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Vicki Lukritz
3810 6221

SPARE

18 January 2018

Sir/Madam

Notice is hereby given that a Meeting of the **CONSERVATION AND ENVIRONMENT COMMITTEE** is to be held in the **Council Chambers** on the 2nd Floor of the Council Administration Building, 45 Roderick Street, Ipswich commencing at **10.30 am or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier** on **Monday, 22 January 2018**.

<u>MEMBERS OF THE CONSERVATION AND ENVIRONMENT COMMITTEE</u>	
Councillor Silver (Chairperson) Councillor Bromage (Deputy Chairperson)	Mayor Deputy Mayor Councillor Morrison Councillor Martin

Yours faithfully

ACTING CHIEF EXECUTIVE OFFICER

CONSERVATION AND ENVIRONMENT COMMITTEE AGENDA

10.30 am or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier on **Monday, 22 January 2018**
Council Chambers

Item No.	Item Title	Officer
1	Upper Black Snake Creek Revegetation Project funded via the Resilient Rivers Initiative – Division 10	WHO
2	Findings and Recommendations from the Green Asset Audit – Citywide	WIO
3	Recreational Trail Proposal – Division 5	NBRO
4	Sustainability Advisory Group November 2017 Minutes and Updated Terms of Reference	ESRO (HSRS)

CONSERVATION AND ENVIRONMENT COMMITTEE NO. 2018(01)

22 JANUARY 2018

AGENDA

1. **UPPER BLACK SNAKE CREEK REVEGETATION PROJECT FUNDED VIA THE RESILIENT RIVERS INITIATIVE – DIVISION 10**

With reference to a report by the Waterway Health Officer dated 15 December 2017 concerning the delivery of the Upper Black Snake Creek Improvement planting project funded via the South East Queensland Council of Mayors Resilient Rivers Initiative.

RECOMMENDATION

That Ipswich City Council develop a partnership agreement with Healthy Land and Water to govern and ensure the delivery of the revegetation project in the Black Snake Creek catchment in line with the Resilient Rivers Initiative agreement, as outlined in the report by the Waterway Health Officer dated 15 December 2017.

Report

2. **FINDINGS AND RECOMMENDATIONS FROM THE GREEN ASSET AUDIT - CITYWIDE**

With reference to a report by the Waterway Improvement Officer dated 3 January 2018 concerning the findings and recommendations of the Green Assets audit. Green Assets refers to vegetated stormwater assets, including bioretention basins and constructed wetlands.

RECOMMENDATION

- A. That Council accept the Green Asset Audit Report undertaken by Engeny, as shown in Attachment A to the report by the Waterway Improvement Officer dated 3 January 2018, as a guiding document to inform the future asset management and maintenance of constructed stormwater quality assets across the City.
- B. That Council undertake the actions as identified in Table 1 to the report by the Waterway Improvement Officer dated 3 January 2018.
- C. That the Chief Operating Officer (Works, Parks and Recreation) provide a follow up report outlining the status of the actions to a future Conservation and Environment Committee in mid to late 2018.

Report

3. RECREATIONAL TRAIL PROPOSAL – DIVISION 5

With reference to a report by the Nature-based Recreation Officer dated 16 December 2017 concerning a proposal to develop a new recreational trail network in the Muirlea area.

RECOMMENDATION

That the proposal to develop a new network of recreational trails at Muirlea, as outlined in the report by the Nature-based Recreation Officer dated 16 December 2017, be approved.

Report

4. SUSTAINABILITY ADVISORY GROUP NOVEMBER 2017 MINUTES AND UPDATED TERMS OF REFERENCE

With reference to a report by the Executive Support and Research Officer dated 9 January 2018 attaching the minutes of the Sustainability Advisory Group meeting held on 14 November 2017 and updated Terms of Reference (TOR).

RECOMMENDATION

That the report be received and the contents noted.

Report

and any other items as considered necessary.

Conservation and Environment Committee	
Mtg Date: 22.01.18	OAR: YES
Authorisation: Bryce Hines	

PS: PS
H:\departmental\committee reports\1710PS Waterway Health Strategy CR.doc

15 December 2017

MEMORANDUM

TO: SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY HEALTH OFFICER

RE: UPPER BLACK SNAKE CREEK REVEGETATION PROJECT FUNDED VIA THE
RESILIENT RIVERS INITIATIVE
DIVISION 10

INTRODUCTION:

This is a report by the Waterway Health Officer dated 15 December 2017 concerning the delivery of the Upper Black Snake Creek Improvement planting project funded via the South East Queensland Council of Mayors Resilient Rivers Initiative.

BACKGROUND:

As detailed in a report to the City Works, Parks Sport and Environment Committee dated 11 September 2017 (Attachment A), Ipswich City Council has received \$60,000 from the Council of Mayors Resilient Rivers Initiative. The funding is to implement actions within the Black Snake Creek catchment, as part of the Mid Brisbane River Catchment Action Plan.

Funding will be for revegetation on the upper mid-slopes of the surrounding hills to positively impact the groundwater, reducing salinity and improving water quality in Black Snake Creek.

PROPOSED DELIVERY MODEL:

The revegetation on upper mid-slopes will need to be delivered on private property. Many landholders are already engaged or aware of existing natural resource management groups such as West Moreton Landcare and Healthy Land and Water. In addition, both of these groups have a successful history of delivering planting projects on private property and have the existing agreements and insurances in place to deliver projects directly, quickly and efficiently.



Through the development of the Mid-Brisbane River Catchment Action Plan and the Upper Black Snake Creek Improvement Plan, Council has been working in close partnership with the groups and landholders to deliver many on-ground projects.

To continue the good working relationships that have been established, it is proposed that Council engages Healthy Land and Water to deliver this project using the Resilient Rivers Funding. Council will continue to be a key partner, and will work closely with Healthy Land and Water to ensure the objectives of the project are being met.

CONCLUSION:

Ipswich City Council has received funding from the Council of Mayors to deliver 10,000 trees in the upper mid-slopes of the upper Black Snake Creek catchment. This project is expected to be completed by March 2018. In order to deliver this timely and efficiently it is proposed that Council develops a partnership agreement with Healthy Land and Water who can deliver the project using existing agreements and mechanisms and include project management costs.

ATTACHMENTS:

Name of Attachment	Attachment
Council of Mayors Investment Black Snake Creek through Mid-Brisbane Catchment Action Plan CWPSE September 2017	 Attachment A
Black Snake Creek Improvement Plan - Full Working Proposal	 Attachment B

RECOMMENDATION:

That Ipswich City Council develop a partnership agreement with Healthy Land and Water to govern and ensure the delivery of the revegetation project in the Black Snake Creek catchment in line with the Resilient Rivers Initiative agreement, as outlined in the report by the Waterway Health Officer dated 15 December 2017.

Kaye Cavanagh

ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines

ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

City Works, Parks, Sport & Environment Committee	
Mtg Date: 11.09.17	OAR: YES
Authorisation: Bryce Hines	

PS:PS

H:\Departmental\Committee Reports\1709 PS Resilient Rivers Initiative CoM and the Mid Brisbane CAP Draft.docx

11 August 2017

MEMORANDUM

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAYS HEALTH OFFICER

RE: INVESTMENT BY THE COUNCIL OF MAYORS RESILIENT RIVERS INITIATIVE INTO THE BLACK SNAKE CREEK CATCHMENT THROUGH THE MID-BRISBANE CATCHMENT ACTION PLAN

INTRODUCTION:

This is a report by the Waterways Health Officer dated 11 August 2017 concerning investment into the Black Snake Creek catchment through the Council of Mayors Resilient Rivers Initiative.

BACKGROUND:

The Resilient Rivers Task Force established through the Council of Mayors has recently completed the Mid Brisbane River Catchment Action Plan (Attachment A). The plan highlights regionally significant assets within the catchment, and the risks to those assets in the context of waterway health. The primary focus being on erosion and sediment control, and stream stability. The plan identifies a suite of projects to mitigate the risks.

In addition, the Resilient Rivers Initiative seeks to facilitate cross boundary, whole of catchment funding, and to direct investment from downstream beneficiary organisations, such as Brisbane City Council, into the upper catchments.

Black Snake Creek was identified as an investment opportunity in the Mid-Brisbane Catchment Action Plan based upon a project design proposal which draws heavily upon the Upper Black Snake Creek Improvement Plan (2014), specifically focussing on revegetation of the upper mid slopes and alluvial areas.

PROPOSED PROJECT:

The plan of works for this stage is targeted at establishing deep rooted vegetation in the upper mid slopes and alluvial areas.

The long term aim is to lower the saline ground water table, improve stability of the slopes and slow the movement of surface water improving water quality and quantity. The project will aim to plant and establish 10,000 native trees over several hectares of the upper catchment over two (2) years. This will be carried out in partnership with West Moreton Landcare Group and private land owners.

The eligibility of properties will be defined by their location in relation to the previously identified target areas in the Upper Black Snake Creek Improvement Plan and a willingness of landowners to participate in the scheme.

Given one of the objectives of the Resilient Rivers Initiative is to facilitate cross council partnerships, the project is to be delivered by Ipswich City Council in partnership with the Somerset Regional Council using the Council of Mayors funding.

FUNDING:

The Council of Mayors are potentially providing a total of \$120,000.00 dollars over two (2) years, with an initial agreement to fund \$60,000.00. The funding is for the delivery of planting of suitable native trees and plants in key areas of the Black Snake Creek catchment.

Council of Mayors have provided a funding Deed of Agreement (Attachment B) which outlines the basic scope and references an attached Project Management Plan (Attachment C). The Deed outlines the responsibilities of Ipswich City Council, the Council of Mayors and the reporting arrangements and funding payment details. The deed commits Ipswich to deliver works to the value of \$60,000.00 this year with the potential for a second payment of an equivalent amount the following year. Ipswich City Council are providing in-kind support through the administration and project management costs.

CONSULTATION:




Consultation with the Council of Mayors and the Mid Brisbane Catchment Action Plan Steering Group has been ongoing for approximately eighteen months. Council will continue to discuss the progress of the project and details around promotion through normal reporting mechanisms.

Early consultation has been held with Somerset Regional Council, West Moreton Landcare Group and Councillor Pahlke. As the works require collaboration with these parties and the public it is envisaged that communications will be key to the success of the project. West Moreton Landcare Group will play a pivotal role in supporting the community communications into the future.

CONCLUSION:

Ipswich City Council has received a funding Deed of Agreement from the Council of Mayors South East Queensland. The agreement will release \$60,000.00 to council to carry out revegetation works in the upper mid-slopes as detailed in the previously endorsed Upper Black Snake Creek Improvement Plan. Successful delivery will likely see the addition of a further \$60,000.00 the following year. Revegetation will take place on private land through partnership agreements and a proportion of the works is to be delivered in Somerset Regional Council area by or under the control of Ipswich City Council.

ATTACHMENTS:

Name of Attachment	Attachment
Mid-Brisbane Catchment Action Plan	 Attachment A
Funding Deed of Agreement	 Attachment B
Draft Project Management Plan BSC 01.08.17	 Attachment C

RECOMMENDATION:

That the report be received and the contents noted.

Philip Smith
WATERWAY HEALTH OFFICER

I concur with the recommendation/s contained in this report.

Kaye Cavanagh
ACTING SPORT, RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

Mid-Brisbane Catchment Action Plan 2015 - 2018

May 2016

Resilient Rivers Initiative





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Executive Summary

The Resilient Rivers Initiative vision is: “By 2045, the catchments of South East Queensland will support a resilient, productive, liveable and growing region.” This vision is documented in the Resilient Rivers Regional Strategy (2015-2025) which also has supporting goals and measures of success. The development of a Mid-Brisbane Catchment Action Plan has been identified as a priority area for this strategy.

The primary focus of the Catchment Action Plan is addressing the very high risk of sediment movement from Mid-Brisbane River channel (as identified in key state and local government and Seqwater investigations into the January (Australia Day) 2013 weather event).

With a catchment area of 563km² the Mid-Brisbane catchment accounts for a small but vital area of the Brisbane River catchment. The Mid-Brisbane River extends 61km, from Wivenhoe Dam to the Mount Crosby Water Treatment Plant with the Lockyer Creek flowing into it approximately 2km downstream of Wivenhoe. There are no impoundments on the River from Wivenhoe downstream to Moreton Bay. The Mid-Brisbane River acts as a conduit for water supply between

Wivenhoe Dam and the Water Treatment Plant, supplying 40 percent of the region’s drinking water. In addition to the regionally important water supply role, the Mid-Brisbane catchment supports a small amount of irrigated agriculture and limited grazing. River based recreation and rural residential values are key aspects. Much of the river’s riparian areas are poorly vegetated making them susceptible to erosion with significant erosion observed during the flooding of 2011 and 2013. Stabilisation and strengthening of the channel is required so it can continue to provide its significant values.

Detailed geotechnical analysis of the Mid-Brisbane channel has been undertaken. For example the Mid-Brisbane Stabilisation Strategy Technical Assessment (2014) split the Mid-Brisbane into 61 reaches and these have been classified in terms of the type and magnitude of erosion process i.e. fluvial scour and wet flow failure. It has been recommended that stabilisation should both protect and enhance areas of better riparian vegetation and begin restoring areas or poorer (or failed) riparian condition. The critical riparian area for this purpose is the area between the ‘toe’ (bank adjacent to the low-flow water level) and the top of the high bank.

Recreational sites along the river are largely ‘informal’ with consequential erosion, impacts on riparian vegetation and the introduction of pathogens. A 2008 Master Plan for the key recreational sites has identified improvements which will enhance the protection of the water supply.

High water tables in Black Snake Creek sub catchment continue to contribute to poor water quality in the Mid-Brisbane River due to the release of saline water (Ipswich City Council (ICC), 2014).

The Mid-Brisbane Catchment Action Plan was developed by a project team consisting of key investors and advisers as part of the Resilient Rivers Initiative. Community engagement for this Catchment Action Plan utilised existing channels such as Seqwater stakeholder reference groups and ICC’s Black Snake Creek Catchment reference group. The Catchment Action Plan has been endorsed by the relevant councils.

The following table outlines the actions in the Mid-Brisbane Catchment Action Plan 2015-18 and the Measures of Success as identified in the Resilient Rivers Regional Strategy (2015 – 2025):

Mid-Brisbane Catchment On-Ground Actions	Regional-level Measures of Success
<p>Bank stabilisation at high risk sites along the macrochannel and raising of beds (in-stream islands or benches) to slow sediment.</p> <p>Fencing of the bank and provision of off-stream watering points/irrigation infrastructure along macrochannel delivered as a supported package (voluntary, deliver works on behalf of landholder).</p> <p>Tree planting program to manage salinity in Black Snake Creek (recharge area) – link to Plan and Woolshed Creeks in the Lockyer catchment.</p> <p>On-site sewerage system education and compliance program (requires enhanced coordination between councils and Seqwater).</p> <p>Prioritise remediation of high use informal recreation areas along the macrochannel and develop best practice approaches to remediating recreation zones in a water supply catchment (as per the Sapling Pocket demonstration site).</p> <p>Strategic land purchase for multiple benefits (eg. riparian sites for recreation; riparian sites of good quality vegetation; to protect infrastructure; to stop sediment) based on a voluntary willing seller principle.</p>	<p>Four on ground works completed.</p> <p>Six industry best management practice projects implemented.</p>
Mid-Brisbane Catchment Policy Actions	Measures of Success
<p>Establish a working group to develop management options with relation to Mid-Brisbane sand and gravel extraction activities and impacts to water quality, catchment health and stakeholders, including solutions for operational sites and investigation of Key Resource Areas not DA approved or DA pending.</p> <p>Investigate groundwater pumping system for Black Snake Creek (a salinity management system would need the development of 'rules' as it is a collaborative approach to management).</p> <p>Clarification of rights and responsibilities of landholders adjacent to creek reserves/riparian zones.</p>	<p>Best option identified and agreed.</p> <p>Feasibility report prepared.</p> <p>Education activity completed.</p>

About this action plan

Scope and purpose

The Mid-Brisbane Catchment Action Plan 2015-18 has been prepared as part of the Resilient Rivers Initiative which has the 30 year vision for the South East Queensland (SEQ) region:

“By 2045, the catchments of SEQ will support a resilient, productive, liveable and growing region.”

This vision is documented in the Regional Strategy (2015-2025) which also has the following supporting goals:

- Keep soil on our land and out of our waterways to support agricultural productivity and improve water quality.
- Help protect our region’s water security so it can support the current and future population of SEQ.
- Improve the climate resilience of our region.
- Promote partnerships with strong leadership to deliver a coordinated approach to catchment management in SEQ.

The Resilient Rivers Taskforce determined that the Mid-Brisbane catchment is a regional priority area for works as identified in key state and local government and Seqwater investigations into the January (Australia Day) 2013 weather event which resulted in the Mt Crosby water treatment plants being severely impacted due to siltation.

This Catchment Action Plan:

1. Provides a commitment to enact change based on the ‘best of our knowledge and understanding’ which reflects the values of the local community
2. Identifies specific actions to mitigate risks in the catchment within the context of the Resilient Rivers Initiative
3. Identifies a package of coordinated and consolidated investments based on agreed prioritisation actions.



Location of the Mid-Brisbane catchment

Rationale for regional investment in the Mid-Brisbane Catchment

With a catchment area of 563km² the Mid-Brisbane catchment accounts for a small but vital area of the Brisbane River catchment. The Mid-Brisbane Catchment contains the section of the River below Wivenhoe Dam and to the Mt Crosby Weir. It is dominated by the 61km 'macrochannel' which is an important conduit of the water supplied from Wivenhoe for treatment at Mt Crosby and the Lowood Water Treatment Plants. As such, the catchment is strategically important to SEQ, and indeed Queensland, being the main water supply intake catchment for the region, providing drinking water for three million people in SEQ.

Lockyer Creek enters the catchment below Wivenhoe and in high flow events it can impact on the catchment. Black Snake Creek is a tributary which contributes significant salinity due to underlying soils. The nearby Lockyer sub catchments of Woolshed and Plain Creeks have similar issues.

Protecting the macrochannel and the quality of the water within the macrochannel is the main issue for this catchment. Bank slumping and erosion risks have been studied. The banks are mainly stable but high risk areas exist. The re-suspension of sediment can occur in high flow rain events such as input from the Lockyer. A concerted effort to protect the entire macrochannel and riparian zone through a number of different

actions is appropriate. As the River is continually in flow due to water supply releases, it is attractive to recreationalists.

As the 2013 Australia Day weather event showed, the risk of siltation on the functioning of the Water Treatment Plants, while of low frequency, is of potentially catastrophic consequences. As a general rule, any contaminants entering the 61km stretch that is the Mid-Brisbane River result in increased treatment costs for the region's community and businesses. There is also the benefit for downstream communities and users of Moreton Bay from the improved water quality within the Brisbane River.

Issues related to the catchment condition degradation have been documented and investigated by various agencies. Managing the issues 'at source' is demonstrably more cost efficient than managing the issues at the region's Water Treatment Plants. Any expenditure of public and private funds should aim to achieve the maximum outcome across a range of values and issues and be of benefit to the community at large. Expenditure in the Mid-Brisbane catchment fulfils this and represents a significant return on investment to the population of SEQ.



Brisbane River near Fernvale

Development of the Plan

The process for developing the Plan commenced in February 2015 and was overseen by a project team consisting of representatives from Queensland Departments of Natural Resources and Mines, and Environment and Heritage Protection, Somerset Regional Council (SRC), ICC, Brisbane City Council (BCC), Healthy Waterways Ltd, SEQ Catchments Ltd, Seqwater, Queensland Urban Utilities (QUU) and the Brisbane River Catchment Flood Study team.

The Resilient Rivers Taskforce reviewed aspects of the Plan as it proceeded. The Taskforce was supported by the executive level Catchment Action Plans Working Group which nominated the representatives for the project team. Council of Mayors (SEQ) provided the coordination and project management capacity on behalf of the project team.

A five step process was undertaken to develop the Mid-Brisbane Catchment Action Plan:

Step 1: Walking the Landscape – gather information on the geology and hydrology of the catchment in a workshop setting and prepare summaries to consolidate the current understanding of the catchment processes.

Step 2: Catchment description and issues – compile detailed data and prepare mapping products and a comprehensive analysis report; collate data gaps.

Step 3: Risks, targets and preliminary actions – identify key catchment issues and preferred management responses.

Step 4: Prioritisation of actions – investigate the initial feasibility of actions and likelihood of success, with political input.

Step 5: Publishing – finalise the action plan document and seek endorsement from collaborators.

The Queensland Government's Wetlands Program conducted Step 1 and provided invaluable data throughout. A number of supporting factual publications have been prepared and are available on the Wetlands Program website.

Consultancies engaged were:

Alluvium Consulting: prepared a detailed Catchment Descriptions and Issues Report (Step 2) which included a stream type assessment for the major streams based on the River Styles® were undertaken using aerial imagery and available GIS spatial data, such as waterways, topography and infrastructure. Data from the site inspections was used to supplement and refine the desktop assessments.

ClimateRisk: assisted the project team with the development of the catchment risk register (Step 3) using methodology developed for the region's water entities.

Natural Decisions: assisted the project team to conduct a cost benefit analysis based on the Investment Framework for Environmental Resources (INFFER) methodology. This analysis assisted with determining the priority actions within this Action Plan.

Prioritisation (Step 4) also involved consideration of key actions from previous planning and studies, feedback from community based knowledge experts involved in this Plan's development, and input from the catchment's political leadership.

Community engagement for this Catchment Action Plan utilized existing channels such as Seqwater's stakeholder reference groups and ICC's Black Snake Creek Catchment reference group. The Catchment Action Plan has been endorsed by the relevant councils.

The following organisations provided funding towards the preparation of the Plan and assisted with the provision of venues for project team activities: Lockyer Valley Regional Council, Seqwater, SRC, BCC, QUU, Council of Mayors (SEQ), and the Australian Government Department of Environment (through SEQ Catchments Ltd).

A special thank you to the involvement of the community based knowledge experts at various points throughout the development of the Plan.

Catchment In Context

This section of the Action Plan is drawn mainly from the comprehensive Mid-Brisbane Catchment – Description and Issues Report prepared by Alluvium Consulting on behalf of the project team and is therefore the primary reference source. Additional sources of information are referenced.

The Mid-Brisbane Catchment

The Mid-Brisbane catchment is located approximately 26km west of Brisbane in SEQ within parts of the SRC Local Government Area (LGA), the ICC LGA and the BCC LGA. A small amount of the catchment is within Moreton Bay Regional Council (MBRC) LGA.

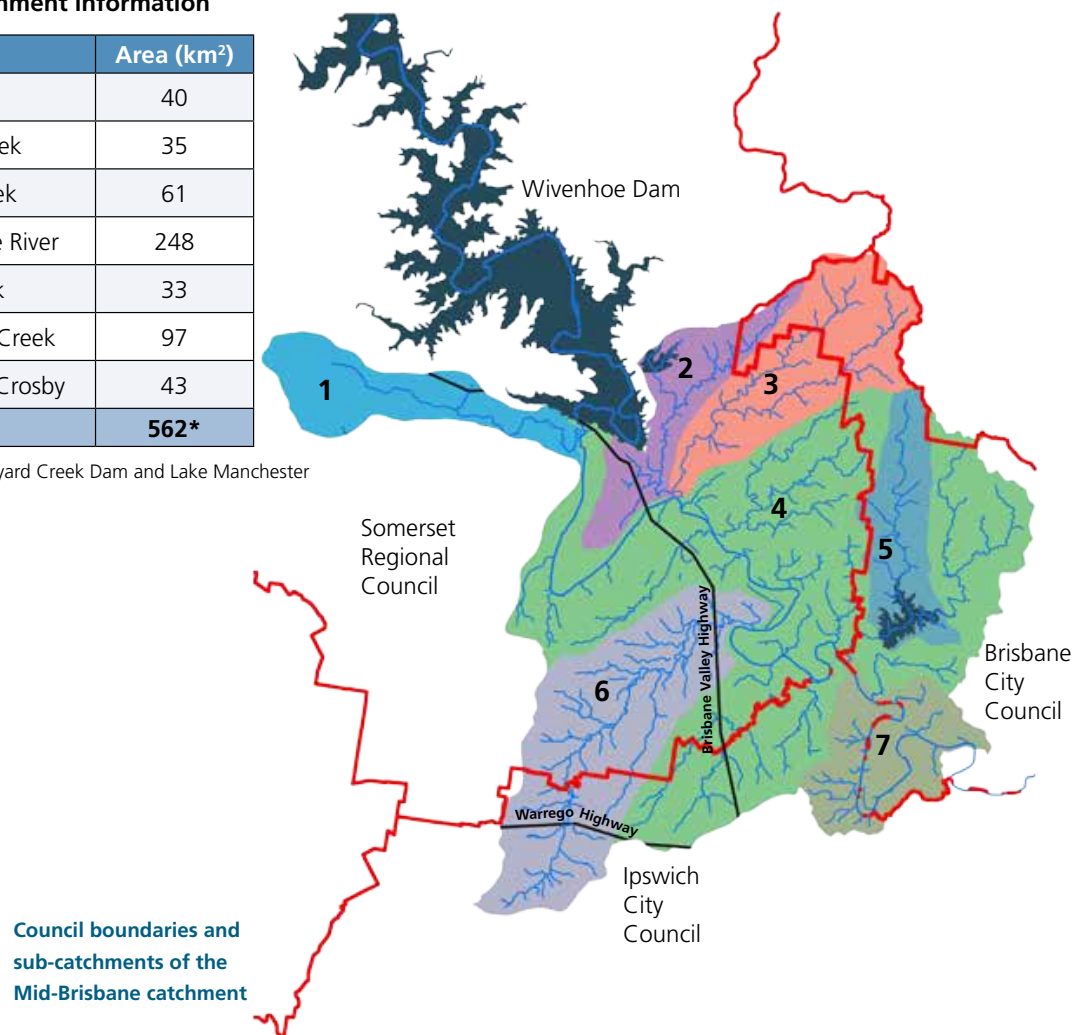
The Mid-Brisbane River is defined as being located between the Wivenhoe Dam outlet and the Mt Crosby Weir. This stretch of river and its catchment is strategically important to SEQ as it is located upstream of the Mt Crosby Water Treatment Plants, which are the region’s largest suppliers of potable water. There are no barriers between the Mid-Brisbane reach and the receiving environment of Moreton Bay.

The Catchment area is approximately 560km² however it also receives inflows from the Lockyer catchment and discharges from Wivenhoe Dam. The catchment is bounded by the D’Aguilar Ranges in the north and east with the highest elevations of 700m AHD and the lower Liverpool Range to the south west. The Mid-Brisbane catchment has seven sub-catchments (Table 1).

Table 1. Sub-catchment information

Sub-catchment	Area (km ²)
1 Spring Creek	40
2 Splyyard Creek	35
3 England Creek	61
4 Mid-Brisbane River	248
5 Branch Creek	33
6 Black Snake Creek	97
7 Borallon/Mt Crosby	43
Total	562*

*Including area of Splyyard Creek Dam and Lake Manchester (total area of 3km²)



Geology and landscapes are variable across the catchment. To the east of the Brisbane River the geology consists of Neranleigh-Fernvale geology (hard rock), resulting in steep mountains and hills and steep v-shaped valleys. To the west of the Brisbane River the sub-catchment is dominated by low undulating hills to shallow, open valleys and flats underlain by Gatton Sandstone geology. The Mid-Brisbane River in this catchment is described as a macrochannel.

The sub-tropical climate of SEQ is capable of producing extreme flood events, and the Brisbane River has been demonstrated as having amongst the highest flood variability in Australia. These extreme events are likely to be a determining factor in the formation of the macrochannel morphology. The River base is armoured with large rocks and gravel. The presence of islands and in-stream sand benches is commonly seen.

Recent studies suggest SEQ macrochannel systems have an inherent resilience to changes in flow and sediment regimes, collapsing and reforming over time, and this is a consideration in restoration techniques.

The Gatton Sandstone in the west is a type of sandstone and has been recognised as a major contributor to groundwater salinity observed at the Mt Crosby Weir. In the Mid-Brisbane River catchment, this is mainly a concern within the southern tributaries,

Black Snake Creek and Sandy Creek, where it outcrops and although these are natural processes in soil formation, human land use practices can exacerbate issues of erosion and salinity. This can lead to long-term land and water degradation as deep-rooted, perennial vegetation has been cleared from the plains and hillslopes and replaced by shallow rooted annual vegetation such as grasses and crops. The area impacted by dryland salinity increases during and after wet years as water tables rise and come close to the surface, bringing with it salts in the soil.



A salinity scour Black Snake Creek and the Hills Crossing section of the Brisbane River.

Land use and infrastructure

The relatively flat areas of the Mid-Brisbane catchment are predominantly used for rural residential purposes and livestock grazing and some irrigated areas, whilst the steeper area within the D'Aguilar Ranges is classified as 'Conservation and Natural Environments'. Rural residential properties are generally greater than 0.2ha and undertake some agricultural activity, however this is unlikely to be the major source of income for the property. The livestock grazing is predominantly of 'native vegetation', which is classified by ABRES as areas where there has been limited or no deliberate attempt at pasture modification and typically occurs in open woodland or grasslands where greater than 50 percent of the dominant species are native.

Land use in the catchment is governed by the relevant planning schemes of each local government and the SEQ Regional Plan 2009- 2031 under the Sustainable Planning Act. In the Mid-Brisbane catchment future growth will be focused on the urban centres of Fernvale and Lowood. These areas are designated for limited increases in urban residential land use. The vast majority of the catchment, however, is zoned as Regional Landscape and Rural Production Area, for which there are the limits on any sub-divisions below 100ha. The Regional Plan is to be formally reviewed in 2016-17.

