

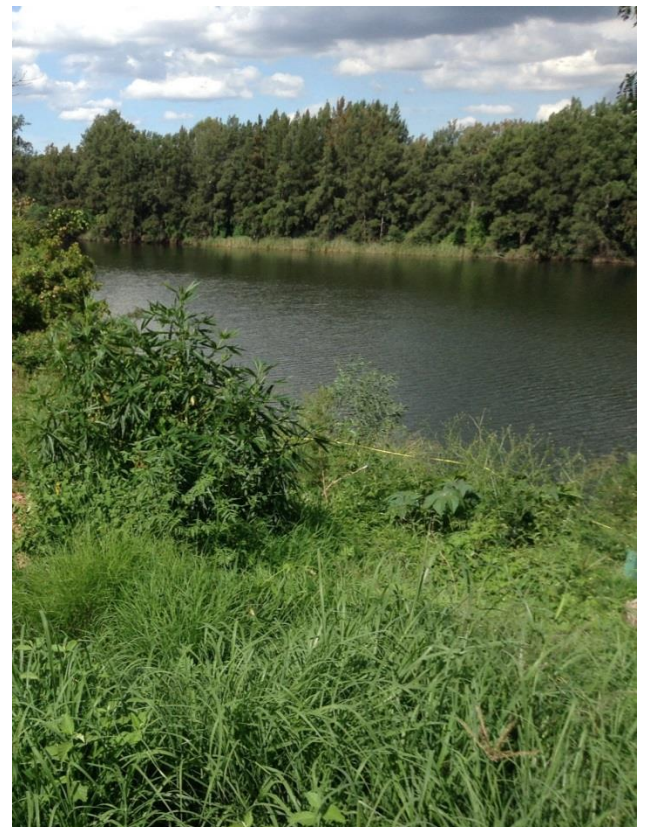


Nepean River 'Our River'

Plan of Management for Tench Reserve, River Road Reserve and Weir Reserve

Prepared for
Penrith City Council

9 February 2015



PENRITH
CITY COUNCIL

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Abbreviations

Abbreviation	Description
CEEC	Critically Endangered Ecological Community
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	NSW <i>Fisheries Management Act 1994</i>
OEH	NSW Office of Environment and Heritage
PoM	Plan of Management
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>
VMP	Vegetation Management Plan

Executive summary

This Plan of Management (PoM) has been prepared in accordance with the NSW *Local Government Act 1993* to guide management of Weir Reserve, Tench Reserve and River Road Reserve by Penrith City Council. The PoM has been developed using information from previous PoMs for the reserves as well as the Our River Master Plan (Clouston Associates 2013), Nepean River Riparian Vegetation Management Plan (Eco Logical Australia 2014) and community feedback.

The PoM identifies prioritised actions to be implemented over the next five years to address the following key issues:

- rubbish
- amenity (views, noise)
- flooding and bank stability
- biodiversity (habitat, weeds, ecological communities, native species)
- access and recreation (paths, lookouts, platforms, playgrounds, picnic facilities recreation, parking, vehicle access)
- services and utilities
- commercial ventures.

The PoM should be read in conjunction with the Nepean River Riparian Vegetation Management Plan (VMP) (Eco Logical Australia 2014). The VMP contains recommendations about management of biodiversity and vegetation within the reserves and along the riparian corridor.

This plan will be updated every five years. The next review will be in 2019.

1 Introduction

1.1 Study need and context

Penrith City Council is responsible for management of three public parkland reserves along the Nepean River at Penrith:

- Tench Reserve (16.07 ha)
- River Road Reserve (17.88 ha)
- Weir Reserve (10.7 ha).

The locations of these reserves are indicated in **Figure 1**. Parcels of land within the reserves are identified in **Appendix A**.

Council is required to prepare a Plan of Management (PoM) for its reserves in accordance with the NSW *Local Government Act 1993* and the *Local Government Amendment (Community Land Management) Act 1998*. This PoM provides Council with a prioritised framework for management of the reserves over the next five years. It will assist the Council in obtaining and allocating funds and resources.

This document summarises and contemporises information presented in the previous PoMs for Tench Reserve (LandArc 2004), River Road Reserve (Berzines Environmental Planning and Rose Deco 2008) and Weir Reserve (LandArc 2006). This PoM also reflects recent changes to the planning framework featured in Our River Master Plan (Clouston Associates 2013) and draft Nepean River at Penrith Vegetation Management Plan (Eco Logical Australia 2014).

1.2 Community consultation and design principles

Community feedback from a comprehensive consultation program (as described in reports by People, Place and Partnerships (2013, 2014)) informed development of Our River Master Plan in 2013 and the draft Vegetation Management Plan in 2014. Community consultation involved workshops, displays, online and intercept surveys, and media in relation to the reserves and riparian corridor at Penrith.

The following design principles were developed based on consultation for the Master Plan:

- *Our Accessible River: The river is a significant and important recreational asset in the region, but many people are unaware of its presence and values. Key to the wider awareness of the river and its recreational use and enjoyment is improved access to the parklands along its foreshores and the opportunity to get down to the water's edge and onto the water.*
- *Our Active River: Once the river is reached what is on offer to the visitor and resident? An active and vibrant river should provide a wide range of active and passive recreational opportunities both on and off the water, making the river a place to be enjoyed by all, both for active recreation and for quiet reflection and contact with nature.*
- *Our Cultural River: The river has a long cultural history, dating back thousands of years. As a spectacular natural and cultural landscape setting, the river provides the opportunity for a series of memorable spaces and places each with their own focus and character, creating a place to celebrate the community's culture and diversity.*
- *Our Healthy River: As a key cultural and recreational asset, the river's health is vital to the environmental health of its river landscape and the health and wellbeing of those who live beside it or visit it. Enhancing the health of the river vegetation and the quality of water is*

therefore of key importance to a sustainable local environment and ultimately the health of the local community.

- *Our Managed River: Like all rivers systems, the river's catchment extends beyond local government boundaries and its management needs to be considered in this wider perspective. Managing and maintaining the river's natural values, cultural heritage and landscape character provides a sustainable setting for compatible recreation, both on and off the water.*

These principles have been applied to this PoM.

Council is keen to increase community involvement in the ongoing management of the Nepean River riparian corridor at Penrith. As discussed in the draft Vegetation Management Plan, a community education and participation program is being developed and will be implemented to help achieve this.

This PoM was placed on Public Exhibition in September-October 2014. Community and stakeholder feedback was positive, subject to minor illustrative amendments.

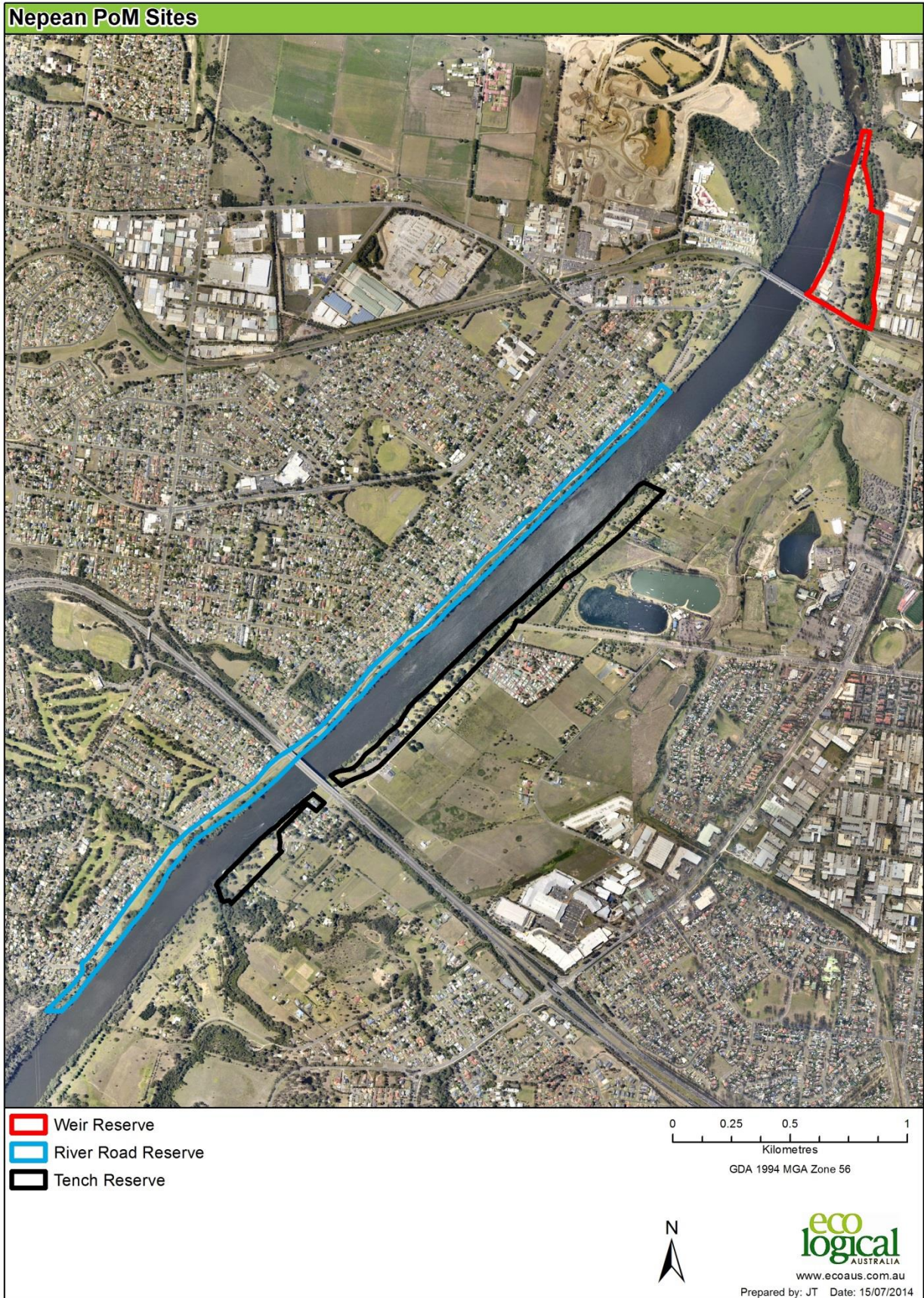


Figure 1: Tench, River Road and Weir Reserves

2 Statutory framework

Key legislation and planning instruments related to this PoM include, but are not limited to:

- *Crown Lands Act 1989*
- *Environmental Planning and Assessment Act 1979*
- *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)*
- *Fisheries Management Act 1994*
- *Heritage Act 1977*
- *Local Government Act 1993*
- *National Parks and Wildlife Act 1974*
- *Native Title Act 1993 (Cwth)*
- *Noxious Weeds Act 1993*
- *Rural Fires Act 1997*
- *Threatened Species Conservation Act 1995*
- *Water Management Act 2000*
- Penrith Local Environmental Plans 1998 and 2010

2.1 Zoning

There are two Penrith Local Environmental Plans (LEPs) that apply land use zoning across and adjacent to the three reserves: LEP 1998 and LEP 2010. The zones applicable to the reserves are shown in **Figure 2**, **Figure 3** and **Figure 4**. Land uses zones for each reserve are as follows:

- Tench Reserve
 - E2 – Environmental Conservation (*LEP 2010*)
 - IH – Zone No. 6(d) Regional Open Space (*LEP 1998*)
 - PC – Zone No. 2(a) Residential (Urban and Landscape Protection) (*LEP 1998*)
- River Road
 - IE – Zone No. 6(a) Public Recreation and Community Uses (*LEP 1998*)
 - HP – Zone No. 5(c) State Road and State Road Widening (*LEP 1998*)
 - E2 – Environmental Conservation (*LEP 2010*)
- Weir Reserve:
 - IE – Zone No. 6(a) Public Recreation and Community Uses (*LEP 1998*)
 - IF – Zone No. 6(b) Proposed Public Recreation and Community Uses (*LEP 1998*)

Objectives of these zones are as follows:

Zone E2 – Environmental Conservation

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect, manage, restore and enhance the ecology, hydrology and scenic values of riparian corridors and waterways, wetlands, groundwater resources, biodiversity corridors, areas of remnant indigenous vegetation and dependent ecosystems.

- To allow for low impact passive recreational and ancillary land uses that are consistent with the retention of the natural ecological significance.

Zone No. 2(a) Residential (Urban and Landscape Protection)

- To protect landscapes and urban areas with identified conservation value by limiting the range of permissible uses and requiring larger residential allotments.
- To allow a limited range of compatible non-residential uses.

Zone No. 5(c) State Road and State Road Widening

- To reserve land which is required for State roads or will be required for State road widening purposes.

Zone No. 6(a) Public Recreation and Community Uses

- To provide for a range of open space, recreational, drainage and community uses.
- To ensure that development:
 - is for a purpose that promotes or is related to the use and enjoyment of open space, and
 - does not substantially diminish public use of or access to open space, and
 - does not adversely affect the natural environment, any items or areas of heritage significance or the existing amenity of the area, and
 - does not adversely affect the public infrastructure located on the land.

Zone No. 6(b) Proposed Public Recreation and Community Uses

- To reserve land for a variety of open space, recreational and community pursuits.

Zone No. 6(d) Regional Open Space

- To reserve land for regional open space.
- To ensure that development:
 - is for a purpose that promotes or is related to the use and enjoyment of open space; and
 - does not substantially diminish public use of or access to open space; and
 - does not adversely affect the natural environment, any items or areas of heritage significance or the existing amenity of the area.

Parcels of land affected by this PoM are identified by lot and deposited plan in **Appendix A**.



Figure 2: Tench Reserve cadastre and LEP zoning



Figure 3: River Road Reserve cadastral and LEP zoning



Figure 4: Weir Reserve cadastre and LEP zoning

2.2 Community land

Council owned land within the reserves is classified as community land under the *Local Government Act 1993* (LG Act). Community land must not be sold, exchanged or otherwise disposed of except in the instance of enabling the land to be added to Crown reserve or a protected area under the *National Parks and Wildlife Act 1974*.

Section 36 of the LG Act requires Council to develop a PoM for community land to direct the ways in which community land can be used and managed. The use and management of community land must be consistent with its designated categories and core objectives. The categorisation of land within each reserve under the LG Act also needs to be consistent with the LEP zoning objectives (see **Section 2.1** above).

