegetation or regeneration of indigenous species.	BCC to address vegetation management in the proposed Concept Plan in Recommendation R1/6.	Refer R1/6	Refer R1/6
E2/6	Vegetation management on steep escarpments.	DCC to review current training programs for working on steep escarpments, and prepare protocols for undertaking this works safety. BCC to contribute to the development of these protocols and both Councils to implement these guidelines and manage the steep escarpment areas accordingly.	DCC BCC	Very High
E3/6	Infestations of woody weeds including Ash trees with the seed source coming from the surrounding urban catchment including mature trees in adjoining reserves (Seddon Reserve has mature Ash trees) residential properties and street trees.	BCC and DCC to assess the presence of woody weeds in the local catchments including streetscapes and open space, and develop a program to progressively remove and replace woody weeds with non-invasive weeds in waterway environments.	DCC BCC	Mod & Ongoing
E4/6	Some of the existing revegetation areas are dense which obscures lines of sight on the trail, and there may be potential to reduce this density to create a more open character adjacent to the trail.	BCC and DCC to assess vegetation density along the trail and progressively selectively remove or prune vegetation to achieve safe lines of sight along the shared trail, access paths and entry points.	BCC DCC	High

Fauna

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E5/6	Disturbance and predation of fauna by dogs and cats.	Promote responsible pet ownership and adherence to regulated don on-lead areas.	BCC DCC	Ongoing
E6/6	Poor water quality and high flow events impact on the in-stream habitat values.	Continue to work with Melbourne Water and Council to improve water quality and flows.	DCMC BCC DCC MW	

Geomorphology

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E7/6	The existing basalt escarpments in this reach require protection in future works and vegetation management, particularly weed management.	BCC, DCC and DCMC to protect the basalt escarpments including weed control and, where appropriate, revegetation with indigenous species.	BCC DCC DCMC	Ongoing
E8/6	The existing Silurian sandstone mudstone rock escarpments in the vicinity of Napier Waller Reserve require protection.	Protect the Silurian sandstone mudstone rock escarpments in the vicinity of Napier Waller Reserve in future works.	Vic Govt BCC	Ongoing

Water quality

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
E9/6	Quarry Street Drain has high litter and pollutant loads, and the outfall design does not integrate with the natural character of the creek.	DCC and MW to investigate at source controls in the Quarry Street Drain catchment to address the high litter and pollutant loads, and review the outfall design.	DCC MW DCMC	Very High
E10/6	Council and Melbourne Water to continue to investigate the source of poor water quality entering Donaldson Creek.	BCC and MW to continue to investigate the source of poor water quality entering Donaldson Creek	MW BCC DCMC	Ongoing

4.6.4 Cultural Heritage

4.6.4.1 Existing Conditions for Reach 6

- The Spiritual Healing Trail in the Darebin Parklands was developed by local Aboriginal elder Uncle Reg Blow and provides important acknowledgement of indigenous spirituality and connection to the land.
- Brick and cement arched road bridge on Darebin Road dated 1915, noted to be of high significance (Ecology Australia, 1999).
- Remains of road, creek crossing and bluestone track up to the western terrace on Mulberry Spur in Darebin parklands including bluestone rubble surface and some Mulberry trees noted to be of medium to high significance (Ecology Australia, 1999).
- Bluestone pitcher weir in Darebin Parklands on the eastern creek bank, constructed for irrigation between 1890 and 1900 (Ecology Australia, 1999).
- Bluestone pitcher weir in Darebin Parklands on the west bank, which is one of twelve constructed for use in the irrigation of orange groves at 'Rockbeare' between 1890 and 1900. This is noted to be of medium to high significance (Ecology Australia, 1999).
- Orchard remains of 'Rockbeare', now in Darebin Parklands, established between 1860 and 1900, noted as being medium to high significance (Ecology Australia, 1999).
- Iron railway bridge crossing downstream of Darebin Parklands, constructed in 1888 and noted to be of high significance.
- Bluestone arched bridge at Heidelberg Road constructed in the 1860's, level of significance to be confirmed.

- Mervyn Napier Waller trained as an artist in the early 1900's and bought land and constructed his house designed by the Architect Harold Desbrowe Annear in 1922 on the escarpment above the park. Mervyn married Christian Waller who was an artist in her own right. The State government purchased the land from the Napier Waller Estate in the early 1990's (Thompson Berrill Landscape Design, 1997).
- Former creek crossing downstream of Heidelberg Road including the row plantings of Osage Orange Trees designating an earlier road alignment.
- Immediately downstream of Heidelberg Road was a popular swimming hole in Darebin Creek until swimming was restricted, and the waterhole filled in with pitchers (Thompson Berrill Landscape Design, 1996).

4.6.4.2 Cultural heritage issues and recommendations for Reach 6

No.	ISSUE	RECOMMENDATION	RESPONSIBILITY	PRIORITY
CH1/6	Future works which alter land that has not previously been disturbed between Plenty Road and Tyler Street may require archaeological investigation prior to works being undertaken.	<ul style="list-style-type: none"> • Refer Recommendation 3.4.1.1 		
CH2/6	Lack of on site interpretive information regarding the cultural values of the creek in this lower reach, particularly downstream of Darebin Road/Livingstone Street.	Incorporate the cultural heritage values in this reach into the future Signage Strategy for the Darebin Creek. Refer to Recommendation 3.2.7.1.	Refer 3.2.7.1	Refer 3.2.7.1

References

AECOM (2011) Darebin Creek Northland Ecological Improvement Study, prepared for the City of Darebin

ARUP Pty Ltd (2016) Northern Regional Trails Strategy prepared for the councils of Banyule, Darebin, Hume, Moreland, Nillumbuck and Whittlesea

Aspect Landscape Consultants Pty Ltd et al (1998) Norris Bank Reserve, Bundoora Landscape Masterplan Report (the Landscape Masterplan Drawing and all figures are missing from the report), prepared for City of Whittlesea