The relevant sections of the SRC Planning Scheme 2016, the Ipswich Planning Scheme 2006 and the Brisbane City Plan 2014, indicate no significant future changes in land use. The latter includes the forested areas surrounding the Lake Manchester reservoir.

The majority of land use changes in the catchment occurred prior to the mid 20th century. During the late 1800s, laws and regulations encouraged wholesale clearing of land. Since 1990 land use change in the catchment has been relatively minimal. The cessation of production forestry in native vegetation in the late 1990s saw the subsequent increase in Conservation and Natural Environments from 7 percent of the catchment to 22 percent. There has also been a 1 percent increase in areas classified as residential. Whilst there are no Identified Growth Areas within the catchment in the 2009-2031 SEQ Regional Plan and the council planning schemes limit development areas, the potential exists for future residential growth due to the proximity to Brisbane.

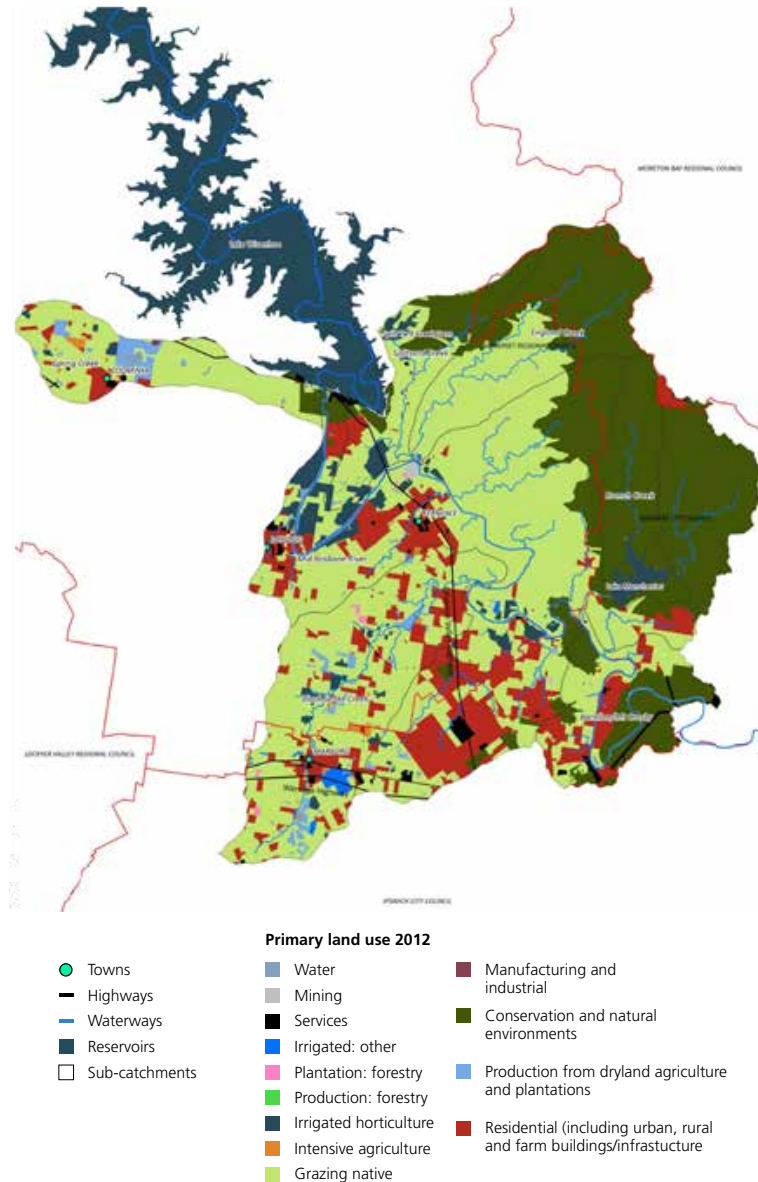
A number of sand and gravel extraction sites are located within the catchment – some are active, others pending approval or indicated in the State's planning data layers as Key Resource Areas. Sand and gravel extraction located near the Mid-Brisbane River can influence the hydrology of that system.

Recreational opportunities within the Mid-Brisbane catchment are numerous and varied. The natural environment and waterways are widely used for recreational activities in addition to council parks and recreation facilities. The areas identified include council, state and national parks as well as road and rail reserves and dams. The Mid-Brisbane River is an area for recreation due to the continuous flow of water from Wivenhoe Dam and activities include swimming, canoeing, fishing and four wheel driving on inset floodplains at information access points.



Sand and gravel extraction site near Kholo Bridge

Land uses within the Mid-Brisbane Catchment



The location of key infrastructure assets which are adjacent to or within the waterways of the Mid-Brisbane catchment are shown in Table 2. There is a high concentration of culverts, bridges, roads and weirs to the west of the catchment, in the flatter, more densely populated areas. The nationally significant Warrego Highway traverses the catchment in an east-west direction, through the town of Marburg. The Warrego Highway is the state's vital east-west freight artery that transports people and freight between western and southern Queensland, New South Wales and the Northern Territory. The Brisbane Valley Highway is an increasingly important transportation route to the Kingaroy region.

Table 2. Infrastructure assets within the Mid-Brisbane catchment

Sub-catchment	Culverts	Bridge	Weirs	Dams	Sewage Treatment Plants	Water Treatment Plants	Roads (km)
Spring Creek	40	0	0	1	0	0	55
Spliyard Creek	24	5	0	1	0	0	53
England Creek	0	0	0	0	0	0	63
Mid-Brisbane River	169	8	0	0	2	1	422
Branch Creek	0	0	0	0	0	0	38
Black Snake Creek	172	10	0	1	0	0	183
Borallon/Mt Crosby	24	0	1	0	0	1	95

Infrastructure within the catchment is vulnerable to damage from natural disasters, as shown during the January 2011 and January 2013 floods. After these floods, SRC, ICC and BCC were eligible for the Natural Disaster Relief and Recovery Arrangements for a large number of damaged assets in or adjacent to waterways. These arrangements are a joint funding initiative of the State and Commonwealth Governments to provide disaster relief and recovery payments and infrastructure restoration to help communities recover from the effects of natural disasters.

An estimated 10,500 people reside within the catchment; this is expected to increase by approximately 30,000 people by 2031. This will occur particularly in the already populated areas, such as around Lowood, Fernvale and Glamorgan Vale, at a rate of approximately 2 percent per annum over the next 15 years. As the population increases, infrastructure requirements, such as roads and drains also increase.

Within the catchment there are three Sewerage Treatment Plans (STPs). These STPs represent a point source for Total Nitrogen (TN) and Total Phosphorous (TP) as well as pathogens. Two of the STPs are owned and operated by QUU (Fernvale and Lowood) which discharge directly into the Brisbane River. The

remaining STP services the Borallon Correctional Centre. These STPs elevate the protozoa and E. Coli risk for the Mt Crosby Water Treatment Plants. The licence for the Fernvale STP includes nutrient removal requirements and both STPs have treated effluent disinfection. The Lowood STP is at capacity, whilst the Fernvale STP is above design capacity, upgrades are due to be completed in the near future. As the population increases in these towns there will be additional load on the STPs.

Table 3 outlines the projected increase in the sewerage population, which will require an increase in sewerage drainage and water treatment facility upgrades.

In addition to the STPs there are a significant number of on-site sewerage facilities such as septic tanks (which are being phased out) or Aerated Wastewater Treatment Systems within the catchment. Facilities need approval from the relevant councils and the onus is on the homeowner to adequately maintain the system. Discharge from the on-site facilities as well as the STPs discharging to land (both surface and sub-surface) present a potential source of contaminant to waterways, particularly during rainfall events through surface and sub-surface flows. The cumulative risk from on-site facilities has been assessed as the primary input of E. Coli risk within the upper reaches of the catchment.

Table 3. Queensland Urban Utilities sewerage population growth forecasts

Region	Mid-Brisbane Catchment – Sewerage Population Projections	
	Fernvale	Lowood
Current estimated population	1,095	1,795
Projected 2031 estimated population	5,322	5,595
Percentage increase	486%	312%

Policy and Management Context

The organisations with a primary policy and management interest in the Mid-Brisbane Catchment include the three councils, Queensland Government, QUU and Seqwater. The majority of land is in private ownership and so the interests of land managers are an important consideration within the management context. The Action Plan will build on existing activities underway in the catchment.

Councils

As previously outlined, the councils have a role in land use planning. They also invest in infrastructure asset management and recreational area management. Councils have some devolved responsibilities such as local laws relating to on-site sewerage facilities.

Queensland Government

The Department of Environment and Heritage Protection (EHP) has involvement in regulatory, policy and catchment management roles. EHP regulates Environmentally Relevant Activities, such as STPs and sand and gravel extraction under the *Environmental Protection Act 1994*. At a policy level, EHP sets Water Quality Objectives and Environmental Values (EVs) under the *Environmental Planning Policy 2009* to ensure the water is usable for the purposes defined in the EVs (e.g. drinking water, stock water, irrigation, recreation, aquatic ecosystems). It also establishes frameworks and processes in consultation with key stakeholders. EHP's catchment management interest

focuses on reducing the source of pollutants entering waterways through data custodianship, research and industry-partnerships for improving land management. Queensland Parks and Wildlife manages the protected areas of the D'Aguliar Range. The Department of Natural Resources and Mine's role is to regulate instream work to maintain the physical integrity of the watercourses and manage the take of water for irrigation and other purposes. It works closely with Seqwater which holds a Resource Operations Licence for Wivenhoe Dam and Mt Crosby Weir.

QUU

QUU operates under the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, *Water Supply (Safety and Reliability) Act 2008*, *Environmental Protection Act 1994*, and the *Water EPP 2009*. These prescribe standards for the operation of wastewater systems including licensed discharge criteria for protection of waterway environmental values. More recently, QUU has been investigating the State's 2014 'Flexible options for managing point source water emissions: A voluntary market-based mechanism for nutrient management' Policy. This Policy is a mechanism for protecting downstream water quality (for example, receiving water quality at a STP discharge) by mitigating upstream rural diffuse pollution sources. In a practical sense for QUU, this means targeting investments to mitigate significant

sediment pollution sources (containing relatively low levels of nutrients).

Seqwater

Seqwater works collaboratively with customers, communities, governments and industry to deliver safe, secure and cost-effective water and catchment services to customers and communities. It sources, stores and supplies treated water from catchments and alternative sources. The Queensland Government has set the performance standard for Seqwater through a Statement of Obligations. Seqwater has recently prepared a water security plan for the region outlining how SEQ's drinking water supply is going to be managed into the future. Drinking water quality guidelines have been established nationally to which Seqwater adheres. The guidelines contain six principles which highlight the importance of understanding the source or raw water, the risks and hazards involved, and the management of these issues. Management of water levels within Wivenhoe Dam takes into account the competing uses of the dam, including water supply security, dam safety, flood inundation impacts downstream of the dam and economic impacts. The Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam ('Flood Manual') includes reference to Brisbane River flows during small flood events which may result in the inundation of low level rural crossings and irrigation equipment.

Private landowners

A landowner will have individual lifestyle and/or business goals as well as land and water use rights and responsibilities to consider. Goals and circumstances may change over time.



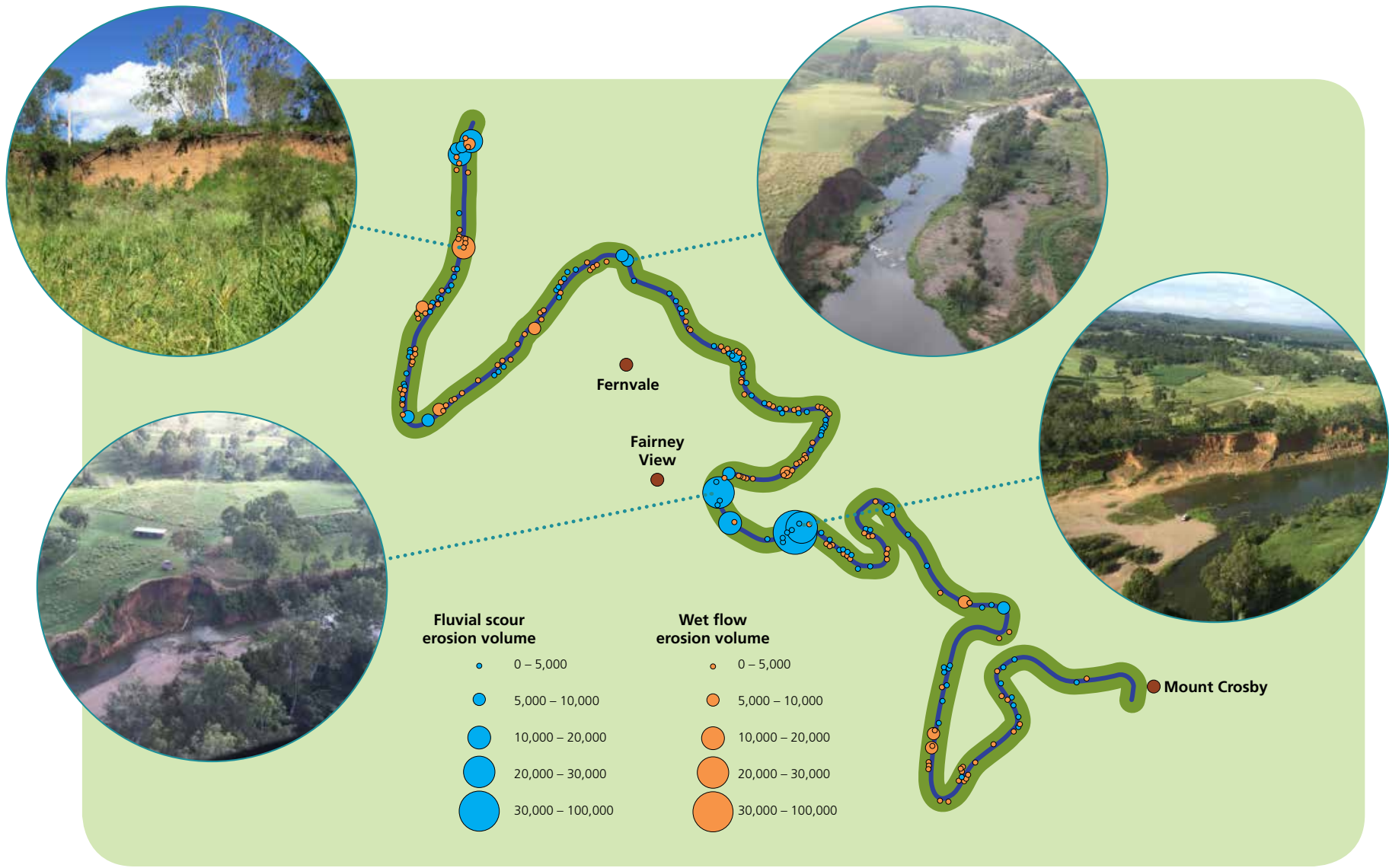
Seqwater installed fencing on the river bank rehabilitation site of this Mockers Road property in consultation with the owner



Ease of access to irrigation equipment in the event of river water rising can be considered as part of riparian works at each site

The Mid-Brisbane Catchment Action Plan builds on previous studies and planning activities. Key items described here have a level of detail that provides guidance for immediate investment planning:

Study/ Investigation	Mid-Brisbane Stabilisation Strategy Technical Assessment	Upper Black Snake Creek Improvement Plan	Mid-Brisbane River: Outdoor Recreation Master Plans
Prepared by	Seqwater, 2014	ICC, August 2014	SRC and Queensland Government, 2008
Description	The investigation split the Mid-Brisbane into 61 reaches and these have been classified in terms of the type and magnitude of erosion process i.e. fluvial scour and wet flow failure. It has been recommended that stabilisation should both protect and enhance areas of better riparian vegetation and begin restoring areas of poorer (or failed) riparian condition. The critical riparian area for this purpose is the area between the 'toe' (bank adjacent to the low-flow water level) and the top of the high bank.	This plan provides a total water cycle approach to planning and describes detailed prioritized actions to mitigate salinity, poor water quality and flooding risks in the sub catchment.	Five detailed outdoor recreation master plans for key sites along the Mid-Brisbane River. The report built on the 2004 Mid-Brisbane River Recreation Management Plan which involved BCC, SRC and the State Government. These studies found that the Mid-Brisbane River is a regionally significant outdoor recreation open space which needs to be coupled with the protection of the integrity of the water supply catchment.



2011 flood event mapped erosion sites identified in the 2014 Mid-Brisbane Stabilisation Strategy Technical Assessment (adapted from Alluvium, 2015)

Issues analysis

Based on the information gathered through the development of this action plan the following high level issues have been identified:

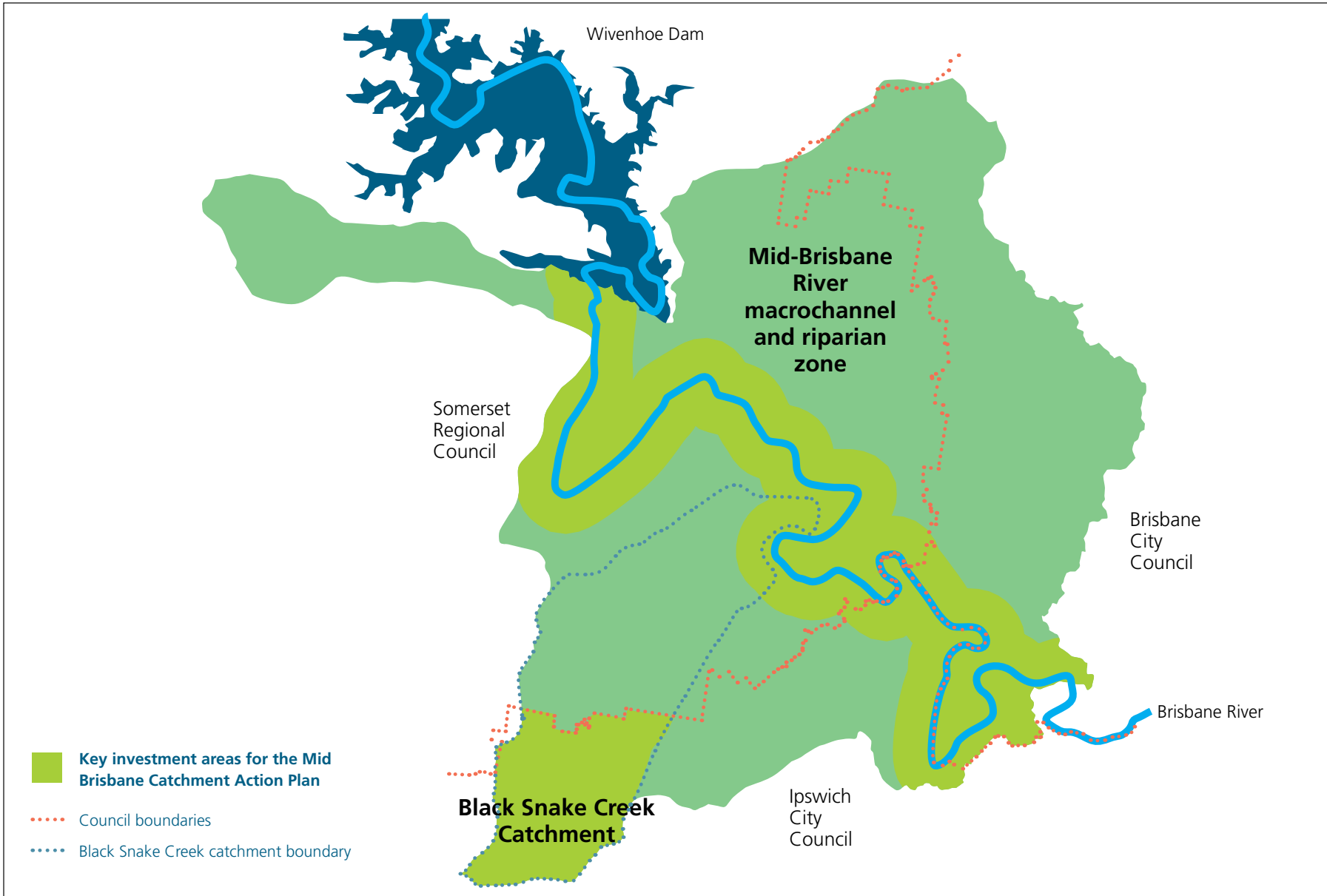
Asset	Threat	Impact
<p>Integrity of the Mid-Brisbane River macrochannel</p> <p>Regional water quality for drinking water supply and ecosystem health</p>	Disturbance of banks and inset floodplains and reduction in riparian vegetation of the Brisbane River macrochannel	<ul style="list-style-type: none"> • Reduction in the physical stability of waterways resulting in bank collapse and/or scouring • Loss of high value agriculture land through erosion • Reduction in the ability of the natural systems to perform their ecosystem functions including water purification • Reduced water quality resulting in increased water treatment costs due to mobilisation and transport of sediment • Increased sediment loads entering Moreton Bay and Ramsar-listed wetlands, reducing seagrass habitat and increasing the need for the dredging of shipping channels • Increased nutrient input resulting in blooms of potentially toxic algae species, aquatic weed growth and waterway eutrophication • Change in flood behaviour and distribution of flood flows
<p>Regional water quality for drinking water supply and ecosystem health</p>	Increased salinity seepage in Black Snake Creek catchment	<ul style="list-style-type: none"> • Loss of native vegetation and increased erosion due to saline seepage in the landscape • Loss or change in agricultural production due to salt effected land and the use of saline water for irrigation • Brackish surface waters resulting in ecosystem change • Waterway eutrophication due to decreased organic matter decomposition • Increased cost of water treatment
<p>Regional water quality for drinking water supply</p>	Increased pathogens in the Brisbane River macrochannel	<ul style="list-style-type: none"> • Human health impacted water quality • Increased cost of water treatment to remove pathogens



Action Plan

Overview

Regional investment drivers	<ul style="list-style-type: none"> • To protect the water supply of the region. • To keep soil on the land and out of our waterways for water quality purposes. • To improve the climate resilience of the region. • To promote partnerships with strong leadership to deliver a coordinated approach to catchment management in SEQ.
Assets at risk	<ul style="list-style-type: none"> • Integrity of the Mid-Brisbane River macrochannel; regional water quality for drinking water supply and ecosystem health.
Outcomes sought	<ul style="list-style-type: none"> • Maintaining the integrity of the macrochannel and associated riparian zone; reducing salinity and pathogens entering the Mid-Brisbane River; protecting infrastructure from erosion.
Actions summary	<ul style="list-style-type: none"> • Bank stabilisation at high risk sites along macrochannel and raising of bed (via in-stream islands or benches) to slow sediment. • Fencing of the bank and provision of off-stream watering points/irrigation infrastructure along macrochannel delivered as a supported package (that is, voluntary participation by landholder with works delivered on behalf of landholder). • Tree planting program to manage salinity in Black Snake Creek catchment recharge area. • On-site sewerage facilities education and compliance program (requires enhanced coordination between councils and Seqwater). • Establish a working group to develop management options with relation to Mid-Brisbane sand and gravel extraction activities and impacts to water quality, catchment health and stakeholders, including solutions for operational sites and investigation of Key Resource Areas not Development Assessment approved or pending. • Clarification of rights and responsibilities of landholders adjacent to River riparian zones • Strategic purchase of land for multiple benefits (e.g. riparian sites for recreation; riparian sites of good quality vegetation; to protect infrastructure; to stop sediment; flood storage; retire land from current use) based on a voluntary willing seller principle. • Prioritise remediation of high use informal recreation areas along the macrochannel and develop best practice approaches to remediating recreation zones in a water supply catchment (as per the Sapling Pocket demonstration site). • Investigate the development of possible 'rules' for a groundwater pumping system for Black Snake Creek (a salinity management system would need the development of 'rules' as it is a collaborative approach to management).



Risk treatment plan

Based on a consolidated understanding of the key issues, a risk assessment (Appendix) and a high-level feasibility assessment of treatment options, the resulting risk treatment plan assists decision makers to prioritise investment decisions. The treatment and implementation pathways form the actions for this 2015-18 Action Plan.

Treatment	Risk Addressed	Implementation Pathway	Cost	Benefit	Approx. Timeframe	Priority
Bank stabilisation at high risk sites along macrochannel and raising bed via in-stream islands or benches	Channel integrity: Sediment entering water through bank slumping; Sediment re-suspension affecting water quality	Targeted investment at high risk sites identified by the Seqwater 2014 investigation	High	High	2016-2018	High
Fencing of the bank and provision of off-stream watering points/ irrigation infrastructure along macrochannel	Riparian zone degradation leading to loss of channel integrity; Pathogens entering water supply conduit causing acute illness	Deliver as a supported package: voluntary participation by landholder with works delivered on behalf of landholder	Medium to High	High	2016-2018	High
Restore deep rooted trees in recharge area of Black Snake Creek catchment	High saline groundwater table entering the water supply conduit	Tree planting program (investor – landholder – facilitator partnership including the prioritization of offset receiving sites)	Medium	Medium	Commence 2016	High
On-site sewerage facilities education and compliance program	Pathogens entering water supply conduit causing acute illness	Enhance coordination between councils and Seqwater to deliver an agreed program	Low	High	Commence 2016	High

Treatment	Risk Addressed	Implementation Pathway	Cost	Benefit	Approx. Timeframe	Priority
Limit Mid-Brisbane sand and gravel extraction impacts on water quality and catchment health	Inset floodplain/riparian zone degradation leading to loss of channel integrity	Establish a working group to development management options including solutions for Mid-Brisbane operational sites and investigation of Key Resource Areas not Development Assessment approved or pending	Low	High	Commence 2016	High
Improve landholder management of the riparian zone	Unintentional mismanagement of the riparian zone	Clarification of rights and responsibilities of landholders adjacent to River riparian zones	Low	High	Commence 2016	High
Strategic purchase of land to provide protection of the macrochannel	Riparian zone degradation leading to loss of channel integrity	Based on a voluntary, willing seller principle with a focus on multiple benefits (e.g. riparian sites for recreation; riparian sites of good quality vegetation; to protect infrastructure; to stop sediment; increase flood storage capacity; retire land from current use)	Medium to High	High	Commence 2018	Medium
Remediate high use informal recreation areas along macrochannel	Channel integrity: Sediment entering water through bank slumping; Pathogens entering water supply conduit causing acute illness	Prioritise high use informal areas identified in Master Plans 2008 report. Develop- a best practice approach to remediating recreation zones in a water supply catchment as per the Sapling Pocked demonstration site	High	High	Commence 2018	Medium
Artificial lowering of shallow groundwater table and re-use of brine in Black Snake Creek catchment	High saline groundwater table entering the water supply conduit	Investigate the development of possible 'rules' for a groundwater pumping system for Black Snake Creek (a salinity management system would need the development of 'rules' as it is a collaborative approach to management)	High	Medium	Commence 2016	Medium

Review of progress

Information gaps and emerging studies

This Action Plan and supporting documents will be updated by June 2018 with any relevant information arising as described below.

The Alluvium technical report collated flood extents based on largest floods. Following the development of hydraulic models as part of the BRCFS the flood extents will be updated and made consistent across the LGAs and the relevant information should be incorporated into this Action Plan and supporting documents. A “bed level sensitivity assessment” is also being prepared under the BRCFS which may provide information for catchment protection actions.

There was very limited catchment modeling information to be confident about the impact of individual and combined actions. Given this is a regionally significant drinking water catchment, increased modeling of actions to reduce the impact of pathogens, sediment, nutrients, and salinity is a very important research/ knowledge gap investment.

Detailed geomorphic assessments are required within the tributary sub-catchments to determine extent and level of erosion risk and within the main Brisbane River channel to determine the risk of removal/ damage to inset floodplain features. Additionally, minor tributaries and gully lines were

not assessed for stability and may represent significant sources of sediment.

There is currently no data on sediment transport quantities or rates for the tributaries. This is key to understanding sediment loads moving through the catchment.

A high level qualitative assessment with the catchment identified potential assets at risk however this assessment was limited to the main tributaries and does not include the likelihood or consequence of asset damage.

The best available data was utilised for the geomorphic condition assessment. Digital Elevation Models (DEMs) from 2009 and 2014 (1m resolution) were used for the BCC LGA. ICC LGA had 2009 1m resolution DEM. No DEM data is available in the SRC LGA. Shuttle Radar Topography Mission (STRM) derived DEM (30m resolution) was used. Obtaining good quality up-to-date LiDAR for the region would be preferable.

The SEQ Regional Plan will be reviewed in 2016- 17 and may inform a future review of this action plan.

Monitoring and evaluation

Progress on action implementation will be monitored through the reporting framework established under the Resilient Rivers Initiative, including an evaluation to be conducted in 2018.



Before and after photos for a river bank rehabilitation site at Mockers Road, Fernvale

References

Alluvium, 2015, Reid, J, Ivezich, M and Daley J. *Mid-Brisbane Catchment Action Plan: Technical Report: Catchment descriptions and issues, Report P415020_R03* by Alluvium Consulting Australia for the Council of Mayors (SEQ).

Ipswich City Council, 2014, *Upper Black Snake Creek Improvement Plan – A Total Water Cycle Management Approach to the Management of the Upper Black Snake Creek Catchment*.

Queensland Wetlands Program (2016) *Walking the Landscape – Mid-Brisbane Catchment Summary*. Department of Environment and Heritage Protection, Brisbane.