This PoM identifies three community land categories under the LG Act that apply to the reserves (see **Appendix A** for details of application):

- Natural area: watercourse
- Park
- General community use

This PoM has retained the same community land designations as in the previous PoMs for the reserves. For the purposes of consistency with community land management, all categorised parcels of Crown reserve (as tabulated in **Appendix A**) have also been maintained in this PoM.

Objectives for the community land categories applied to the riparian reserves at Penrith are as follows:

2.2.1 Natural area: watercourse

Section 36E of the LG Act states that the core objectives for management of community land categorised as a natural area are:

- to conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area, and
- to maintain the land, or that feature or habitat, in its natural state and setting, and
- to provide for the restoration and regeneration of the land, and
- to provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion, and
- to assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the *Threatened Species Conservation Act 1995* or the *Fisheries Management Act 1994*.

Section 36M of the LG Act states that the core objectives for management of community land categorised as a watercourse are:

- to manage watercourses so as to protect the biodiversity and ecological values of the instream environment, particularly in relation to water quality and water flows, and
- to manage watercourses so as to protect the riparian environment, particularly in relation to riparian vegetation and habitats and bank stability, and
- to restore degraded watercourses, and
- to promote community education, and community access to and use of the watercourse, without compromising the other core objectives of the category.

2.2.2 Park

Section 36G of the LG Act states that core objectives for management of community land categorised as a park are:

- to encourage, promote and facilitate recreational, cultural, social and educational pastimes and activities, and
- to provide for passive recreational activities or pastimes and for the casual playing of games, and
- to improve the land in such a way as to promote and facilitate its use to achieve the other core objectives for its management.

2.2.3 General community use

Section 36I of the LG Act states that core objectives for management of community land categorised as general community use are to promote, encourage and provide for the use of the land, and to provide facilities on the land, to meet the current and future needs of the local community and of the wider public:

- in relation to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public, and
- in relation to purposes for which a lease, licence or other estate may be granted in respect of the land (other than the provision of public utilities and works associated with or ancillary to public utilities).

2.3 Leases, licences and other estate

A lease, licence or other estate may be granted subject to requirements of the LG Act in accordance with an express authorisation by this PoM, providing the lease, licence or other estate is for a purpose prescribed in section 46 of the LG Act. The purpose must be consistent with core objectives for the category of community land and in the case of Crown reserve, consistent with the public purpose of the reservation under the *Crown Lands Act 1989*. Leases, licences and other estates must not be granted for land categorised as a natural area, unless it is for a purpose prescribed in section 47B of the LG Act.

Council has established a licence for the kiosk in Tench Reserve and one for the Nepean Belle slipway and mooring. There is a licence pending for a floating wharf adjacent to the boat ramp in Tench Reserve.

2.4 Other legislative requirements

2.4.1 Crown land

The management of Crown land is administered under the provisions of the *Crown Lands Act 1989* (CL Act) for the benefit of the people of New South Wales and having regard for the principles of Crown land management. Section 11 of the CL Act provides a set of principles for Crown land management as follows:

- environmental protection principles be observed in relation to the management and administration of Crown land
- the natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible
- public use and enjoyment of appropriate Crown land be encouraged
- where appropriate, multiple use of Crown land be encouraged
- where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity

- Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

Management of the Crown lands within the three Nepean River reserves has devolved to Penrith Council. Council therefore has the ongoing responsibility to provide care, control and management of the reserves and to ensure that the reserves' uses are consistent with the dedicated 'public purpose' of the reservation under the CL Act. The public purpose of Crown Land within Weir Reserve is 'Public Recreation'. The previous PoM recommended that this change to 'Public Recreation and Environmental Protection' to emphasise the significance of the reserve's riparian setting and associated scenic, cultural and natural heritage values.

2.4.2 Threatened species

The reserves and riparian corridor contain habitat for threatened species and ecological communities under the *Threatened Species Conservation Act 1995* (TSC Act) and *Environment Protection and Biodiversity Conservation Act 1999*. In accordance with the LG Act, the following applies to community land that is affected by the TSC Act or *Fisheries Management Act 1994* (FM Act):

- the land must have its own plan of management (it cannot be a generic plan)
- the plan must state whether the land has been declared as 'critical habitat' or affected by a 'recovery plan(s)' or 'threat abatement plan'
- the land must be categorised as a natural area
- the plan must have consistency in the management objectives of the land and the TSC Act or FM Act
- the plan must incorporate core objectives prescribed for a natural area
- the draft plan must be forwarded to the Director General of National Parks and Wildlife or the Director of NSW Fisheries and must incorporate any requirements made by either person
- no change in the use of the land is permitted until a plan of management has been adopted that meets the above requirements
- no lease or licence can be granted until a plan of management is in place – (leases and/or licences that are in place before the land was affected by threatened species laws can continue to operate)
- no native plant species of an endangered ecological community may be "picked" without the prior granting of a Section 91 Licence under the TSC Act.

In 2011 the Department of Environment, Climate Change and Water developed the Cumberland Plain Recovery Plan to manage and recover biodiversity of western Sydney. Future management of the riparian corridor needs to be consistent with the Recovery Plan.

2.4.3 Native title

There are no specific claims under the *Native Title Act (Commonwealth) 1993* affecting the reserves in the Penrith LGA.

3 Features of the reserves

3.1 Regional context

The reserves are located adjacent the Nepean River at Penrith, in the Hawkesbury Lower Nepean catchment on the western margin of Sydney's metropolitan area. The catchment has a long history of vegetation clearing, ecosystem disturbance and modification through agricultural activities and urban development. The construction of dams in the upper catchment, the diversion of Sydney's drinking water (approximately 90% of river flow) and allocation of water for irrigation purposes have significantly altered downstream flows and reduced the frequency and impact of storm and flood events.

3.2 Geology and soils

The reserves are located on the Cumberland Lowland, a region of undulating to low hilly topography on largely Triassic shales of the Wianamatta Group and Quaternary alluvium. The reserves lie within the active floodplain of the Hawkesbury – Nepean River. This fluvial landscape is described as Freemans Reach in 'Soil Landscapes of the Sydney 1:100 000 Sheet' (Chapman and Murphy 1989). It is dominated by broad, relatively flat floodplains, levees and back-water lagoons and wetlands. The soils are typically deep layered unconsolidated sediments (i.e. sands and loams) deposited as alluvium during periods of flood. These soils are deposited over the underlying bedrock or relict soils and support a distinctive ecological community – Sydney Coastal River-flat Forest (Alluvial Woodland/ Riparian Forest).

3.3 Flooding and bank stability

The riparian corridor is subject to flooding and high stream bank erosion hazard as well as deposition of sedimentary materials as the flood waters recede. Long periods of relative stability and deposition are followed by periodic flood events of short duration but with long lasting impacts on bank stability, erosion and sedimentation. Human-induced impacts can magnify and exacerbate the effects of these natural processes.

3.3.1 Flood events

Flooding can occur at any time of the year. Although linked to periods of higher rainfall, flood events follow no regular pattern.

Flood records at Windsor have been kept since 1790. In 1817, Governor Lachlan Macquarie recorded the catastrophic impact of floods in the valley. Successive floods during these early years devastated the early settlements. However, the period between 1817 and 1864 was dry with no significant floods recorded. The dry spell came to a dramatic end in 1864 with the largest flood recorded up to that date. Only three years passed before yet another major flood occurred. This was the greatest flood ever recorded. Although many floods have been experienced since this time none have approached the levels set in 1867.

Diversion weirs were first constructed in the early 1880s and four dams were completed on the upper Nepean River between 1907 and 1935. Warragamba Dam was completed in 1960. The November 1961 flood was the largest recorded in the twentieth century. This event was followed by smaller floods in 1978, 1987, 1988, 1989 and 1990. The flood of August 1990 was the largest event since March 1978.

3.3.2 Channel width

Records regarding the width of the Nepean River bank in the Penrith locality go back to 1862 when surveys were carried out to design the Victoria Railway Bridge. The 1862 survey shows the channel at

the Victoria Railway Bridge to have been relatively narrow and deep. After the 1900 flood, the second largest on record, the channel had increased in width by 30 m. Comparisons between 1900 and 1982/83 for the 46 locations in the Penrith locality show that from 1901 to 1948 there was a decrease in width averaging 23 m, and from 1949 to 1982/83 an increase in width of 13 m. Although there are other influences, change in flood regime is considered to be the most significant factor causing these changes.

3.3.3 Flood planning and design issues

The installation of any recreational infrastructure such as public access, services, amenities and facilities within the reserve must consider the implications of flood events. New structures should not in any way obstruct, reduce or interfere with upstream or downstream flood behaviour or adversely impact occupiers of the floodplain. The potential magnitude of flood impacts, including the rate of rise and duration need to be considered in the planning and design of the riparian corridor. Council and the NSW Government have a suite of flood studies, plans and policies that address these issues.

3.4 Biodiversity

3.4.1 Vegetation communities

Vegetation communities in the reserves are as follows:

- Tench Reserve has Alluvial Woodland mainly along the river's edge.
- Weir Reserve comprises Alluvial Woodland with a small area of Riparian Forest on the bank at the northern end of the reserve.
- River Road Reserve is mostly Alluvial Woodland, with Riparian Forest and Shale Plains Woodland.

Alluvial Woodland and Riparian Forest are forms of River-flat Eucalypt Forest which is listed under the TSC Act as an endangered ecological community. Shale Plains Woodland is part of Cumberland Plain Woodland, which is listed as a critically endangered ecological community under the TSC Act and EPBC Act.

3.4.2 Flora and fauna species

Of the 80 dominant flora species recorded in 2014, more than half of those are exotic species, including one declared noxious weed in the Penrith LGA and four classed as Weeds of National Significance.

There are 14 fauna species that are listed as threatened that have potential to inhabit the reserves, although none have been recorded.

Water quality and aquatic biodiversity are all affected by restricted flow regimes from Warragamba Dam, agricultural and urban run-off, and exotic weeds. There have been 11 native fish species recorded at Penrith Weirpool and two introduced species. The aquatic ecosystem contains a host of introduced and noxious weed species.

Species are listed in the draft Vegetation Management Plan (ELA 2014).

3.5 Indigenous heritage

For many thousands of years, the Hawkesbury – Nepean riparian corridor provided a great source of materials for Aboriginal people. Its rich resources included fresh water, fishing, hunting and special plants for food, fibres, tools, canoe making and medicine.

There are no confirmed Aboriginal sites or relics within the riparian corridor however research conducted in the Hawkesbury – Nepean catchment area has revealed a rich archaeological context. The combination of elevation above water and proximity to water are considered important factors influencing prehistoric Aboriginal site locations. Recent research has confirmed that archaeological lithic assemblages (e.g. whole or fragmentary stone artefacts) may be preserved in sub-surface layers even where there has been significant disturbance to the land surface (McDonald 2001).

The significance of this riparian corridor as a traditional resource area needs to be recognised and opportunities explored for investigating and interpreting these values. Aboriginal heritage should be further investigated and any places, relics or potential archaeological deposits (PAD) properly protected and managed. Under the *National Parks and Wildlife Act 1974* all Aboriginal sites, whether recorded or not, are protected.

3.6 Historic heritage

A memorial plaque at Tench Reserve, located near the boat ramp and car parking area records the special significance of this place as the location of the first sighting of the Nepean River by Europeans. The plaque reads that “on the morning of 28th June 1789 Captain Watkin Tench, the Marine Corps and his party stood on the bank of this river and surveyed ‘a river nearly as broad as the Thames at Putney and apparently of great depth’”.

In 1789, Tench described the vegetation along the riverbank as being much thicker than the grassy woodland of the Cumberland Plain. He described their progress “by a slow pace, through reeds, thickets, and a thousand obstacles, which impeded our progress, over coarse sandy ground, which had been recently inundated, though full forty feet [12 m] above the present level of the river” (Benson & Howell 1990). The river’s natural cycles of flooding followed by drought continued to play an important role in shaping the development of the new colony.

Penrith Weir was constructed in 1909 to increase overall water depth for popular leisure craft activities and to provide a more reliable water supply for Penrith. It replaced earlier temporary weir structures which were washed away in floods. The weir is a key engineering element and landmark feature on the river.

During construction of the early weirs (1888-1909), this section of the river was straightened and widened with extensive battering to adjacent riverbanks. These modifications provided further opportunities for water-based recreation, particularly rowing. The Nepean River has long been recognised as a major venue for rowing, drawing on a large user catchment for this purpose. Weir Reserve has been the home of rowing for the Nepean Rowing Club (NRC) since 1928. Until development of the Sydney International Regatta Centre, this location provided a Championship Rowing Course and was used in the lead up to the Sydney Olympics 2000 and continues to be used for rowing.



Plate 1: View from River Road 1963 (Photo courtesy: Robin McKay)

Weir Reserve contains a commemorative (remembrance) plantation and memorial plaque in the enclosed Sandy Brennan Reserve (part of Weir Reserve) between the western railway line and T.S. Nepean building. The plantation and memorial was established in 1996 by the Naval Association of Australia to commemorate the servicemen and women who lost their lives during wartime. The memorial is considered to have significance at the local level. This reserve also contains the remains of a brick dwelling or other building structure (origin unknown) which should be further investigated for any historic or archaeological fabric.

In 2000, a small pavilion in the Japanese style, known as the 'Friendship Pavilion' was constructed in the northern part of Weir Reserve to commemorate the relationship between Penrith City and Fujieda City in Japan. Ornamental gardens, a pergola and sculpture have also been added to the space. These commemorative elements have significance at the local level. The Japanese Friendship pavilion and gazebo in front of the pavilion are available for hire for weddings.

3.7 Current land use

Current land uses are summarised below based on the information in previous PoMs and the 2013 Master Plan. The reserves are predominantly used for recreation activities such as access to the river for boating and fishing, as well as walking, bike riding, playgrounds and picnics within the reserves. Some areas cater for special events such as weddings.