Beardsell, C (1997) Sites of Faunal and Habitat Significance in North East Melbourne, prepared for the North East Regional Organisation of Councils (NEROC)

City of Banyule (2006) Planning Scheme

City of Darebin (1996) Bundoora Park Draft Management Plan

City of Darebin (2006) Planning Scheme

City of Whittlesea (2000) Rural Review, Draft for Consultation May 2000

City of Whittlesea (2006) Planning Scheme

City of Whittlesea (2010) Green Wedge Management Plan

Collie Landscape and Design Pty Ltd (2000) Darebin Creek Epping, District Park Masterplan, prepared for City of Whittlesea

David Lock Associates (2000) Darebin Creek Design and Development Guidelines, Adopted by the City of Darebin on September 4 2000, prepared for the City of Darebin

Ecology Australia Pty Ltd & Context Pty Ltd (1999) Vegetation Management Plan for the Darebin Creek in the City of Darebin, prepared for the City of Darebin Parks Department

Kellogg Brown & Root Pty Ltd (2003) Whittlesea Stormwater Management Plan, Vol 1: Summary, prepared for City of Whittlesea

Kern, L & Pittle, L (1999) Remnant Grasslands and Grassy Woodlands Management Strategy for the Lower Darebin Creek Catchment (written summary report only, CD-ROM Version not supplied), prepared for City of Banyule and City of Darebin

Melbourne Parks & Waterways (1994) Middle Darebin Creek Concept Plan Resource Document

Melbourne Water (2000) Darebin Creek Waterway Management Activity Plan, prepared with the assistance of GBLA, N.M. Craigie Pty Ltd, P. Condina & Associates, Ecology Australia and Austral Heritage Consultants

Melbourne Water (2013) Healthy Waterways Strategy, prepared by Melbourne Water

Melbourne Water and Port Phillip and Westernport Catchment Management Authority (2005), Port Phillip and Westernport Regional River Health Strategy, Draft for Comment

Thompson Berrill Landscape Design (1996) Sparks Reserve Landscape Masterplan, prepared for Banyule City Council

Thompson Berrill Landscape Design (1997) Napier Waller Reserve Landscape Masterplan, prepared for Banyule City Council and the Darebin Creek Coordinating Committee

Victorian Government (2013) Biodiversity Conservation Strategy for Melbourne's Growth Corridor,

prepared by the Department of Environment and Primary Industries

Victorian Government (2014) Plan Melbourne Metropolitan Strategy

Victorian Planning Authority (2015) Northern Quarries Results of Planning Investigation Newsletter, May 2015

Victorian Planning Authority (2015) Wollert Precinct Structure Plan, 2015 Exhibition Version, prepared by the City of Whittlesea in collaboration with the VPA

Victorian Planning Authority (2015) Donnybrook/Woodstock Precinct Structure Plan, prepared by the VPA with assistance from the City of Whittlesea

Victorian Planning Authority (2016) Quarry Hills Precinct Structure Plan, prepared by the City of Whittlesea in collaboration with the VPA

Watson, K (undated) Recollections of the Darebin Creek Valley, written for the Darebin Creek Coordinating Committee

Appendix A

Community Consultation Summary Report

Darebin Creek Management Plan

Summary of Information Leaflet #1 Outcomes

Prepared by Thompson Berrill Landscape Design P/L for Darebin Creek Management Committee Inc

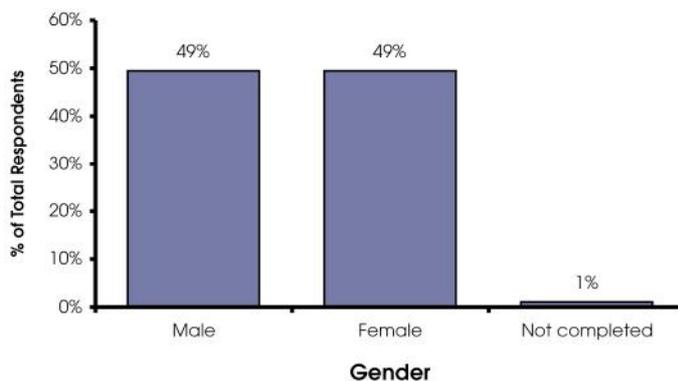
INTRODUCTION

The Darebin Creek Management Committee Inc distributed leaflets to the local area by letterbox drop. A total of 97 leaflets were completed and returned. The outcomes of these questionnaires have been entered into an Access database and this paper includes a summary of these outcomes.

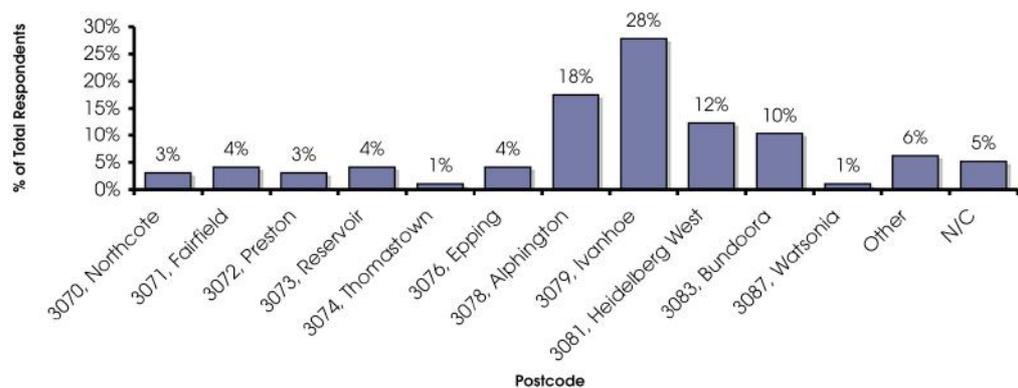
The information leaflet invited local residents to list the various parts of the Darebin Creek Corridor they visited, along with the types of activities they enjoyed and what they valued about the Creek. The information leaflet also provided residents with the opportunity to list the types of issues or problems that they would like addressed in the Management Plan. Please refer to Information Leaflet attached.