Seqwater, 2014, *Mid-Brisbane Stabilisation Strategy Technical Assessment*

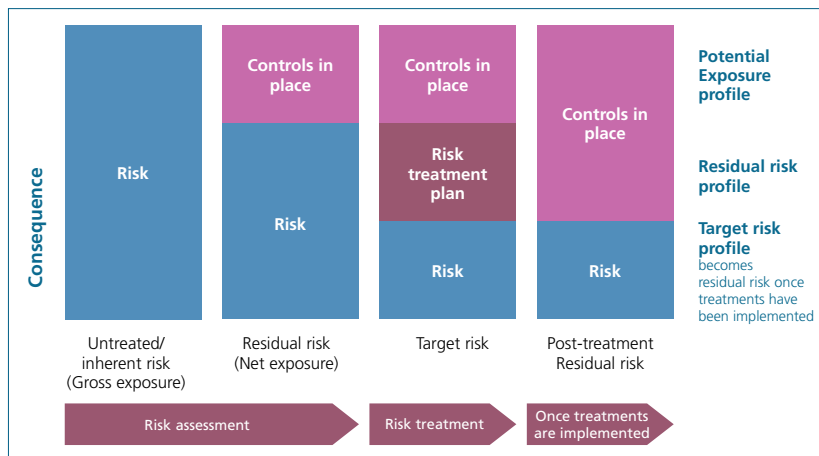
Somerset Regional Council and Queensland Government, 2008, *Mid-Brisbane River: Outdoor Recreation Master Plans*

Appendix

Risk assessment tool kit used in the preparation of the Mid-Brisbane Catchment Action Plan

Criteria	Expected Frequency	Probability (for use in quantitative assessments only)
Almost Certain	Occurs more than once a year	>95%
Likely	Occurs once between 1 to 3 years	>33–95%
Possible	Occurs once between 3 to 10 years	>10–33%
Unlikely	Occurs once between 10 to 50 years	>2–10%
Rare	Occurs once between 50 to 100 years	1–2%

		CONSEQUENCES				
		Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD	Almost certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	High
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Medium	Medium



Residual Risk Rating	Action Required
Extreme	Risk treatment plan (RTP) must be in place immediately. The Taskforce to review and approve RTP.
High and increasing	Risk treatment plan must be completed. Plan must also neutralise increasing risk over trend time frame. The Taskforce to review and approve RTP.
High	Risk treatment plan must be completed.
Medium and increasing	Risk treatment plan must be considered. Plan must also neutralise increasing risk over trend time frame.
Medium	Risk treatment plan must be considered.
Low and increasing	Risk treatment plan must be considered. Plan must also neutralise increasing risk over trend time frame.
Low	Risk treatment may not be required.





Images courtesy of Council of Mayors (SEQ), Seqwater, Ipswich City Council, Department of Environment and Heritage Protection, SEQ Catchments, Healthy Waterways



Council of Mayors
South East Queensland

Council of Mayors (SEQ)

**Black Snake Creek Improvement Plan Delivery
Project**

Funding Deed of Agreement

Between

Council of Mayors (SEQ)

And

Ipswich City Council

DEFINITIONS, INTERPRETATION and SCOPE

1.1 Definitions

In this Agreement, unless the context indicates otherwise:

“Approved Funding” or **“Approved Funds”** means the maximum amount of monies specified in the agreement, to be provided by the Funders to the Organisation during the Funding Period(s) for the sole purpose of the delivery of an Approved Project(s).

“Business Day” or **“Business Days”** means a weekday or weekdays on which banks are open for business in Brisbane.

“Confidential Information” includes all trade secrets and know-how, financial information and other commercially valuable information of whatever description and in whatever form this information is communicated (whether by electronic means, in an electronic storage device, in writing or orally) and includes the interpretation, analysis and application of general information in the public domain.

“Goods and Services Tax” or **“GST”** means an amount of GST payable under the *A New Tax System (Goods and Services Tax) Act 1999* and *A New Tax System (Goods and Services Tax Imposition – General) Act 1999* or otherwise imposed by the Commonwealth Government.

“GST Amount” means the amount calculated by multiplying the GST exclusive amount of the financial assistance as a taxable supply, payable under the terms of this Agreement, by the rate of GST applicable from time to time.

“Intellectual Property” includes all copyright (including any future copyright), moral rights, all rights in relation to inventions (including patent rights), plant varieties, registered and unregistered trade marks (including service marks), registered designs, confidential information (including trade secrets and know-how), circuit layouts and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields as a result of the use of the Approved Funding.

“Moral Rights” has the meaning given to that term in the *Copyright Act 1968 (Commonwealth)*.

“Party” or **“Parties”** means a party or parties to this Agreement.

“Payment Schedule” means the schedule of payments to be made in accordance with the nominated timeframes as specified in this Agreement.

“Personal Information” means information or an opinion (including information or an opinion forming part of a database) whether true or not, and whether recorded in a material form or not, about an individual whose identity is apparent, or can reasonably be ascertained, from the information or opinion.

“Tax Invoice or Invoice” means a document directed to the Organisation requesting payment for goods or services and detailing the supplier's name, the goods and services provided, the date these were provided, the amount due, the goods and services tax amount due, the terms of trade and the date of the invoice;

“Unexpected Event” means any circumstance beyond the reasonable control of a party which results in that being unable to perform an obligation on time, and includes, but is not limited to:

1. natural events like fire, storm, flood, landslide, washaway or earthquake;
2. national emergency;
3. terrorist act;
4. war; or
5. an order of any Court.

1. PARTIES

The parties to this Memorandum of Understanding (FDoA) are the:

- A. Council of Mayors (SEQ) (CoMSEQ).
- B. Ipswich City Council (ICC)

2. PURPOSE

- 2.1. The FDoA establishes a clear understanding of the terms of agreement between the parties in relation to the implementation of the Black Snake Creek Improvement Plan Delivery Project (the Project) as outlined in the Black Snake Creek Improvement Plan Delivery Project Plan, dated August 2017.

3. TERM

- 3.1 The FDoA is effective from the date of its execution for a period of one year unless otherwise agreed by the parties.

4. RESPONSIBILITIES OF CoMSEQ

- 4.1. CoMSEQ agrees to provide funding of \$60,000, GST exclusive, to the ICC for it to implement the Project for the period of the Project.
- 4.2. CoMSEQ will provide reporting functions and advice in relation to the Project, as may be agreed between the parties.

5. RESPONSIBILITIES OF ICC

- 5.1. The ICC will use the funding for the implementation of the Project only, unless otherwise agreed in writing by the parties.
- 5.2. The ICC will provide overall management and resourcing of the project along with office accommodation and facilities as required.
- 5.3. The ICC will develop a Project Management Plan by no later than a month after the signing of this FDoA.
- 5.4. The ICC will comply with all reporting requirements outlined in the Project Plan as agreed between the parties.
- 5.5. The ICC will provide the engagement with private landholders, Somerset Regional Council, Seqwater, and local Landcare and NRM groups as outlined in the Project Plan.
- 5.6. The ICC will provide representation on the governance of the project.

6. REPORTING ARRANGEMENTS

6.1 ICC will provide progress reports referencing milestones and deliverables as agreed in the Project Plan every month after the commencement of this FDoA.

7. FUNDING ARRANGEMENTS / PAYMENT DETAILS

7.1 Payment of \$60,000, the total funding amount for the duration of the project, will be made within 14 days upon the satisfactory completion of the agreed milestones, subject to the receipt of a valid tax invoice, as outlined in the following table:

Milestone	Funding
Execution of this FDoA	\$30,000
Completion of project	\$30,000

8. VARIATION

8.1 This FDoA may be varied with the written agreement of all parties.

9. DISPUTES

9.1 CoMSEQ and ICC will take all necessary steps to resolve, by mutual agreement, any dispute that arises under this FDoA in relation to the Project.

10. INTELLECTUAL PROPERTY

10.1. The parties acknowledge that any intellectual property created during the Project, upon its creation, shall vest in the ICC.

10.2. The ICC grants to CoMSEQ a non-exclusive, irrevocable and royalty-free licence to use, adapt for its own use, modify, develop and distribute any intellectual property for the sole purpose of discharging its portfolio responsibilities.

11. PERSONAL INFORMATION

11.1 The parties undertake to ensure that all personal information exchanged between CoMSEQ and ICC under the terms of this FDoA is dealt with in accordance with each party's obligations under the *Information Privacy Act 2009*.

12. ACKNOWLEDGEMENT

12.1. The ICC must acknowledge the Funding:

- 12.1.1. by acknowledging the Resilient Rivers Initiative in publicly made statements, promotional material, websites or appropriate documentation or publications; and
- 12.1.2. by inviting the CoMSEQ to attend any events connected with the project.
- 12.2. Joint publicity between all parties is to be approved in advance by COMSEQ.

13. NOTICES / CONTACT OFFICERS

- 13.1. Notices required to be given under this FDoA must be in writing and may be delivered by hand, by post or by email.
- 13.2. Notices will be deemed to have been received:
 - 13.2.1. if hand delivered, upon delivery;
 - 13.2.2. if sent by post, two business days after posting;
 - 13.2.3. if sent by email, one business day after sending, unless an undeliverable report is received.
- 13.3. A party may change its address for service from time to time, by a written notice served on the other party.
- 13.4. Any notice received after 5:00pm is deemed to have been received on the next business day in the place to which it was sent.
- 13.5. The parties' addresses for service and contact officers are as follows:

Council of Mayors (SEQ)

Name: Scott Smith
Position: Acting Executive Director
Address: PO Box 12995, George Street QLD 4003
Telephone: 3040 3479
Email: scott.smith@seqmayors.qld.gov.au

Ipswich City Council (ICC)

Name: Bryce Hines
Position: Acting Chief Operating Officer (Works, Parks and Recreation)
Address: PO Box 191, IPSWICH QLD 4305
Telephone: (07) 3810 6666
Email: bhines@ipswich.qld.gov.au

Resilient Rivers Initiative

Catchment Investment Program

Project Management Plan

Black Snake Creek Improvement Plan Delivery

Phase 1

DRAFT

Version: 0.2

Date: 1 August 2017

Document Control

Version History

Version	Author	Change	Date
0.1	D Dawson/P. Smith	Initial Draft	27 July 2017
0.2	D. Dawson	Final Draft	1 August 2017
1.0		Final	

DRAFT

Title:	Black Snake Creek Improvement Plan Delivery – Phase 1
Project Lead Contact:	Philip Smith, ICC
Background:	<p>The Resilient Rivers Initiative (RRI) is a collaborative effort between local and state government, water utilities and key non-government organisations to improve the health and resilience of South East Queensland’s catchments, rivers and Moreton Bay. Further background on the RRI is available at http://seqmayors.qld.gov.au/project/resilient-rivers-initiative/</p> <p>As indicated in the RRI Strategy, the Catchment Investment Program was established by the Resilient Rivers Taskforce in 2016 to provide a pool of funds for priority on-ground works identified in Catchment Action Plans. A rolling program of works has been established and as funds become available, projects are prioritised for delivery.</p> <p>In 2014 Ipswich City Council (ICC), in partnership with multiple stakeholders and the local Marburg community produced the ‘Upper Black Snake Creek Improvement Plan’ (UBSCIP). This Plan took an integrated catchment approach to the challenges faced in the Black Snake creek catchment, focussing on water quality, salinity and flood risk. In particular, the salinity that comes out of the catchment has impacts upon the Brisbane river, and the proximity of the confluence with the Mount Crosby treatment works mean that issues are of particular concern to the Seqwater and Queensland Urban Utilities (QUU) who are tasked with the provision and supply of potable water to a large area of South East Queensland.</p> <p>The UBSCIP looked at potential solutions, delivery mechanisms and funding streams to deliver those solutions. Further discussions continue with key potential partners including QUU and Seqwater and the project has been included in the Catchment Action Plan for the Mid Brisbane.</p>
Justification:	<p>This project was confirmed as a priority for funding the Resilient Rivers Initiative Catchment Investment Program as per the process identified in the Catchment Investment Program Terms of Reference.</p> <p>The Catchment Action Plans Working Group provided in-principle support of the project at its meeting of 14 April 2017. The RRI Taskforce provided in-principle support of the project at its meeting of 5 May 2017 and approved release of \$60,000 excl GST on 28 July 2017.</p>
Catchment Action Plan:	Mid Brisbane Catchment Action Plan, 2015-2018
Objectives:	<p>The objective of this project is to:</p> <ol style="list-style-type: none"> 1. Restore deep-rooted vegetation to assist lowering raised saltwater table and reduce the impacts of salinity in the Mid Brisbane River.

Black Snake Creek Improvement Plan Delivery Phase 1: Project Management Plan

Project Description:	<p>Overview</p> <p>The project is located in the Black Snake Creek catchment which is a sub-catchment of the Mid Brisbane River. The management intervention is the commencement of a long-term approach to manage salinity in the catchment. Salinity is an issue for water treatment at the downstream Mount Crosby Water Treatment Plant. The engagement of local landholders to undertake targeted large-scale revegetation occurs in this phase (Phase 1).</p> <p>Other works as per the UBSCIP managed by ICC will occur concurrently in Phase 1 which are not included in this Plan.</p> <p>Catchment Investment Program funds will leverage funds provided by ICC via its offsets program as well as funds provided by Healthy Land and Water Ltd (HLW).</p> <p>Duration</p> <p>Overall there will be three planting phases over three years plus a 5 year establishment period. A staged approach is required for the scale of landholder engagement needed and seasonal requirements of vegetation establishment. Phase 1 will occur from August 2017 to June 2018.</p> <p>Site detail</p> <p>The project will be delivered in areas located within ICC and Somerset Regional Council (SRC) LGAs. An initial focus is the area around Marburg.</p>
Project Maps:	Attachment A
Supporting documents:	<p>The project will be delivered as per;</p> <p>The Upper Black Snake Creek Improvement Plan.</p>
Key deliverables:	Key milestones in the delivery of the project are included in Attachment B.
Budget and Procurement Requirements:	<p>(2017-18) \$60,000 ICC; (2017-18) \$120,000 Catchment Investment Program; \$80,000 (2017-18) HLW.</p> <p>Details at Attachment C</p>
How the success of the project will be measured:	<p>Establishment rates of vegetation.</p> <p>Hectares revegetated.</p> <p>Landholder engagement numbers.</p>
Governance:	Attachment D

Black Snake Creek Improvement Plan Delivery Phase 1: Project Management Plan

Reporting Requirements:	The Project Coordinator will report progress to the Council of Mayors (SEQ) Coordinator who will arrange for a progress report to be circulated to the CAPs Working Group and Resilient Rivers Taskforce.	
Communications and Engagement Plan, including Project Promotion:	This project has significant opportunity for positive media. A communications and engagement plan will be developed.	
Major Project Risks & Minimisation Strategies:	Risks	Minimisation Strategies
	Approvals	Works will require only local and private landowner approvals. Where further approval is required the relevant State Government bodies will be engaged
	Procurement	Procurement will be managed through the use of existing and authorised Local Government Procurement protocol and procedures (Procedure 42/22 Procurement)
	Private Land Owner Engagement	Use existing networks and ongoing/existing partnerships in key strategic locations
Related Projects:	Brisbane River Floodplain Management Strategy, Qld Reconstruction Authority	
Quality Management	To ensure works are of the highest standard, the following key references are to be included in project contracts: <ul style="list-style-type: none"> • Chenoweth EPLA and Bushland Restoration Services 2012, South East Queensland Ecological Restoration Framework • Ipswich City Council Riparian Revegetation Guidelines/Waterway and Channel Rehabilitation Guidelines 	
Capturing the Lessons Learnt:	Upon completion of the project, a project evaluation will be undertaken and provided to the CAP Working Group.	

Attachment A Maps

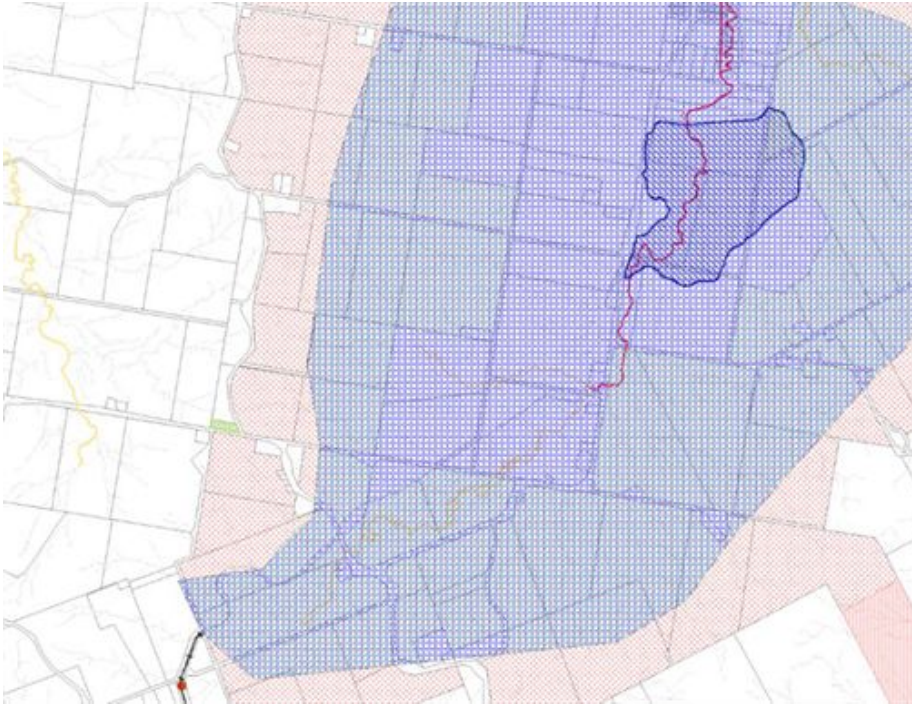


Figure 1 – Target Upper Catchment and Mid-slope Properties - Marburg and Tallegalla



Figure 2 - Current to future aspirational condition projection - 20 - 30yr

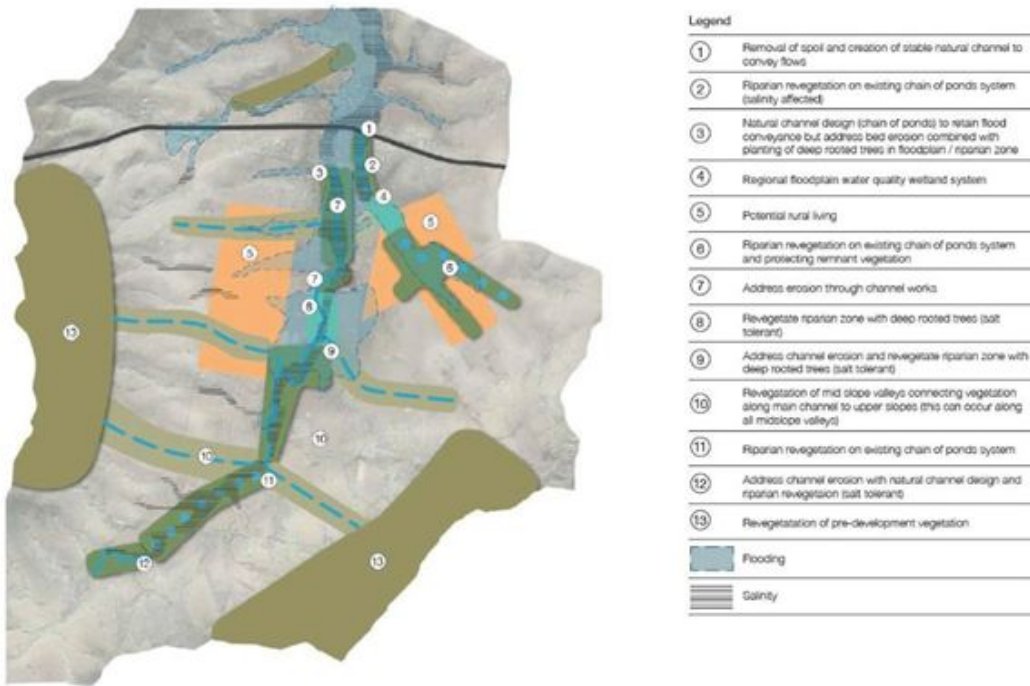


Figure 18 - Proposed locations of actions across the Upper Black Snake Creek catchment

Figure 3 - From Upper Black Snake Creek Improvement plan targeted areas and corresponding actions

DRAFT

Attachment B Milestones and Deliverables

	Milestone	Amount from Catchment Investment Program	Date
1	Project Initiation	\$30,000	August 2018
2	Mid Project Report	\$30,000	31 January 2018
3	<i>Draft Project Report*</i>	<i>\$30,000</i>	<i>30 May 2018</i>
4	<i>Final Project Report*</i>	<i>\$30,000</i>	<i>30 June 2018</i>

*Milestones 3 and 4 are to be funded in a second tranche payment

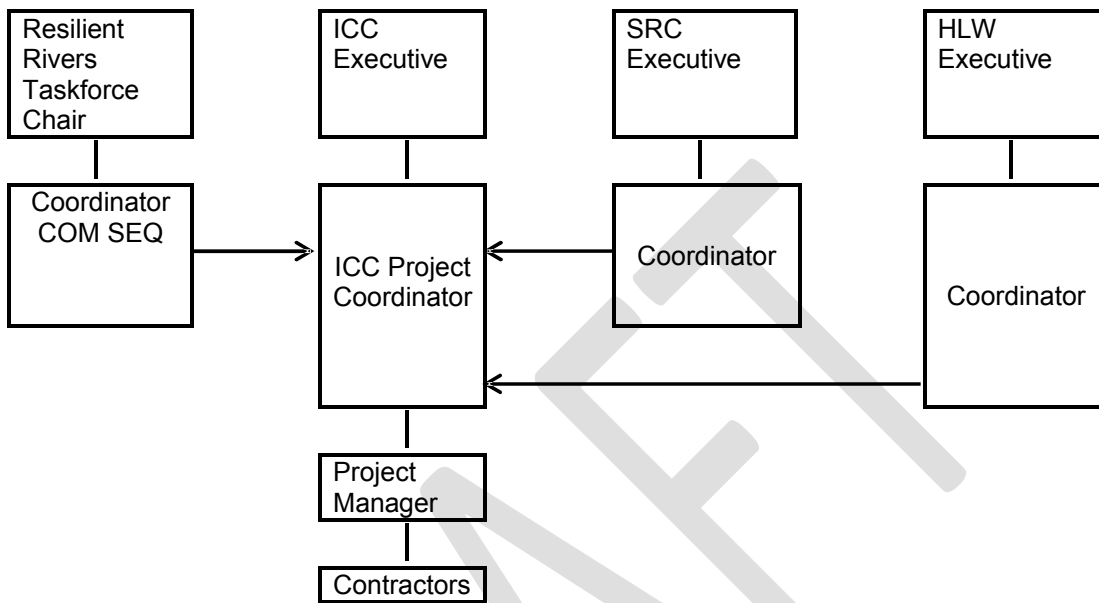
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Attachment C Budget FY 17-18

Activity	Amount
Round 1 @\$5 per tree (plant, planting and maintenance)	\$30,000
Round 2 @\$5 per tree (plant, planting and maintenance)	\$30,000
Round 3 @\$5 per tree (plant, planting and maintenance)	\$30,000
Round 4 @\$5 per tree (plant, planting and maintenance)	\$30,000
Total	\$120,000

DRAFT

Attachment D Governance



May 2017



Black Snake Creek Improvement Project Proposal.

A delivery plan based around actions from the “Upper Black Snake Creek Improvement Plan”

In 2014 Ipswich City Council, in partnership with multiple stakeholders and the local Marburg community produced the 'Upper Black Snake Creek Improvement Plan' (The Plan). The aim of the Plan is to take an integrated catchment approach to the challenges faced in the Black Snake creek catchment, namely, focussing on water quality, salinity and flood risk. In particular the salinity that comes out of the catchment has impacts upon the Brisbane River, and the proximity of the confluence with the Mount Crosby treatment works mean that issues are of particular concern to the likes of SEQWater and Queensland Urban Utilities (QUU) who are tasked with the provision and supply of bulk potable water to a large area of South East Queensland.

The Plan looks at potential solutions, delivery mechanisms and funding streams to deliver integrated outcomes. Further discussions with key potential partners including QUU and SEQWater, have commenced and the project continues to be of interest to the Resilient Rivers program and have been included in the Catchment Action Plan for the Mid Brisbane.

What follows in this document is a proposal to deliver a number of synchronised solutions looking to deliver on multiple objectives highlighted in The Plan.

A Flood Plan re-engagement and in stream improvement

Background and Synopsis

In December 2016, ICC conducted a joint field trip with staff from what is now Healthy Land and Water and West Moreton Landcare to progress on ground actions in the Black Snake Creek region. After meeting it was agreed that a floodplain re-engagement program, including the consideration of best management practice engineering solutions (i.e. Engineered Log Jams and Pile Fields) would be looked at, in conjunction with riparian and floodplain revegetation. A summary of this project concept with potential locations for engineering works and revegetation efforts are documented in this project proposal. Works locations will be finalised through community engagement, site visits, and detailed design and modelling as the project progresses.



Figure 1 - Black Snake Creek Catchment (Extracted from "living in the black snake creek" booklet

Objectives:

- Raise the bed level and decrease channel incision
- Disconnect the surface water from the saline ground water
- Reduce velocity
- Reduce scour and erosion
- Improve water quality through flood plain re engagement.
- Reinstate Brigalow and eucalyptus communities, creating riparian buffers
- Improve in stream habitat and biodiversity

Channel deepening is an in stream process in SEQ creeks that needs managing as it results in increased water velocities and significant channel widening, and in some catchments increases the interaction of a salty groundwater table with the creek, resulting in highly saline pools. In Black Snake Creek these pools are flushed into the mid Brisbane River just above Brisbane's main water treatment facility, and can significantly increase salinity levels and negatively impact on water treatment plant. In addition, Black Snake Creek has repeatedly been found to have elevated E. coli and Enterococci, nutrients and total suspended solids, which are considered significant risks to Brisbane's main water treatment facility. This poor water quality is exacerbated by the municipal water supply in Marburg town with the urban influence on water quality and quantity both immediate (runoff from road and roofs) and long term, with septic systems providing not only the potential for bacterial/nutrient contamination, but also an imported background water supply. This urban 'leakage' only serves to increase the height of the saline water table.

The Plan recommends that natural channel design, with a goal to slowing flows, and works that reduce bed and bank erosion combined with planting deep rooted trees along the

floodplain are key mitigation strategies to address declining water quality. This project proposes to increase the number of deep rooted trees along riparian areas, specifically targeted around in channel revegetation and potentially log jams which will reduce erosion and induce sediment deposition. These solutions will increase deposition, add complexity to the chain of ponds system and over-time return wetland functions to areas of floodplain.

Whilst the final concept and plan of works will be finalised through community engagement, site visits, detailed design and modelling, the principle of the placement of in stream structures such as piles to slow flows and encourage deposition, thus raising the bed levels of the creek. These structures where practical will continue out into the floodplain and be associated with riparian and floodplain revegetation programs.

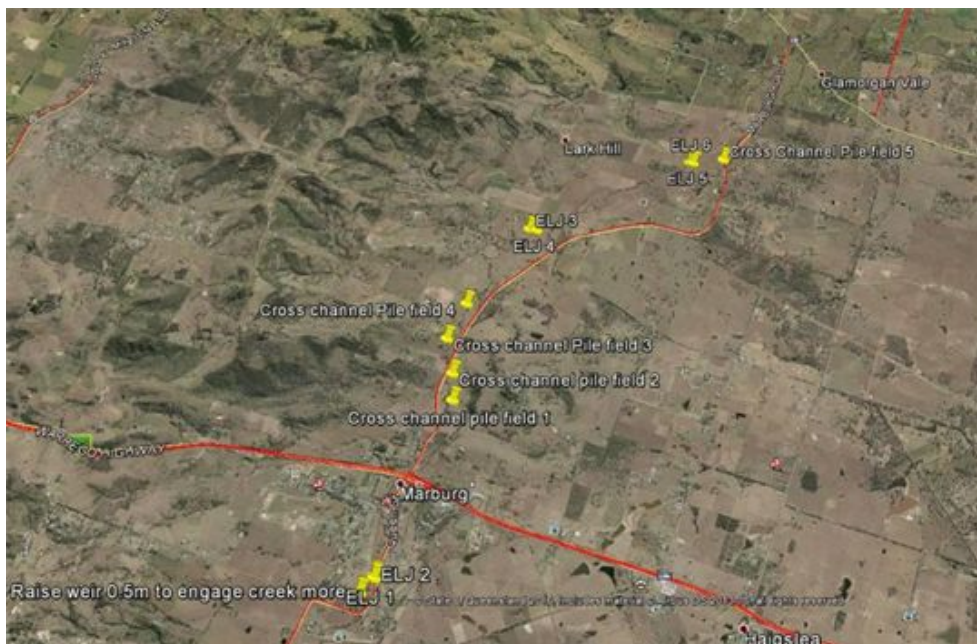


Figure 2 Overview of potential on-ground works sites in phase 1 of the project.



Figure 3 cross channel pile fields and locations to in channel water velocities and encourage sediment deposition to raise the creek bed level



Figure 4 Other locations outside of Ipswich Council Local Government Area which would be suitable for funding from an alternative source.