Table 1: Current land use

Features	Tench Reserve	Weir Reserve	River Road Reserve
Parking area	yes	yes	yes
Sealed path	yes	yes	yes
Unsealed path			yes
Park benches	yes	yes	yes
Public boat ramp	yes		
Rowing platform		yes	
Picnic facilities	yes	yes	yes
Playing fields		yes	
Toilets	yes	yes	
Playground	yes		
Lookout		yes	yes
Platform			yes
Other		Rowing Club, wedding hire pavilion and gazebo	

3.8 Climate change risks

Changes in climatic conditions are predicted to include increased climate variability, altered rainfall distributions, and increased frequency and intensity of extreme weather-related events. The most recent detailed climate study currently available at a relevant scale is the Climate Change Impacts on Water Supply and Demand in Sydney (NSW Office of Water 2010). Examples of climate projections for 2030 and 2070 from this study include:

- Reduced rainfall and streamflow in Warragamba catchment.
- Increase in summer rainfall due to stronger onshore airflows, slight decrease in winter.
- Number of days of extreme rainfall (>40 mm/day) increases by 45% in summer.
- Increase in frequency of continued dry spells (15 days of more).
- Double in frequency of hot (>32°C) and very hot (>37°C) days.
- Evaporation increases by 10% with double the number of very high evaporation days.

These changes are consistent with those described in the Climate Change Risk Assessment & Adaptation Action Plan for Penrith Council (Parsons Brinckerhoff Australia 2009).

Climate changes are likely to have a broad impact on catchment and stream health and on the relative contributions of pollutants across the different sources, and accelerate changes in land use and regional development (SCA 2010). Climate change is also expected to impact biodiversity and bushfire risk (DECC 2008, DECCW 2010). Bushfire risk is considered to be low in the study area as the reserves and immediate surrounds are not mapped as Bushfire Prone Land¹.

Climate change has been listed as a key threatening process under the *Threatened Species Conservation Act 1995*. Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats

¹ Penrith Council's Bushfire Prone Land maps on Council's website (<http://www.penrithcity.nsw.gov.au>). Accessed July 2014.

and ecosystems. Weed management and improving connectivity and health of ecosystems will increase the ability of native plants and animals to cope with future disturbances from climate change as well as helping to protect water quality.

4 Management

This chapter updates the management actions from the previous Plans of Management (PoMs) for the three reserves. The long term vision and objectives have been retained.

This Plan only relates to community land managed by Council. Management of adjacent areas including roads and residences, can affect the reserves, and it is therefore encouraged that landowners manage activities in adjacent areas sympathetically with the vision and objectives in this plan.

4.1 Issues

The main issues requiring management in the reserves are:

- rubbish
- amenity (views, noise)
- flooding and bank stability
- biodiversity (habitat, weeds, ecological communities, native species)
- access and recreation (paths, lookouts, platforms, playgrounds, picnic facilities recreation, parking, vehicle access)
- services and utilities
- commercial ventures.

The ability of Council to fund and resource the desired actions is another important issue to be considered.

4.2 Vision and objectives

The following statement provides a shared vision for the reserves based on statements presented in the previous PoMs. This is consistent with the Master Plan principles in **Section 1.2**.

To promote and enhance the reserves' role as a significant regional asset within Penrith City Council's riparian recreational open space, ensuring protection of identified values through appropriate management, in a way which best meets the environmental, recreational, educational and social needs of the present community and for future generations.

Management objectives identified in the previous PoMs are:

- Tench Reserve
 - Management strategies must be consistent with community land categories and their respective core objectives (see **Section 2.2** of this PoM).
- River Road Reserve
 - Conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area.
 - Maintain the land, or that feature or habitat, in its natural state and setting.
 - Provide for the restoration and regeneration of the land, including the need for additional landscaping (not necessarily indigenous) around existing grassed areas.
 - Provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.
 - Assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan

prepared under the *Threatened Species Conservation Act 1995* or the *Fisheries Management Act 1994*.

- Manage watercourses so as to protect the riparian environment, particularly in relation to riparian vegetation and habitats and bank stability.
- Weir Reserve:
 - Community Land management development guidelines - To establish guidelines for assessing development proposals and impacts in compliance with requirements for Community Land categorised as park, general community use and natural area - watercourse.
 - Community Land management leases, licences and other estate - To establish guidelines for authorising leases, licences and other estate in compliance with requirements for Community Land categorised as park, general community use and natural area - watercourse.
 - Aboriginal and non-Aboriginal heritage - To further investigate and protect any Aboriginal and archaeological sites/ relics and Non-Aboriginal heritage places and items of significance.
 - Environment / biodiversity - To protect, manage and enhance environmental quality, scenic character, stream health and biodiversity values.
 - Recreational open space, access and facilities - To develop and maintain appropriate water-based recreational infrastructure and to enhance public access, linkages and passive recreational facilities.

4.3 Actions and implementation

Actions from the previous PoMs have been updated in consultation with Council and are tabulated below. The tables include information from the 2013 Master Plan and 2014 draft Vegetation Management Plan (VMP). In preparing detailed annual work plans, Council will refer to the PoM, VMP (particularly the treatment zone schedules in Chapter 5 of the VMP) and Master Plan.

Implementation of actions will be subject to availability of funds and resources. Additional funds and resources are required to implement this plan successfully. This will need to cover detailed planning and design, capital works, ongoing maintenance as well as monitoring and reporting. Costs will need to be calculated on a case-by-case basis for specific sites.

Priorities for action are allocated as follows:

- Ongoing
- Very high – to be complete within one year
- High – to be complete within two years
- Medium – to be complete within three years
- Low – to be complete within five years
- Long term – beyond five years (to be considered in next PoM update)

This plan should be reviewed and updated five years after its adoption by Council.

Table 2: Actions for Tench Reserve

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-A1	Community and Management	To ensure thorough community consultation with all development proposals.	Continue to promote an open community-based consultative process with all development proposals.	Ongoing
T-A2		To ensure consistency with community land core objectives and Council's policies. To protect riparian corridor's values from inappropriate development.	Ensure consistency in development proposals with Local Government Act 1993, Local Government Amendment, [Community Land Management] Act 1998, Local Government [General] Regulation 1999, all other relevant Federal and State legislation, Penrith City 2000+ Strategic Plan 2000-2004, Penrith City 2000+ Management Plan 2003-2004, Penrith City Council Local Environmental Plan 1998 and all other Council plans and policy.	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-A3		<p>To implement actions which will prevent incremental impacts and address threatening processes.</p> <p>Enhance river health and groundwater management.</p>	<p>Development proposals, uses and activities within the riparian corridor must be consistent with the following requirements:</p> <ul style="list-style-type: none"> - promote environmental sustainability - protect and enhance identified values - protect and enhance riparian vegetation, habitat and bank stability - demonstrate a clear connection with riparian corridor's role and natural/ cultural setting - uses/ development to be compatible with respective core objectives - maintain and enhance public safety and security - minimise traffic hazards and pedestrian conflict in relation to vehicular entry/ exit into the reserve, boat ramp access and car parking areas - maintain existing natural ground levels and groundwater flows - ensure consistency with character, scale of existing recreational facilities, infrastructure, and intensity of uses and activities - adequately provide for public access, equity and broad community use - ensure that riparian corridor is not alienated or fragmented by development - enhance visual and environmental amenity - address riparian guidelines for waterfront land (<i>NSW Water Management Act 2000</i>) - assessed for impacts on biodiversity. 	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-A4		To prevent further alienation of the natural riverbank and promote best-practice solutions to bank stabilization.	Further extension or additions to existing constructed hardstand areas along the riverbank are to reflect management recommendations in the Riparian Vegetation Management Plan (ELA 2014) (e.g. maintain overall riparian connectivity). Ensure that best-practice principles are implemented in riverbank stabilization and restoration [see item E1].	Ongoing
T-A5		To ensure that development proposals will not have a negative impact on identified values.	Development proposals which may directly or indirectly threaten the natural/cultural setting and/ or other identified values are not permissible. Development should reflect management recommendations in the Riparian Vegetation Management Plan (ELA 2014).	Ongoing
T-A6		To restrict threatening processes and ensure protection of threatened species.	In cases where existing activities or uses may adversely impact on a threatened species and/or endangered ecological communities as scheduled under the <i>Threatened Species Conservation Act 1995</i> and the <i>Environment Protection and Biodiversity Conservation Act 1999</i> , an application for a licence to "pick" must be made under s.91 of the TSC Act. Proposed development, activities and uses must be consistent with the Draft Recovery Plan for Cumberland Plain Endangered Ecological Communities (CPEECs). All development applications are to be assessed for impacts on biodiversity	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-B1	Community land - leases, licences & other estate	<p>To provide express authorisation for appropriate leases and/or licences over community land.</p> <p>To ensure consistency with relevant legislation affecting the uses and activities on community land.</p> <p>To protect riparian corridor's values from inappropriate leases, licences or other estate.</p> <p>To permit the granting of leases, licences or other estate which are consistent with community needs and the community land categories of natural area: watercourse, park and general community use.</p> <p>To progress in accordance with core objectives outlined in the 'Our River' Master Plan.</p>	<p>This Plan of Management expressly authorises the granting of leases, licences or other estate over this community land for the purposes of providing goods, services and facilities, and the carrying out of activities, appropriate to current and future needs within the local community and of the wider public in relation to any of the following:</p> <ul style="list-style-type: none"> - public recreation, social and educational activities; - the physical, cultural, social and intellectual welfare or development of persons; - only if the purpose for which it is granted is consistent with the core objectives of its categorisation; and - any future intensification of recreational activities or facilities must ensure that existing user groups are not adversely affected by these activities or facilities. 	Ongoing
T-B2		To permit the granting of a lease, licence or other estate for paddle steamer/ tourist river boat including passenger boarding/ disembarking and slip-way operations.	This Plan of Management expressly authorises the granting of leases, licences or other estate over the community land for paddle steamer/ tourist river boat operations, including provision for safe docking to allow passenger and goods loading and unloading and separate slipway operations.	Ongoing
T-B3		To permit the granting of a licence for ski club operations subject to public safety and environmental issues being addressed.	This Plan of Management expressly authorises the granting of leases, licences or other estate over community land categorised as general community use for ski club operations and use of boat ramp facilities and access. This authorisation is subject to compliance with all public safety requirements, appropriate	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			riverbank erosion control and restoration measures [see item D6].	
T-B4		To permit the granting of a licence for operation of kiosk consistent with community land categories.	This Plan of Management expressly authorises the granting of a licence over community land categorised as general community use for operation of a kiosk.	Ongoing
T-B5		To permit the granting of permits for operation of hiring canoes/ boats and other equipment.	This Plan of Management expressly authorises the granting of permits for the operation of hiring canoes/ boats and other equipment for appropriate water sports and/ or water-based recreation within designated areas.	Ongoing
T-B6		To permit the granting of easements on the basis of consistency with the community land categories and their respective core objectives.	<p>Easements in relation to community land</p> <p>This Plan of Management expressly authorises the granting of easements over the land for the purpose of providing pipes, conduit or other connections under the surface of the ground. This is limited to easements that connect land adjoining community land to an existing water, sewer, drainage or electrical facility of Council or other public utility provider that is situated on community land.</p> <p>The granting of easements must be consistent with community land categories, their core objectives and this Plan's development guidelines. The granting of easements above or under the surface of community land to land that is not community land, is not within the authority of this Plan of Management.</p>	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-C1	Heritage	To ensure that any potential archaeological deposits, sites or relics are investigated. To promote opportunities for dialogue and consultation with traditional Aboriginal custodians.	Aboriginal heritage should be further investigated in consultation with traditional Aboriginal custodians. Potential archaeological deposits (PAD), identified sites or relics should be properly protected and managed in accordance with the <i>National Parks & Wildlife Act 1974</i> and the <i>Heritage Act 1977</i> .	Ongoing
T-C2		To promote opportunities for community education and interpretation of heritage values.	Promote opportunities for consultation with the Indigenous community and encourage the support, interpretation and communication of Aboriginal cultural heritage with respect to this riparian corridor.	Ongoing
T-C3		To promote interpretation of European heritage associated with this site.	Enhance the existing story-line/ interpretation of the significance of this location as the first sighting of the Nepean River by Europeans [including the separate naming of the river]. Promote heritage values through community education and additional interpretive signage and appropriate landscaping in this location [see items F14-15].	Ongoing
T-D1	Water Quality and River Health	To comply with water quality and river health objectives and targets identified in the <i>Hawkesbury Lower Nepean Catchment Blueprint 2003</i> .	Continue to implement and review catchment management objectives and targets as identified in the Hawkesbury Lower Nepean Catchment Blueprint. Review options to address altered geomorphic conditions [incl. modification of artificial barrier/ weir, environmental flows, piped flows and high-impact water sports].	Ongoing
T-D2		To continue to address catchment issues [incl. altered flow regime, weirs, urban stormwater and sewage discharges affecting water quality, turbidity, riverbank stability, recreational uses and environmental quality].	Continue to implement and review Stormwater Management Strategy on a catchment priorities basis including determination of pollutant sources, risk assessment, measures to control stormwater entering the river, strategies to minimise impacts on biodiversity, monitoring and reporting.	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-D3		To minimise the impact of works that intercept and/ or divert groundwater.	Continue to implement programs to restore natural processes, address accelerated geomorphological instability [incl. further erosion of steep river banks and downstream sedimentation] and enhance overall river health and biodiversity.	Ongoing
T-D4		To address causes of riverbank scour and collapse and ensure that uses and activities are consistent with protecting riverbank stability.	Protect and enhance existing diversity of riparian landforms [ie. stream channel and banks, overland flow paths, wetlands] and prevent further channelisation [including piping and concrete lining]. Foreshore upgrades using hard elements are to address management recommendations in the Riparian Vegetation Management Plan.	Ongoing
T-D5		To prevent further alienation of the natural riverbank and restrict the application of unsympathetic solutions to bank stabilization.	<p>Review options to limit high impact recreational activities which promote scouring and removal of sediment from the unprotected base or toe of the riverbank.</p> <p>Continue to monitor and regulate these activities to restrict the impact of wave action, severe undercutting and bank slump or collapse. Integrate program with restoration strategy.</p> <p>Bank stabilisation measures are to consider management recommendations in the Riparian Vegetation Management Plan.</p>	Ongoing
T-D6		To prevent further alienation of the natural riverbank and restrict the application of unsympathetic solutions to bank stabilization.	Review options to reduce areas of hardstand and constructed barriers adjacent to ski club boat ramp. Install coir log type stabilization to toe with appropriate native planting.	Medium