1.0 PERSONAL DETAILS OF THE RESPONDENTS

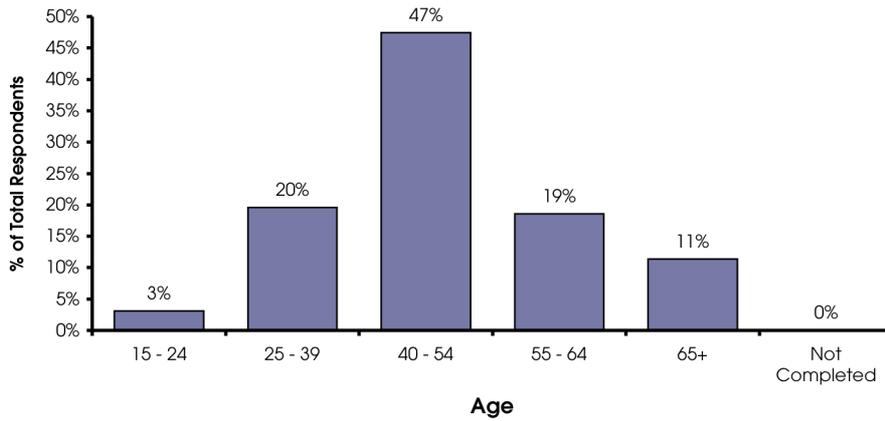
1.1 Gender



1.2 Where they live



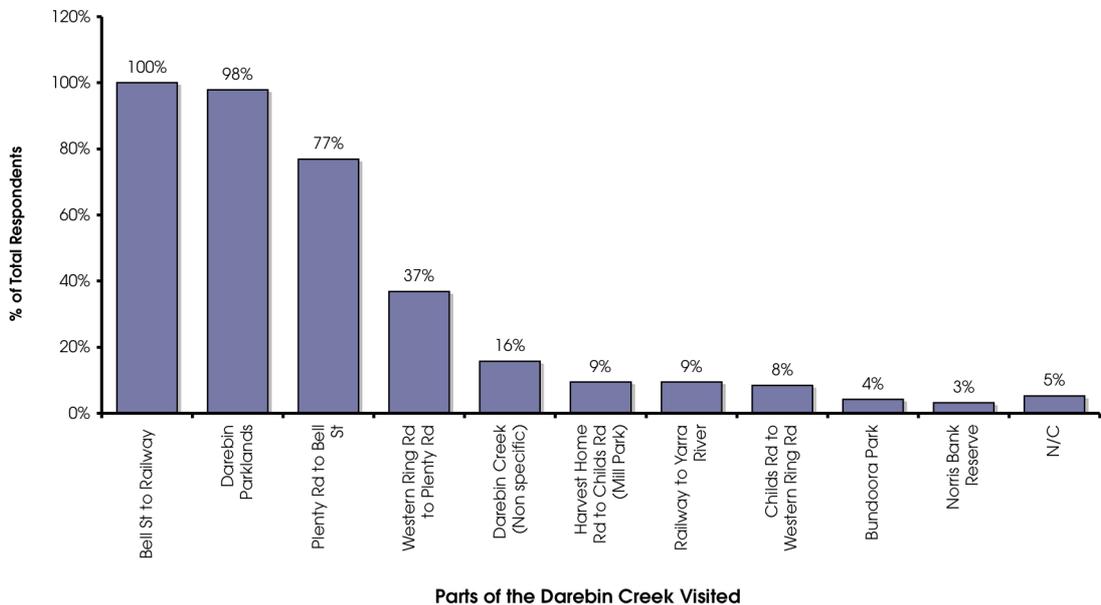
1.3 Age range



The data reveals that a large proportion of respondents between the ages of 40-54 visit the Darebin Creek Corridor with a total of 47% of respondents being from this age group.

2.0 PARTS OF THE DAREBIN CREEK THEY VISIT AND REASONS FOR VISITING THEM

2.1 Parts of the Darebin Creek visited



The most visited parts of the Darebin Creek Corridor were Bell Street to Railway with 100% of all respondents using this particular area for recreation, followed by Darebin Parklands with 96% and Plenty Road to Bell Street with 75%. Bundoora Park and Norris Bank Reserve were the least popular parts with only 3% and 4% of respondents visiting these particular areas.

2.2 Where visitors are from

2.2.1 Ivanhoe (28%)

The most popular part visited is Bell Street to Railway, followed by Darebin Parklands, Plenty Road to Bell Street, Darebin Creek (Non-Specific), Railway to Yarra River and Norris Bank Reserve.

2.2.2 Alphington (18%)

The most popular part visited is Darebin Parklands, followed by Bell Street to Railway, Plenty Road to Bell Street and Darebin Creek (Non-Specific).

2.2.3 Heidelberg West (12%)

The most popular part visited is Plenty Road to Bell Street, followed Bell Street to Railway, Western Ring Road to Plenty Road, Darebin Creek (Non-Specific), Railway to Yarra River, Childs Road to Western Ring Road and Harvest Home Road to Childs Road (Mill Park).

2.2.4 Bundoora (10%)

The most popular part visited is Western Ring Road to Plenty Road, followed by Plenty Road to Bell Street, Childs Road to Western Ring Road and Norris Bank Reserve.

2.2.5 Epping (4%)

The most popular part visited is Harvest Home Road to Childs Road (Mill Park), followed by Childs Road to Western Ring Road and Darebin Creek (Non-Specific).

2.2.6 Fairfield (4%)

The most popular part visited is Bell Street to Railway, followed by Plenty Road to Bell Street, Darebin Parklands and Railway to Yarra River.

2.2.7 Reservoir (4%)

The most popular part visited is Plenty Road to Bell Street, followed by Western Ring Road to Plenty Road, Darebin Parklands, Railway to Yarra River, Bell Street to Railway.

