Murray River National Park

Including Rilli Island, Media Island and Kapunda Island Conservation Parks

Management Plan 2023

SOUTH AUSTRALIA

Government of South Australia
Department for Environment and Water

Contents

Acknowledgement of Country

The Department for Environment and Water acknowledges the Murray River National Park is part of the traditional lands of the First Peoples of the River Murray and Mallee Region and acknowledges that their culture and heritage beliefs continue to be just as important to living First Peoples today.

The Department for Environment and Water also acknowledges the First Peoples of the River Murray and Mallee Region as the custodians of this land and waters, and respect their spiritual and cultural connection with their Country.

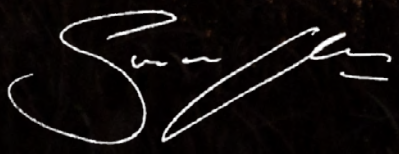
Minister's Foreword

Murray River National Park helps protect some of South Australia's most unique environments. From internationally important birdlife through to the iconic red gums rising from the river flats, the wetlands and floodplains of the park form a striking and unique landscape.

This landscape is also culturally significant for the First Peoples of the River Murray and Mallee. The lands and waters this park protects are a part of a culture stretching back thousands of years. People remain drawn to the Murray River, with the opportunity for recreation within the natural surrounds of the park proving popular with campers, canoers, walkers, fishers and boaters.

It is also a landscape of great variability, and subject to impacts from droughts and floods which are set to increase in their severity with climate change. Managing this variability while providing environmental benefit, protecting cultural heritage, and providing spaces for community recreation will be an ongoing challenge requiring strong relationships and consistent effort across government and community.

I acknowledge and thank those who helped in the plan's development. I now formally adopt the Murray River National Park Management Plan under section 38 of the *National Parks and Wildlife Act 1972*.



Hon Susan Close MP
Minister for Climate, Environment and Water

Developing this plan

This document is the management plan for the Murray River National Park and the adjoining Rilli Island Conservation Park, Media Island Conservation Park, and Kapunda Island Conservation Park.

This management plan was developed with input from First Nations, key stakeholders and technical experts. This park management plan has been prepared to fulfil requirements under Section 38 of the *National Parks and Wildlife Act 1972*.

This plan sets the direction for strategic management of the park as outlined in the objectives and strategies. It is not intended to address every issue or cover every aspect of management in detail. The specific actions required to manage the parks in accordance with the plan will be developed and monitored at a park operations level. This approach ensures that the plan is flexible and able to guide a range of future management challenges and opportunities.

This plan replaces the *Murray River National Park Management Plan 1994* and the *Murray River National Park Management Plan Amendment 2010*.

Directions for management

The Murray River National Park protects natural and cultural heritage values, and provides important recreational access for camping, fishing, nature study and water sports, with particularly high visitation during long weekends and school holidays. The park consists of a series of protected areas along the floodplain of the River Murray, extending from the township of Kingston-on-Murray through to Bulyong Island, near Renmark.

The area is proclaimed under the *National Parks and Wildlife Act 1972*, which sets management objectives for South Australia's national parks and provides a regulatory framework to support their adaptive management. The park will be managed in line with the objectives of the Act. As the parks in this plan are located within the Murray-Darling Basin, the *River Murray Act 2003* and the Objectives for a Healthy River Murray under that Act also guide management. As the traditional lands of the First Peoples of the River Murray and Mallee, these parks must also be managed in collaboration and partnership with First Peoples.

The classification that a reserve receives is a general statement of the purpose for establishing the reserve. National Parks are areas with wildlife or natural features of national significance, and are usually popular visitor destinations. Conservation Parks are lands with a management focus on conservation to protect the environmental or cultural features they contain. Given their proximity to other sections of Murray River National Park, this plan will also provide for Rilli Island, Media Island and Kapunda Island Conservation Parks.