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-E1	Biodiversity - terrestrial and aquatic habitats	<p>Riparian/ riverbank habitat conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area.</p> <p>To maintain the land, or that feature or habitat, in its natural state and setting.</p>	<p>Ensure that all community land categorised as Natural Area: watercourse is managed in accordance with the prescribed best-practice standards of management consistent with the following:-</p> <ul style="list-style-type: none"> - Hawkesbury-Nepean Riverbank Management Program; - Draft Recovery Plan for the Cumberland Plain Endangered Ecological Communities [CPEECs]; - Draft Best Practice Guidelines for Bush Regeneration on the Cumberland Plain [DLWC and the Australian Association of Bush Regenerators, 2003]; - Management Principles to Guide the Restoration and Rehabilitation of Indigenous Vegetation [Greening Australia]; <p>and</p> <ul style="list-style-type: none"> - the series of Florabank Guidelines for native seed collection, production, handling and storage. 	Ongoing
T-E2			Management strategies must be consistent with the conservation significance assessment as prepared under the future adopted Recovery Plan for the CPEECs.	Ongoing
T-E3		To provide for the restoration and regeneration of the land.	Bush regeneration programs must give due consideration to the priorities identified in the conservation significance assessment when prioritizing restoration efforts.	Ongoing
T-E4		To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.	<p>Promote community education, local volunteer BushCare involvement and stewardship in the ongoing management of the riparian corridor.</p> <p>Investigate opportunities to establish a 'Friends of Tench Reserve' group of volunteers.</p>	Ongoing High

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-E5			Use skilled labour [ie. qualified and experienced bush regenerators] in conjunction with other community volunteers, school groups and employment training programs.	Ongoing
T-E6		Assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the <i>Threatened Species Conservation Act, 1995</i> .	Develop an adequately funded, staged and monitored weed management and regeneration/ restoration program which will deliver sustainable outcomes.	Ongoing
T-E7			Contract external qualified and experienced bush regenerators with the aim of coordinating the program and objectives throughout the riparian corridor.	Ongoing
T-E8		Address the long term objectives of building ecosystem resilience and durability, involve the community in partnerships and volunteer networks and to ensure a long term management commitment for sustainability.	Ensure that all work is in compliance with items E1-E3 and that the program is under adequate supervision, management, support and control by Council. Enhance existing performance monitoring and evaluation methodology [see item E17].	Ongoing
T-E9		To implement an integrated approach to bush regeneration and restoration based on site-specific constraints and opportunities consistent with the high level of site disturbance.	<p>Prepare, then implement an integrated and targeted restoration strategy which focuses on the recovery, recruitment, long term durability and expansion of fragmented remnant species and populations. Identify key threatening processes.</p> <p>The program establishes the following target areas in order of priority:-</p> <ol style="list-style-type: none"> 1. Establish staged bush regeneration, restoration, enhancement and reinstatement strategies within the designated demonstration site [ie. north of unmade section of Jamison Road, including area around remnant <i>Eucalyptus deanei</i>, 	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			<p><i>Casuarina cunninghamiana</i> grove and adjoining weed dominated steep banks to water level.</p> <p>2. Continue to selectively target and control noxious weeds [incl. stream banks and aquatic environments throughout the riparian corridor] in accordance with <i>Noxious Weeds Act 1993</i>. Prevent indiscriminate and poorly targeted uses of herbicides. Continue Black Willow Management Program.</p> <p>3. Selectively target environmental weeds in high use/ high visibility areas in conjunction with appropriate restoration and enhancement strategies [ie. high use/visibility areas such as the main recreational nodal areas between Jamison Road and M4/ Regentville bridge and significant view corridors].</p> <p>4. Subject to appropriate funding, extend staged regeneration, restoration, enhancement and reinstatement strategies to include a second demonstration site [core remnant riparian bushland] between the 'Nepean Belle' slip-way and Mulgoa Creek.</p> <p>5. Develop strategies for consolidating gains [ie. reduce edge to area ratios, enhance buffers and bio-linkages along the riverbank].</p>	
T-E10			All sites must be thoroughly investigated and assessed in relation to condition, status and ecological resilience to determine appropriate intervention strategies.	Ongoing
T-E11			Consolidate core habitat areas through staged removal of weed species and buffer enhancement. Implement a minimal disturbance bush regeneration approach where positive net gains are achievable [ie. high levels of resilience]. Ensure the	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			program protects and enhances vital habitat for dependent and threatened species.	
T-E12			<p>Prepare, then implement restoration, enhancement and reinstatement strategies for sites which display a high level of soil disturbance and modification. Ensure that existing site soils are not amended and that soils or mulches are not imported for use in these strategies, including translocation or use of ex situ soil profiles and seed banks. Ensure that only locally-sourced indigenous species are used in these strategies [ie. use of local genotypes of species rather than introducing genotypes from different unrelated areas].</p> <p>Collect seed and cuttings for propagating in accordance with item E1. Do not deplete or compromise the ability for natural regeneration in other source stock.</p>	Ongoing
T-E13			Subject to funding and labour constraints, progressively restore and expand upon existing work to provide improved habitat, bio-linkages and buffers to reduce effects of fragmentation, ecosystem simplification and instability.	Ongoing
T-E14		<p>Riparian/ riverbank habitat To enhance riverbank stability, particularly within the scour zone at the toe of the bank.</p> <p>To promote habitat diversity [terrestrial, aquatic and transitional/ water's edge].</p>	Develop a strategy which establishes a representative level of species and structural diversity appropriate to the ecological community and its specific location and zoning along the riverbank. Target the shallow water along the toe of the bank for aquatic species planting including where necessary, coir log type protection [eg. biodegradable woven coconut fibre and jute mesh webbing]. Maintain existing native trees on the riverbank and	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			establish overhanging vegetation, reeds/ wetland species along the water's edge. Retain in-stream logs (snags) and fallen trees along the bank.	
T-E15		<p>To manage recreational impacts and protect regeneration/ restoration areas from trampling and erosion.</p> <p>To address current maintenance practices which continue to fragment habitat, restrict connectivity and exacerbate edge conditions.</p>	Clearly delineate management zones [eg. no mowing areas/ riparian regeneration and restoration areas, adjoining pathways and open grassed areas. Install mowing strips, interpretive signage and/ or low-key timber protective fencing, barriers or bollards as required to protect fragile areas of regeneration/ restoration from inappropriate maintenance regimes or where trampling and erosion control need to be addressed. Install interpretive signage to raise community awareness.	Ongoing
T-E16		<p>To improve visitor awareness of environmental programs and promote community involvement.</p> <p>To ensure a high standard of visual amenity.</p>	<p>Ensure that demonstration sites present a positive image for the public, particularly within high visibility sites.</p> <p>Maintain all areas in a clean and tidy manner at all times. [ie. control of standing weeds, free of litter/ rubbish, no bins/ bags left for collection, etc].</p>	Ongoing
T-E17		<p>To establish a quantifiable means of assessment of the strategy emphasizing the long term objective of sustainability.</p> <p>To implement effective cost/ benefit analysis and ensure an appropriate level of long-term funding.</p>	<p>Implement a quantifiable bushland management assessment process that monitors changing patterns of ecosystem durability and sustainability over time:</p> <ul style="list-style-type: none"> - investigate opportunities to involve tertiary institutions in monitoring; - continue objective monitoring of regeneration/ restoration sites using standard rapid assessment/ measurement techniques [photographic record]; 	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			- investigate options for introducing quantitative measurement and assessment methods.	
T-E18		To integrate ecological fire management with broader bush fire management and policy. To promote co-operative partnerships.	Develop an appropriate ecological fire management regime consistent with best-practice standards and Draft Recovery Plan for CPEECs. Integrate environmental and biodiversity programs with the objectives of fire management policy. Promote co-operation in facilitating ecological 'pile-burns/ treatments' and scorching with hand-held gas burners and gain all necessary approvals from NSWRFs and NPWS.	Ongoing
T-E19		To expand opportunities for an integrated landscape with enhanced biodiversity, visual, recreational and social values.	Ensure that all landscaping and additional planting works within the reserve are consistent with the riparian biodiversity strategy [ie. use of locally-sourced indigenous species]. Additional planting should provide amenity values including shade, enhanced visual quality and habitat value and support passive and family-based recreational opportunities.	Ongoing
T-E20		Riparian/ riverbank habitat To address security issues and provide a visitor-friendly, safe environment.	Maintenance regime should manage important sight-lines and afford a sense of security to reduce opportunities for anti-social behaviour [ie. No dense shrub planting near pedestrian entry points, pathways and recreational nodal areas].	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-E21		<p>To balance biodiversity strategy with recreational needs, including large areas of open mown grass for passive recreational activities.</p> <p>To ensure protection of scenic values and important view corridors of the river and mountains.</p> <p>To promote native species/ structural diversity and enhanced habitat values in future landscaping.</p>	<p>Maintain an appropriate balance between large open grassed areas and riverbank regeneration/ restoration sites. Protect and manage scenic quality and important view corridors to the river and mountains, particularly in high recreational use areas between Jamison Road and M4/ Regentville Bridge. Selectively target for thinning, underpruning or removal some of the dense group plantings of River Oak (<i>Casuarina cunninghamiana</i>) on the mid and upper riverbank levels where important view corridors have been compromised or obscured. Review opportunities to replace some River Oak plantings with a more diversified palette of species and structure [incl. other open canopy and native ground stratum species]. Where important views can be protected and managed [eg. selected lower to mid-bank levels] introduce a shrubby understorey component including local native I spp.</p> <p>Refer to the Riparian Vegetation Management Plan (ELA 2014) for management recommendations.</p>	Ongoing
T-E22		<p>To manage habitat trees, ensure regular inspections and maintain public safety.</p>	<p>Retain dead habitat trees, fallen logs and branches subject to arboricultural assessment, regular inspections and appropriate consideration of risk management issues in public areas. Ensure that all dead or dying trees or branches of habitat trees, aging, diseased or senescent trees showing symptoms of decline are inspected regularly by a qualified arborist to assess structural stability.</p>	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-E23		To monitor and control pest species.	Implement a program to monitor and control pest animals [eg. European Fox, rabbits] declared under the <i>Rural Lands Protection Act 1998</i> .	Ongoing
T-E24		Freshwater aquatic & wetland habitat To enhance knowledge of aquatic habitats, river health and biodiversity.	Conduct regular assessment and monitoring of macroinvertebrates in the river [assessment ratings in accordance with AUSRIVAS, SIGNAL and Streamwatch, calibrated to local geology and appropriate reference condition].	Ongoing
T-E25		Monitor and control noxious weed species.	Monitor and control noxious aquatic and semi-aquatic weeds in accordance with the Noxious Weeds Act 1993. Review options for controlling Ribbon Waterweed (<i>Egera densa</i>) in the waterway.	Ongoing
T-E26		To address water quality issues relating to large water-bird population.	Develop a community education/ environmental program and educational signage to discourage the feeding of ducks, geese and other water-birds.	Ongoing
T-E27		To continue to promote public awareness of stream health and aquatic biodiversity.	Implement community environmental education programs to increase public awareness of maintaining river health, protection of riverbanks, water quality and aquatic biodiversity. Install interpretive signage.	Ongoing
T-F1	Public recreation and environmental protection	Open landscaped areas maintain existing park amenity and open space qualities of the reserve. To promote an appropriate balance between open grassed areas and natural riverbank regeneration/ restoration strategies.	Continue to maintain open grassed areas, generic and exotic ornamental tree planting within key recreational nodal locations near the boat ramp/ main car parking areas, playgrounds and along the pedestrian pathway/ cycleway system. Enhance landscaping/ planting in accordance with the biodiversity strategy [ie. no further generic native or exotic tree planting, except as	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			replacements in formal rows and avenues]. Control weeds, such as bindii, in lawn areas.	
T-F2		Public access, circulation and linkages maintain and upgrade network of pathways. To address public safety issues with respect to multi-use pathways and connections.	Continue to maintain and upgrade existing asphalt and concrete pedestrian and multi-use pathways along the riparian corridor in accordance with the 'Our River' Master Plan and the Great River Walk. Establish a hierarchy of primary multi-use pathways and secondary pedestrian pathways.	Ongoing
T-F3		To promote opportunities for a range of user groups [eg. pedestrians, joggers, cyclists, people with disabilities, frail, aged, children, strollers, etc]. To enhance opportunities for passive informal and family-based recreation.	Provide primary multi-use pathways [shared pedestrian pathway/ cycleway] along riparian corridor. No additional pathway to be constructed along lower embankment. Provide appropriate linkages between multi-use pathways and recreational facilities with safe, easy connecting grades. Ensure all grades, finishes and connections are in accordance with relevant legislation and standards for disabled access.	Ongoing
T-F4		To enhance opportunities for public access, circulation and linkages along riparian corridor, including regional linkages.	Investigate future options to connect riparian open space [public land] south of Mulgoa Creek to Tench Reserve via a shared pedestrian/ cycleway pathway and bridge near the entrance to Mulgoa Creek. Establish riparian connection as part of The Great River Walk with opportunities for linkages to Bents Basin SRA.	Long term
T-F5		Recreational facilities and amenities provide a high level of maintenance to playgrounds and picnic areas To review options for upgrading facilities.	Continue to maintain existing recreational infrastructure including boat ramp/ vehicular access, car parking and boat trailer parking areas, pathways, playgrounds [2], picnic shelters/ BBQ areas, tables/ seating and public amenities buildings.	Ongoing
T-F6		To provide a high level of service and amenity.	Picnic/ BBQ and playground areas: Continue to maintain existing playgrounds, play equipment and	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
		To address security and vandalism issues. address all public safety and risk management issues.	safety fall areas in accordance with relevant playground standards. Continue regular maintenance inspections and prompt attention to vandalism.	
T-F7		To enhance opportunities for passive informal and family-based recreation as well as active water-based activities.	Review options to enhance selected play equipment and play experience in both playgrounds.	Medium
T-F8			Public amenities: Continue to maintain high level of general maintenance, cleaning, repairs and passive surveillance to address anti-social behaviour and vandalism issues.	Ongoing
T-F9		To enhance opportunities for passive informal and family-based recreation. To enhance opportunities to enjoy the scenic river qualities and promote attractions for local, interstate and overseas visitors.	Picnic area and car park upgrades: Continue to implement upgrades and new facilities including picnic shelter near Factory Road car park [under construction] and additional public amenities south of Jamison Road in accordance with 'Our River' Master Plan.	Ongoing
T-F10			Review options to provide additional litter/ recycling bins and water points [with automatic shut-off valves] in picnic areas. Ensure adequate rubbish collection and litter monitoring patrols on weekends and public holidays.	Ongoing
T-F11			Review options for a kiosk or café. See item B4.	Complete
T-F12		To provide a high level of service and amenity.	Investigate options for construction of car park infrastructure identified in the 'Our River' Master Plan.	High