2.2.8 Northcote (3%)

The most popular part visited is Plenty Road to Bell Street, followed by Bell Street to Railway, Darebin Parklands and Western Ring Road to Plenty Road.

2.2.9 Preston (3%)

The most popular parts visited are Plenty Road to Bell Street, Bell Street to Railway and Darebin Parklands.

2.2.10 Thomastown (1%)

The most popular part visited is Childs Road to Western Ring Road.

2.2.11 Watsonia (1%)

The most popular parts visited are Darebin Parklands and Darebin Creek (Non-Specific).

2.2.12 Other areas (further away from the waterway corridor) (6%)

The most popular parts visited are the whole of the Darebin Creek, Darebin Parklands, Bell Street to Railway and Western Ring Road to Plenty Road.

2.3

The reasons for visiting the reserves

In the following table the responses have been coded with a greyscale to highlight the most frequent responses.

Black = 51% to 100%

Dark grey = 26% to 50%

Medium grey = 10% to 25%

Pale grey/white = 9% and less

	Walking	Cycling	Dog Walking	Bird Watching	Commuting to Work	Access to Shops	Exercise	Connection to Nature	Live Next to Creek	Relaxation	Friends Group	Picnics	Recreation	Others
BELL ST TO RAILWAY (Reach 5)	34%	25%	8%	3%	4%	3%	3%	2%	2%	1%	1%	2%		9%
BUNDOORA PARK (Reach 4)	1%										1%			2%
CHILDS RD TO WESTERN RING RD (Reach 3)	2%	1%	1%				1%							3%
DAREBIN CREEK (NON-SPECIFIC)	3%	3%		1%						1%	1%			5%
DAREBIN PARKLANDS (Reach 6)	24%	6%	15%	6%			3%	6%		2%	1%	4%	4%	24%
HARVEST HOME RD TO CHILDS RD (MILL PARK) (Reach 2 & 3)	1%	1%	1%				2%		1%					3%
NORRIS BANK RESERVE (Reach 4)	3%												1%	
PLENTY RD TO BELL ST (Reach 5)	21%	24%	4%	4%	5%	4%	1%	2%		3%	1%			5%
RAILWAY TO YARRA RIVER (Reach 6)	2%	4%		1%	1%		1%							
WESTERN RING RD TO PLENTY RD (Reach 4)	13%	7%		3%	2%	4%			4%		1%			2%

Category of 'Others' consists of:

Accompanying children, BBQs, Cafe, Community Events, DPA Activities, Duck Feeding, Eating Mulberries, Farm, Fauna, Flora, Meditation, Meeting Friends, Mowing, Observing Frogs, Organised Events, Orienteering, Peaceful, Photography, Playing, Skate Boarding, Stockwhip Cracking, Taking Visitors, Tree Planting, Views, Water Watch, Weeding and Work.

The major activity is walking, which is undertaken primarily along Bell Street to Railway with 34% of respondents visiting for this purpose, followed by Darebin Parklands (24%) and Plenty Road to Bell Street (21%).

The second most popular activity is cycling with 25% of respondents using Bell Street to Railway for this purpose meanwhile another 24% use Plenty Road to Bell Street.

Dog walking is also a popular activity with 15% using Darebin Parklands, followed by Bell Street to Railway (8%) and Plenty Road to Bell Street (4%).

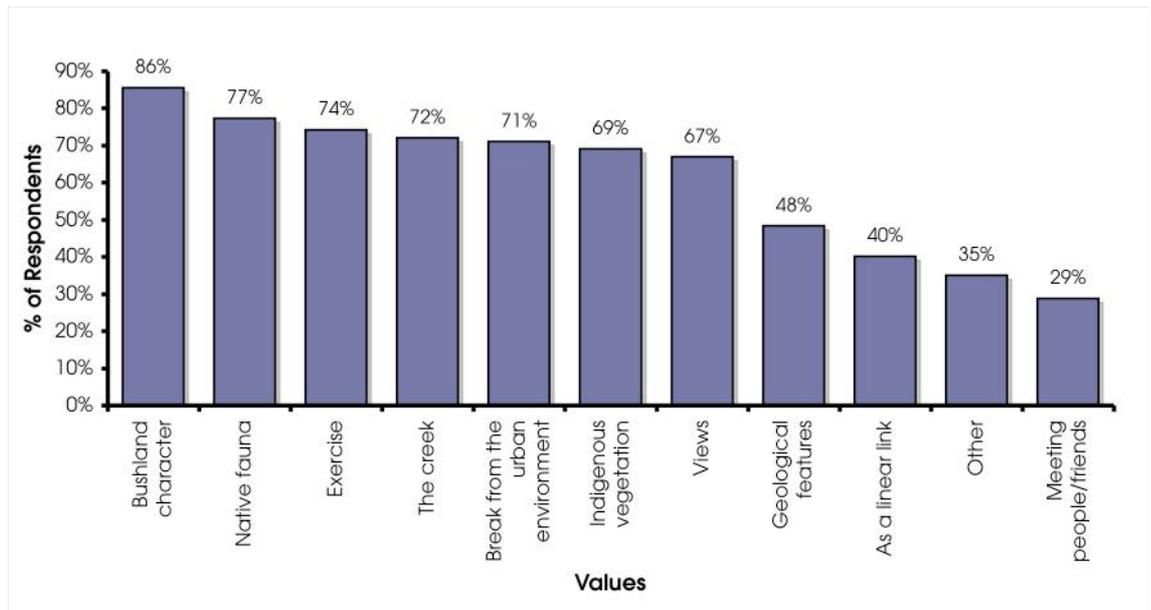
A variety of activities are enjoyed in Darebin Parklands with 24% of respondents listing the reasons to why they visit and they included BBQs, community events, eating mulberries, fauna, flora, meditation, meeting friends, observing frogs, organised events, orienteering, peaceful, photography, playing, stockwhip cracking and tree planting.