Costings

3x Pile fields = \$50,000 (\$70 dollars per pile installed)

Associated deep rooted revegetation (including maintenance) = \$18,000 (\$10 per plant installed and established - 5 plants per m)

1 xLog Jam installed = \$20,000

Associated offstream watering and fencing = \$30,000

Ipswich City Council Contributions

On ground implementation contribution = \$60,000 (over 2 years)

In Kind

Planning, engagement and modelling = \$27,000

Healthy Land and Water Contributions

Pilot Best mangement practice demonstration project to include pile fields, offstream watering, vegetation and fencing = \$60,000

In kind

Assosicated land/stock management workshop = \$8,000

Project design and planning = \$9,000 (10 days at \$900 per day)

Installation and onground management = \$9,000 (10 days at \$900 per day)

Total costs for phase 1 = \$173,000 of which \$55,000 is inkind provided by HLW and ICC

B Mid Slope and Aluvial Revegetation.

Background and synopsis

As identified in the Upper Black Snake Creek Improvement Plan the issues of salinity in the catchment have been exacerbated by post european clearance of catchment vegetation for agriculture. It is estimated that the catchment in and around Marburg has lost over 80 percent of the remnant vegetation cover over the last 200 years .

Objectives:

- decrease saline ground water expression
- increase roughness and increase freshwater infiltration of upper catchment to delay flood peaks
- habitat restoration (Regional Ecosystem 12.15.3 bluegum on alluvium and endangered brigalow)



Figure 6 – Current Vs aspirational projected future vegetation cover Source: Upper Black Snake Creek Improvement Plan Final Report

The areas that need to be targeted for rural revegetation have been previously identified (mid slopes, and alluvium) through the Upper Black Snake Creek Improvement plan. Ipswich City Council has run land owner workshops in the area with Healthy Land and Water, formerly SEQCatchments, and West Moreton Landcare to encourage better practice. Further to this there are existing land owners signed up as partners in the area who are eligible for funding assistance and free tree programs under current voluntary conservation programs.

Other mechanisms for the delivery of revegetation include:

- The production of a specific Black Snake Creek partnership program as is currently being developed for Franklin Vale Catchment. This could be funded through existing means including Enviroplan and offsets
- acquisition of appropriate land for the delivery of vegetation offsets through revolving funds or facilitation of a third party eg. QTFN
- small scale cyclical timber/tree plantation

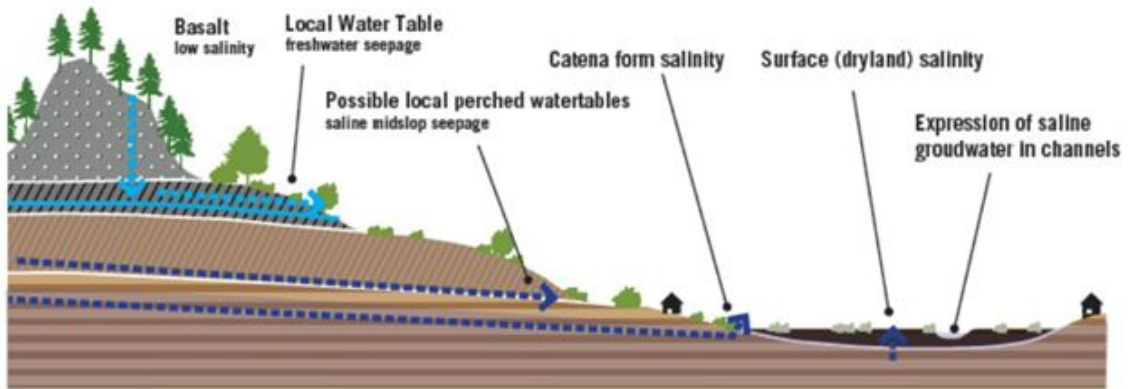


Figure 7 - Salinity expression and target areas for reveg

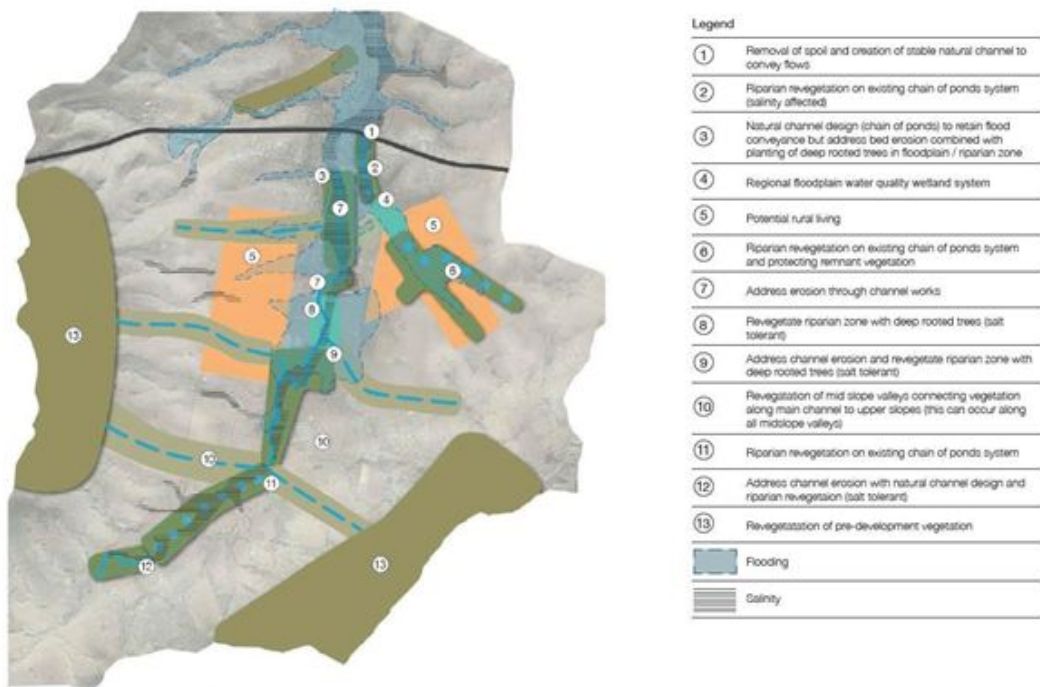


Figure 18 - Proposed locations of actions across the Upper Black Snake Creek catchment

Figure 8 Actions and locations from The Plan

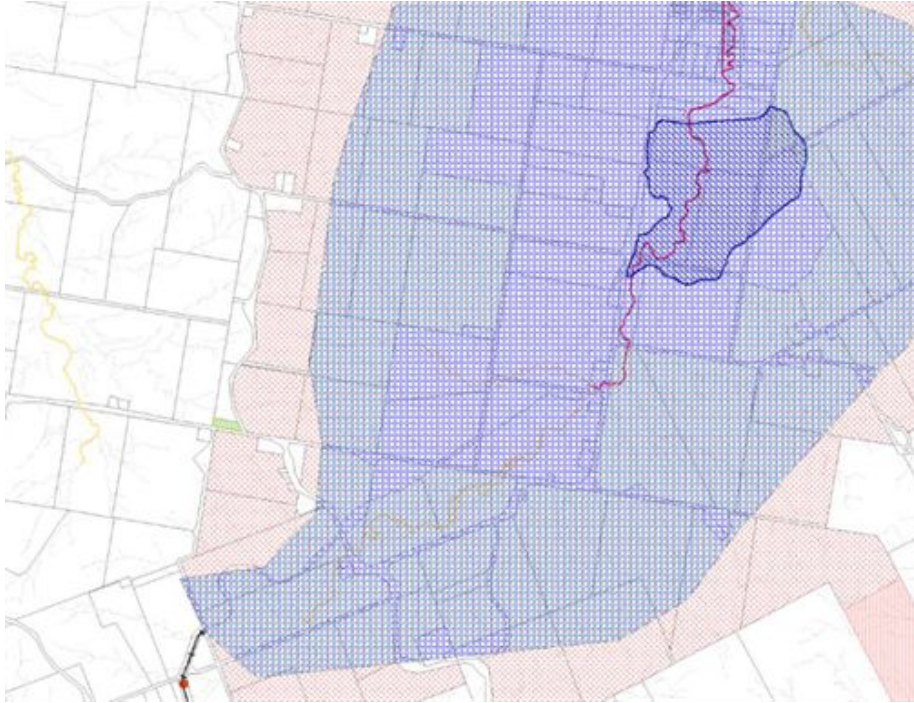


Figure 9 – Properties around the Upper (red), Midslopes and Alluvial Flats (blue) Marburg and Tallgalla

Delivery

Figure 9 is a broad overview of potential locations to identify key properties and property owners to approach as partners in the program.

Based on discussions in the field in November 2017 with Ipswich City Council, West Moreton Landcare and Healthy Land and Water, four adjoining properties have been identified to be approached for involvement in the project for 2018 (Figure 10).

The objective is 10,000 plants to be established, broadly representing preclear regional ecosystems (Figure 11). As a broad guide, plants will be established in rows with 4 metre spacing to allow machinery access for interrow slashing and in row weed control. Anticipated density will be approximately 2,500 – 5,000 plants per hectare, though overall density will be negotiated with individual landholders to meet their requirements.

Anticipated costs for this area \$12.00 per plant including project management and maintenance for a minimum of 12 months. These locations can and may cross over with sites relevant to the Tributary Revegetation project (Below). This may deliver improvements in flood risk as well as water quality.

There may be the opportunity to establish some plants on ICC property, however it is anticipated that the majority of plants will be established with private landholder partners. West Moreton Landcare have agreed to assist in this process.

Plant supply, installation and maintenance of the plants will be delivered by a combination of Healthy Land and Water staff and sub-contractors on private property. Each landholder will have a signed project agreement based on the standard Healthy Land and Water template.



Figure 10 – Potential landholder partners for mid slope revegetation

C Eastern Western Tributaries Revegetation and Peak Delay Projects

Background and Synopsis

As part of an original flood study for Marburg commissioned by Ipswich City Council and appendix A of the Upper Black Snake Creek Improvement Plan, the Eastern and Western tributaries of the Black Snake were identified as contributors to flooding in and around the township. Originally detention was proposed in the form of Dams on both tributaries and the main channel, however after cost benefit analysis only the main channel received a flood mitigation scheme. This has since proved worthy however no actions were taken on the other tributaries.

Ipswich City Council with E2 DesignLab and BMT WBM had previously looked at the potential to use revegetation to delay and reduce flows from these tributaries in echoing methods used elsewhere including Europe and the UK. Initial investigations proved inconclusive. However ICC have re-examined the option using the latest theories and models and believe there may be scope to implement a project that will improve both water quality, local habitat and have a positive effect on localised flood risk.

Since the production of the improvement plan Ipswich City Council engaged Ipswich Rivers Improvement Trust to carry out re-profiling of the Eastern tributary channel the in the reach immediately upstream of the Warrego Highway.

- Objectives;-
- mitigate local flood risks by managing peaks/lag time
 - Improve water quality through managing stream power and volumes and increasing sully stability
 - Improve local habitat by increasing cover of veg in the catchment

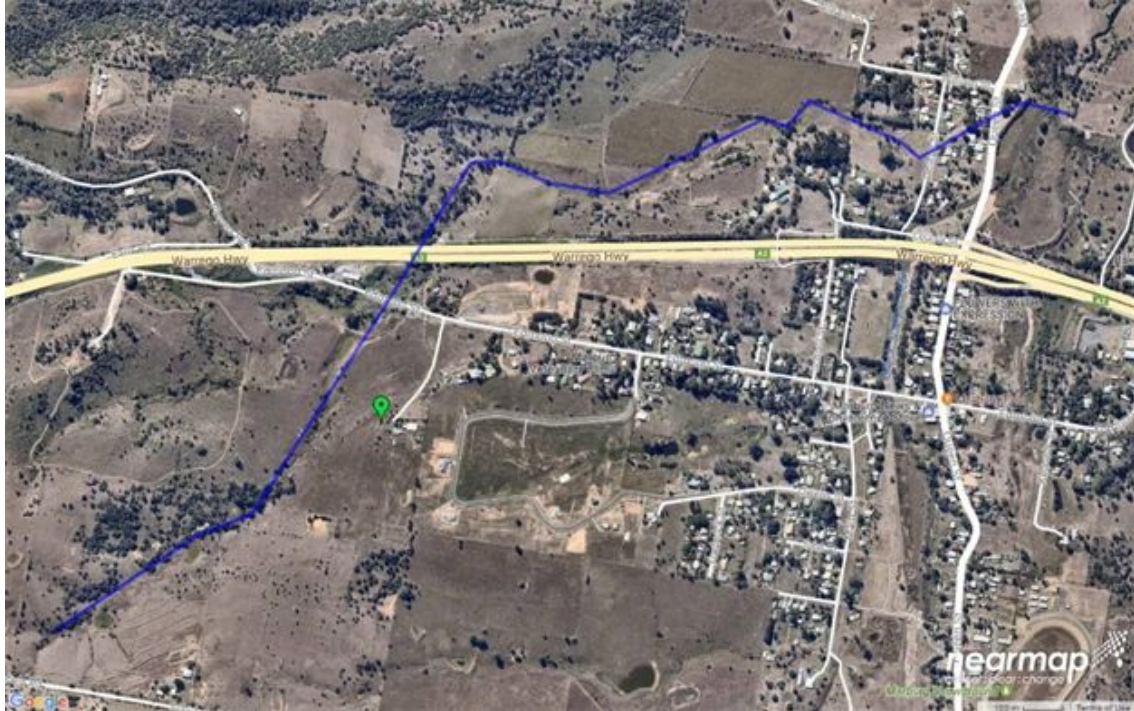


Figure 10 Western Tributary

Measures on the Western Tributary would include;

- Approximately 1km² of native revegetation in partnership with 2 existing private conservation partners, Healthy Land and Water and West Moreton Landcare.
- Investigation into the re-instatement of historic dams and dam walls on the waterway
- Exploration and modelling of the use of further attenuation devices such as leaky weirs log jams and similar in stream structures

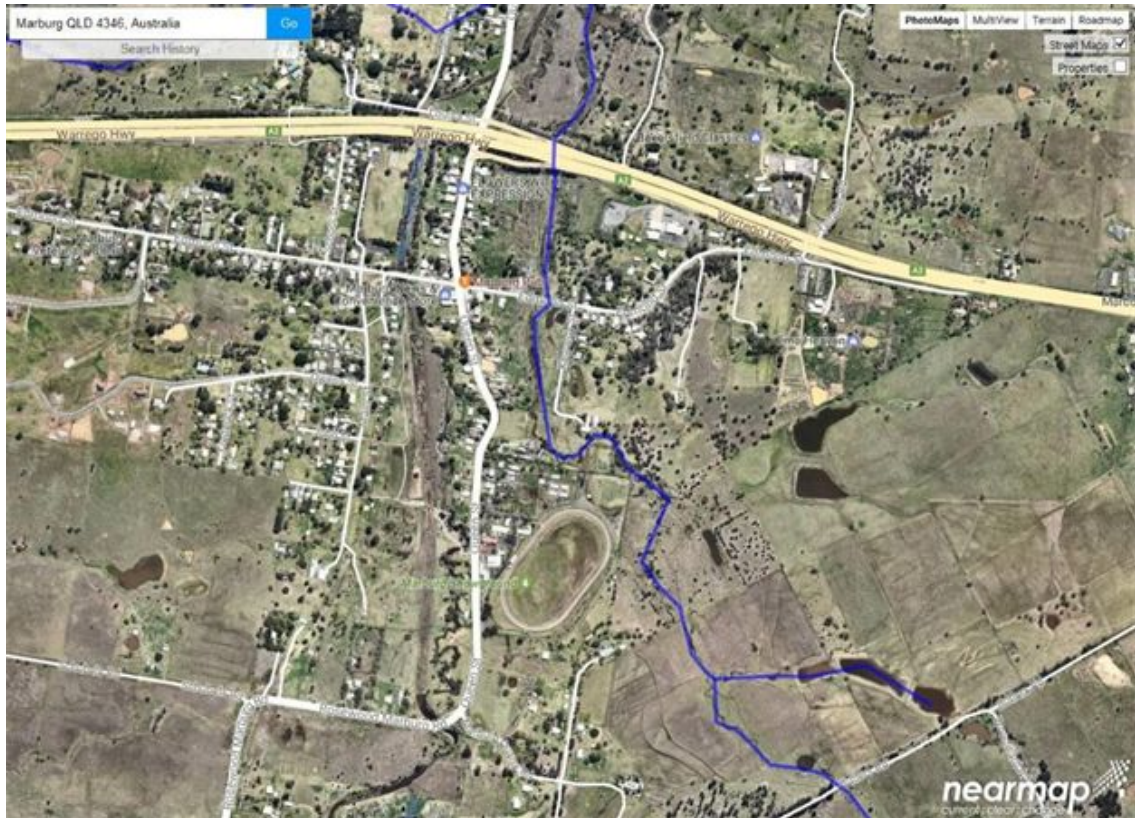


Figure 11 - Eastern Tributary

Measures on the Western tributaries would include

Identify and sign up land overs to Voluntary Conservation Agreements or similar and commence re-establishment of riparian vegetation and improvement of the chain of ponds

Conservation and Environment Committee	
Mtg Date: 22.01.18	OAR: YES
Authorisation: Bryce Hines	

BW: BW
H:\Departmental\Committee Reports\1801 BW Green Asset Audit.doc

3 January 2018

MEMORANDUM

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY IMPROVEMENT OFFICER

RE: FINDINGS AND RECOMMENDATIONS FROM THE GREEN ASSET AUDIT
CITYWIDE

INTRODUCTION:

This is a report by the Waterway Improvement Officer dated 3 January 2018 concerning the findings and recommendations of the Green Assets audit. Green Assets refers to vegetated stormwater assets, including bioretention basins and constructed wetlands.

BACKGROUND:

The impact of pollution and changed flow regimes on our waterways as a consequence of urban and industrial development has gained prominence over the last two decades. The increased volume and frequency of stormwater runoff generated by hard surfaces can increase by an order of magnitude following development, causing severe erosion of our waterways and delivering high levels of pollution.

In response to this issue, legislation mandating that new development achieves stormwater pollutant reduction objectives have been imposed by the State Government. The most common method to achieve these required reductions has been through the construction of vegetated stormwater quality improvement devices, primarily bioretention basins and constructed wetlands. Council has taken on responsibility of over sixty of these assets across the city, with many more forecast to be handed over to Council in the coming years.

GREEN ASSETS AUDIT:

Council has recognized a need to better understand these assets and their maintenance requirements, the condition of those that are the responsibility of Council, and the likely rate at which Council will be required to take over maintenance of newly constructed devices. To assist with this understanding, Council recently completed a condition assessment (the audit) of the assets maintained by Council, in addition to forecasting future supply. A copy of this audit is shown in Attachment A. An analysis of bonded assets was also undertaken to provide an action plan for draw down of uncompleted works bonds.

KEY FINDINGS AND ACTIONS:

- Council currently has fifty-nine bioretention basins and five constructed wetlands in its asset register that are Council's responsibility.
- Of the fifty-nine bioretention basins, eighteen require rectification, primarily a result of legacy issues associated from early design errors and lack of maintenance.
- There are large data gaps in respect to cost of maintenance to adequately forecast the dollar value required to maintain the assets in the future, and any such forecasts are heavily dependent on the rate and type of development in the future years.
- To the year 2031, the total area of assets required to be maintained by Council will increase eight fold using current population growth projections.
- Of the bonded assets under Council's control, the bond is generally sufficient to undertake rectification works.

The actions identified through the audit to improve Council's management of the assets are detailed in **Table 1** below.

Task	Responsibility	Action date
Data Management and Transfer Notification Process		
1. Review workflow from P&D to WPR notification of developer contributed assets to ensure consistent and accurate data capture.	WPR and PD	March 2018
2. Update of WPR GIS information system to modify asset attributes as per green asset audit. Also to note status of system to assist asset planning, and clear understanding as to who is responsible for the asset.	WPR and PD	June 2018
3. Review existing detention basin layer to ensure water quality assets are correctly identified.	WPR	May 2018
4. Process developed for as constructed details for Council projects being correctly captured in GIS	IS and WPR	March 2018
Design and Construct		
5. Workshop to examine existing standards of design and delivery and investigate opportunities	PD and WPR	April 2018

for improvement, including appropriate facilitating mechanisms that may be required.		
Delivery and Maintenance		
6. Review inspection regime of assets to ensure it is correctly identified when assets are not being appropriately maintained and ensure that completion did not occur before 90-95% build out of catchment.	P&D and WPR	April 2018
7. Develop register of green asset maintenance status as a single point of truth for both P&D and WPR. This should flag when milestones and key dates are due to ensure appropriate actioning by responsible officers in P&D, and allow both departments to recognize when bond draw down is required or other action taken.	PD and WPR	May 2018
Developer Bonds		
8. Process developed for P&D to WPR actioning of bonds. Utilise reporting (including developed milestones) to plan and anticipate where this is required.	P&D and WPR	May 2018
9. Plan for and implement recommendations of the green asset audit including bond call up, rectification recommendations and redesign as required.	WPR	January 2018 and beyond
10. Review maintenance bond process and value.	P&D and WPR	April 2018
Council Maintenance		
11. Adopt service levels as per the recommendations in the green asset audit report and incorporate in the WPR Asset/Landscape Maintenance Standards catalogue.	WPR	March 2018
12. Investigate resourcing requirements to allow adequate pro-active maintenance.	WPR	July 2018
13. Generate priority list for rehabilitation over the 2018-2019 and 2019-2020 financial year and determine resourcing requirements	WPR	January 2018.
Uncertain information associated with emerging technology		
14. Data capture relating to costs and maintenance requirement with appropriate feedback loop to inform asset management planning.	WPR	July 2018 onwards

Table 1: Actions arising from the green assets audit

CONSULTATION:

Consultation has occurred with officers of the Planning and Development Department.


CONCLUSION:

Council has recently undertaken an audit of its stormwater quality improvement devices including bioretention basins and constructed wetlands, to better understand their current condition and future maintenance and rectification requirements.

Of just over sixty-four stormwater quality improvement assets in total, eighteen require rectification, and these have been prioritised for action. The audit shows that the problems primarily occur in older assets that are a legacy of an immature technology being implemented. The number of assets under Council control is expected to increase eight fold to the year 2031, the majority of which are expected to be incorporated into large greenfield development.

A number of actions have been identified through the audit to ensure that Council is adequately prepared to receive and manage these assets. Further, these actions will help ensure that those assets that are the responsibility of Council are performing adequately.

ATTACHMENT:

Name of Attachment	Attachment
Green Asset Audit Report	 Attachment A

RECOMMENDATION:

- A. That Council accept the Green Asset Audit Report undertaken by Engeny, as shown in Attachment A to the report by the Waterway Improvement Officer dated 3 January 2018, as a guiding document to inform the future asset management and maintenance of constructed stormwater quality assets across the City.
- B. That Council undertake the actions as identified in Table 1 to the report by the Waterway Improvement Officer dated 3 January 2018.
- C. That the Chief Operating Officer (Works, Parks and Recreation) provide a follow up report outlining the status of the actions to a future Conservation and Environment Committee in mid to late 2018.

Ben Walker
WATERWAY IMPROVEMENT OFFICER

I concur with the recommendation/s contained in this report.

Kaye Cavanagh

ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines

ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)



IPSWICH CITY COUNCIL

Green Asset Audit Report



December 2017

M1100_039

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DISCLAIMER

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M1100_039 GREEN ASSET AUDIT – PROJECT REPORT					
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REV	DESCRIPTION	AUTHOR	REVIEWER	APPROVED BY	DATE
Rev 0	Client Issue	Emily Gordon/ Gordon Huang	David Sexton	Mark Page	11 September 2017
Rev 1	Client Issue	Emily Gordon/ Gordon Huang	David Sexton	Mark Page	11 December 2017
Signatures					

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1. INTRODUCTION

Ipswich City Council (Council) has inherited a large number of 'Green' Water Sensitive Urban Design (WSUD) assets in recent years from developers. Along with the assets, Council has also inherited the associated maintenance requirements.

In order to facilitate effective maintenance and planning for these assets, Council needs to understand the number of existing and forecasted assets under Council ownership and determine the type and condition of these assets.

In order to achieve this objective, the following tasks have been undertaken as part of this project:

- Define the level of service for bioretention basins and constructed wetlands based on asset categorisation.
- Forecast future supply of water quality infrastructure based on expected growth patterns and rates, including reference to Council's Water Quality Offsets Scheme.
- Undertake an audit of existing Council owned bioretention basins and constructed wetlands.
- Undertake concept designs for Council owned assets that require rehabilitation works.
- Provide a prioritised schedule for asset rehabilitation where required based on efficiencies in safety, functionality and amenity.
- Provide a lifecycle cost assessment for infrastructure including an estimated timeframe for decommissioning and refurbishment (in the case of existing infrastructure).

2. GLOSSARY

Table 2.1 Glossary of Terms

Term	Definition
Council	Ipswich City Council
WSUD	Water Sensitive Urban Design
Maintenance	Works funded under Council's Maintenance budget as per the 'maintenance requirements'
Rehabilitation	Works funded under Council's Capital Works Budget/ Works above those specified in the 'maintenance requirements'
Renewal / Upgrade	Major works requiring redesign to completely modify an asset
Decommission	Remove asset and replace with something other than a WSUD asset
Mobile Forms	Mobile application used to collect data on WSUD assets in the field
Attribute	An individual feature of a WSUD asset (e.g. overflow weir)
Green Assets	WSUD Assets (synonymous term)
Level of Service	Used to define the level of resourced dedication to the maintenance of an asset
Lifecycle costing	Total costs to Council over a 100 year operational life
Bioretention System	A treatment system comprising of a filter media and vegetation that removes contaminants from stormwater
Wetland	An artificial wetland constructed for the purpose of treating stormwater through the natural functions of vegetation, soil and organisms

3. MAINTENANCE - LEVELS OF SERVICE

Levels of service for maintenance are provided to guide different intensities of maintenance for WSUD infrastructure. The basis is that the lowest level of service still maintains basic functionality.

The categorisation process is in alignment with Council asset maintenance standards. The levels of service are designed to be the specification on which the requirements and frequency of maintenance activities can be set, to assist in the Council budgeting and scheduling process.

The key principle used in determining the level of service assigned to an asset relates to the community's perception of that asset. Systems that are visible to the public are assigned a high level of service, unless they are located within an area the community perceives to require a low level of service. An example of this is a bioretention system set within bushland adjacent a local street. The community in this case are likely to perceive the asset as a part of the natural bushland as opposed to a landscaping asset, therefore a lower level of service is assigned to that asset.

In the case that an asset is not visible to the public but is in close proximity (less than 10m) from a private property boundary, the asset is assigned a high level of service due to risks associated with overgrown vegetation and vermin.

3.1 Level of Service Determination

A flow chart has been developed (refer Figure 3.1) to provide a methodology for classifying a level of service for maintenance of Council owned WSUD infrastructure.

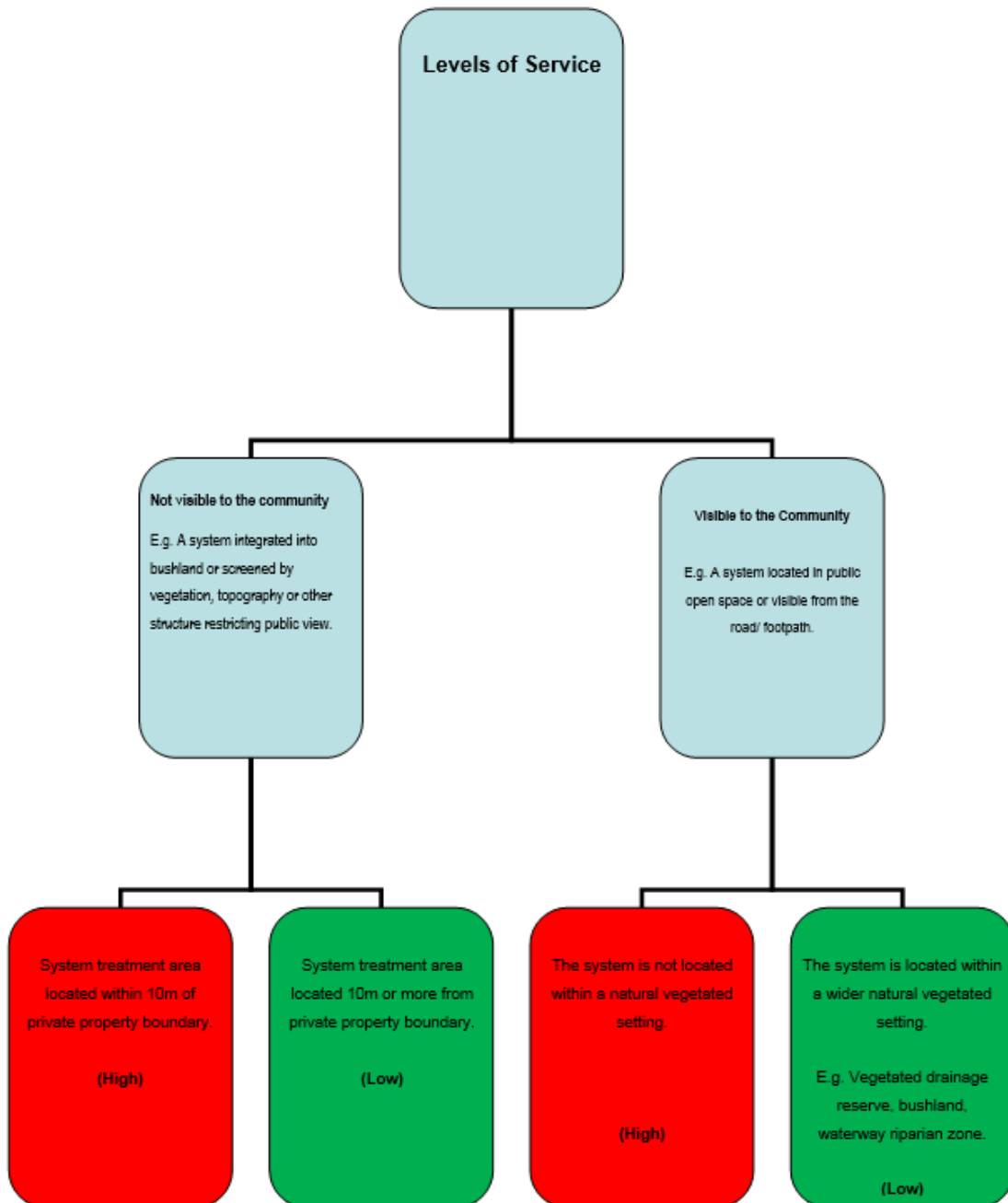


Figure 3.1 Level of Service Determination – Flow Chart

3.2 Maintenance Frequency

A recommended inspection/maintenance frequency has been adopted for each level of service and should be used as a starting point as shown below in Table 3.1.