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-F13		To address security and vandalism issues.	Reserve lighting: Investigate options to install lighting [incl. solar options] on steps to jetty/ boat ramp area and along the main pathway.	High
T-F14		To improve visitor orientation, recreational experience, awareness of appropriate behaviour, range of facilities and open space linkages. To consolidate the value of the riparian corridor as a single inter-connected entity.	Signage - identification, directional, regulatory, interpretive/ educational Rationalize existing signage throughout the reserve. Develop and install an integrated system of identification, directional, regulatory and interpretive signage to 'brand' the corridor as a single inter-connected entity.	Ongoing
T-F15		To address the broader needs of the community.	Signage should aim to improve visitor awareness of appropriate activities, including designated areas for power-boats and water-sports such as wake-boarding. It should also identify the range of recreational opportunities and linkages and improve understanding of environmental and heritage values. Signs should be durable and vandal- resistant and include use of maps, sensory and multi-lingual options.	Ongoing
T-F16		To continue to promote public awareness of catchment management issues and address litter and dumping issues in the reserve.	Litter/ rubbish control Continue community environmental education programs to reduce litter and pollutants entering drains and to address dumping of rubbish/ garden refuse. Continue to provide a high level of maintenance and removal of litter in the reserve and adjoining car parks	Ongoing
T-F17		To address dog issues, public safety, security and environmental issues.	Dog issues Promote community/ environmental education with dog owners.	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			Maintain strict control and monitoring of unleashed dogs in the reserve.	
T-F18		To improve the level of inspections, monitoring and regulatory control to address inappropriate uses, anti-social behaviour and vandalism.	Regulatory control, maintenance and monitoring Improve regulatory control/ ranger inspections to monitor unauthorised uses, activities and anti-social behaviour in the reserve and adjoining car parks along Tench Avenue.	Ongoing
T-F19			Co-ordinate with NSW Waterways and other authorities to control and monitor high impact, water-based sports within designated section of the river. Monitor use and traffic movements on the public boat ramp, particularly during peak summer periods.	Ongoing
T-F20			Ensure increased monitoring by rangers and maintenance patrols to reduce the level of littering, rubbish dumping, vandalism and other anti-social behaviour. Increase visibility and surveillance over week-ends, school and public holidays.	Ongoing
T-F21			Repair and replace all damaged infrastructure promptly and increase visibility and surveillance. Continue to support and facilitate community ownership of the corridor.	Ongoing
T-F22		To accommodate increasing use of boat ramp facility	Investigate the need to expand boat ramp to address congestion issues encountered at peak times and seasons.	High
T-G1	Floods / bushfires	Flood Management address public safety and risk management during periods of flooding.	The design of recreational infrastructure must take into consideration the potential magnitude of flood impacts, including the rate of rise and duration of flood waters. Flood planning, procedures and protocols must be in accordance	Ongoing

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
			with the Penrith Flood Plan 1996 and Penrith Local Area Disaster Plan 2002.	
T-G2		<p>Bushfire Management protect life, property and the environment.</p> <p>To promote public safety and address emergency access and evacuation.</p>	<p>The design of recreational infrastructure must take into consideration the bushfire risk.</p> <p>Ensure that all bushfire management within the riparian corridor is in accordance with the Penrith Bushfire Risk Management Plan 2000 and Penrith Bushfire Management Operations Plan 2003.</p>	Ongoing
T-H1	New objective from 'Our River' Master Plan (see Figure 5 for location map)	New car parks	<p>Engineering feasibility assessment and ecological due diligence.</p> <p>Subject to results of above, undertake detailed design & assessment.</p> <p>Construct and rehabilitate surrounding vegetation.</p>	<p>Low</p> <p>Long term</p> <p>Long term</p>
T-H2		Share use path connection to city	as for H1	
T-H3		Open activity area and new car parking	as for H1	
T-H4		Upgrade 90 degree car parking and add shared use path	as for H1	

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-H5		Upgrade playground with new walls and terraces	Design.	Medium
			Construct.	Low
T-H6		Improve existing river tour platform/jetty	Investigate improvements.	Low
			Subject to results of above, undertake detailed design & assessment.	Long term
			Construct.	Long term
T-H7		Upgrade existing boat ramp and launch / wash down area, new car parking for cars and trailers	Detailed design and assessment.	High
			Construct.	Medium
T-H8		Upgrade and formalise parking under and next to motor way	as for H1	
T-H9		Access for kayaks with launch 'pool' and buoys on river edge	Engineering feasibility assessment and ecological due diligence.	High
			Subject to results of above, undertake detailed design & assessment.	Medium
			Construct.	Low

Item (Tench Reserve)	Issue	Objective/Target	Action	Priority
T-H10		Upgrade car parking	Design	High
			Construct	Medium
T-H11		Vegetation management (rubbish removal, weed control, vegetation)	As described and prioritised in the Riparian Vegetation Management Plan (ELA 2014)	High - Long term
T-H12		To permit the use of the land for sustainable development of appropriate recreational and community facilities.	This Plan of Management expressly authorises the development of proposed community and recreational facilities as shown in the 'Our River' Master Plan, subject to compliance with core objectives and guidelines.	Ongoing
T-H13		Increase the number of waters edge access points	Investigate potential locations, engineering feasibility assessment and ecological due diligence.	High
			Subject to above, undertake detailed design and assessment.	Medium
			Construct.	Long term

Table 3: Actions for River Road Reserve

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
R-A1	Weed Control	Promote community education, involvement and stewardship in the ongoing management of the riparian corridor	<p>Assist in community education, by integrating volunteer groups and encouraging exchange of information.</p> <p>Provide assistance and support in grant applications by volunteer groups.</p> <p>Used skilled contract labour (i.e. qualified and experienced bush regenerators in conjunction with volunteers).</p> <p>All weed control work is to be undertaken under Council supervision</p>	<p>Very High/Ongoing</p> <p>High/Ongoing</p> <p>High</p> <p>Ongoing</p>
R-A2		Continue selective targeting and control of noxious and environmental weeds along riverbank (eg. high use/ visibility areas and significant view corridors)	<p>Adequate funding needs to be provided to make quick inroads into the weed infestation problem.</p> <p>Develop a weed control program that takes account of the following:</p> <ul style="list-style-type: none"> - Species of weeds are numerous. - Weeds cover a large area. - Different eradication strategies are required depending on the type of weed. - Seasonal implications. - Cost implications. 	<p>Very High</p> <p>Very High</p>

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
R-A3		Develop opportunities for consolidating gains (e.g. reduce edge-to-area ratios, enhance buffers, “mosaics” and bio- linkages particularly along toe and lower bank levels);	Continue to provide secondary consolidation weeding and targeting, following primary weeding. Stabilise recently weeded areas quickly to minimise erosion and recolonisation by weeds.	Ongoing Ongoing
R-A4		Create an appropriate performance-driven monitoring regime.	Implement a quantifiable bushland management assessment process that monitors changing patterns of ecosystem durability and sustainability over time (e.g. photographic record techniques and possible use of Tertiary institution monitoring).	High
R-B1	Replanting	Establish staged bush regeneration, restoration, enhancement and reinstatement strategies according to the level of disturbance and integrity of naturally regenerating areas.	Use best-practice standards of management consistent with: - Draft Best Practice Guidelines for Bush Regeneration on the Cumberland Plain (DLWC and Australian Association of Bush Regenerators, 2003); - Management Principles to Guide the Restoration and Rehabilitation of Indigenous Vegetation (Greening Australia), and - Florabank Guidelines for native seed collection, production, handling and storage.	Ongoing
R-B2		Promote habitat diversity (i.e. aquatic, water’s edge/ reeds, overhanging vegetation and in-stream snags). Balance strategy with recreational needs/ large	Use numerous species of endemic plants in the restoration of weed affected areas but ensure that when these plants reach maturity that they do not inhibit the scenic values of the locality when viewed from River Road. This Plan of Management does not preclude the planting of non- indigenous species, especially in	Ongoing

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
		open grassed areas and protection of scenic values.	established grassed areas on the proviso that view lines are not significantly disrupted.	
R-B3		Establish a representative level of species and structural diversity which is appropriate to the ecological community and its location.	Use locally sourced indigenous species in the restoration strategy. Collect seeds and cuttings without comprising the health of local populations.	Ongoing Ongoing
R-B4		Manage recreational impacts and protect restoration/regeneration areas from trampling and erosion.	Clearly delineate management zones (e.g. no mowing areas/riparian regeneration areas, pathways open grassed areas). Install interpretive signage to raise community awareness. Install low key fencing to protect fragile areas from trampling by users of the land.	Ongoing Very High Ongoing
R-C1	Maintenance	Ensure that the infrastructure (pathways, driveways, seating, stormwater outlets) is not damaged.	Regularly check the condition of the infrastructure. Replace or repair any damage as quickly as possible to make the riparian corridor safe for public use. Design of infrastructure should take into consideration the potential for flood damage.	Ongoing Ongoing Ongoing
R-C2		Ensure that open grassed areas are mown.	Regularly check the condition of these areas and take appropriate action based on inspection.	Ongoing

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
R-C3		Ensure that the riparian corridor is litter free.	<p>Institute regular litter patrols.</p> <p>Install signage promoting community awareness against littering.</p> <p>Promote community / environmental education with dog owners.</p> <p>Maintain strict control and monitoring of unleashed dogs in the riparian corridor.</p>	Ongoing
R-D1	Tree removal / views	Ensure that tree/ vegetation removal does not lead to bank instability. Ensure that Council meets all legal requirements in regard to the removal of native trees/vegetation	Undertake a geo-technical study to obtain expert advice in this regard. Prepare a Review of Environmental Factors prior to any works and ensure all works are in accordance with the <i>NSW Water Management Act 2000, Threatened Species Conservation Act 1995, Fisheries Management Act 1994, Environment Protection and Biodiversity Conservation Act 1999</i> and other relevant Acts.	Very High
R-D2		Improve the scenic outlook from certain sections of River Road where the planted stands of River She-Oak inhibit views.	<p>Undertake a geo-technical study to obtain expert advice in regard to the amount of tree removal and the location of any trees to be removed.</p> <p>Retain root system when removing trees to help bank stability.</p> <p>Refer to Riparian Vegetation Management Plan for replacement species.</p>	Ongoing

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
R-E1	Parking	Improve the availability of parking around Lewer's Gallery	Undertake a geo-technical study to determine bank stability in the locality and seek recommendations with regard to construction requirements.	Ongoing
R-E2		Encourage multiple access points to the future pathway network in the riparian corridor.	Provide an improved parking area near (under) the M4 bridge. Consultation needs to occur with the RTA in this regard.	Ongoing
R-F1	Kerb & Guttering	Minimise stormwater from the road surface seeping into and flowing over the river bank.	Undertake a geo-technical study to determine: <ul style="list-style-type: none"> - sections of bank that are at risk to stormwater seepage and overflow; - stability of River Road in general; and - provide recommendations with respect to a design solution to improve bank stability. 	Complete
R-G1	Provision of footpath adjacent to River Road.	Provide a safe footpath option. Ensure that multiple access from River Road to the pathways in the corridor be provided.	The provision of any footpath along River Road will be examined as part of the investigations into the design of the paths on the western side of the river that will form part of the Great River Walk loop. Provision of footpath along River Road south of M4. Geo-technical constraints need to be resolved. The funding application for this stage of the Great River Walk contains provision for such a study. Investigate the options for easy access for disabled persons and	Complete Long term Complete Complete

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
			prams, strollers, etc. with the future development of the Great River Walk on the western side of the Nepean River.	
R-H1	Improved access to the river and picnic facilities	Provide a safe access to the rivers edge for picnickers.	Maintain the grassed area suitable for picnics or the like located east of River Road between Urbane street and Buring Avenue: - Remove weeds in the immediate locality to improve both amenity and access to the river. - Maintain access to naturally outcropping sandstone at the waters edge. - Discourage the use of canoe or paddle craft launching at this spot due to the likely conflict of use with power boats.	Medium
R-H2		Provide a safe access to the rivers edge for canoeists.	This facility is now proposed on the eastern bank in Tench Reserve due to parking and access constraints.	
R-H3		Improve waters edge access to the western side of the Nepean River.	Investigate provision of a jetty located near the Lewer's Gallery (note: this option was investigated and is feasible but prohibitively expensive).	Complete
R-H4		Increase the number of waters edge access points	Investigate potential locations, engineering feasibility assessment and ecological due diligence. Subject to above, undertake detailed design and assessment. Construct.	High Medium Long term

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
R-I1	Development application requirements	<p>Ensure a high level of consultation with adjoining residents regarding any future development application.</p> <p>Ensure that all proposals are consistent with the core objectives of this Plan of Management.</p>	<p>Development proposals, uses and activities within the riparian corridor must be consistent with the following requirements:</p> <ul style="list-style-type: none"> - Promote environmental sustainability; - Protect and enhance identified values; - Protect and enhance riparian vegetation, habitat and bank stability; - Demonstrate a clear connection with the riparian corridor's role and natural/cultural setting; - Uses/development to be compatible with core objectives; - Maintain and enhance public safety; - Adequately provide for public access, equity and broad community use; - Ensure that the riparian corridor is not alienated or fragmented by the proposed use; and - Enhance visual and environmental amenity. - Address riparian guidelines for waterfront land (<i>NSW Water Management Act 2000</i>) - Assess for impacts on biodiversity - Address Council's Water Sensitive Urban Design Policy. 	Ongoing
R-J1	Leases, licences and other estate	Provide express authorisation for appropriate leases and or licences over community land.	<p>This Plan of Management expressly authorises the granting of leases, licences and other estate over this community land for the purpose of providing goods, services and facilities, and the carrying out of activities, appropriate to current and future community needs in relation to any of the following:</p> <ul style="list-style-type: none"> - Public recreation, social and educational activities; 	Ongoing

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
			<ul style="list-style-type: none"> - The physical, cultural, social and intellectual welfare or development of persons; - Only if the purpose for which it is granted is consistent with the core objectives of its categorisation as Natural Area: watercourse and special provisions as contained in Section 47AA and 47B (lease or licence in respect of a natural area) of the Local Government Act. 	
R-K1	New objective from 'Our River' Master Plan (see Figure 5 for location map)	Viewing deck, small installation space and water access at Lewer's Gallery	Design and construction	Ongoing
R-K2		Upgrade parking under and next to M4 motorway	Design and construction	Ongoing
R-K3		Vegetation management (rubbish removal, weed control, vegetation)	As described and prioritised in the Riparian Vegetation Management Plan (ELA 2014)	High - Long term
R-K4		To permit the use of the land for sustainable development of appropriate recreational and community facilities.	This Plan of Management expressly authorises the development of proposed community and recreational facilities as shown in the 'Our River' Master Plan, subject to compliance with core objectives and guidelines.	Ongoing
R-L1	Heritage	To investigate potential archaeological sites or relics within the reserve.	Aboriginal heritage should be further investigated in consultation with traditional Aboriginal custodians. Potential archaeological deposits (PAD), identified sites or relics should be properly	Ongoing

Item (River Road Reserve)	Issue	Objective/Target	Action	Priority
			protected and managed in accordance with the National Parks & Wildlife Act 1974 and the Heritage Act 1977.	