3.0

WHAT PEOPLE VALUE ABOUT THE DAREBIN CREEK CORRIDOR

The most popular value of the Darebin Creek Corridor is its bushland character with 86% of respondents selecting this value. This is then followed by native fauna, exercise, the creek, break from the urban environment, indigenous vegetation, views, geological feature, linear link and meeting people/friends.

A high number of respondents (74%) value the Darebin Creek Corridor as it provides them with the opportunity to exercise and this correlates with the popular activities undertaken along the creek which include walking, cycling and dog walking.



Category of 'Other' consists of:

Tranquility, Dog off-lead area, Bird Life, Community Interaction, Air, Connection with Nature, Mulberry Trees, Ranger Presence, Relaxation, Safety for Bike Riders, Access, Changes in Landform, Children Interaction with Nature, Community Space, Cycle Path, Healing Trail, Historical Value, Indigenous Bushfoods, Indigenous Trail, Its Our Home, No Cars, Park rather than Ovals, Parks Progress over the Years, Photography, Pollution Free, Ponds, Puff the Wizard, Refuge for Native Animals, Riparian Health, Sound of Water over Rocks, Hill, Uniqueness and Valuable Green Link.

4.0 ISSUES TO BE ADDRESSED IN THE PLAN

4.1 Top single issues

(Please note that the numbers in brackets represents the number of respondents)

The top single issues are:

- Creek is polluted including high litter loads and requires improvement **(39)**
- Restrict motorbikes along trails **(23)**
- Weed control required **(23)**
- Extend the Shared Trail to the Main Yarra Trail **(11)**
- Shopping trolleys **(10)**
- Houses are too close to the open space corridor **(8)**
- Rubbish dumping **(6)**
- Dogs need to be on-lead **(5)**

4.2 Issues grouped into categories

The issues have been grouped in their categories to gain an understanding of the overall priority issue. Below is a full list of all the issues by category:

%	CATEGORY
78%	Shared Trail
24%	Restrict motorbikes
14%	Extend trail to Yarra
7%	Provide safe crossing and connections at Darebin Rd/Livingstone St (Reach 6)
6%	Complete shared trail so there are no gaps/loop
5%	Poor connections around Darebin Parklands (Reach 6)
3%	Access across Livingstone St (Reach 6)
3%	Need slow points along the trail/limit speed of cyclists
2%	Improve surfaces
2%	Must underpass bridges
2%	Control erosion
1%	Consider pram access
1%	Extend shared trail to Mt Cooper (Reach 4)
1%	Extend to Heidelberg Rd (Reach 6)
1%	Lack of access along the golf course
1%	Improve link between Bundoora Park and Western Ring Rd (Reach 4)
1%	Introduce permanent interpretative art work
1%	Separate cyclists and pedestrians to increase safety
1%	Would like a pedestrian bridge at end of Rathcown Rd (Reach 4)
66%	Litter
22%	Litter in creek
14%	Shopping trolleys
7%	Rubbish dumping
6%	Need regular litter collection
5%	Plastic Bags
3%	Need more bins
2%	Bundoora Square is an issue
2%	Increased litter after heavy rains
2%	Stricter penalties for littering
1%	Control sedimentation deposits from local developers
1%	Northland to Grange Rd has high volumes of litter (Reach 5)
62%	Vegetation
20%	Control weeds
6%	Remove dead and dangerous trees
5%	Plant more native trees/plants
4%	Revegetation required

- 4% More regular mowing
- 3% Indigenous flora threatened
- 3% Need more plantings (trees, shrubs, etc)
- 3% Need to screen houses
- 2% Adequate preparation of ground before planting
- 2% Follow up after weed eradication
- 2% Improve riparian health and biodiversity
- 1% Clean out overgrown grass in the waterway
- 1% Not worth spending so much to retain a few trees
- 1% Overgrown in summer
- 1% Priority given to management of remnant vegetation
- 1% Remove weeds near Yarra River (Reach 6)
- 1% Replace dying Acacias

- 39%** **Waterway/Water Quality**
- 14% Improve water quality
- 7% Creek is polluted
- 7% Stop industrial and domestic waste discharge in creek
- 4% Improve hydrological function
- 1% Control erosion of creek beds
- 1% Need upstream wetlands to control flooding
- 1% Needs dredging to improve flow
- 1% Steep creek banks
- 1% Noise pollution from factory between Bell St and Banksia St
- 1% Control sediment deposits

- 24%** **Management**
- 8% Vandalism and inappropriate after hours use
- 4% Continue protection measures
- 3% Encourage water conservation strategies and water sensitive urban design
- 1% Community consultation required for future works/plans
- 1% Consistency between councils
- 1% Creek in the Reservoir area is neglected
- 1% Darebin Parklands needs a separate management plan
- 1% Ensure that local tributaries are included in the management plan
- 1% Maintain natural resource development programs
- 1% Maintain ranger presence
- 1% More funds needed for maintenance

- 21%** **Dogs**
- 5% Need to be leashed
- 4% Owners not cleaning up after their dogs
- 4% Protect dog walking areas
- 2% Ban dogs from some areas
- 2% Chasing wildlife
- 2% Install more 'dog tidy' facilities
- 1% Aggressive dogs in off-leash area

- 17%** **Fauna**
- 8% Increase habitat for native birds and animals
- 4% Indigenous and native fauna threatened
- 1% Achieve ecosystem resilience
- 1% Remove sheep from Bundoora Park
- 1% Snakes in winter
- 1% Too many non-indigenous birds along the creek corridor

- 14%** **Signage**
- 8% Provide interpretative, informative and cautionary signage
- 2% Enforce cleaning up after dogs
- 2% Enforce dogs on leashes
- 1% Provide information about geological conditions

- 12%** **Planning**
- 8% Houses are too close to the open space corridor
- 2% Concerns about large residential developments and subdivisions in Ivanhoe
- 1% Rezone industrial zone to mixed use