Table 3.1 Levels of Service

Level of Service	High	Low
Recommended Inspection/Maintenance Frequency	Every 2 months	Every 6 months

It is expected that these assets will usually require immediate follow-on maintenance at this frequency of inspection and that there may be inefficiencies in implementing a reactive maintenance regime following inspection. Therefore it is considered appropriate that Council plan to be physically maintaining assets at the frequency referenced in Table 3.1. It is recommended that Council implement an adaptive management regime that will allow for maintenance frequencies to be adjusted at a later date dependent on maintenance requirements and performance of individual assets. Ultimately, the required maintenance frequencies for each asset will vary dependent on a number of factors including:

- Catchment water quality:
 - Sediment Loads
 - Nutrients Load
 - Weed seed loading
 - Gross Pollutant Load
- Age of system.
- Condition of system.
- Presence of canopy species.
- Vulnerability to flood flows.
- Presence of high flow bypass system.
- Quality of filter media material.

All of these attributes introduce a level of complexity making it difficult to predict the required maintenance frequency.

If during maintenance inspections, it is repeatedly found that assets are performing above or below expectations, the maintenance frequency could be adjusted.

3.3 Maintenance Requirements

The maintenance requirements are summarised in Table 3.2 below for both bioretention basins and constructed wetlands.

Table 3.2 Maintenance Requirements

Maintenance Requirements	Description
Unblocking Outlets	Remove blockage materials in inlets and outlets, by hand or with hand tools.
Erosion	Repair all eroded areas within basin and on batters.
Removing Sediment	Coarse sediment forebays/ Sediment basins are to be cleaned out at least once every year or when the forebay is >75% full.
Removing Litter and Debris	Remove litter and excessive debris from the basin and batters, by hand or with hand tools such as shovels, forks and rubbish picker.
Mosquito Management	<p>Ensure there are no shallow, isolated pools that form and create habitat for mosquitos. Re-profile and fill pools of isolated water with filter media and re-plant if necessary.</p> <p>Additional requirements for Bioretention Systems:</p> <p>If areas greater than 2 m² are holding water, rehabilitation works will be required.</p>
Replanting	Ensure the system has a minimum of 80% vegetation cover. Replant vegetation if necessary, including corresponding establishment-works.
Weed Control	Remove all weeds within basin and on batters to ensure the desired plants are not displaced or the function of the stormwater treatment is hindered within the filter media area.
Algal Growth	<p>Inspect for algal or moss growth. Ensure that algal or moss growth does not clog the bioretention filter area surface.</p> <p>Ensure that the algal growth does not interfere with public amenity and rectify if necessary.</p> <p>Additional requirements for constructed wetlands:</p> <p>If blue-green algae is present OR filamentous algae covers more than 10% of the wetland area, rectification will be necessary.</p>

3.4 Maintenance Costs

Green Assets are relatively new and historically very little maintenance has been undertaken on these assets. For this reason there is very little detailed data relating to WSUD maintenance costs. In 2015, Healthy Waterways undertook an assessment of more than 100 bioretention systems from across Queensland, 'Water by Design Guide to the Cost of Maintaining Bioretention Systems (2015)'. From this assessment it was determined that annual maintenance rates associated with a maintenance frequency comparable to a 'high level' of service asset varied between \$1/m² and \$5/m² of bioretention filter media area. Rates vary depending on a number of factors including the size of systems, presence of canopy species and quality of the system, refer Section 3.2.

For forecasting and budgeting purposes, a range of rates have been adopted as follows:

- High (upper limit) - \$5/m²
- Medium (Average) - \$3/m²
- Low (Lower Limit) - \$1/m²

Due to a lack of information on maintenance costs, it is recommended this maintenance cost rate is updated to reflect actual costs as more data regarding maintenance is collected.

4. GREEN ASSET AUDIT

4.1 Desktop Assessment

4.1.1 Methodology

A desktop assessment was carried out to assist field audits. Locations of assets were identified using a combination of Council's GIS system and aerial photography (Near map). Topographical and drainage data assisted in analysing the corresponding catchments of each asset. The features of assets that were inaccessible were also analysed in the desktop assessment.

As-constructed or for-construction drawings were also supplied by Council to assist in identifying features of assets that were potentially obscured by vegetation, weeds or access constraints during a field audit.

4.2 Field Audit

Following the desktop assessment, field audits were carried out on all Council owned WSUD assets (Bioretention systems/ Constructed wetlands) to determine the key attributes and condition of each asset. Field audits were also carried out on ten (10) additional WSUD assets which were identified as having available outstanding Bonds for incomplete works and/or maintenance.

The field audit data was collected using Council's mobile form program loaded onto a wireless Tablet. The forms for information collection were developed as part of this project.

The purpose of the data collection was to:

- Identify maintenance / rehabilitation costs for Council owned WSUD assets.
- Inform maintenance requirements.
- Inform location and type of assets for field verification of assets.
- Determine what assets have been installed and their condition.
- Allocate a condition rating for the assets.
- Identify trends to better inform design and management.

4.2.1 Methodology

Methodology adopted for the field audit is be summarised as follows:

- Following the identification of sites that contain WSUD assets, site visits were undertaken to determine the existence and location of the assets. Field assessment forms were then used to report on the attributes and condition of the asset. An example of the field assessment form is included in Appendix A to this report.
- Photos of the assets were taken to allow for the data to be cross checked at a later date.
- Information collected from the field audit was uploaded into Council's geo database.

Attributes and Condition Assessment

The attributes recorded during the field audit were:

- Asset Type.
- Position (Offline / Online).
- Treatment Area.
- Extended Detention Depth.
- Vegetation Type.
- Surface Treatment.
- Presence of Underdrainage.
- Presence of Underdrainage Flush Out Point.
- Location relative to Detention System.
- Inlet Structure.
- Stormwater Pre-treatment Measures.
- Primary Outlet.
- Presence of Overflow Weir.
- Presence of High Flow Bypass.
- Maintenance Access Point.
- Requirement for Traffic Control during Maintenance.

The field audit form also prompted a number of key photograph locations, including: overview, inlet, outlet, pre-treatment, vegetation, flush out point, overflow weir, high flow bypass and maintenance access.

The asset features considered during the condition assessment included the following:

- Erosion of treatment area and batters.
- Inlet and outlet conditions.
- Vegetation cover of the treatment area and batters.
- Maintenance access.
- Safety condition.
- If the system operates as hydraulically intended.
- Pre-treatment/ sediment forebay conditions.

4.3 Field Audit Findings

The field assets were undertaken for a total of 74 assets, a summary of the findings from the asset audit are outlined in Table 4.1 below.

Table 4.1 Asset Summary

Number of Assets Assessed		
Assets	Number of Assets	Proportion of Assets (%)
Bioretention Systems	59	79
Bonded Bioretention Systems	10	14
Wetlands (Bonded)	5	7
Number of assets Requiring Rehabilitation/ Maintenance Works		
Bioretention Systems (Rehabilitations)	18	30
Bonded Bioretention Systems (Rehabilitation)	9	90
Bioretention Systems (Maintenance)	4	7

** It is unclear what rehabilitation works are required for the wetlands therefore they are not included in the table as requiring rehabilitation*

The field audit process identified a number of issues, both relating to the condition of the assets and the information collection process. These issues and subsequent findings included:

- The quality of the data collected in the field audit is subjective and depends on the auditor's judgement. As a result, the information collection form was developed in a way that controls the recorded data by providing a drop-down list of predetermined answers to each section/question.
- It was identified as beneficial to carry a copy of the Design / As-constructed Drawings for the asset during the field audit. These plans proved useful in locating key asset components and understanding the operability of the system.
- Use of dispersive soils as embankment fill has resulted in structural failure of embankments. (62 Leon Capra Drive, 70 Lakes Entrance Drive etc.). Council should ensure that adequate inspections of construction material are undertaken during the construction phase. Note: This is not a problem unique to green infrastructure and could arise in any embankment constructed of dispersive material, including for example detention basins or road embankments (e.g. bridge or culvert crossings)
- Not all assets are classified correctly within Council's asset register. For example, the basin at 81 Vineyard Street, One Mile has been classified as a bioretention basin within the Council register where it was found upon field audit to be a detention basin (only). It is likely that similar errors are present within the asset register.
- The outlet pits of the wetlands were unable to be inspected during the field audit. It was identified that it would be beneficial to carry a tool to open the lid of the outlet pits to inspect if the wetland is draining as intended.
- With the advent of standard drawings and a more informed industry as green infrastructure matures as a concept, standards of design and construction are shown to be generally improved on recently designed and constructed assets.

4.3.1 Brentwood Rise Wetlands (Bellbird Park)

The water quality treatment system for the Brentwood Rise development is a set of four wetlands located next to Woogaroo Creek. The issues and subsequent findings include:

- The maintenance path to Wetland C (Refer to as-constructed drawings) is obstructed by a fallen tree.
- De-silting of all three (3) sediment basins is required.
- Evidence of high velocities (flattened grasses and shrubs) was found around all four wetlands. This is likely due to the location of the wetlands within the Woogaroo Creek flood plain.
- Vegetation cover was found to be poor throughout the wetlands. A desktop inspection of past aerial photography found that the initial establishment of vegetation was successful and then the deterioration began in 2013.

- The upstream catchment is over 12 km² in area and therefore it is likely that the depth and velocity of water across the wetlands in flood events is significant. The impact of high shear stress on vegetation is a potential reason for vegetation loss. The quantification of shear stresses would require a detailed hydraulic assessment.
- The outlet pipes for all four wetlands were found to be less than 200 mm in diameter. Therefore, there is potential for blockage of the outlet system. The lids to the outlet pits were unable to be opened and therefore the drainage of the system could not be adequately inspected.

4.3.2 Hallow Crescent (Augustine Heights)

The constructed wetland at Hallow Crescent, Augustine heights receives low flows from a tributary to Woogaroo Creek. Only a small portion of the upstream catchment is the associated residential development.

- A weir diverts flows from the creek to a sediment forebay and then to a sediment basin. The diversion weir, the sediment forebay and sediment basin all show evidence of high sediment loads. Large mounds of sediment are present upstream of the diversion weir and within the sediment forebay. The sediment basin is also full of sediment and requires desilting. The waterway immediately upstream of the system is actively eroding which is likely to be the key contributor to sediment loads, stabilisation of the waterway will reduce sediment loads and maintenance requirements.
- The trash-racks appear to have been removed from the sediment forebay. The trash-racks should be re-installed.
- The outlet pit of the sediment basin is obstructed with debris and is likely to impact its hydraulic function. This may result in increased extended detention times or reduce the volume of water entering the wetland, which could impact vegetation health if not properly maintained.

5. REHABILITATION WORKS

5.1 Concept Designs

5.1.1 Council Owned Assets

Concept designs have been completed for all Council owned assets identified as requiring rehabilitation works during the field audit (refer Section 4.3). The concept design is accompanied by a cost estimate for the proposed works.

A summary of the estimated capital costs for the proposed rehabilitation works is included in Table 5.1. Detailed descriptions of the proposed rehabilitation works including concept plans and detailed cost estimates are included as Appendix C of this report.

Table 5.1 Redesign Works Capital Cost Estimates Summary – Council Owned Assets

Asset ID	Address	Estimated Capital Costs for Redesign
884504	20 Ashfield Street (North Ipswich)	\$16,200
849369	39 Darzee Street (Brassall)	\$9,300
897700	20 Habben Court (Bundamba)	\$18,400
960813	75 Harold Reinhardt Drive (Redbank Plains)	\$27,800
972991	107 Heritage Drive (Brassall)	\$18,300
972992	107 Heritage Drive (Brassall)	\$20,700
920973	121 Ingles Drive (Redbank Plains)	Option 1: \$25,000 Option 2: \$36,000
893081	30 McNamara Place (Redbank Plains)	\$29,300
918780	8 Chris Street (Redbank Plains)	\$3,800
918782	8 Chris Street (Redbank Plains)	\$9,700
972993	21-25 North High Street (Brassall)	\$18,600
933471	35 Wolfik Drive (Goodna)	\$8,700
897206/896207	31 Vistula Circuit (Springfield)	\$14,200
990448	70 Lakes Entrance Drive (Springfield)	\$77,200

Asset ID	Address	Estimated Capital Costs for Redesign
885815	38 Admiral Crescent (North) (Springfield)	\$67,600
885816	38 Admiral Crescent (South) (Springfield)	\$65,300
970037	7003 Lakes Entrance Drive/ Springfield-Greenbank Arterial Road	\$13,500
915406	62 Leon Capra Drive (Augustine Heights)	\$ 89,600
Average Rehabilitation Costs (per asset)		\$30,200

A number of assets were identified as requiring maintenance works. For Council budgeting purposes, these assets have been classified as operational costs. A summary of the assets and estimated costs is shown in Table 5.2 below.

Table 5.2 Operational Cost Estimates Summary – Council Owned Assets

Asset ID	Address	Estimated Costs
933472	19 Mattocks Street (Goodna)	\$2,700
896609	11 Verrankamp Road (Redbank Plains)	\$21,100
980676/980677	2 Johnston Street (Bellbird Park)	\$3,400
970036	7003 Lakes Entrance Drive/ Springfield-Greenbank Arterial Road	\$3,300
Average Maintenance Costs (per asset)		\$7,600

5.1.2 Bonded Assets

Concept designs have been completed for all bonded assets identified as requiring rehabilitation works during the field audit (refer Section 4.2). As part of the concept design for each asset a cost estimate for the proposed works was prepared and compared with the available Bond Money for the asset. This was undertaken to ensure proposed concept design is possible with the available funds.

A summary of the estimated capital costs for the proposed redesign works is included in Table 5.3. Detailed descriptions of the proposed redesign works including concept plans and detailed cost estimates are included as Appendix C to this report.

Table 5.3 Redesign Works – Bonded Assets

Asset ID	Address
1008745	76 Trevor Street (Bellbird Park)
897110	32 Navickas Circuit (Redbank Plains)
N/A	18 McCorry Drive (Collingwood Park)
876452	16 Moonlight Drive (Brassall)
972656	22 Atlantic Drive (Brassall)
988878	17 Polaris Drive (Brassall)
871701	Simmons Road (North Ipswich)
914391	Hume Street (Karalee)
N/A	Henty Drive (Redbank Plains)

5.2 Prioritised Schedule for Rehabilitation Works

A prioritisation process has been developed to prioritise a schedule for rehabilitation works identified as part of this project. The prioritisation process has been developed such that it can also be used to prioritise any future rehabilitation requirements.

The prioritisation process is based on a high-level assessment of **safety, function** and **amenity** of the assets. The schedule will prioritise the rehabilitation of safety issues first and foremost. The function and amenity deficiencies are then to be prioritised accordingly with a 75% weighting allocated to function and 25% weighting allocated to amenity. A copy of the risk matrix used to determine safety risk is included in Appendix D. The potential assessment outcomes and examples of each criteria are summarised in Table 5.4 below.

Table 5.4 Rehabilitation Works Prioritisation Criteria

Condition		Assessment	
Safety	(0) No Safety issue (Low Safety Risk, refer risk matrix)	(1) Minor Safety Issue (Medium Safety Risk, refer risk matrix)	(1) Major Safety Issue (High or Extreme Risk, refer risk matrix)
Functionality	(0) No functionality deficiency	(1) Minor functionality deficiency (Impact to less than 50% of asset e.g. ponding, extended detention, etc)	(2) Major functionality deficiency (Impact to greater than 50% of asset e.g. Bypass of flows/ embankment failure)
Amenity	(0) No amenity deficiency	(1) Impact to amenity in Low level of service asset (Impacts to amenity include mosquitos, vermin, weeds etc.)	(2) Impact to amenity in high level of service asset (Impacts to amenity include mosquitos, vermin, weeds etc.)

It is noted that the criteria for each condition assessment may be ambiguous for certain assets (e.g. what constitutes a ‘minor’ amenity deficiency). The assets identified as requiring rehabilitation works as part of this project have been assessed for safety, function and amenity based on engineering judgement. However, for future prioritisation, more detailed criteria may be developed with Council stakeholders to refine the assessment of asset conditions.

A spreadsheet version of the prioritisation process which can be converted to a simple mobile form has been developed. An implementation of the spreadsheet for prioritising rehabilitation as identified as part of this project has been detailed in Appendix D (function and amenity have been assumed as weighted equally) and the results are summarised in Table 5.5 below.

Table 5.5 Prioritised Schedule of Rehabilitation Works

Asset ID	Address	Priority
915406	62 Leon Capra Drive (Augustine Heights)	1
990448	70 Lakes Entrance Drive (Springfield)	1
897700	20 Habben Court (Bundamba)	2
970037	7003 Lakes Entrance Drive/ Springfield-Greenbank Arterial Road	3
885815	38 Admiral Crescent (North) (Springfield)	4
885816	38 Admiral Crescent (South) (Springfield)	5
893081	30 McNamara Place (Redbank Plains)	6
933472	19 Mattocks Street (Goodna)	6
849369	39 Darzee Street (Brassall)	7
918780	8 Chris Street (Redbank Plains)	7
960813	75 Harold Reinhardt Drive (Redbank Plains)	7
972991	107 Heritage Drive (Brassall)	7
972992	107 Heritage Drive (Brassall)	7
972993	21-25 North High Street (Brassall)	7
884504	20 Ashfield Street (North Ipswich)	8
918782	8 Chris Street (Redbank Plains)	8
920973	121 Ingles Drive (Redbank Plains)	8
933471	35 Wolfik Drive (Goodna)	8
970036	7003 Lakes Entrance Drive/ Springfield-Greenbank Arterial Road	8
897206/896207	31 Vistula Circuit (Springfield)	8
896609	11 Verrankamp Road (Redbank Plains)	9
980676	2 Johnston Street (Bellbird Park)	9
980675	2 Johnston Street (Bellbird Park)	9

5.2.1 Council Owned Assets & Maintenance Bonds

The prioritised schedule for rehabilitation works of Council owned green assets with associated bonds is summarised in Table 5.6 below.

Table 5.6 Weighted Cost Benefit Analysis – Council Owned Assets & Maintenance Bonds

Asset ID	Address	Priority
897441	32 Navickas Circuit (Redbank Plains)	1
872452	16 Moonlight Drive (Brassall)	2
N/A	18 McCorry Drive (Collingwood Park)	2
914391	Hume Street (Karalee)	3
N/A	145 Henty Drive (Redbank Plains)	4
871701	Simmons Road (North Ipswich)	5
1008475	76 Trevor Street (Bellbird Park)	5
972656	22 Atlantic Drive (Brassall)	6
988878	17 Polaris Drive (Brassall)	6

6. LIFECYCLE COST ASSESSMENT

A lifecycle cost assessment for green assets has been undertaken to provide Council with an understanding of the long-term costs of existing infrastructure. The scope of this assessment includes only existing bioretention basins within the Ipswich LGA as bioretention basins form the majority of green assets. The assumptions and methods of the assessment are documented below.

6.1 Basin Area Estimation

The lifecycle assessment has been undertaken using the lifecycle cost module within eWater MUSIC water quality modelling software.

As some of the cost models within MUSIC are non-linear, the costs have been calculated based on an average bioretention basin area rather than an aggregated total bioretention basin area. The average basin area for existing bioretention basins (does not include the short-term forecast) within the Ipswich LGA are summarised below in Table 6.1.

Note that for the purposes of this assessment, the bio-retention basin area in Council's GIS system is not synonymous with the filter media area. The filter media area is estimated as 50% of the bio-retention basin area.

Table 6.1 Existing Bioretention Basin Areas

Basin Estimates	Value
Total Bio-retention Basin Area	53280 m ²
Number of Basins	185
Average Bio-retention Basin Area	288 m ²
Average Bio-retention Filter Media Area	144 m ²

6.2 Cost Estimate Parameters

The life cycle costs depend on several assumptions of basin deterioration and future economic conditions. The Life Cycle Period and Renewal/Refurbishment period have been assumed as 100 years and 25 years respectively.

It is assumed that the basins are never decommissioned, therefore 100 years has been assumed as a long term forecast. The renewal period of 25 years is adopted as an industry standard. However, it is noted that this renewal period is based on data from less than 10 assets. Therefore, it is recommended that this number is updated as more data is available for Council assets.

The inflation rate is based on the average rate from 2006-2016 (Reserve Bank of Australia).

The life cycle costing parameters and the overall life cycle costs are summarised in Table 6.2 and Table 6.3 below.

Table 6.2 Life Cycle Costing Parameters

Life Cycle Costing Parameters	Value
Life Cycle Period	100 years
Renewal/Refurbishment Period	25 years
Inflation Rate	2.4% / year

6.3 Results

The results of the lifecycle cost assessment for existing bioretention basins are summarised in Table 6.3 below. Note that the costs below have not been discounted back to 2017 to account for net present value.

Table 6.3 Life Cycle Costs

Life Cycle Cost Estimate	Value
Average Lifecycle Cost per Bioretention basin (\$2017)	\$125,175
Total Lifecycle Cost for Existing Bioretention basins (\$2017) (Neat Estimate)	\$23,000,000

A range of annualised cost of maintenance for current assets has also been estimated below in Table 6.4 below. The basis of the cost estimate is summarised in Section 7.1.1 below.

Table 6.4 Maintenance Cost of Current Assets

Life Cycle Cost Estimate	Value
Low Annual Maintenance Cost (\$2017)(Neat Estimate)	\$28,000
Medium Annual Maintenance Cost (\$2017)(Neat Estimate)	\$84,000
High Annual Maintenance Cost (\$2017)(Neat Estimate)	\$139,000

7. GREEN ASSETS FUTURE SUPPLY FORECAST

7.1 Basis of Forecast

The forecast of the future supply of green assets has been undertaken for a short-term forecast and a long term forecast. The short-term forecast has been defined as the assets to come under Council maintenance within the next 3 years. The long-term forecast has been defined as the assets to come under Council maintenance using development forecasts.

The forecasts estimate the total filter media area of green assets estimated to come under Council maintenance and annual maintenance costs.

7.1.1 Maintenance Cost Rates

To inform annual maintenance costs of future assets, maintenance costs for bioretention basins are based on several costs per square metre of filter area per year (WBD, 2015).

These costs have been taken from the *Water By Design Guide to the Cost of Maintaining Bioretention Basins* and range from \$1 to \$5 per square metre of filter media per year. Maintenance costs for wetlands are based on \$1 to \$5 per square metre of wetland per year (BCC, 2015). These values have been taken from *Brisbane City Council WaterSmart Recommendations*.

As maintenance costs differ between assets due to factors such as canopy cover or weeds in the catchment, a range rather than a specific cost per square metre of filter media area has been adopted to reflect the uncertainty. As more data regarding maintenance costs is collected, in particular data from Ipswich, it is recommended that Council updates these maintenance cost values.

The maintenance cost per square metre of filter media per year has been classified as low (\$1), medium (\$3) and high (\$5).

Note, the Water By Design and Brisbane City Council values are in 2015 dollars and therefore the final annual maintenance cost below has been adjusted to 2017 dollars based on an average annual inflation rate of 2.4%.

The annual maintenance cost estimated by this method is summarised below in Table 7.3.

7.2 Short Term Forecast

The forecast for the short-term future supply of green assets has been undertaken based on:

- Assets in the construction phase.
- Assets already constructed that have yet to be handed over to Council (i.e. On-maintenance assets).

Information regarding the assets under construction has been estimated based on Operational Works Plans as supplied by Council (Refer to Appendix G). Information regarding assets already constructed (i.e. On-maintenance assets) that have yet to be handed over to Council, has been sourced from the Council GIS asset register. The short term forecast is summarised below in Table 7.1 below.

Table 7.1 Short Term Forecast- Summary

Description	Value
Constructed Bioretention filter media area currently under developer maintenance	13,950 m ²
Bioretention filter media area under construction phase	16,750 m ²
Wetland treatment area under construction phase	4,125 m ²
Low Annual Maintenance Cost (\$2017)(Neat Estimate)	\$36,500
Medium Annual Maintenance Cost (\$2017)(Neat Estimate)	\$110,000
High Annual Maintenance Cost (\$2017)(Neat Estimate)	\$180,000

7.3 Long Term Forecast

7.3.1 Future Developable Area

The forecast for the long-term future supply of green assets has been undertaken based on the future developable area as estimated from the following:

- South East Queensland Regional Plan Urban Footprint area (DGLIP, 2009)
- Local Government Infrastructure Plan: Planning Assumptions Summary Report (Ipswich City Council, 2016)

The future developable area has been estimated using the South East Queensland Regional Plan Urban Footprint area (DGLIP, 2009) within the Ipswich City Council Local Government Area. The following areas were then subtracted from the Urban Footprint area:

- Areas Eligible for Water Quality Offsets – (Source: Appendix A, Ipswich Planning Scheme Implementation Guideline No.24).
- Areas within the Planning scheme designated for:

- Conservation
 - Recreation
 - Rural A/B/C/D/E
 - Amberley Airport
 - Greenbank Military Area
 - Regional Business and Industry Buffer
 - Commercial
 - Medium/High Density Residential
(Source: ICC Planning Scheme Zones)
- Areas within the Ebenezer Regional Industrial Area not designated for development (Source: Ebenezer Industrial Area Preferred Land Use Plan).
 - Areas already developed or under construction phase- (Source: Aerial Photography, Short Term Forecast Construction Phase Plans).

Large tracts of industrial area were assumed to only have roads (10% of the area) requiring treatment. It is assumed that site-based water quality treatment will be the responsibility of owner of the respective industrial sites and therefore not Council's responsibility. The industrial areas were located predominantly in Swanbank and Ebenezer.

It is noted that the forecasted developable area is a conservative estimate given that the following have not been subtracted from the forecasted developable area:

- Flood prone areas that are unlikely to be developed.
- Areas of difficult topography.
- Major roads and road reserves.
- Other constraints on development.

The long-term developable areas assumed are shown in Appendix E. The LGIP Planning Assumptions report was then used to forecast the number of detached dwellings in 2031 within the developable areas. A dwelling density of 10 detached dwellings per hectare was used to determine a developed (2031) area requiring treatment.

It is assumed the water quality treatment for future developments will be predominantly bioretention basins. The future bioretention filter media area has been estimated conservatively at 0.8% of the developed area requiring treatment. Attached dwellings are assumed to not have bioretention basins and have been excluded. This estimation process can be found in Appendix F.

The long term forecast is summarised in Table 7.2 and Table 7.3 below.

Table 7.2 Forecast Parameters

Description	Value
Developable Area requiring Treatment (ha)	2694 ha
Bioretention Filter Area fraction	0.8%
Total Bioretention Filter Media Area	215,516 m ²

Table 7.3 Maintenance Costs

Description	Value
Low Annual Maintenance Cost (\$2017)(Neat Estimate)	\$226,000
Medium Annual Maintenance Cost (\$2017)(Neat Estimate)	\$678,000
High Annual Maintenance Cost (\$2017)(Neat Estimate)	\$1,130,000

7.4 Forecast Summary

The **cumulative** forecasted annual maintenance costs for current assets, short-term forecasted assets and long-term forecasted assets are outlined in Figure 7.1 and Table 7.4 below.