Table 4: Actions for Weir Reserve

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-A1	Community land development	To ensure thorough community consultation with all development proposals.	Continue to promote an open community-based consultative process with all development proposals.	Ongoing
W-A2		<p>To ensure consistency with community land core objectives, Crown reserve management principles and Council's policies.</p> <p>To protect the reserve's values and its passive recreational setting from inappropriate development.</p> <p>To provide a balanced and appropriate level of recreational and water-based infrastructure.</p>	<p>Change the public purpose of Crown Land from Public Recreation to Public Recreation and Environmental Protection to emphasise the significance of the reserve's riparian setting and associated scenic, cultural and natural heritage values.</p> <p>Ensure consistency in development proposals with Local Government Act 1993, Local Government Amendment, [Community Land Management] Act 1998, Local Government [General] Regulation 1999, Crown Lands Act 1989, Crown Lands Regulation 2000, case law, SREP No. 20 Hawkesbury-Nepean River, all other relevant Federal and State legislation and policies, Penrith City Council legislation and policies, Penrith City Strategic Plan 2005-2009, Local Environmental Plan 1998 [Urban Land] and other Council plans and policies.</p>	<p>High</p> <p>Ongoing</p>

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-A3		<p>To implement actions which will prevent incremental impacts and address threatening processes.</p> <p>To promote opportunities for water-based sports and encourage sports development activities/ programs</p> <p>To properly address public safety and security.</p> <p>To protect the natural riverbank, prevent further alienation of natural values and to promote best-practice solutions to bank stabilisation.</p>	<p>Development proposals, uses and activities, and service infrastructure within the reserve must be consistent with the following requirements:</p> <ul style="list-style-type: none"> - protect and enhance identified values and promote environmental sustainability - protect and restore native riparian vegetation/ habitat, bank stability and bio-linkages - demonstrate a clear connection with role of community land and recreational setting- demonstrate consistency with community land core objectives - promote balanced, sustainable management of recreational infrastructure - contribute to diversity and quality of recreational and community uses - ensure that reserve is not alienated or fragmented by development - ensure consistency with character, scale and intensity of uses and activities - maintain and improve public safety and security - adequately provide for public access, equity and broad community use - minimise traffic hazards and pedestrian conflict in relation to vehicular access, circulation, car parking, ramps, service and operational areas - enhance visual and environmental amenity - address riparian guidelines for waterfront land (<i>NSW Water Management Act 2000</i>) - assess for impacts on biodiversity. 	Ongoing
W-A4		<p>To ensure that development proposals will have a net positive impact in relation to identified values.</p>	<p>Development proposals which may directly or indirectly threaten the natural and cultural setting and/ or other identified values are not permissible.</p>	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-A5		To address public safety and risk management issues during flood events.	Flood planning, procedures and protocols including reserve closure during flood events must be in accordance with the NSW Flood Policy (1984), <i>NSW Floodplain Management Manual</i> (2001) and Council's flood management policies.	Ongoing
W-A6		To restrict threatening processes and to ensure protection of any threatened species and endangered communities.	Proposed development, activities and uses must be consistent with threatened species legislation - <i>Threatened Species Conservation Act 1995</i> and <i>Environment Protection and Biodiversity Conservation Act 1999</i> . All development applications are assessed for impacts on biodiversity in accordance with relevant legislation including ensuring consistency with the recovery plan.	Ongoing
W-A7		To permit the use of the land for sustainable development of appropriate recreational and community facilities.	This Plan of Management expressly authorises the development of proposed community and recreational facilities as shown in the 'Our River' Master Plan, subject to compliance with core objectives and guidelines.	Ongoing
W-B1	Community land - leases, licences & other estate	To provide express authorisation for appropriate leases, licences or other estate over community land. To ensure consistency with relevant legislation affecting the uses and activities on community land. To protect the reserve's values from inappropriate leases, licences or other estate. To permit the granting of leases, licences or other	This Plan of Management expressly authorises the granting of leases, licences or other estate over this community land for the purposes of providing goods, services and facilities, and the carrying out of activities, appropriate to current and future needs within the local community and of the wider public in relation to any of the following: - public recreation, social and educational activities - the physical, cultural, social and intellectual welfare or development of persons - only if the purpose for which it is granted is consistent with the core objectives of its categorisation.	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
		estate which are consistent with community needs and the community land core objectives.		
W-B2		To permit the granting of short-term and casual licences consistent with the relevant legislation.	<p>In accordance with s.24 of the Local Government (General) Regulation 1999, the use or occupation of community land for the following events is prescribed as a purpose in respect of which a council may grant a licence on a short-term, casual basis:</p> <ul style="list-style-type: none"> - the playing of a musical instrument, or singing for a fee or reward; - engaging in a trade or business; - the playing of a lawful game or sport; - delivering a public address; - commercial photographic sessions; - picnics and private celebrations such as weddings and family gatherings; - filming. <p>The use or occupation of community land for such short term or casual events is prescribed only if the use or occupation does not involve the erection of any building or structure of a permanent nature.</p>	Ongoing
W-B3		To permit the granting of leases, licences or other estate which are consistent with community needs and community land core objectives.	<p>This Plan of Management expressly authorises the granting of a lease or licence over community land categorised as general community use for the following proposed uses and activities [subject to compliance with development guidelines A1-A7]:</p> <ul style="list-style-type: none"> - Rowing Centre of Development and Excellence [see item E1] - extensions to the boating pontoon - potential facility extensions and enhancement to the Schools Boatshed and any other boatshed - continued training function for active sports on the existing rugby league 	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
			field until the construction of the Rowing Centre of Development and Excellence.	
W-B4		To permit the granting of easements which are consistent with community needs and community land core objectives.	<p>Easements in relation to community land:</p> <p>This Plan of Management expressly authorises the granting of easements over the land for the purpose of providing pipes, conduit or other connections under the surface of the ground. This is limited to easements that connect land adjoining community land to an existing water, sewer, drainage or electrical facility of Council or other public utility provider that is situated on community land.</p> <p>The granting of easements must be consistent with community land categories, their core objectives and this Plan's development guidelines. The granting of easements above or under the surface of community land to land that is not community land, is not within the authority of this Plan of Management.</p>	Ongoing
W-C1	Heritage	To investigate potential archaeological sites or relics within the reserve.	Aboriginal heritage should be further investigated in consultation with traditional Aboriginal custodians. Potential archaeological deposits (PAD), identified sites or relics should be properly protected and managed in accordance with the National Parks & Wildlife Act 1974 and the Heritage Act 1977.	Ongoing
W-C2		To promote opportunities for dialogue and consultation with traditional Aboriginal custodians.	Promote opportunities for consultation with the Indigenous community and encourage the support, interpretation and communication of Aboriginal cultural heritage.	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-C3		To promote interpretation of Non-Aboriginal heritage, cultural and social values associated with the reserve. To promote opportunities for community education and interpretation of heritage values.	Continue to research and expand upon the community's understanding of the reserve's rich history [eg. Penrith Weir and rowing]. Improve recreational linkages to other heritage places along the river. Promote local heritage through community education and additional interpretive signage in relation to the weir and Great River Walk [see items E4 and E10].	Medium Ongoing
W-D1	Environment and biodiversity	To address water quality and river health targets as identified in the <i>Hawkesbury Lower Nepean Catchment Blueprint</i> .	Continue to implement and review Stormwater Management Strategy on a catchment priorities basis including determination of pollutant sources, risk assessment, measures to control stormwater entering the river, strategies to minimise impacts on biodiversity, monitoring and reporting.	Ongoing
W-D2		To address causes of riverbank scour and collapse and ensure that uses and activities are consistent with protecting bank stability.	Investigate options to reduce erosional impacts during high flows/ storm events and accumulated rubbish and debris along Peachtree Creek.	Completed
W-D3		To implement appropriate restoration strategies.	Protect and enhance existing diversity of riparian landforms [ie. stream channel and banks, overland flow paths and wetlands] within the lower Peachtree/ Boundary Creek corridors. Ensure appropriate restoration following earthworks for the Great River Walk.	High Ongoing
W-D4		To ensure a high standard of design and integration of proposed pump station/ pipeline infrastructure associated with the Penrith Lakes Scheme. To protect scenic values and recreational amenity.	Pump station and pipeline infrastructure is no longer proposed to be in Weir Reserve and will be located closer to Penrith Lakes. No action.	

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-D5		To improve the condition and visual quality of existing service infrastructure.	Review options to enhance and upgrade existing concrete wall/ pad and signage adjacent to the weir in accordance with the Great River Walk improvements.	Completed
W-D6		To prevent further alienation of the natural riverbank and restrict the application of unsympathetic solutions to bank stabilisation.	Review options for upgrading the pontoon [rowing deck]. Seek innovative solutions and reduce the extent of asphalt hardstand and ramps. Install coir log type stabilisation to toe of adjoining banks with appropriate native planting. If foreshore upgrades are required, address management recommendations in the Riparian Vegetation Management Plan. Implement.	High Long term
W-D7		To conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area. To maintain the land, or that feature or habitat, in its natural state and setting. To provide for the restoration and regeneration of the land.	Ensure that all community land categorised as Natural Area: watercourse is managed in accordance with the prescribed best-practice standards of management consistent with the following:- - Hawkesbury-Nepean Riverbank Management Program; - Draft Recovery Plan for the Cumberland Plain Endangered Ecological Communities [CPEECs]; - Draft Best Practice Guidelines for Bush Regeneration on the Cumberland Plain [DLWC and the Australian Association of Bush Regenerators, 2003]; - Management Principles to Guide the Restoration and Rehabilitation of Indigenous Vegetation [Greening Australia]; and - the series of Florabank Guidelines for native seed collection, production, handling and storage.	Ongoing
W-D8		To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.	Prepare an integrated and targeted restoration strategy which focuses on the recovery, recruitment, long term durability and expansion of fragmented remnant species and populations.	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
			Implement and continue to identify and monitor key threatening processes.	Ongoing
W-D9		To assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the <i>Threatened Species Conservation Act, 1995</i> .	Develop a maintenance regime which affords a high level of passive surveillance and security for visitors and protects important sight-lines [ie. near car parking areas, entry/exit points, pathways, amenities building and picnic areas]. Implement maintenance regime.	High Ongoing
W-D10		To address the long term objectives of building ecosystem resilience and durability.	Identify scenic vistas and view corridors, particularly along the 'scenic rim' of the terrace and riverbanks over-looking the river and Blue Mountains escarpment. Protect and manage views in accordance with the Vegetation Management Plan (ELA 2014)	Medium Ongoing
W-D11		To develop volunteer networks within the community.	Promote community education per Vegetation Management Community Education Plan (2014), local volunteer Bushcare and Rivercare involvement and stewardship in the restoration and management of the riparian corridors.	Ongoing
W-D12		To promote partnerships with state government agencies, industry and local land holders to secure sustainable environmental outcomes.	Continue to seek grant funding from various government sources [eg. NSW Environmental Trust, Caring for our Country, Natural Heritage Fund, Greater Sydney Local Land Service, Metropolitan Greenspace].	Ongoing
W-D13		To implement an integrated approach to bush regeneration and restoration based on site-specific	Subject to available funding, progressively implement staged regeneration, restoration, enhancement and/ or reinstatement strategies in accordance with condition, status and resilience of prioritised areas	High Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
		constraints and opportunities consistent with the high level of site disturbance.	[see item D15]. Secure and consolidate habitat values, bio-linkages and buffers to reduce effects of fragmentation, ecosystem simplification and instability. Follow management recommendations in the Riparian Vegetation Management Plan.	
W-D14		To manage recreational impacts and protect regeneration/ restoration areas from trampling and erosion.	Clearly delineate management zones [eg. significant habitat/ buffers under restoration regime]. Where necessary, install mowing strips and/ or low-key timber protective fencing, barriers or bollards. Provide interpretive signage to identify and protect fragile natural areas from inappropriate maintenance regimes or where trampling may occur.	Medium Ongoing
W-D15		<p>To address the long term objectives of building ecosystem resilience and durability. To enhance opportunities for natural recruitment.</p> <p>To establish demonstration site for best-practice riparian regeneration and restoration.</p> <p>To identify endangered ecological communities of regional significance and to ensure long term protection and appropriate management.</p> <p>To address current impacts relating to earthworks/ construction of Great River Walk and to ensure an appropriate restoration strategy.</p> <p>To control noxious aquatic weeds in accordance with current programs.</p>	<p>The program establishes the following target areas within the reserve [for a detailed discussion of the condition, status and proposed conservation strategies refer to 4.0 Basis for Management: Remnant native vegetation - core areas]:</p> <p>1a. Peachtree Creek corridor (south-eastern portion) including steep creek banks. Strategy: selective targeting [weed management]/ some planting of canopy species, address management recommendations in the Riparian Vegetation Management Plan.</p> <p>1b. small lineal area - top of the creek bank near the northern car parking area. Strategy: selective targeting [weed management]/ regeneration & some restoration. - potential as a demonstration site.</p> <p>3. Confluence of Peachtree Creek/ Boundary Creek and Nepean River including</p>	<p>Ongoing</p> <p>High Ongoing</p> <p>High Ongoing</p>