- 11%** **Furniture**
- 3% Lack of seating
- 3% Need lighting to improve visibility
- 2% Increase infrastructure to support education and recreation
- 1% Need shelter for when it rains
- 1% No picnic areas near Northland

- 3%** **Community Programs**
- 1% Increase public ownership of Darebin Creek
- 1% More planting and weeding programs
- 1% Programs to clear litter from creek

- 3%** **Recreation**
- 2% Build a skate park
- 1% More opportunity for active and passive recreation

- 2%** **Darebin Parkland**
- 1% Escarpment needs protection
- 1% Improve access to Ivanhoe

- 1%** **Infrastructure**
- 1% Footbridge linking South Alphington and Ivanhoe needs restoration

Darebin Creek

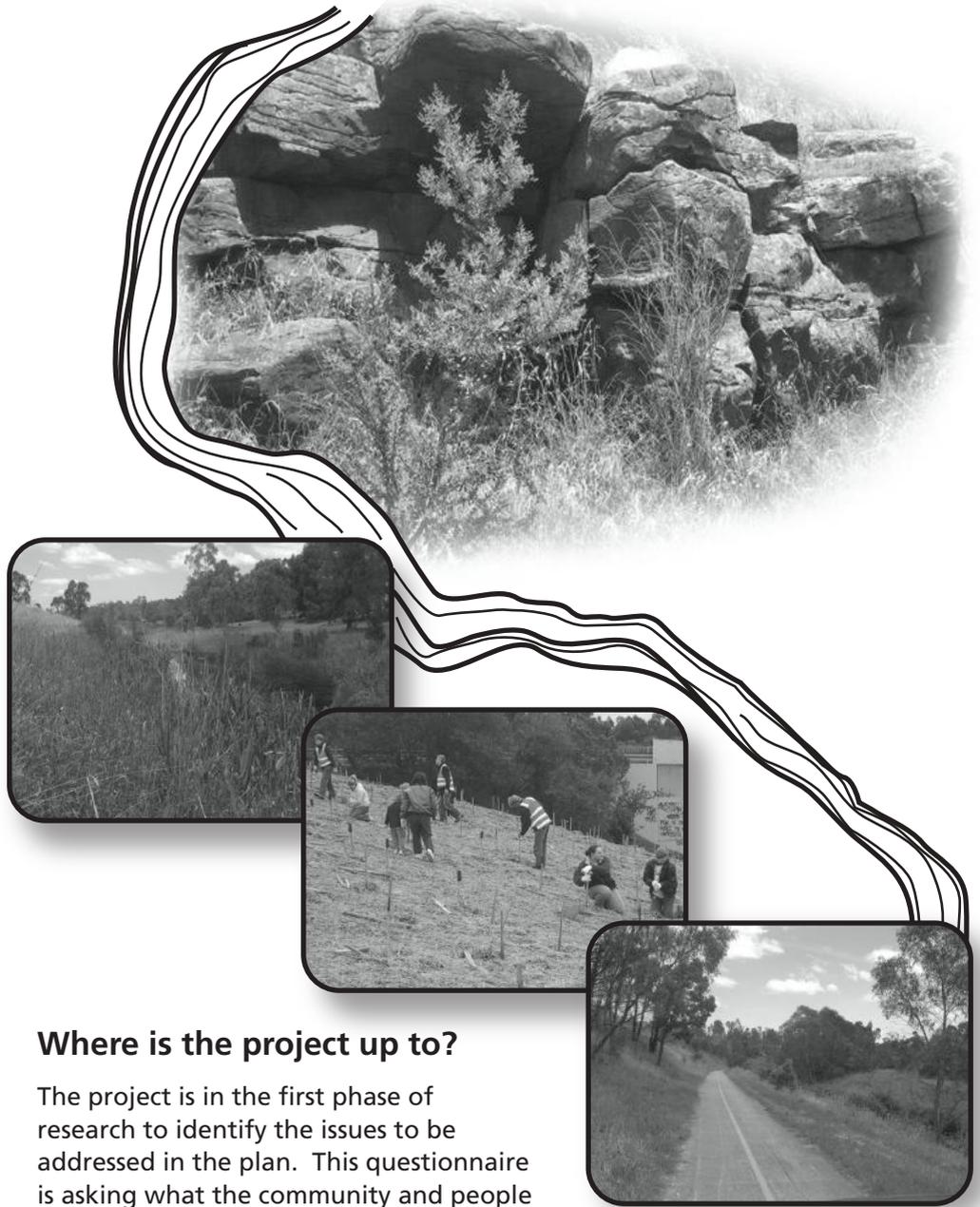
management plan How you can be involved



community survey

What is the plan for?

The Darebin Creek Management Committee in consultation with local and state government agencies is currently preparing a plan to guide the overall future direction and management of the Darebin Creek Corridor. The study extends from the top of the catchment in Wollert to the Yarra River. The plan will focus on the protection and enhancement of the environmental, recreational and cultural values of the creek corridor. This Management Plan will update and replace the existing Darebin Creek Concept Plans developed in the early 1990's.



Where is the project up to?

The project is in the first phase of research to identify the issues to be addressed in the plan. This questionnaire is asking what the community and people who visit the Creek corridor value, how they use the open space along the Creek and identifying issues or problems that need to be addressed in the plan.

How can you be involved?

Please complete the questionnaire on the other side of this leaflet and return to the free post address by:

Friday February 17 2006

If you wish to be updated on the project, please fill out your name and address and you will be advised by mail with a second leaflet when the Draft Management Plan is on display and available for community comment.

If you would like to be kept informed about the project, please fill out your name and address below and return to the Darebin Creek Management Committee.

NAME _____

ADDRESS _____

POSTCODE _____ EMAIL _____

If you have any queries please call the Darebin Creek Management Committee on 9499 4454

Questionnaire

a) Male Female

Postcode

Age Range

0-14 25-39 55-64
 15-24 40-54 65+

b) Which parts of the Darebin Creek Corridor do you visit, and what do you do there?