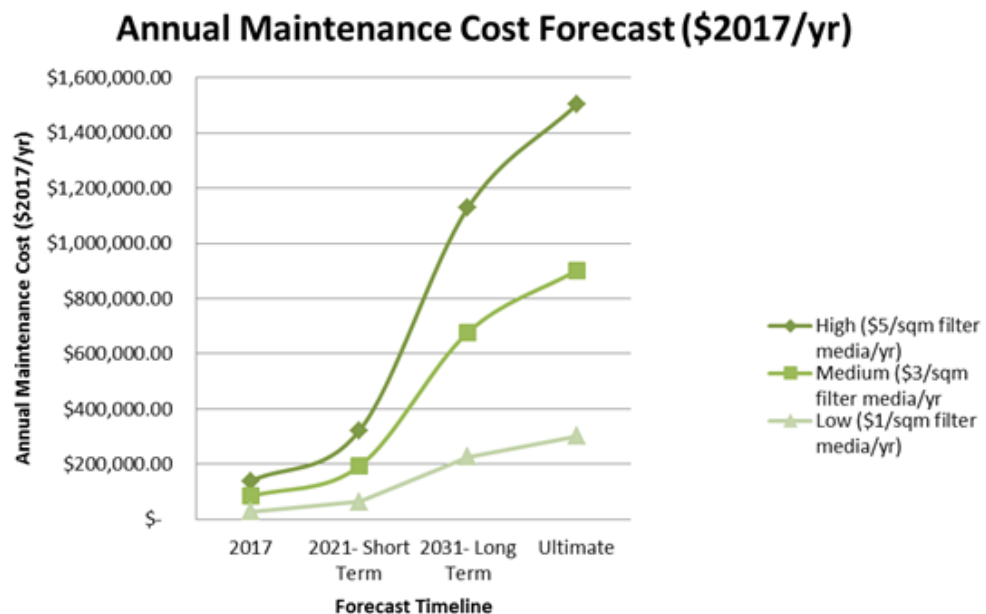


Figure 7.1 Forecasted Annual Maintenance Costs (\$2017)

Table 7.4 Forecasted Annual Maintenance Costs (\$2017)

Forecasted Annual Maintenance Costs (\$2017)	2017	2021- Short Term	2031- Long Term	Ultimate
Low (\$1/sqm filter media/yr)	\$27,885	\$64,391	\$225,984	\$300,555
Medium (\$3/sqm filter media/yr)	\$83,654	\$193,173	\$677,953	\$901,664
High (\$5/sqm filter media/yr)	\$139,424	\$321,954	\$1,129,922	\$1,502,773

Given the scarcity of maintenance cost data associated with green assets a range of forecasted costs have been provided based on upper, mid and lower maintenance rates refer Maintenance Costs refer Section 3.4 . These are intended to give an approximation to the costs of future green asset maintenance and the budgeting decisions based on this range should account for its uncertainty.

The cost of maintaining each asset is highly depended on a proactive maintenance regime that prevents any major deficiencies in the system eventuating. In the absence of such a maintenance regime problems can compound resulting in accelerated asset dilapidation. This results in a corresponding intensive maintenance requirement, or accelerating the need for rehabilitation to bring an asset back to a safe and functional level. This can greatly impact the life cycle cost of the asset.

8. FORWARD WORK PLAN

The following works should be undertaken as a result of the field audit:

- All assets identified as requiring maintenance works should be referred to the maintenance department for routine maintenance.
- Assets identified for rehabilitation works should be referred to the maintenance department with a description of the necessary rehabilitation works.
- Detailed designs should be prepared for the top 3 prioritised assets (Leon Caprad Drive, Habben Court and Lakes Entrance) due to the detailed nature of works required to rehabilitate these systems.
- Assets requiring rehabilitation or redesign should be considered in future capital & operational expenditure planning.

9. QUALIFICATIONS

- a. In preparing this document, including all relevant calculation and modelling, Engeny Water Management (Engeny) has exercised the degree of skill, care and diligence normally exercised by members of the engineering profession and has acted in accordance with accepted practices of engineering principles.
- b. Engeny has used reasonable endeavours to inform itself of the parameters and requirements of the project and has taken reasonable steps to ensure that the works and document is as accurate and comprehensive as possible given the information upon which it has been based including information that may have been provided or obtained by any third party or external sources which has not been independently verified.
- c. Engeny reserves the right to review and amend any aspect of the works performed including any opinions and recommendations from the works included or referred to in the works if:
 - (i) Additional sources of information not presently available (for whatever reason) are provided or become known to Engeny; or
 - (ii) Engeny considers it prudent to revise any aspect of the works in light of any information which becomes known to it after the date of submission.
- d. Engeny does not give any warranty nor accept any liability in relation to the completeness or accuracy of the works, which may be inherently reliant upon the completeness and accuracy of the input data and the agreed scope of works. All limitations of liability shall apply for the benefit of the employees, agents and representatives of Engeny to the same extent that they apply for the benefit of Engeny.
- e. This document is for the use of the party to whom it is addressed and for no other persons. No responsibility is accepted to any third party for the whole or part of the contents of this report.
- f. If any claim or demand is made by any person against Engeny on the basis of detriment sustained or alleged to have been sustained as a result of reliance upon the report or information therein, Engeny will rely upon this provision as a defence to any such claim or demand.
- g. This report does not provide legal advice.

10. REFERENCES

1. Brisbane City Council (2015) WaterSmart Recommendations.
2. Department of Local Government, Infrastructure and Planning (2009) *South-East Queensland Regional Plan*.
3. eWater (2013) Life Cycle Costing of Treatment Measures
4. Ipswich City Council (2011) *Water Quality Offsets: Ipswich Planning Scheme Implementation Guideline No.24*.
5. Ipswich City Council (2016) Local Government Infrastructure Plan: Planning Assumptions Summary Report
6. Ipswich City Council (2006) Ipswich Planning Scheme
7. Water By Design (2015), *Guide to the cost of maintaining bio-retention basins*.

Conservation and Environment Committee	
Mtg Date: 22.01.18	OAR: YES
Authorisation: Bryce Hines	

BT:BT

H:\Departmental\Committee Reports\ 1710 BJT CR Kholo Precinct Recreational Trails Proposal

16 December 2017

MEMORANDUM

TO: ACTING SPORTS RECREATION AND NATURAL RESOURCES MANAGER

FROM: NATURE-BASED RECREATION OFFICER

RE: RECREATIONAL TRAIL PROPOSAL
DIVISION 5

INTRODUCTION:

This is a report by the Nature-based Recreation Officer dated 16 December 2017 concerning a proposal to develop a new recreational trail network in the Muirlea area.

BACKGROUND:

Participation in informal recreational activities is experiencing a period of growth nationally. Non-sport related physical activity now attracts higher levels of participation than formal sports across Australia in all age groups over the age of twenty-three years.

A key component of this activity is outdoor recreation. In particular bushwalking and mountain biking are experiencing high levels of participation growth. These activities are dependent on the provision of suitable trails in bushland areas.

In Ipswich, while there is a high level of demand for trail-based activities, there is currently limited provision of purpose-built trails to cater to this demand. Walking and mountain bike riding participation levels are by far the highest of the activities permitted in Council parks and reserves. Participation in these two activities in Ipswich is expected to increase at a rate slightly higher than the rate of population growth which means that provision of new trail networks to meet demand will soon be required in a number of locations.

This is a proposal to create a new network of walking and mountain bike trails in the Muirlea area both to cater for growing community demand and to improve Kholo Gardens' suitability as a venue to hold multi-sport events.

The *Pine Mountain / Kholo Open space Planning Guideline* was adopted by Council at a Parks, Sport and Recreation Committee meeting of 18 May 2015 and Council Ordinary Meeting of 26 May 2015. (Attachment A). This plan identified Kholo Gardens, Hillview Drive Reserve, Kholo Bridge Reserve and Kholo Road Park as suitable locations for future trail networks. At the time Council resolved “That the Chief Operating Officer (Works, Parks and Recreation), in consultation with the Mayor, the Chairperson of the Parks, Sport and Recreation Committee and divisional Councillor, identify and prioritize staged capital works associated with the *Pine Mountain / Kholo Planning Guideline* for consideration in the development of future capital works programs.”

The current proposal is consistent with this resolution. A location map showing the area concerned is provided as Attachment B.

The area is especially well suited to multi-sport events due to the accessibility of a clean and picturesque reach of the Brisbane River which is ideal for events which include swimming or paddling.

TRAIL DESIGN AND DELIVERY:

An overview map of the trail alignments proposed is provided as attachment C. The trails are proposed to be constructed as shared walking and mountain bike trails to maximise community use. The trails will be approximately 1m in width with a natural surface.

Design and construction of the trails will incorporate principles of sustainability to minimise impacts on the surrounding environment and reduce future maintenance requirements.

Budget is available to deliver this proposal in the 2017-2018 capital works program.

The proposal comprises the following elements:

- 6.5 km of recreational trail at Hillview Drive Reserve.
- New signage and park shelter at Hillview Drive Reserve.
- 2km of new trail at Kholo Gardens (southern section)
- 900m of new trail at Kholo Road Park
- 600m of new trail at Kholo Bridge Reserve

BENEFITS TO COMMUNITY:

Recreation plays an important role in the health and well-being of our community. Part of the reason for its growing popularity is its lack of formality and structure which allows people with limited spare time to fit in an activity around a busy lifestyle.

As well as the opportunities the proposed trails will offer Ipswich residents, a new trail network will help establish Kholo Gardens as Ipswich’s premier venue for attracting cross triathlon and other multi-sport events to the city.




CONSULTATION:

This proposal has been be discussed with the Division 5 Councillor.

CONCLUSION:

To cater for increasing community demand for walking and mountain biking opportunities, new trails need to be developed. A number of reserves in the Muirlea area have been identified as suitable for recreational trail development. As such, the development of approximately 10km of new trails is proposed across four reserves. These trails will also increase Ipswich’s ability to host multi-sport events.

ATTACHMENTS:

Name of Attachment	Attachment
Recommendations of Parks, Sport and Recreation Committee meeting of 18 May 2015 and Council Ordinary Meeting of 26 May 2015.	 Attachment A
Overview Map	 Attachment B
Map of proposed trails	 Attachment C

RECOMMENDATION:

That the proposal to develop a new network of recreational trails at Muirlea, as outlined in the report by the Nature-based Recreation Officer dated 16 December 2017, be approved.

Ben Thomas
NATURE-BASED RECREATION OFFICER

I concur with the recommendation/s contained in this report.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

Your attention is drawn to the following recommendation adopted by Council at its meeting held on 26 May 2015.

******As Amended**

Refer: Parks, Sport and Recreation Committee No. 2015(05) of 18 May 2015 -
Council Ordinary Meeting of 26 May 2015.

Dept Head

Would you please take the necessary action in relation to this clause.

Vicki Lukritz
ADMINISTRATION SUPPORT MANAGER

4. DRAFT SAPLING POCKET MASTER PLAN - DIVISION 10

With reference to a report by the Planning Officer (Open Space) dated 22 April 2015 concerning the Draft Sapling Pocket Master Plan.

RECOMMENDATION:

- A. That the Pine Mountain / Kholo Planning Guideline as shown in Attachment B, C and D to the report by the Planning Officer (Open Space) dated 22 April 2015, be adopted as a planning tool for recreational embellishment within the Pine Mountain / Kholo area.
- B. That the Chief Operating Officer (Works, Parks and Recreation), in consultation with the Mayor, the Chairperson of the Parks, Sport and Recreation Committee and divisional Councillor, identify and prioritize staged capital works associated with the Pine Mountain/ Kholo Planning Guideline for consideration in the development of future capital works programs.
- C. That the Chief Operating Officer (Works, Parks and Recreation), in consultation with the Mayor, the Chairperson of the Parks Sport and Recreation Committee and the divisional Councillor, oversee the public display of the Draft Sapling Pocket Master Plan.
- D. That the Chief Operating Officer (Works, Parks and Recreation) collate and consider all public submissions for the Draft Sapling Pocket Park Master Plan, received within the Public Display period, to inform the final version of the Sapling Pocket Master Plan for future adoption by Council.
- E. That a further report on the outcomes of the public display period and proposed amendments to the Sapling Pocket Master Plan be presented to a future Committee meeting.

- F. That the Chief Operating Officer (Works, Parks and Recreation) investigate obtaining tenure over the Edward Corbould Reserve and Retreat State Nature Refuge located between Sapling Pocket and Cameron's Scrub Conservation Estate.



Item 4

******Amended at Council Ordinary Meeting of 26 May 2015 by
Recommendation C being amended by removing the word 'undertake and
replacing it with 'oversee'.**

Parks Sport and Recreation Committee	
Mtg Date: 18.05.15	OAR: YES
Authorisation: Craig Maudsley	

JW: JW
H:\Departmental\Committee Reports\1502JCW Sapling Pocket Master Plan CR.doc

ITEM 4

22 April 2015

MEMORANDUM

TO: SPORT, RECREATION AND NATURAL RESOURCES MANAGER

FROM: PLANNING OFFICER (OPEN SPACE)

RE: DRAFT SAPLING POCKET MASTER PLAN
DIVISION 10

INTRODUCTION:

This is a report by the Planning Officer (Open Space) dated 22 April 2015 concerning the Draft Sapling Pocket Master Plan.

BACKGROUND:

The "Sapling Pocket" site is located at McMullen Road, Pine Mountain Lots 1 and 2 on RP866821 (Refer Attachment A). Total land area of the site is 67.7 hectares. Sapling Pocket adjoins the 231 hectare Edward Corbould Reserve and Retreat, managed by the Queensland Parks and Wildlife Service as a State Nature Refuge, which adjoins Council's 158 hectare Cameron's Scrub Conservation Estate and offers many opportunities for nature based recreation.

Sapling Pocket was formerly in the ownership of Holcim (formerly Rinker Australia), for the purpose of extractive industry (extraction of river sand and gravel). The site is currently zoned "Rural E" under Ipswich City Council's (ICC) current planning scheme and is classified under ICC Public Parks Strategy 2007, as Citywide Waterside Parkland.

In 2006, Council with the support of Rinker Australia engaged SPLAT consultants to undertake master planning for the site and adjoining state owned land with consideration to the site being developed as a future Citywide Waterside Parkland. The master planning

process included consultation with the local community of Pine Mountain, Councillors, Council officers and Rinker Australia.

In mid-2010, Council commenced discussions with Holcim regarding further detailed planning to inform the restoration of the site with consideration to Council's intended end-state use for the site, given Holcim were intending to cease extractive industry activities as early as 2012.

Due to the impacts on the site of the January 2011 flood event, Council officers recommenced discussions with Holcim regarding the restoration of the site, with consideration to completion of the restoration works by November 2013 to allow for transfer of the site into Council ownership. Acknowledging the impacts of the January 2011 flood event on the site, the Queensland Government approved plans for remediation of the site was modified to accommodate conveyance of high flow riverine flooding and stabilisation of landforms in times of flood through appropriate species selection. Holcim completed these works on 14 July 2014, when possession of site was transferred to Council.

This change in site handover to council and the flood impact has made the original 2006 Master Plan outdated and irrelevant along with the changing recreation needs of the growing population. A new master plan is required to determine best future development and use of Sapling Pocket.

STRATEGIC OPENSOURCE GUIDELINE:

To provide the appropriate future open space direction for the Sapling Pocket site, Council officers identified the need for strategic open space guidance for the broader Pine Mountain / Kholo area, resulting in the development of the Pine Mountain / Kholo Open space Planning Guideline (PMKOPG).

The study area for the PMKOPG is primarily located within the suburbs of Pine Mountain and Muirlea and is bordered by the Brisbane Valley Rail Trail (BVRT) to the west, Sandy Creek to the north, the Brisbane River to the north and east, Kholo Road to the south east and the Warrego Highway to the south, as shown in Attachment B. The study area is approximately 4,000 ha of which public lands make up approximately 670 ha. There are multiple land owners within the investigation site inclusive of Council, the State Government and private land owners.

The planning process for the PMKOPG consisted of the following steps:

1. Site Analysis
2. Population Demographics and Recreation Trends Analysis
3. Natural Areas Analysis
4. Recreation Analysis
5. Opportunities and Constraints Analysis
6. Options Development
7. Preferred Plan of Development, Management, Maintenance and Activation.

Based on the site analysis, research, investigations and findings the attached Concept Plan is recommended as the preferred long term option (Refer Attachment C). Key features of the plan include:

- **Sapling Pocket** – (Medium Impact Activity) Opportunity for canoe access point from river and guided canoe tours along the Brisbane River. Guided tours with small groups such as bush walks, nature appreciation or indigenous walks. Environmental Camp Facility (basic accommodation, conference room, hall and amenities) on raised area for group booking.
- **Camerons Scrub Conservation Estate** - (Low Impact Activity) Low impact guided tours, bush walking, bird watching and nature appreciation. Small trail head and informal car parking from Riverside Drive.
- **Pine Mountain Bush Reserve** - (Medium Impact Activity) Existing picnic area and car parking. Opportunity to extend the car park to provide for a horse trail head and associated facilities for access to BVRT and Pine Mountain Local Bridle Trail. Develop walking track network.
- **Hillview Drive Conservation Reserve** - (High Impact Activity) New and upgrade of existing track networks for bush walking, horse riding and mountain biking, car parking and picnic nodes. Trail head for horse riding. Opportunity for orienteering and rogaining.
- **Kholo Botanic Gardens** - (High Impact Activity) Existing recreation park. Optimise formal car parking. Potential canoe access at start of water pipeline.
- **Kholo Road Park** - (Medium Impact Activity) New walking, horse riding and mountain bike tracks, car parking and picnic nodes.
- **Kholo Bridge Reserve** - (Medium Impact Activity) Potential informal car parking and picnic node and canoe launch.
- **Old Quarry Site** - Further investigate integration of old Quarry site to provide for mountain biking, down-hill biking facility.
- **Road Reserves** - Development and activation of new multi-user recreation trails for walking, cycling and horse-riding along existing formed and unformed road reserves to link up Kholo Botanic Gardens to Camerons Scrub to Sapling Pocket to Pine Mountain Bush Reserve and the BVRT.
- **Brisbane River** - Re-activation of the Brisbane River Canoe Trail from Sapling Pocket to Kholo Botanic Gardens through establishment of new or improved canoe launch facilities at Sapling Pocket and Kholo Botanical Gardens or Kholo Bridge Reserve.

The long term implementation, development, management, maintenance and activation of the PMKOPG have been supported by the development of draft staging plans as shown in Attachment D.

MASTER PLANNING FOR SAPLINGS POCKET :

The PMKOPG has informed the planning direction for the development of the draft Sapling Pocket Master Plan. The future direction is still to provide for a high level recreational facility, but is targeted to nature based recreation that compliments the neighbouring properties, but also provides the community with a different recreational value than other Citywide Waterside Parks.

The draft Master Plan highlights small camping areas that are mainly walk in walk out sites. Public vehicles would not be able to park beside the camp sites which will restrict numbers, and the length of stays. This will ensure the area is preserved as a nature based recreational site and provide a different drawcard to other major waterside parks within Ipswich.

The Edward Corbould Reserve and Retreat State Nature Refuge that is situated between Sapling Pocket and Cameron's Scrub Conservation Estate provides a great recreation opportunity to link all three sites and provide substantial education potential for both cultural and environmental interpretive signage through the remnant dry vine and rain forests.

The conditions set in the Nature Refuge agreement support public access for "the preservation and study of wildlife" and "as a retreat for meditation and contemplation". It would be beneficial if Sapling Pocket, Camerons Scrub and the State Nature Refuge were managed by a single entity to provide consistent and integrated recreational trails and management practices.

The draft Sapling Pocket Master Plan (Refer Attachment E) is based on the site analysis, Precinct Master Plan recommendations, recreation trends, consultation internally and with local community, community needs, management and long term vision for the site. Key features of plan include:-

- **Canoe Launch** – Reinstating a canoe launch to provide direct access to the Brisbane River Canoe Trail. Vehicle access to the canoe launch is restricted to organised and guided groups only.
- **Bush Toilet** – Basic toilet facilities to cater for campers, hikers, mountain bike riders, canoeist and day users.
- **Vehicle Access** – The former haulage road is to be maintained for public vehicle access. Public vehicles to the site will be restricted to opening times with the Sapling Pocket gates to be locked after hours. Campers' vehicles can remain inside in the designated car park areas with the ability to enter and leave after hours. The gravel road will also function as part of the multi-use trail network for the site.
- **Multi-use Trails** – Grass trails and tracks to provide access around the site and to the Brisbane River. Trails to link Sapling Pocket through the State Nature Refuge to Camerons Scrub Conservation Estate. Smaller walking loops for day users provided within Sapling Pocket by use of the gravel road and trails within Sapling Pocket and the Nature Refuge.
- **Camp Areas** – Small grass bush camp sites that accommodate 2 – 6 people provided along the Brisbane River and a large grass area to cater for groups. All camp areas are by bookings only and are walk in or canoe in camping areas. Vehicles are restricted only to the internal road and not permitted in the camping areas.
- **Education Facility** – Environment education facility to be provided on the high ground overlooking the site. The facility will provide basic accommodation, conference room, hall and basic amenities to cater for groups and facilitate nature appreciation.

- **Interpretive Signage** – Signage depicting cultural, environmental and historical information to be installed around the site to emphasise and enhance nature based recreational activities.
- **Directional Signage** – Signage to be installed for navigation within the site and to Camerons Scrub Conservation Estate. Signage to comprise of maps and directional markers at key locations.
- **Picnic Facilities** – Shaded seating to be scattered throughout the site to provide places for quiet relaxation and rest spots to enjoy the surrounding environment. Majority will be seats under trees with only minimal shelters confined to the proximity of canoe launch and near the education facility.
- **Grass Swale** – Large grass swale is retained as the bypass channel for the Brisbane River in flood events. Revegetation of the edges and the top of banks to be extended where required.

As the draft Master Plan provides the long term vision for the site, development phases have been developed to clearly highlight the stages of activation which closely relates to the staging plans of the PMKOPG. A summary of the development phases is outlined below (Refer Attachment F):

- **Management Phase** – Continual weed and pest management, pedestrian only access, continual regeneration and revegetation of the site.
- **Activation Phase** – Passive and active nature based recreation pursuits including bush camping, canoe launch, bush toilet and multi-use trails. Feasibility and development of multi-use trails from Sapling Pocket to Camerons Scrub Conservation Estate through the State Nature Refuge. This phase can be completed over numerous years if required.
- **Education Phase** – Managed education facility replacing a large camp site to provide basic amenities and shelter for group bookings. Facility to reflect the unique location and be sympathetic to its environment. Additional bush camping areas could be developed if demand requires.

BENEFITS TO COMMUNITY AND CUSTOMERS:

The PMKOPG and Sapling Pocket Master Plan will provide the following community benefits:

- A Master Plan which provides long term vision to guide ongoing capital investment, development and sustainable management of the Pine Mountain / Kholo area and Sapling Pocket
- Community spaces which offer the capacity to facilitate social capital building and healthy and active lifestyles for the local and broader community of Ipswich
- Improved access/connectivity within Pine Mountain / Kholo area for all community members
- Improved access/connectivity between Sapling Pocket and Camerons Scrub Conservation Estate for all community members
- Enhanced livability for the local and broader community of Ipswich
- Enhance the City of Ipswich's capacity for the provision of sustainable nature-based recreation opportunities.

CONSULTATION:

As discussed earlier, previous master planning of the Sapling Pocket site was undertaken in 2006. This master planning included a thorough consultation process with the local community. Findings from this consultation process have formed an integral part of this current master planning exercise.

Additional consultation with the local community was undertaken on 29 November 2014 with an onsite meeting at Sapling Pocket. This meeting was held with the local community and was organised with the local councillor and Pine Mountain and Districts Progress Association to discuss amending the 2006 Sapling Pocket Master Plan. Contextual maps were provided with a questionnaire to answer what facilities and functions the community would like to see at Sapling. Refer Attachment G for questionnaire results from thirty-three completed questionnaires.

The feedback was in line with the direction of the PMKOPG direction for Sapling Pocket with the majority of interest with nature based recreational activities. Although horse riding did feature high on activities that was desirable by the local community, the State Nature Refuge bordering Sapling Pocket excludes exotic animals entering the site. With no connection across the river to public land, limited land to ride horses within Sapling Pocket and access required through the State Nature Refuge, horse riding is not part of the activities recommended to be included into the draft Master Plan.

Camping was an activity that had mixed community views. Reasons for not supporting camping were centred on massive crowds having unrestricted access to the site, hence undermining the natural characteristics of the site.

Consultation was undertaken with internal stakeholders only to assist with the analysis of the site to identify relevant opportunities and constraints. Stakeholders included relevant staff from the following departments:

- Works, Parks and Recreation
- Planning and Development
- Infrastructure Services
- Community and Cultural Services
- Health, Security and Regulatory Services.

Consultation has also been undertaken for the precinct and master plan with the local Councillor for Division 10, the Councillor for Division 6, the Parks, Sport and Recreation Committee Chair and Deputy Chair and the Environment and Conservation Committee Chair and Deputy Chair.

CONCLUSION:

Adoption of the PMKOPG as a planning guide will ensure Council is well positioned with a long term vision to guide ongoing capital investment, development and sustainable management of the Pine Mountain / Kholo area for the current and future Ipswich community.

With consideration to the high standard of former and current planning for the “Sapling Pocket” site as a Citywide Waterside Park, Council is well placed in the future to provide the Ipswich Community with yet another unique high quality waterside parkland through the Draft Sapling Pocket Master Plan.

ATTACHMENTS:

Name of Attachment	Attachment
Attachment A – Sapling Pocket Location Plan	 Attachment A
Attachment B – Pine Mountain / Kholo Openspace Planning Guideline Study Area	 Attachment B
Attachment C – Pine Mountain / Kholo Openspace Planning Guideline Preferred Option	 Attachment C
Attachment D – Pine Mountain / Kholo Openspace Planning Guideline Staging Plans	 Attachment D
Attachment E – Sapling Pocket Draft Master Plan 2015	 Attachment E
Attachment F – Sapling Pocket Development Phase Plans	 Attachment F
Attachment G –Sapling Pocket 2015 Questionnaire Results	 Attachment G

RECOMMENDATION:

Amended PS&R Ctee No.2015(05) of 18 May 2015

Amended Council Ordinary Meeting of 26 May 2015

- A. That the Pine Mountain / Kholo Planning Guideline as shown in Attachment B, C and D to the report by the Planning Officer (Open Space) dated 22 April 2015, be adopted as a planning tool for recreational embellishment within the Pine Mountain / Kholo area.
- B. That the Chief Operating Officer (Works, Parks and Recreation), in consultation with the Mayor, the Chairperson of the Parks, Sport and Recreation Committee and divisional Councillor, identify and prioritize staged capital works associated with the Pine Mountain / Kholo Planning Guideline for consideration in the development of future capital works programs.
- C. That the Chief Operating Officer (Works, Parks and Recreation), in consultation with the Mayor, the Chairperson of the Parks Sport and Recreation Committee and the divisional Councillor, undertake oversee the public display of the Draft Sapling Pocket Master Plan.
- D. That the Chief Operating Officer (Works, Parks and Recreation) collate and consider all public submissions for the Draft Sapling Pocket Park Master Plan, received within the Public Display period, to inform the final version of the Sapling Pocket Master Plan for future adoption by Council.
- E. That a further report on the outcomes of the public display period and proposed amendments to the Sapling Pocket Master Plan be presented to a future Committee meeting.
- F. That the Chief Operating Officer (Works, Parks and Recreation) investigate obtaining tenure over the Edward Corbould Reserve and Retreat State Nature Refuge located between Sapling Pocket and Cameron's Scrub Conservation Estate.

Jason West

PLANNING OFFICER (OPEN SPACE)

I concur with the recommendation/s contained in this report.