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
		<p>To consolidate the status of pre-existing programs. To improve rate of survival and viability.</p>	<p>Nepean River foreshore area below the weir (within the reserve boundaries) Strategy: selective targeting [weed management]/ restoration planting adjacent to the proposed route of the Great River Walk [incl. bridge links], selective targeting of noxious weed species [incl. aquatics], address management recommendations in the Riparian Vegetation Management Plan.</p> <p>4. Nepean River banks (lower level) – narrow strip of native riparian vegetation along the river’s edge. Strategy: selective targeting [weed management]/ restoration planting, selective targeting of noxious weed species [incl. aquatics], address management recommendations in the Riparian Vegetation Management Plan.</p> <p>5. Upper embankment (current rehabilitation area) north of transmission lines. Strategy: secondary weeding/ consolidation and some further restoration planting, address management recommendations in the Riparian Vegetation Management Plan (ELA 2014).</p>	<p>Medium Ongoing</p> <p>High Ongoing</p>
W-D16		<p>To consolidate existing net gains and promote long-term sustainability.</p>	<p>Consolidate core habitat areas through staged removal of weed species and buffer enhancement. Implement a minimal disturbance bush regeneration approach where positive net gains are achievable [ie. high levels of resilience]. Ensure the program protects and enhances vital habitat for dependent and threatened species.</p>	<p>Ongoing</p>

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-D17		<p>To secure genetic integrity as a key component of the restoration and enhancement strategy.</p> <p>To establish a representative level of species and structural diversity which is appropriate to the ecological community and its specific location.</p> <p>To improve opportunities for simplified ecosystems to recover with enhanced durability.</p>	<p>Implement restoration, enhancement and reinstatement strategies for sites which display a high level of soil disturbance and modification. Ensure that existing site soils are not amended and that soils or mulches are not imported for use in these strategies, including translocation or use of ex situ soil profiles and seed banks. Ensure that only locally-sourced indigenous species are used in these strategies [ie. use of local genotypes of species rather than introducing genotypes from different unrelated areas].</p> <p>Collect seed and cuttings for propagating in accordance with item D7.</p>	Ongoing
W-D18		To control pest species and enhance habitat values.	Develop, then implement a program to control feral animals [eg. European Fox, rabbits] as declared under the Rural Lands Protection Act 1998.	Medium Ongoing
W-D19		<p>To monitor and control noxious weed species.</p> <p>To provide assistance in implementation of noxious weed programs.</p>	Monitor and control noxious aquatic and semi-aquatic weeds in accordance with the <i>Noxious Weeds Act 1993</i> . Continue involvement in programs to control targeted noxious weed species such as Salvinia, Black Willow and Alligator Weed.	High Ongoing
W-D20		To protect the waterways and water-based recreational opportunities.	Investigate options with Dept. of Primary Industries and Local Land Services for harvesting or biological control of Ribbon Waterweed (<i>Egera densa</i>) in the waterway which threatens aquatic habitat, bank stability and the future viability of water-based recreational activities in this location. Seek appropriate government funding for the program with the assistance of NSW Rowing.	High Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-D21		To enhance knowledge of aquatic habitats, river health and biodiversity.	Conduct regular assessment and monitoring of macroinvertebrates in the river [assessment ratings in accordance with AUSRIVAS, SIGNAL and Streamwatch, calibrated to local geology and appropriate reference condition].	Medium Ongoing within region
W-E1	Recreational open space, access and facilities	<p>To establish partnerships in the development of a premier rowing facility on this site.</p> <p>To promote the sport of rowing at all levels.</p> <p>To establish facilities which will promote excellence in rowing training.</p> <p>To provide facilities for the broader public and to increase accessibility of the sport to residents of the Penrith area.</p> <p>To permit training of elite Australian crews at national and international levels.</p> <p>To enable hosting of international crews for training.</p> <p>To permit “camps” for intensive training.</p> <p>To encourage the growth of the sport through consolidation of existing rowing facilities, including increased use of the SIRC.</p>	<p>Post-funding, develop proposed rowing centre in accordance with reserve's development guidelines [items A1-A7] and the following specific guidelines:</p> <ul style="list-style-type: none"> - buildings to be of lightweight construction and non-reflective material - buildings to be designed in a way that can be readily recognised as a boatshed - development should be framed by the existing surrounding vegetation and enhanced with further appropriate landscaping in accordance with restoration strategy - design to reduce the visual bulk of the structures - ensure all the facilities related to the Rowing Centre of Development and Excellence are accessible. 	Medium

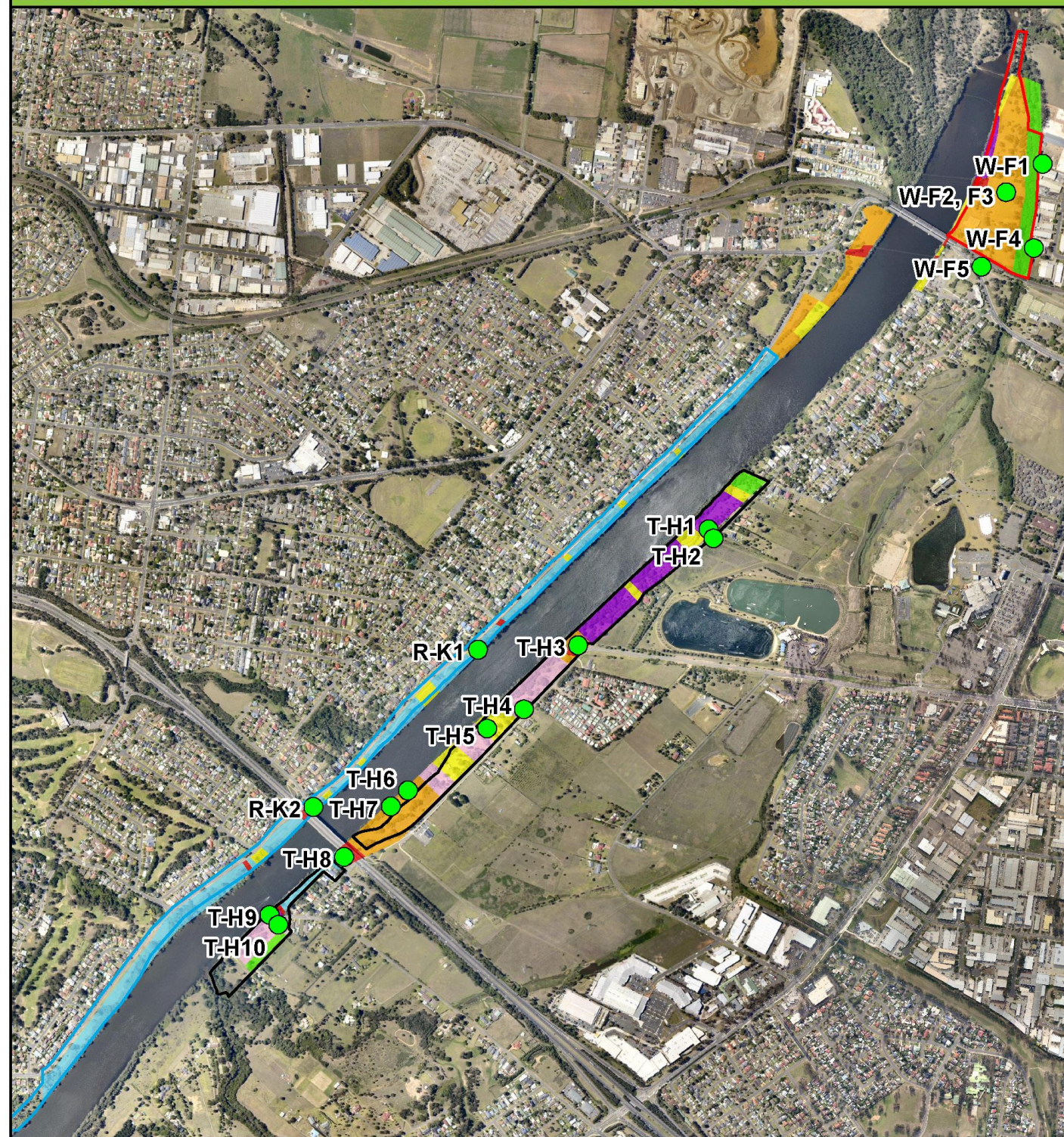
Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-E2 and W-E3		<p>To promote proposed recreational facilities as a broadly accessible community asset for the local and regional community.</p> <p>To address management and operational protocols and responsibilities.</p>	<p>Develop an appropriate management model between PCC and Rowing NSW and other appropriate rowing organisations to provide the basis for future development and management of the facilities.</p>	Medium
W-E4		<p>To maintain and upgrade public access network.</p> <p>To address public safety issues.</p> <p>To promote opportunities for a range of user groups [eg. pedestrians, joggers, cyclists, people with disabilities, frail, aged, children, strollers, etc].</p> <p>To enhance opportunities for passive informal and family-based recreation.</p> <p>To enhance opportunities for public access, circulation and linkages along riparian corridor, including regional linkages.</p>	<p>Continue to upgrade pathway and cycleway network as discussed in 4.0 Basis for Management and 'Our River' Master Plan, including the connection of critical linkages, directional and interpretive signage and appropriate landscaping/ restoration works in the following locations:</p> <p>Great River Walk:</p> <ul style="list-style-type: none"> - shared pedestrian/ cycleway connection through to Cassola Place via metal boardwalk at Peachtree Creek and metal bridge at Boundary Creek; - lower riverbank level [pedestrian linkage] through to pontoon area and connection through to Old Ferry Road steps and Nepean Avenue; - alternate cycleway access via service/ emergency vehicle ramp; - cycleway connection to access modified section of Bruce Neale Drive through to Great Western Highway [refer to proposed rowing centre item E1]. <p>Ensure that works are in accordance with the existing capital works program for the Great River Walk.</p>	<p>Ongoing</p> <p>Complete</p> <p>Complete</p> <p>Ongoing</p>

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-E5 and W-E6		<p>To maintain and enhance existing passive recreational open space and facilities.</p> <p>To promote an appropriate balance between rowing infrastructure and passive open space.</p> <p>To provide a consistently high standard of maintenance throughout the reserve.</p> <p>To review options for upgrading facilities.</p>	Continue to maintain and enhance existing passive open spaces facilities and existing recreational infrastructure, including picnic settings and outdoor furniture, public amenities, parking areas, pavilions, ornamental gardens, mown grassed areas, trailer parking areas, vehicular barriers, pathways, ramps and pontoon. Continue to provide a high standard of maintenance and presentation within these high-use areas. Protect and manage scenic vistas [see items D9-D10].	Ongoing
W-E7		To provide a consistently high standard of maintenance throughout the reserve.	Investigate options to demolish closed amenities block adjoining Nepean Rowing Club.	Medium
W-E8		To address security and vandalism issues.	Public amenities building and northern picnic area. Continue to maintain high level of general maintenance, cleaning, repairs and passive surveillance to address anti-social behaviour and vandalism issues.	Ongoing
W-E9		To provide shade, enhanced visual quality, habitat value and support qualities associated with the recreational setting.	Progressively phase-out senescent grove of <i>Robinia</i> sp. using selected ornamental exotics. Continue to consolidate existing cultural setting and character within the 'Friendship Pavilion' area. Allow for subtle grading and integration of locally-sourced native riparian species along the mown edges and buffers adjoining Peachtree Creek and upper banks to Nepean River. Avoid use of further generic natives [see item D17].	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-E10		To improve visitor orientation, recreational experience, awareness of appropriate behaviour, range of facilities and linkages.	<p>Signage - identification, directional, regulatory, interpretive/ educational</p> <p>Rationalise existing signage throughout the reserve. Develop and install an integrated system of identification, directional, regulatory and interpretive signage to 'brand' the Great River Walk and Weir Reserve as part of an inter-connected parks system.</p> <p>Signs should be durable and vandal- resistant and include use of maps, sensory and multi-lingual options.</p>	Medium
W-E11		To continue to promote public awareness of catchment management issues and address litter and dumping issues in the reserve.	Continue community environmental education programs to reduce litter and pollutants entering drains and to address dumping of rubbish/ garden refuse. Continue to provide a high level of maintenance and removal of litter in the reserve.	Ongoing
W-E12		To address dog issues, public safety, security and environmental issues.	Promote community/ environmental education with dog owners. Maintain strict control and monitoring of unleashed dogs in the reserve.	Ongoing
W-E13		To provide enhanced rowing facilities.	Extend the rowing pontoon in length to accommodate the increase of rowing events and programs.	Medium
W-E14		To accommodate active sports.	Maintain / continue the training function for active sports on the existing rugby league field until such time as the space may be needed for the Rowing Centre of D&E.	Ongoing
W-E16		To provide an aesthetic location for small community gatherings.	Promote event spaces for weddings and functions etc.	Ongoing

Item (Weir Reserve)	Issue	Objective/Target	Action	Priority
W-F1	New objective from 'Our River' Master Plan (see Figure 5 for location map)	Explore possible vehicle entry and new bridge to Weir Reserve with car parking	Engineering feasibility assessment and ecological due diligence.	Medium
			Subject to results of above, undertake detailed design & assessment.	Low
			Construct access and rehabilitate surrounding vegetation.	Long term
W-F2		Open activity area supporting rowing space for future facility development	Detailed design based on 2007 concept.	Medium
			Construction.	Low
W-F3		Amphitheatre at water edge with updated rowing deck	as for F2	
W-F4		Explore possible vehicle entry and new bridge over creek	as for F1	
W-F5		Pedestrian entry to Weir reserve. Explore one way vehicle traffic out of reserve	as for F1	
W-F6		Vegetation management (rubbish removal, weed control, vegetation)	As described and prioritised in the Riparian Vegetation Management Plan (ELA 2014)	High - Long term
W-F7		Increase the number of waters edge access points	Investigate potential locations, engineering feasibility assessment and ecological due diligence.	High
			Subject to above, undertake detailed design and assessment.	Medium
			Construct.	Long term