Locations	Reasons you visit
<i>Example: Between Bell Street and Darebin Parklands</i>	<i>Example: cycling, walking</i>
1.	
2.	
3.	
4.	

↑
first fold

c) What do you value about the Darebin Creek Corridor?

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> The creek | <input type="checkbox"/> Exercise | <input type="checkbox"/> As a linear link | <input type="checkbox"/> Break from the urban environment |
| <input type="checkbox"/> Views | <input type="checkbox"/> Native fauna | <input type="checkbox"/> Geological features e.g. the escarpments | <input type="checkbox"/> ----- |
| <input type="checkbox"/> Bushland character | <input type="checkbox"/> Meeting people/friends | <input type="checkbox"/> Indigenous vegetation | <input type="checkbox"/> ----- |

Please add any additional values

d) What issues or problems would you like addressed in the plan?

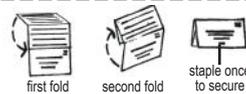
1. _____

2. _____

3. _____

Delivery Address:
 PO Box 2157
 PRAHRAN VIC 3181

FOLD DIAGRAM
 Once completed fold questionnaire as diagram shows:



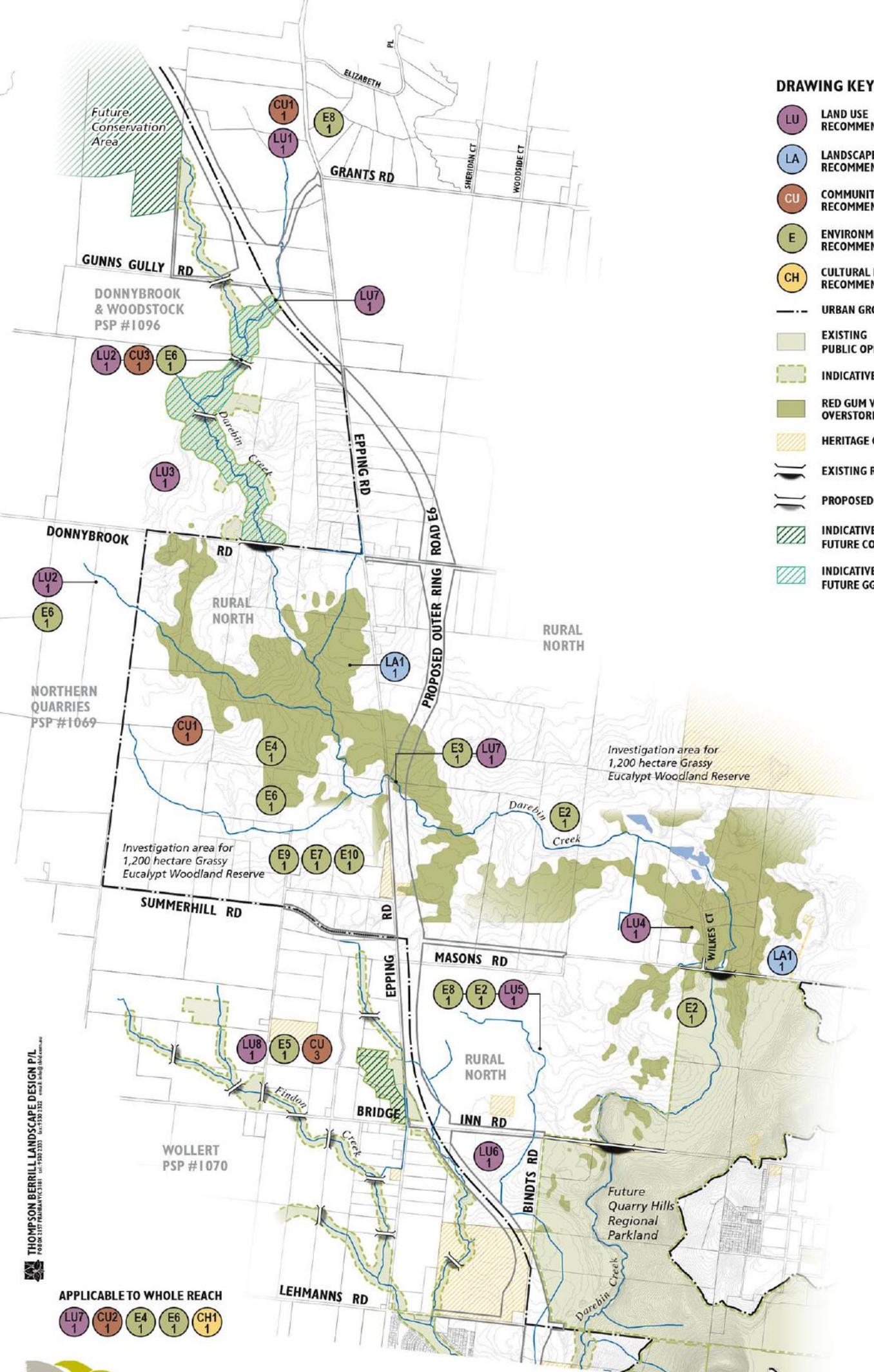
↓
second fold
No stamp required if posted in Australia




 Darebin Creek Management Plan
 Reply Paid 2157
 PRAHRAN VIC 3181

DRAWING KEY

- LU** LAND USE RECOMMENDATIONS
- LA** LANDSCAPE CHARACTER RECOMMENDATIONS
- CU** COMMUNITY USE RECOMMENDATIONS
- E** ENVIRONMENTAL RECOMMENDATIONS
- CH** CULTURAL HERITAGE RECOMMENDATIONS
- URBAN GROWTH BOUNDARY
- EXISTING PUBLIC OPEN SPACE
- INDICATIVE FUTURE OPEN SPACE
- RED GUM WOODLAND OVERSTOREY (approx. extent)
- HERITAGE OVERLAY
- EXISTING ROAD BRIDGES
- PROPOSED ROAD BRIDGES
- INDICATIVE EXTENT OF FUTURE CONSERVATION RESERVES
- INDICATIVE EXTENT OF FUTURE GGF CORRIDOR