Bryce Hines

SPORT, RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Craig Maudsley

CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

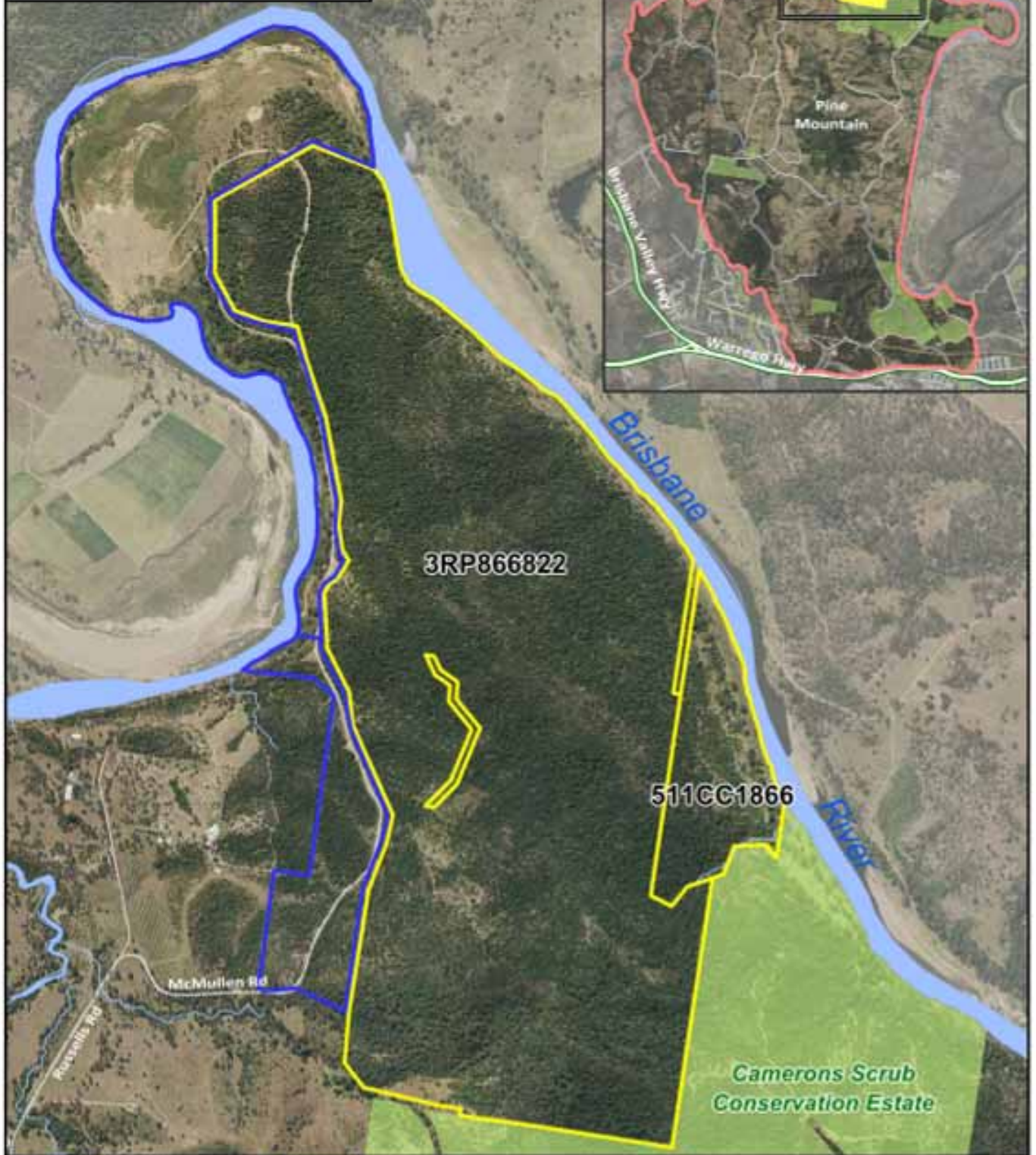
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Sapling Pocket Master Plan



Location Plan



 Sapling Pocket

 State Nature Refuge

 Parks and Reserves

Pine Mountain & Kholo Openspace Planning Guideline

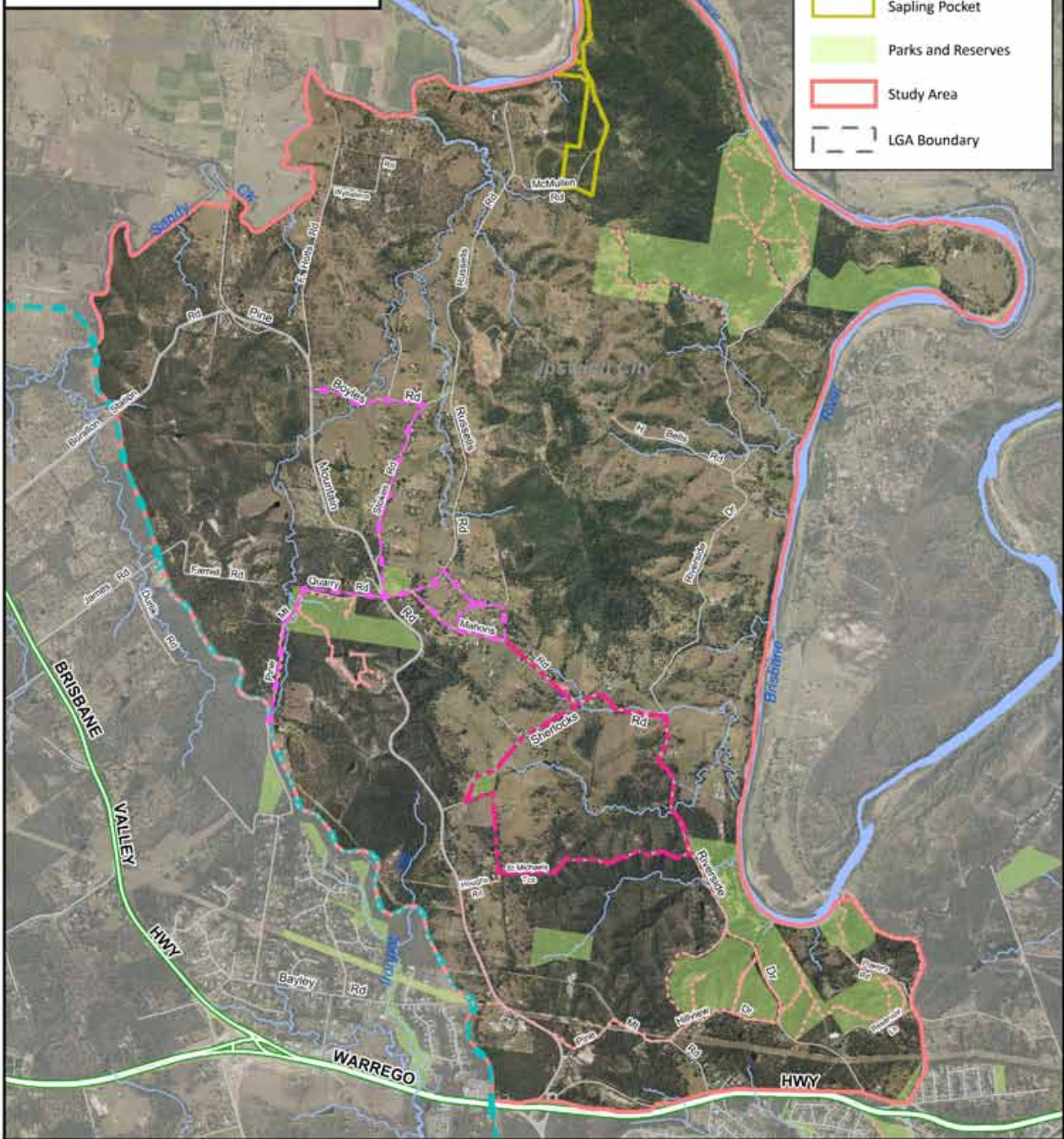
Overview Map

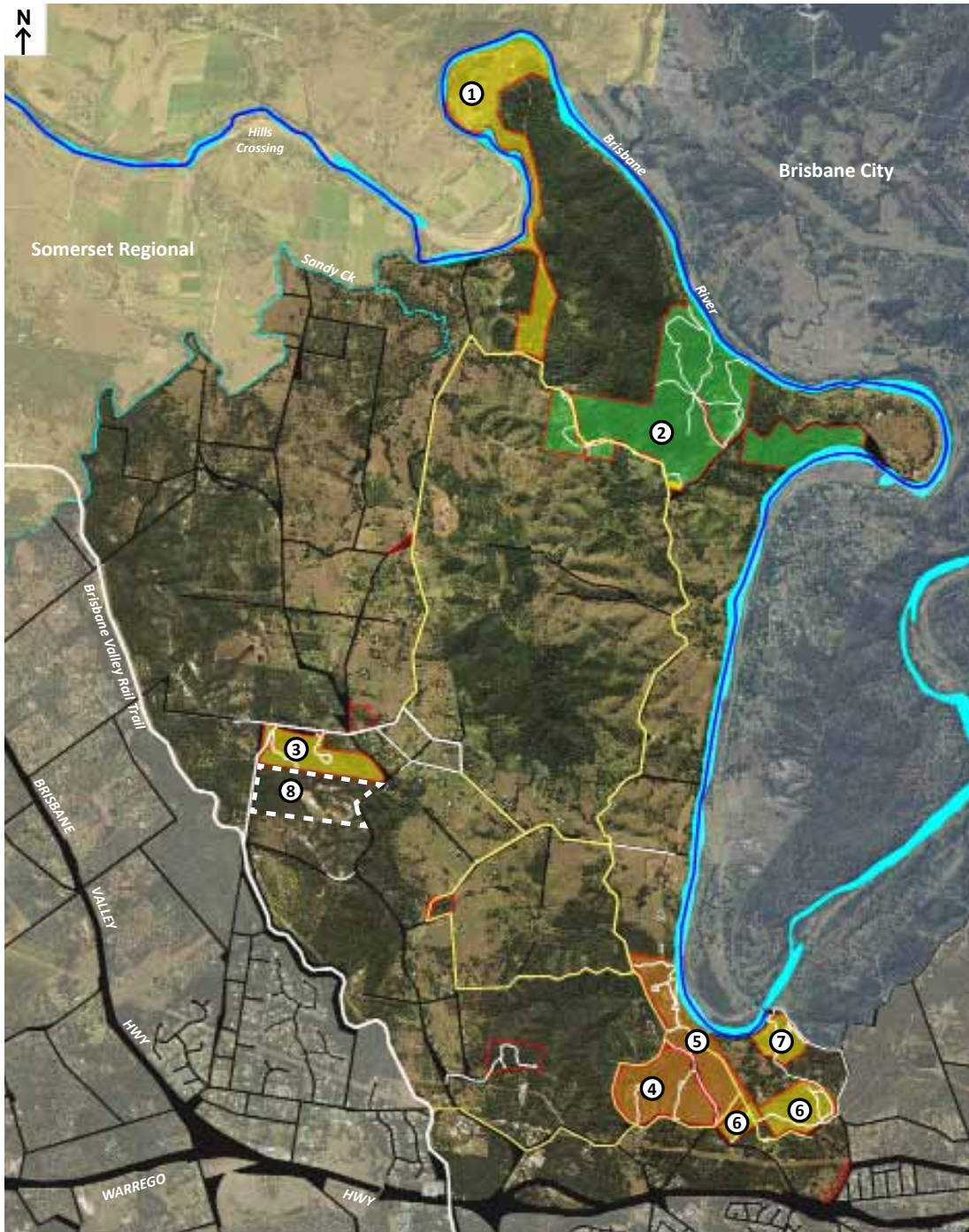


14/07/2014 #38577 Business Accounting
& Asset Management










- Brisbane Valley Rail Trail
- Pine Mt Bridle Trail**
 - Stage 1 - Complete
 - Stage 2 - Proposed
- Natural Area Track
- Sapling Pocket
- Parks and Reserves
- Study Area
- LGA Boundary



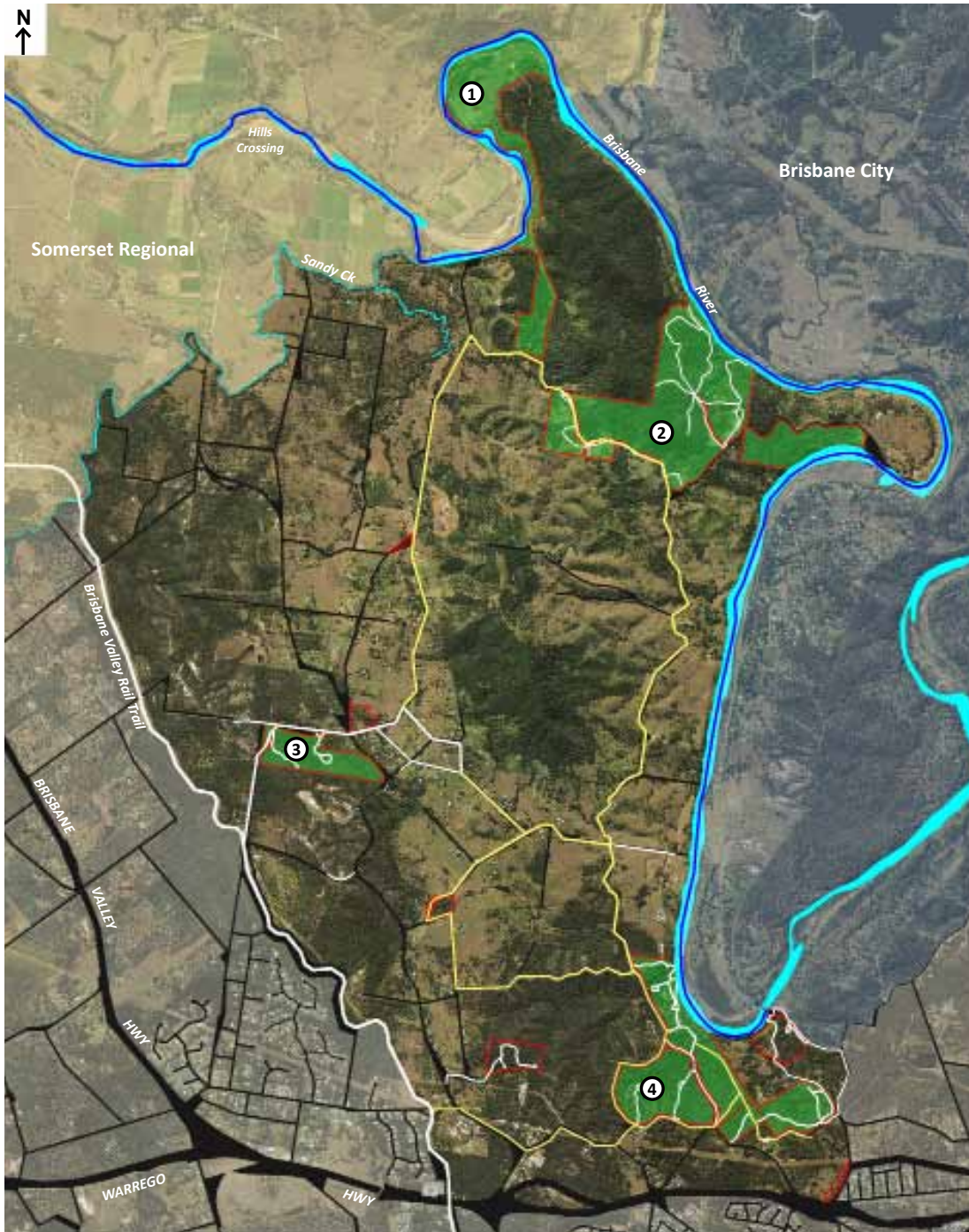


LEGEND






-  Brisbane River Canoe Trail
-  Existing Trails and Tracks
-  New Multi-use Trails and upgrade of existing trails
-  Park and Reserves within the Study Area
-  Low Impact Activities (Restricted access to fenced and gated areas)
-  Medium Impact Activities (Open to the public at all times, minimal embellishments such as tracks for walking, horse riding and mountain biking, informal parking)
-  Higher Impact Activities (Open to the public, Embellishment to district level recreation park with toilets, BBQ's, picnic shelter, formal car parking)

Notes

- ① Opportunity for canoe access point from river and guided canoe tours along the Brisbane River. Guided tours with small groups such as bush walks, nature appreciation or indigenous walks. Environmental Camp Facility (basic accommodation, conference room, hall and amenities) on raised area for group booking.
- ② Low impact guided tours, bush walking, bird watching and nature appreciation. Small trail head and informal car parking from Riverside Drive.
- ③ Existing picnic area and car parking. Opportunity to extend car park to provide for Horse Trail Head and associated facilities for access to Brisbane Valley Rail Trail and Pine Mountain Local Bridle Trail. Develop walking track network.
- ④ New and upgrade of existing track networks for bush walking, horse riding and mountain biking, car parking and picnic nodes. Trail head for horse riding. Opportunity for orienteering and rogaining.
- ⑤ Existing recreation park. Optimise formal car parking. Potential canoe access at start of water pipeline.
- ⑥ New walking, horse riding and mountain bike tracks, car parking and picnic nodes.
- ⑦ Potential informal car parking and picnic node and canoe launch.
- ⑧ Old Quarry Site. Further investigate integration of old Quarry site to provide for mountain biking, down-hill biking facility after lease expires.



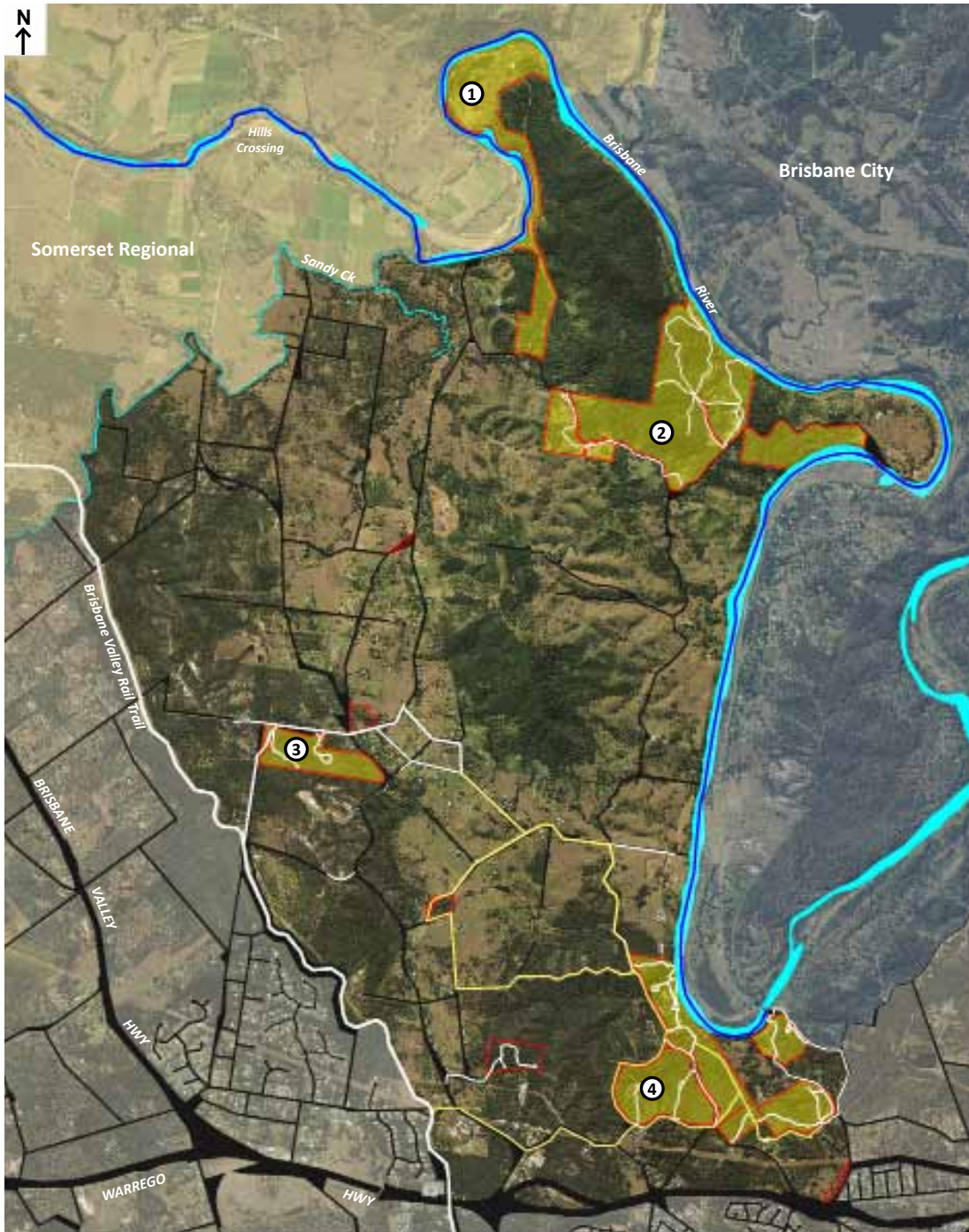
LEGEND

- ① Sapling Pocket
- ② Camerons Scrub Conservation Estate
- ③ Pine Mountain Bush Reserve
- ④ Kholo Botanic Gardens Precinct
-  Brisbane River Canoe Trail
-  Existing Trails and Tracks
-  New Multi-use Trails and upgrade of existing trails
-  Stage 1 Works (Refer to notes below)
-  Park and Reserves within the Study Area

Notes

Detail of Stage 1 Works (0-2 Years)

- Revegetation of Sapling Pocket.
- Undertake an Expression of Interest (EOI) from interested parties for Guided Nature Based Recreation Activities (opportunities for guided tours with small groups for bush walks, bird watching, nature appreciation and/or indigenous walks) within Sapling Pocket and Camerons Scrub. There may be opportunities for a commercial venture to establish these low impact guided activities within this area.
- Assess need for and feasibility of development of overnight camping facilities at Sapling Pocket with basic tent sites, bush shower and toilet.
- EOI to plan, develop, manage and maintain a network of existing and new multi-use/multi-purpose tracks and trails for bush walking, mountain bike riding and horse riding within sites around Kholo Botanic Gardens Precinct by trail users as part of a Trail Care Alliance in partnership with Council.
- Increase formal car parking at Kholo Botanic Gardens.
- Investigate multi-use trail linkages to Pine Mountain Local Bridle Trail and Brisbane Valley Rail Trail as well as new trails for walking, cycling and horse-riding along existing formed and unformed road reserves to link up Kholo Botanic Gardens to Camerons Scrub to Sapling Pocket to Pine Mountain Bush Reserve and the Brisbane Valley Rail Trail.



LEGEND

- ① Sapling Pocket
- ② Camerons Scrub Conservation Estate
- ③ Pine Mountain Bush Reserve
- ④ Kholo Botanic Gardens Precinct
- Brisbane River Canoe Trail
- Existing Trails and tracks
- New Multi-use Trails and upgrade of existing trails
- Stage 2 Works (Refer to notes below)
- Park and Reserves within the Study Area

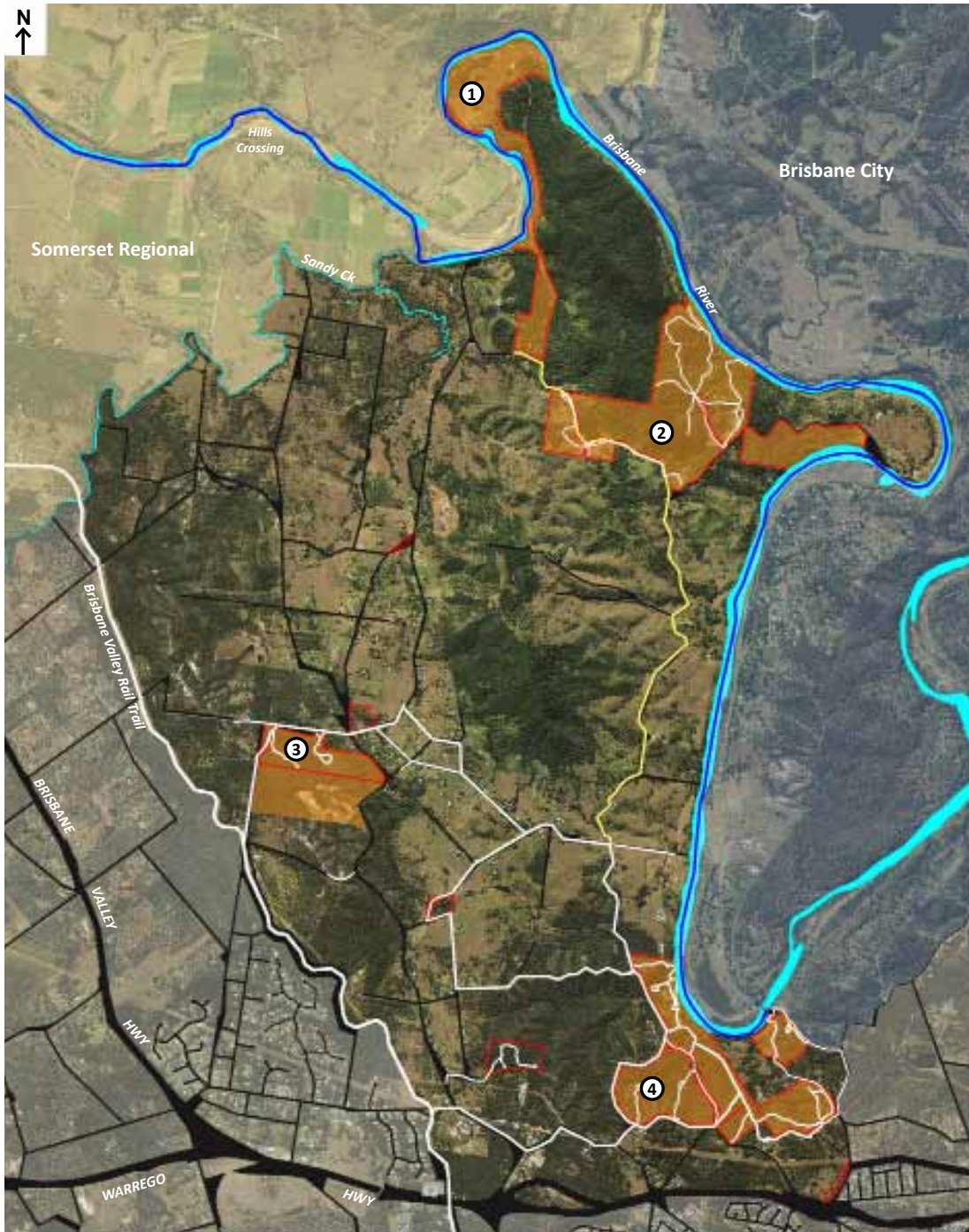
Notes

Detail of Stage 2 Works (3-5 Years)






- Development of canoe facility on Brisbane River at Sapling Pocket. Basic supporting infrastructure may include picnic facilities.
- Development of overnight camping facilities at Sapling Pocket with basic tent sites, bush shower and toilet. Emergency vehicle access to the canoe access and basic camp facilities will need to be considered from maintenance and risk management perspective.
- Small trail head at Camerons Scrub Conservation Estate with informal car parking from Riverside Drive.
- Delivery of Guided Nature Based Recreation Activities (opportunities for guided tours with small groups for bush walks, bird watching, nature appreciation and/or indigenous walks) within Sapling Pocket and Camerons Scrub by a commercial operator.
- Develop walking track network within Pine Mountain Bush Reserve.
- Extend car parking and horse float parking at Pine Mountain Bush Reserve to access the Brisbane Valley Rail Trail and Pine Mt Local Bridle Trail
- Plan, develop, manage and maintain a network of existing and new multi-use/multi-purpose tracks and trails for bush walking, mountain bike riding and horse riding within sites around Kholo Botanic Gardens Precinct by trail users as part of a Trail Care Alliance in partnership with Council.
- Development of car parking and picnic nodes at Kholo Botanic Gardens Precinct to support walking, Mt Biking and horse riding trails network.
- Develop new multi-user trails for walking, cycling and horse-riding along existing formed and unformed road reserves to link up Kholo Botanic Gardens to Camerons Scrub to Sapling Pocket to Pine Mountain Bush Reserve and the Brisbane Valley Rail Trail.
- Develop canoe access at Kholo Botanic Gardens and Kholo Bridge.

**PINE MOUNTAIN & KHOLO
OPENSOURCE PLANNING GUIDELINE - STAGE 2**





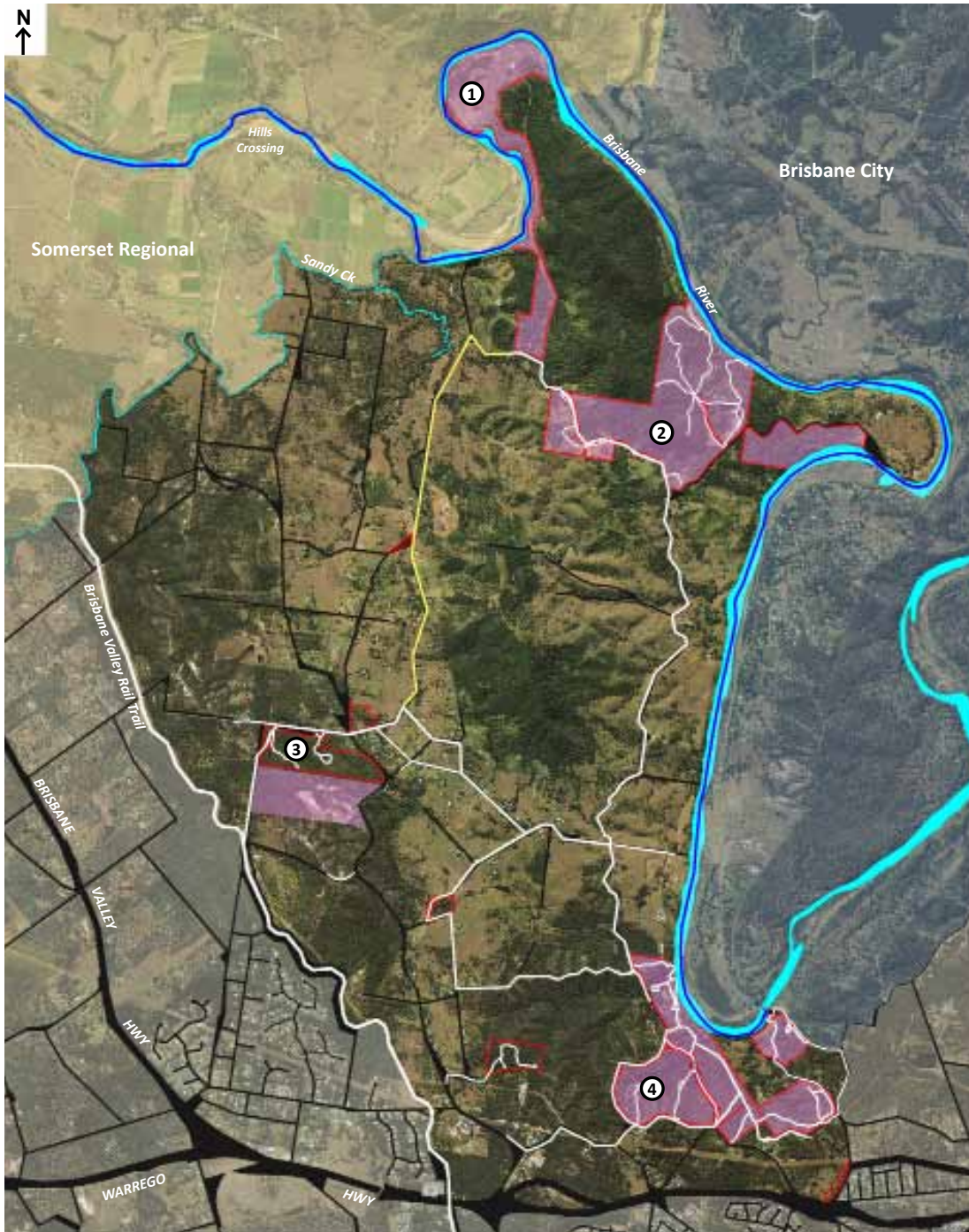
LEGEND

- ① Sapling Pocket
- ② Camerons Scrub Conservation Estate
- ③ Pine Mountain Bush Reserve
- ④ Kholo Botanic Gardens Precinct
-  Brisbane River Canoe Trail
-  Existing Trails and Tracks
-  New Multi-use Trails and upgrade of existing trails
-  Stage 3 Works (Refer to notes below)
-  Park and Reserves within the Study Area

Notes

Detail of Stage 3 Works (6-8 Years)

- Delivery of Guided Nature Based Recreation Activities (opportunities for guided tours with small groups for bush walks, bird watching, nature appreciation and/or indigenous walks) within Sapling Pocket and Camerons Scrub by a commercial operator.
- Development of horse trail head at Pine Mountain Bush Reserve.
- Manage and maintain a network of existing and new multi-use/multi-purpose tracks and trails for bush walking, mountain bike riding and horse riding within sites around Kholo Botanic Gardens Precinct by trail users as part of a Trail Care Alliance in partnership with Council.
- Assess need for and feasibility of development of horse trail head at Hillview Drive Conservation Reserve.
- Develop new multi-user trails for walking, cycling and horse-riding along existing formed and unformed road reserves to link up Kholo Botanic Gardens and maintain Scrub to Sapling Pocket to Pine Mountain Bush Reserve and the Brisbane Valley Rail Trail.
- Assess need for and feasibility of development of the neighbouring Council owned quarry immediately to the south of Pine Mountain Bushland Reserve for a mountain bike and down-hill cycling facility.
- Assess need for and feasibility of potential commercial opportunity through the potential development of an Environmental Camp Facility which would incorporate basic accommodation, conference room, hall and amenities on the raised area of Sapling Pocket through an EOI.