Location of new actions from 'Our River' Master Plan



W = Weir Reserve; R = River Rd Reserve; T = Tench Reserve

Ref.	Objectives from 2013 Master Plan	Actions	Priority
R-K1	Viewing deck, small installation space and water access at Lewer's Gallery	Design and construction	Ongoing
R-K2	Upgrade parking under and next to motorway	Design and construction	Long term
T-H1	New car park	Engineering feasibility assessment and ecological due diligence	Low
		Subject to results of above, undertake detailed design & assessment	Long term
		Construct and rehabilitate surrounding vegetation	Long term
T-H2	Share use path connection to city	as for T1	
T-H3	Open activity area and new car parking	as for T1	
T-H4	Upgrade 90 degree car parking and add shared use path	as for T1	
T-H5	Upgrade playground with new walls and terraces	Design	Med
		Construct	Low
T-H6	River tour platform/jetty	Engineering feasibility assessment and ecological due diligence	Low
		Subject to results of above, undertake detailed design & assessment	Long term
		Construct	Long term
T-H7	Upgrade existing boat ramp and launch / wash down area, new car parking for cars and trailers	Detailed design and assessment	High
		Construct	Med
T-H8	Upgrade and formalise parking under and next to motor way	as for T1	
T-H9	Access for kayaks with launch 'pool' and buoys on river edge	Engineering feasibility assessment and ecological due diligence	High
		Subject to results of above, undertake detailed design & assessment	Med
		Construct	Low
T-H10	Upgrade car parking and toilet	Design	High
		Construct	Med
W-F1	Explore possible vehicle entry and new bridge to Weir Reserve with car parking	Engineering feasibility assessment and ecological due diligence	Med
		Subject to results of above, undertake detailed design & assessment	Low
		Construct access and rehabilitate surrounding vegetation	Long term
W-F2	Open activity area supporting rowing space for future facility development	Detailed design based on 2007 concept	Med
W-F3	Amphitheatre at water edge with updated rowing deck	Construction	Low
W-F4	Explore possible vehicle entry and new bridge over creek	as for W1	
W-F5	Pedestrian entry to Weir reserve. Explore one way vehicle traffic out of reserve	as for W1	
All areas	Vegetation management (rubbish removal, weed control, vegetation)	As described and prioritised in the Vegetation Management Plan (ELA 2014)	High - Long term
All areas	Waters edge access	As described in the 'Our River' 2013 Master Plan	High - Long term

Reserves

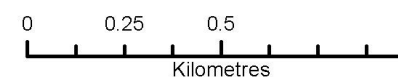
- Weir Reserve
- River Road Reserve
- Tench Reserve

VMP Treatment Zones

- 1. Reinforce native vegetation
- 2. Filtered views (residential area)
- 3. Filtered views (parkland)

- 4. Filtered views (remote footpaths)
- 5. Water edge access point
- 6. Key destination
- 7. Infrastructure

GDA 1994 MGA Zone 56
Image: Nearmap 2014



Prepared by: ID Date: 29/10/2014

Figure 5: Management actions

4.3.1 Vegetation management

Overall, highest priority is given to vegetation management and this is to be achieved in accordance with the principles and recommendations of the draft 2014 VMP, including application of best practice bush regeneration techniques to maintain a healthy river corridor. Vegetation management will need to be carefully scheduled in areas that will be subject to construction activities (e.g. new car parks and paths) to avoid the need for rework. Regular liaison between relevant Council staff will facilitate this process.

Chapter 5 of the VMP identifies seven broad vegetation treatment zones for the study area and the approximate location of each zone is depicted in **Figure 5**. The seven zones are named to closely match terminology used in the Master Plan:

- Treatment Zone 1 - reinforce native vegetation
- Treatment Zone 2 - filtered views (residential areas)
- Treatment Zone 3 - filtered views (parkland)
- Treatment Zone 4 - filtered views (remote footpaths)
- Treatment Zone 5 - water edge access point
- Treatment Zone 6 - key destinations
- Treatment Zone 7 - infrastructure.

Sections 5.7 to 5.13 of the VMP outline the main issues and prioritised actions for each treatment zone. Concept plans in these sections of the VMP give an impression of how the treatment zones may eventually look following the recommended treatments. A species list is provided for each zone where planting is required.

4.3.2 Community education and involvement

Past community involvement in management of the reserves has been limited to occasional tree planting and weed removal. There is significant scope to increase community involvement in protection and management of the riparian corridor at Penrith.

Opportunities to raise community awareness about the importance of native vegetation for a healthy river and stimulate greater community involvement in reserve management are considered a high priority and include:

- 'graffiti-proofed' information boards at key locations along the river corridor to present heritage and environmental information
- information on Council's website including links to relevant sites
- regular volunteer Bushcare activities to conduct on-ground works and associated information e.g. brochures about weed species, preferred species for planting, fauna inhabiting the river corridor.

Bushcare is a growing community movement with volunteers of all ages involved in bush regeneration, weed removal, tree planting, habitat restoration, wildlife monitoring and water quality monitoring. In addition to the environmental benefits of community involvement, there are social benefits to Bushcare volunteers including learning new skills, meeting new people, giving something back to the community, and being active and getting outdoors.

4.3.3 Infrastructure

The Master Plan recommended new infrastructure in the reserves to improve access. **Figure 5** depicts the locations of proposed infrastructure such as playgrounds, car parks, toilets and paths. These are

relatively high cost items that require detailed planning and design prior to construction. Safety and potential for vandalism are key considerations in infrastructure design.

Schedules for maintenance of certain types of infrastructure (e.g. bins and toilets) will need to reflect the frequency and type of usage. A higher rate of maintenance will be needed during peak periods (e.g. wedding events and summer holidays).

4.3.4 Leases and licences

As outlined in Section 2.3, Council has established a licence for the kiosk in Tench Reserve and one for the Nepean Belle slipway and mooring. There is a licence pending for a floating wharf adjacent to the boat ramp in Tench Reserve. Further detail about land subject to leases and licences is given in **Appendix A**.

4.4 Assessing performance

Council's performance should be reviewed upon completion of each action identified in this PoM, or annually for ongoing actions, to determine how successfully the actions have been implemented. Feedback from the review process should be used to improve Council's processes and procedures, and assist with updating the PoM every five years. The review should be led by an independent officer.

The following criteria should be addressed in assessing performance:

- Is the outcome of the action consistent with the vision and objectives of this Plan of Management, the Vegetation Management Plan and Master Plan?
- Has the action been delivered within the prioritised timeframe?
- Have the detailed cost, method, schedule and resource allocation relevant to the action been developed in consultation with relevant Council staff and, if appropriate, others such as government agencies and the community?
- Was the action scheduled to avoid rework?
- Did it provide value for money?

References

Berzins Environmental Planning and Rose Deco Planning 2008. *River Road Riparian Corridor Plan of Management*. Prepared for Penrith City Council.

Chapman and Murphy 1989. *Soil Landscapes of the Sydney 1:100 000 Sheet*.

Clouston Associates 2013. *'Our River' Nepean River Master Plan*. Prepared for Penrith City Council.

DECC 2008. *Effects of Climate Change on Bushfire Threats to Biodiversity, Ecosystem Processes and People in the Sydney Region*. Prepared as part of the Climate Change Impacts and Adaptation Research Project.

DECCW 2010. *Priorities for Biodiversity Adaption to Climate Change*.

Department of Environment, Climate Change and Water 2011. *Cumberland Plain Recovery Plan*.

LandArc 2004. *Tench Reserve Riparian Corridor Plan of Management: Jamisontown – Regentville*. Prepared for Penrith City Council.

LandArc 2006. *Weir Reserve Penrith – Draft Plan of Management*. Prepared for Penrith City Council.

NSW Office of Water, 2010. *Climate change impacts on water supply and demand in Sydney*. NSW Office of Water in collaboration with the Commonwealth Department of Climate Change, the Department of Environment Climate Change and Water, Sydney Water Corporation, Sydney Catchment Authority, University of New South Wales and CSIRO.

Parsons Brinckerhoff Australia 2009. *Climate Change Risk Assessment & Adaptation Action Plan*. Prepared for Penrith City Council.

People, Place and Partnership 2013. *Our River Comprehensive Community Engagement Report*. Prepared for Clouston Associates and Penrith City Council.

People, Place and Partnership 2014. *Our River Vegetation Management Plan – Community Workshop Report 7th May 2014*. Prepared for Penrith City Council.

SCA 2010. *Climate Change Impact Assessment 2010*. Sydney Catchment Authority, NSW.

Appendix A Subject land

The following table identifies the parcels of land within each reserve, their tenure and categorisation under the LG Act.

Lot and DP	Tenure	Categorisation under the LG Act*
Tench Reserve		
Lot 1 DP 228331	Crown	Natural Area: watercourse / Park
Lot 1 DP 38628	Crown	Natural Area: watercourse / Park
Lot 2 DP 38628	Crown	Natural Area: watercourse / Park
Lot 3 DP 38628	Crown	Natural Area: watercourse / Park
Lot 4 DP 38628	Crown	Natural Area: watercourse / Park
Lot 59 DP 752044	Crown	Natural Area: watercourse / Park
Lot 1 DP 567225	Crown	Natural Area: watercourse / Park
Jamison Road reservation (unmade section of road)	Crown	-
Lot 7A DP38950	Crown	Natural Area: watercourse / Park
Lot 2 DP 612169	PCC	Natural Area: watercourse / Park / General Community Use (note: no current lease or licence on Nepean Belle operations)
Part Lot 1 DP 612169	PCC	Natural Area: watercourse / Park
M4 Motorway reservation (bridge/overpass)	Crown	-
Lot 43 DP 16540	PCC	Natural Area: watercourse / Park
Lot 31 DP 596324	PCC	Natural Area: watercourse / Park
Lot 29 DP 596325	PCC	Natural Area: watercourse / Park
Lot 27 DP 596326	PCC	Natural Area: watercourse / Park
Lot 25 DP 596327	PCC	Natural Area: watercourse / Park
Lot 23 DP 596328	PCC	Natural Area: watercourse / Park
Lot 21 DP 596329	PCC	Natural Area: watercourse / Park
Lot 19 DP 596329	PCC	Natural Area: watercourse / Park
Lot 17 DP 5963309	PCC	Natural Area: watercourse / Park

Lot and DP	Tenure	Categorisation under the LG Act*
Lot 280 DP 1020286	Crown	Park
Lot 281 DP 1020286	Crown	Natural Area: watercourse / Park
Lot 15 DP 596331	PCC	Natural Area: watercourse / Park
Lot 13 DP 596332	PCC	Natural Area: watercourse / Park
Lot 11 DP 596332	PCC	Natural Area: watercourse / Park
Lot 9 DP 596332	PCC	Natural Area: watercourse / Park
Lots 5 & 7 DP 596332	PCC	General Community Use (Note: there is no current lease or licence agreement for the boat ramp used by Nepean Power Boat & Ski Club)
Lot 3 DP 596334	PCC	Natural Area: watercourse / Park
Factory Road road reservation (car park)		-
Lot 37 DP 18540	PCC	General Community Use
Lot 1 DP 566392	PCC	Natural Area: watercourse / Park / General Community Use (note: no current lease or licence agreement on Nepean Belle slipway operations)
River Road Reserve		
Lot 103 DP 235829 (land south of the intersection of Parklands Road and River Road)	PCC	Natural Area: watercourse
The remainder of the land is part of the River Road road reserve and not described as a separate lot.		-
Weir Reserve		
Lot 316(A) DP 7522021	Crown	Natural Area: watercourse / Park (upper level)
Lot 8 DP 583415	PCC	Natural Area: watercourse / General community use
Lot 7 DP 583415	Crown	Natural Area: watercourse
Lot 6 DP 583415	Crown	Natural Area: watercourse
Lot 5 DP 583415	PCC	Natural Area: watercourse / General community use
Lot 9 DP 573086	Crown	Natural Area: watercourse / General community use
Lot 10 DP 573086	Crown	Natural Area: watercourse

Lot and DP	Tenure	Categorisation under the LG Act*
Lot 4 DP 579648	PCC	Natural Area: watercourse
Lot 2 DP 579647	PCC	Natural Area: watercourse
Lot 5 DP 15601	Crown	Natural Area: watercourse / Park
Lot 6 DP 15601	Crown	Natural Area: watercourse / Park
Lot 7 DP 15601	Crown	Natural Area: watercourse / Park
Lot 8 DP 15601	Crown	Natural Area: watercourse / Park
Lot 9 DP 15601	Crown	Natural Area: watercourse / General community use
Lot 10 DP 15601	Crown	Natural Area: watercourse / General community use
Lot 11 DP 15601	Crown	Natural Area: watercourse / Park
Lot 12 DP 15601	Crown	Natural Area: watercourse / Park
Lot 13 DP 15601	Crown	Natural Area: watercourse / Park
Lot 14 DP 15601	PCC	General Community Use
Lot 15 DP 15601	PCC	General Community Use / Park
Lot 16 DP 15601	PCC	General Community Use
Lot 17 DP 15601	PCC	General Community Use
Lot 18 DP 15601	PCC	General Community Use
Lot 19 DP 15601	PCC	General Community Use
Lot 20 DP 15601	PCC	General Community Use
Lot 21 DP 15601	PCC	General Community Use
Lot 22 DP 15601	PCC	Park
Lot 23 DP 15601	PCC	Park
Lot 24 DP 15601	PCC	Park
Lot 25 DP 15601	PCC	Park
Lot 26 DP 15601	PCC	Park
Lot 27 DP 15601	PCC	Park
Lot 316(B) DP 752021	Crown	Natural Area: watercourse
Lot 350 DP 752021	PCC	Natural Area: watercourse

Lot and DP	Tenure	Categorisation under the LG Act*
Lot 316(C) DP 752021	Crown	Natural Area: watercourse
Lot 316(D) DP 752021	Crown	Natural Area: watercourse
Road reserve/ramp (Bruce Neale Drive)		Natural Area: watercourse
Pt Lot 90 DP 752021	Crown	Natural Area: watercourse
Lot 2 DP 574010	PCC	Natural Area: watercourse
Lot 1 DP 235966	PCC	Natural Area: watercourse / Park
Lot 2 DP 235966	PCC	Natural Area: watercourse / Park
Lot 2 DP 235966	PCC	Natural Area: watercourse / Park
Lot 47 DP 249986	PCC	Natural Area: watercourse



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