THOMPSON BERRILL LANDSCAPE DESIGN P/L
 148/1117 DUNDAS ST W. SUITE 101/102, MELBOURNE VIC 3000
 PH: 03 9594 1332 FAX: 03 9594 1332 WWW.TBLDESIGN.COM.AU

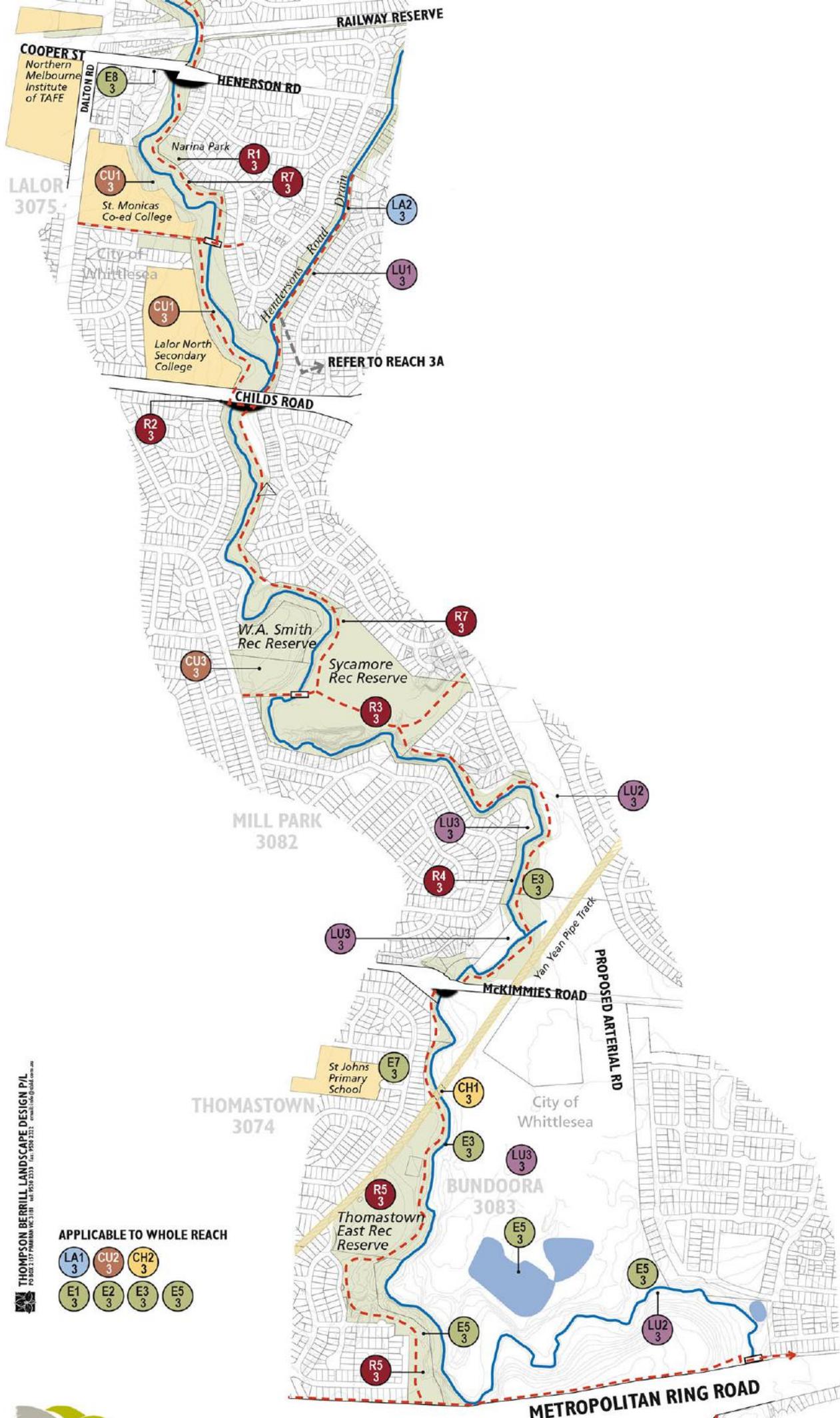
APPLICABLE TO WHOLE REACH

LU7 1
 CU2 1
 E4 1
 E6 1
 CH1 1



DAREBIN CREEK MANAGEMENT PLAN

REACH I JAN 2017
 DWG# DCM-01
 SHEET 1 OF 7
 SCALE 1:5000
 0 30 60 90 150m



- DRAWING KEY**
- LU LAND USE RECOMMENDATIONS
 - LA LANDSCAPE CHARACTER RECOMMENDATIONS
 - R RECREATIONAL USE RECOMMENDATIONS
 - CU COMMUNITY USE RECOMMENDATIONS
 - E ENVIRONMENTAL RECOMMENDATIONS
 - CH CULTURAL HERITAGE RECOMMENDATIONS
 - PROPOSED MAJOR ROADS
 - SHARED TRAIL
 - SCHOOLS
 - HERITAGE OVERLAY
 - PUBLIC OPEN SPACE
 - ROAD BRIDGES
 - PEDESTRIAN BRIDGES

- APPLICABLE TO WHOLE REACH**
- LA1
 - CU2
 - CH2
 - E1
 - E2
 - E3
 - E5

THOMPSON BERRILL LANDSCAPE DESIGN P/L
 14/2001 HURSTFIELD RD, HURSTFIELD VIC 3043
 TEL: 03 9450 2511 FAX: 03 9450 2512
 www.thompsonberrill.com.au



DAREBIN CREEK MANAGEMENT PLAN