LEGEND

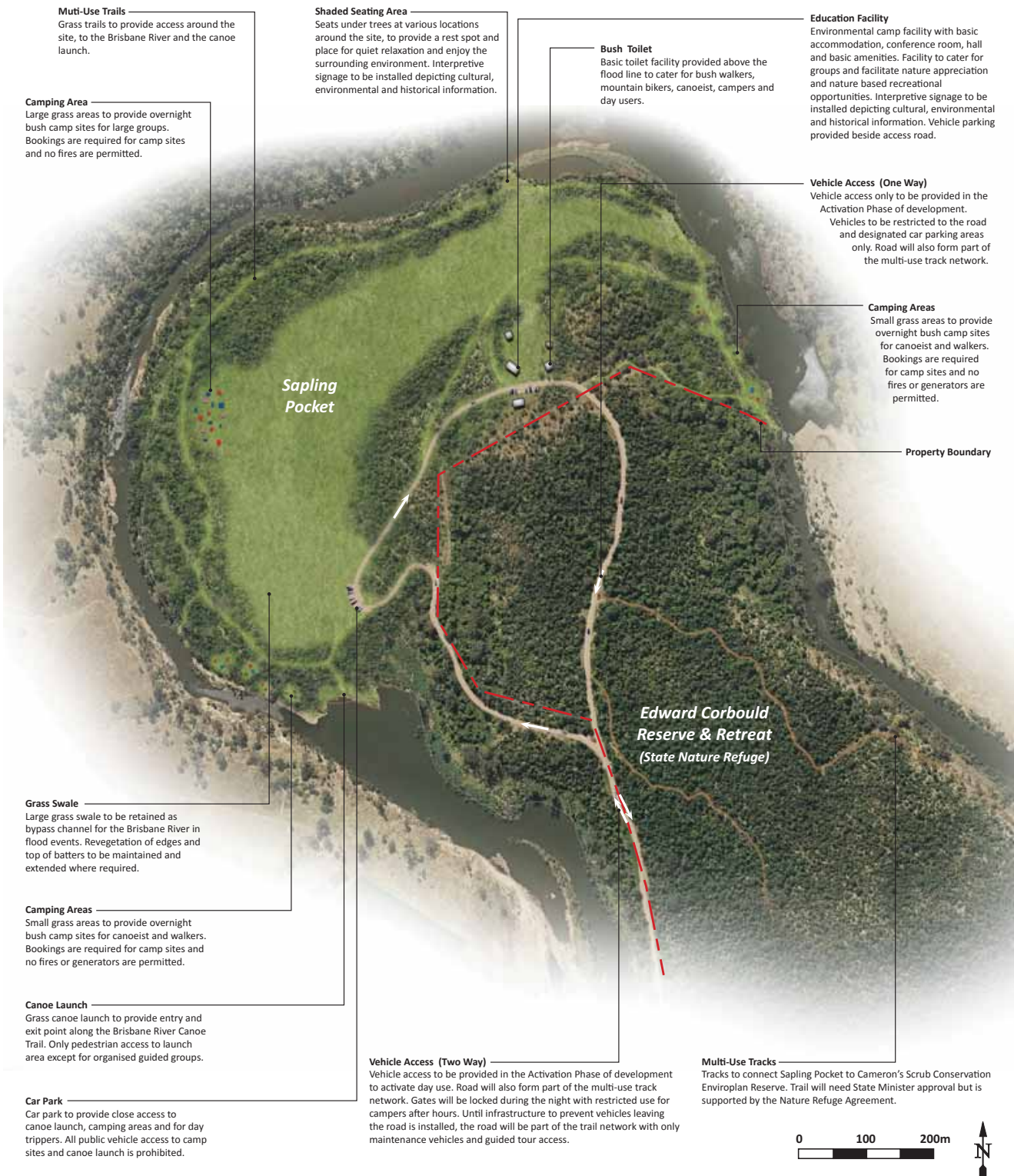
- ① Sapling Pocket
- ② Camerons Scrub Conservation Estate
- ③ Pine Mountain Bush Reserve
- ④ Kholo Botanic Gardens Precinct
- Brisbane River Canoe Trail
- Existing Trails and Tracks
- New Multi-use Trails and upgrade of existing trails
- Stage 4 Works (Refer to notes below)
- Park and Reserves within the Study Area

Notes

Detail of Stage 4 Works (8-10 Years)

- Delivery of Guided Nature Based Recreation Activities (opportunities for guided tours with small groups for bush walks, bird watching, nature appreciation and/or indigenous walks) within Sapling Pocket and Camerons Scrub by a commercial operator.
- Development of horse trail head at Hillview Drive Conservation Reserve.
- Manage and maintain a network of existing and new multi-use/multi-purpose tracks and trails for bush walking, mountain bike riding and horse riding within sites around Kholo Gardens Precinct by trail users as part of a trail care alliance in partnership with Council.
- Develop new multi-user trails for walking, cycling and horse-riding along existing formed and unformed road reserves to link up Kholo Botanic Gardens to Camerons Scrub to Sapling Pocket to Pine Mountain Bush Reserve and the Brisbane Valley Rail Trail.
- Development of the neighbouring Council owned quarry immediately to the south of Pine Mountain Bushland Reserve for a mountain bike and down-hill cycling facility.
- Development of Environmental Camp Facility incorporating basic accommodation, conference room, hall and amenities on the raised area of Sapling Pocket in partnership with a commercial operator.

Sapling Pocket

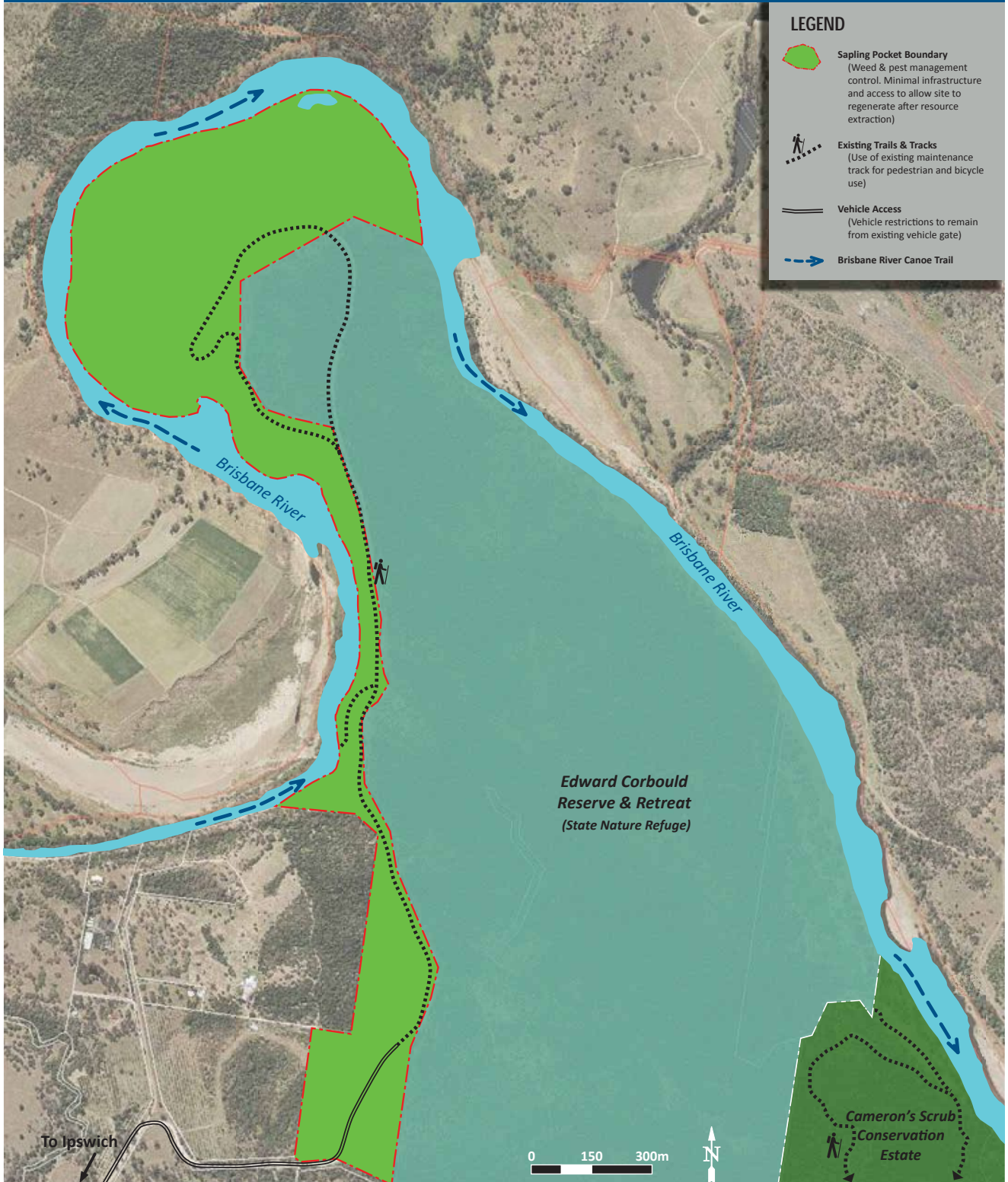


Draft
Master Plan 2015



Sapling Pocket

Management Phase

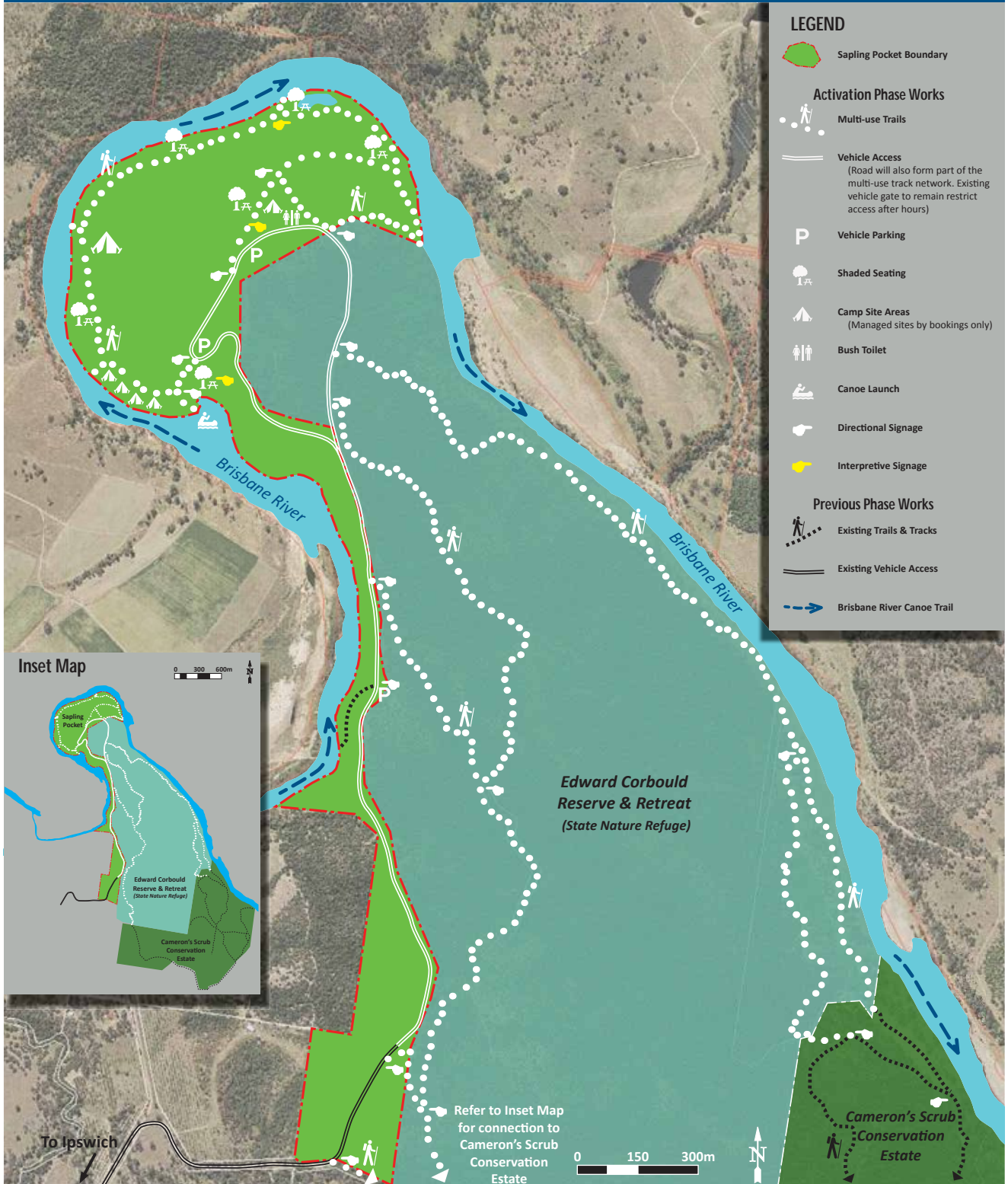


**Draft
Master Plan 2015**



Sapling Pocket

Activation Phase

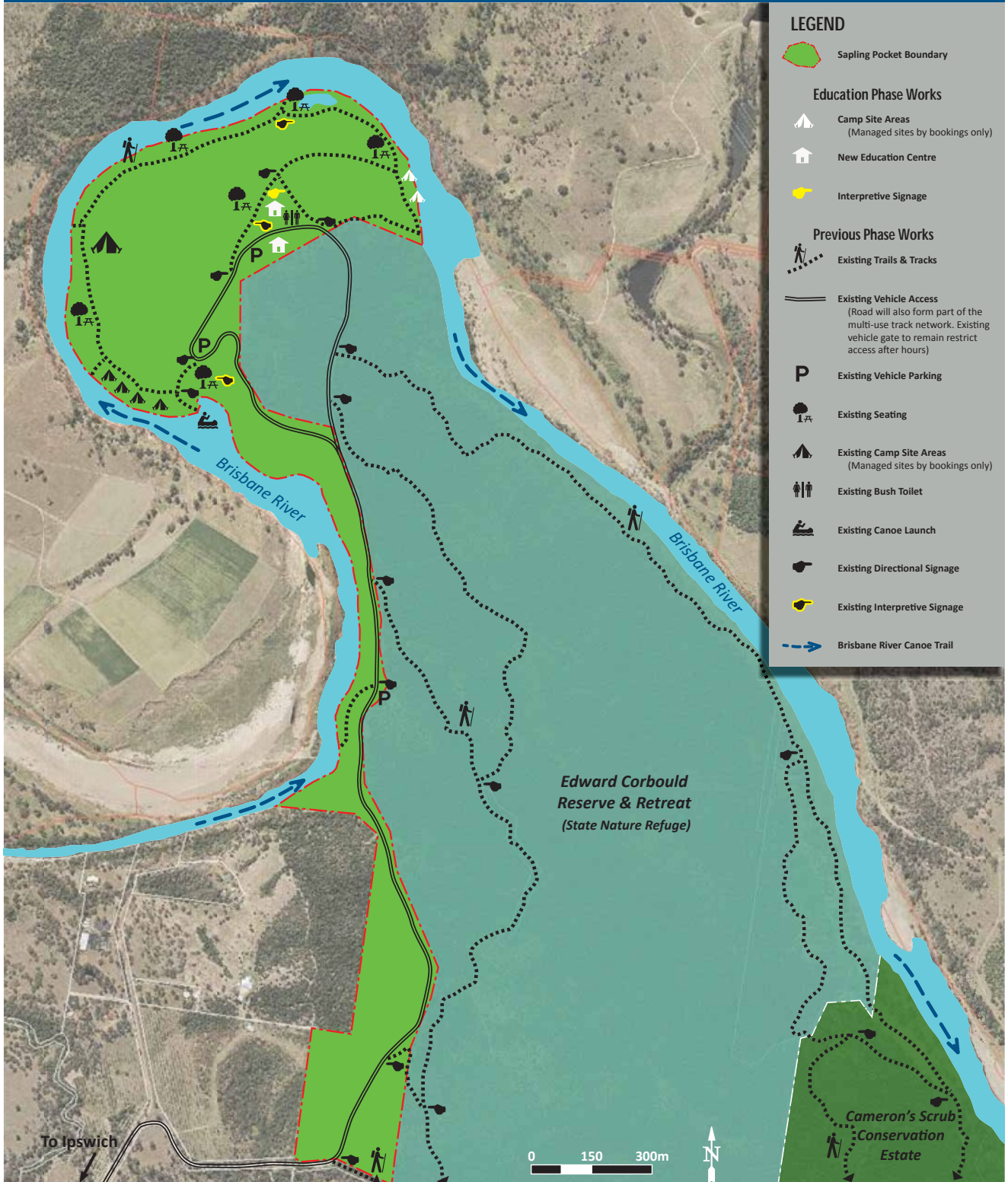


Draft
Master Plan 2015



Sapling Pocket

Education Phase



Draft
Master Plan 2015





SAPLING POCKET COMMUNITY WORKSHOP

29 November 2014

COMMUNITY FEEDBACK RESULTS (33 respondents from the local community)

Q1: What functions should the future City Wide Waterside Park provide?

Item	For	Against	Only small area required for function (Portion of "For" %)
Waterside Area	85%	9%	21%
Recreation Area	82%	12%	24%
Ecological Area	88%	3%	0%
Bushland Area	88%	3%	0%

Q2. What types of activities / facilities should be accommodated at Sapling Pocket?

Item	For + Neutral	Against
Bushwalking	91%	3%
Canoeing	91%	3%
Nature based appreciation	91%	3%
Mountain biking	79%	15%
Horse riding	88%	6%
Camping	55%	39%
Open space for informal play	70%	21%
Picnic facilities	58%	33%
Kiosk	21%	70%
Education facility	58%	30%
Toilets	85%	9%
Playground	42%	48%



SAPLING POCKET COMMUNITY WORKSHOP

29 November 2014

Other items that were suggested by community in order of responses:-

- Controlled access to site
- Historical, cultural, fauna flora, riverine & ecological signage/trails
- Revegetation
- Links to other reserves, wildlife corridors, Lake Manchester trails
- Nature based recreation
- **Dog facilities** (more responses were against dogs being allowed into the area)
- Drinking water
- **Motor bike trail separate from other trails** (more responses were against motor bikes being allowed into the area)

Items that were not supported by Community in order of responses:-

- Motor Bikes
- Four wheel drives
- Camping
- Fires
- Dogs
- Dust (from unsealed roads)
- Manicured park
- Too many buildings
- Everything
- Boat ramp
- Generators
- Bins
- Vehicle parking near camp sites

Concerns listed in comments section (not already included above):-

- Increased traffic and impact on local community and road infrastructure
- Directional signage for motorist
- Flood impacts on infrastructure
- Local residents as guardians of the site
- Toilets to be maintained



Conservation and Environment Committee	
Mtg Date: 22.01.2018	OAR: YES
Authorisation: Sean Madigan	

GD:GD
A4581552

9 January 2018

MEMORANDUM

TO: CHIEF OPERATING OFFICER (HEALTH, SECURITY AND REGULATORY SERVICES)

FROM: EXECUTIVE SUPPORT AND RESEARCH OFFICER

RE: SUSTAINABILITY ADVISORY GROUP NOVEMBER 2017 MINUTES AND UPDATED TERMS OF REFERENCE

INTRODUCTION:

This is a report by the Executive Support and Research Officer dated 9 January 2018 attaching the minutes of the Sustainability Advisory Group meeting held on 14 November 2017 and updated Terms of Reference (TOR).

BACKGROUND:

Setting a sustainability vision and targets will require a whole of council response that is both bold and clear to address the challenges of growth and climate change. It was proposed that to progress the development of Council’s Sustainability Strategy a cross-functional Advisory Group be established comprising Councillors and Senior Staff representatives, with participation by external stakeholders and subject matter experts as required. The role of the Advisory Group will be to ensure the framework, sustainability pathways, vision and targets of the Sustainability Strategy are adhered to.

ATTACHMENT/S:

Name of Attachment	Attachment
Minutes of the Sustainability Advisory Group meeting held on 14 November 2017	Attachment A
Updated Terms of Reference	Attachment B

RECOMMENDATION:

That the report be received and the contents noted.

Gemma Dunne

EXECUTIVE SUPPORT AND RESEARCH OFFICER

I agree with the recommendation/s contained in this report.

Sean Madigan

CHIEF OPERATING OFFICER (HEALTH, SECURITY AND REGULATORY SERVICES)

Meeting Minutes

Meeting: Sustainability
Advisory Group

Date: 14 November 2017

Time: 1.00pm – 2.00pm

Location: Claremont Room

Invitees (A = Attended, D = Delegated, P = Apologies, N = Not present)

Invitee	Name	Invitee	Name
P	Mayor Andrew Antonioli	A	Sean Madigan
A	Councillor Silver	P	Nick Vass-Bowen
P	Councillor Stoneman	A	Danielle Owen
P	Councillor David Morrison	P	David Waller
A	Councillor Sheila Ireland	A	Graham Schultz
P	Councillor Wayne Wendt	A	Kaye Cavanagh
A	Maree Walker	P	Nicole Grant
		A	David Hillman

Item #	Agenda	Outcomes and Action	Action By	Required By	Date Completed
1	Meeting Open	Meeting opened at 1.00pm			
	Minutes	Minutes to be presented to Conservation and Environment Committee	MW		
Pathway 1 – Sustainability through education, awareness and community involvement					
2	Youth Sustainability Summit Debrief	Paper detailing student feedback to be presented at next meeting	SM	Feb	
		Updates on the planning for next year's Summit scheduled for Term 3	SM	Feb	
	Future report – Waste Strategy	Waste strategy update	KC	Feb	
		Options for reusable or sustainable pot plants at Nature Centre	KC	Feb	
3	Sustainability Industry Forum 'Hack Day'	Event scheduled for 8 February, appointments to be circulated	SM	Dec	
Pathway 2 – Protection of urban ecology and the natural environment					
4	Healthy Waterways	Consideration of monitoring and improving our waterways through the development application process (erosion and sediment conditioning)	NVB/DO	Feb	
		Resilient rivers initiative (Council of Mayors) Finalising Healthy Waterways Strategy	KC	Feb	
	Carbon Reduction	Circulate paper regarding 1 Million Women campaign to reduce household carbon footprint (opportunity for Council to partner in an App to send messages and gather data	KC	Nov	



Meeting Minutes

Meeting: Sustainability
Advisory Group

Date: 14 November 2017

Time: 1.00pm – 2.00pm

Location: Claremont Room

Item #	Agenda	Outcomes and Action	Action By	Required By	Date Completed
		on behaviour changes)			
	Strategy	Marketing and Engagement Strategy to be developed on Whole of Council Sustainability Approach	All (SM lead)	Feb	
Pathway 3 – Corporate Sustainability					
5	Renewable Energy Policy	Quotes to be obtained from relevant consultants. Expenditure approval to be sought through the Conservation and Environment Committee with recommendations to be reviewed and prioritised (short/medium/long term) delivery	SM	Feb	
6	Innovation Program	Portal to be developed through The Wire including encouragement of staff to put forward ideas	SM	Feb	
Pathway 4 – Supporting sustainable industry					
7	Bio Economy Summit presentation	Held over until next meeting	DW	Feb	
8	Next Meeting	To be scheduled for February 2018			
10	Meeting Closed	2.00pm			



**Sustainability Advisory Group
TERMS OF REFERENCE**

Version number: 2

Issue : Draft 1

Page 1 of 3

1.1 OBJECTIVES:

The objectives of the Sustainability Advisory Group are:

- To assist Ipswich City Council in achieving the objectives as outlined in the Ipswich City Council Sustainability Strategy, Sustainable Ipswich using the following four pathways:
 1. Promoting city wide sustainability through education, awareness and community involvement.
 2. Protecting the city's urban ecology and natural environment
 3. Promoting corporate sustainability
 4. Supporting sustainable industry

1.2 TERMS OF REFERENCE

1.2.1 Authority:

The Group is empowered by Ipswich City Council to carry out the functions and responsibilities as detailed in its objectives.

1.2.2 Membership

- a) The Group shall be comprised of Council and external representatives such as community members, private sector any other representatives as determined by Council. The process of community/external nominations to the Sustainability Advisory Group will be determined by Council.
- b) The Sustainability Advisory Group shall notify the Conservation and Environment Committee of any vacancy in its membership and submit the name of a person/s considered to be suitable for appointment. The Conservation and Environment Committee will make recommendations to Council to decide whether to appoint the recommended person/s.
- c) The Group may use the services of other persons.
- d) If any member is approached by the Media to provide comment on matters relating to the Group, permission to communicate with them must be sought via the Chair of the Group.

1.2.3 Meetings:

- a) The Sustainability Advisory Group shall meet on the dates and times as determined by Council or the group.
- b) Special meetings of the Group may be called by the Chair or Deputy Chair of the Group.

1.2.4 Office Bearers:

- a) A Chair and Deputy Chair for the Group shall be appointed by Council.
- b) In the absence of the Chair for a meeting of the Group, the Deputy Chair shall chair the meeting; in the absence of both, a Councillor shall chair the meeting.
- c) To hold a valid Group meeting there must be a quorum of at least half the membership, one of which must be a Councillor.

1.2.5 Secretarial Support:

Ipswich City Council will provide secretarial support to the Sustainability Advisory Group, including the taking of minutes and preparation of agendas.

1.2.6 Agendas and Minutes:

- a) Agenda items must be forwarded to the Sustainability Advisory Group administrator at least two weeks prior to the relevant meeting for inclusion on the Agenda.
- b) Agendas will be emailed to the Group the week prior to the next scheduled meeting allowing sufficient time for perusal prior to the meeting.
- c) Minutes of meetings will be emailed to the group the week prior to the next scheduled meeting, allowing sufficient time for members to peruse the Minutes and advise the Sustainability Advisory Group administrator of any required amendments to ensure a correct record of the Minutes is adopted at the next scheduled meeting.
- d) Agendas and Minutes shall be forwarded to Conservation and Environment Committee for information and action as required.

1.2.7 Reporting Procedure:

Reports requiring Council consideration and/or decision are to be directed to Council (Conservation and Environment Committee) without delay via the Sustainability Advisory Group administrator.

1.2.8 Duties of Members:

- a) To promptly consider matters referred to the Group by Council & community.
- b) To consider matters as determined by the Group which will assist the Group to achieve its objectives.
- c) To report to Council on matters associated with the Group's objectives which require Council consideration and/or decision.
- d) To follow the procedure outlined below where issues arise that pertain to facilities or services outside the ownership or control of Council:
 - A member may raise an issue at a Group meeting for the purpose of informing the members.
 - The issue should be listed on Agenda as per Clause 1.2.7.
 - In cases of emergency the issue can be raised under General Business.

1.2.9 Community Consultation:

- a) The Group may seek input from the public and appropriate community groups on matters relative to its purpose.
- b) Community members and guest speakers may be invited to attend a meeting by prior agreement of the Group.

1.2.10 Conflict of Interest:

A conflict of interest exists when a member has a personal interest in an issue being considered or to be considered at a meeting of the Group. In those circumstances the member must advise the meeting that they have, or may have, a conflict of interest.

The Chair will decide on the most appropriate course of action being that:

- a) The Chair considers that a conflict of interest does not exist, and the member may remain in the meeting.
- b) The Chair considers that a conflict of interest does exist, and the member:
 - Vacates the meeting during discussion of the issue.
 - Withdraws from attendance at the meeting until the issue is resolved.
 - Resigns their membership from the Group.

The minute taker must ensure the declaration is recorded in the Minutes of the meeting.

The record must include:

- a) The nature of the conflict of interest as described by the member; and
- b) How the Chair dealt with the conflict of interest.

1.2.11 Funds

- a) The Group shall not hold any funds.
- b) The Group shall not incur any liabilities or authorise any expenditure.

2. Contact Officer

The contact officer for the Sustainability Advisory Group is the Sustainability Advisory Group administrator - Gemma Dunne

Email: sustainableipswich@ipswich.qld.gov.au

Phone: 07 3810 7524