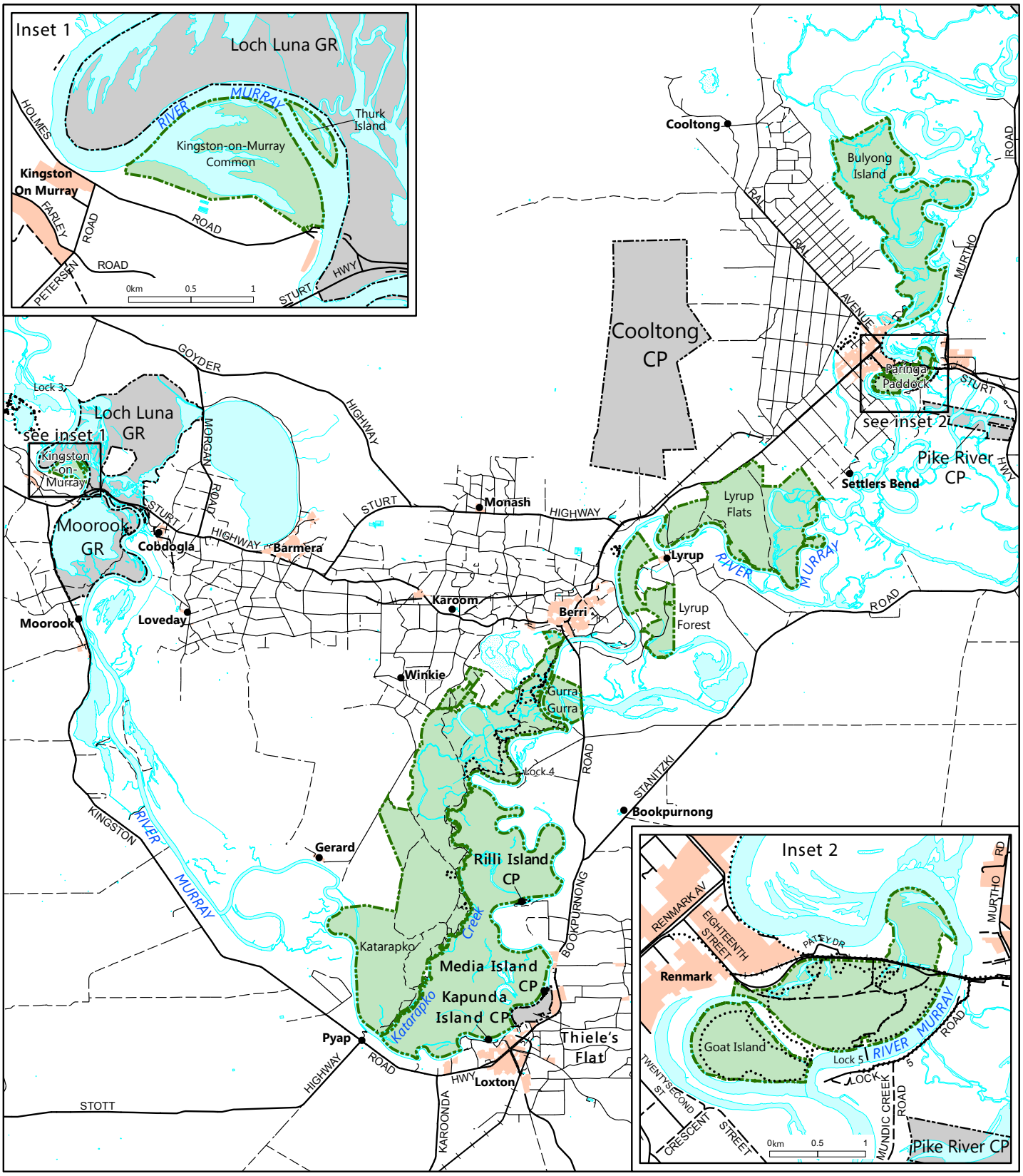
Murray River National Park is the central park of the Riverland district. The park protects an area of significant ecological value, including numerous threatened species, internationally significant wetlands, and supports riverine ecosystem function at a landscape scale.

Murray River National Park also contains popular areas for recreation close to major townships. Katarapko, Lyrup Flats and Paringa Paddock form the key recreational spaces, providing between them camping opportunities, walking trails, day visit areas, boat access and other amenities designed to facilitate public enjoyment in a natural setting.

Kingston-on-Murray and Gurra Gurra are areas that have traditionally contained minimal visitor services, but have been identified as potential sites for the development of additional facilities such as dedicated camping areas. This builds on recent volunteer-led trail development in Kingston-on-Murray. Lyrup Forest, a former forest reserve, contains extensive cultural heritage, and minimal visitor services – with little additional visitor services envisioned.

The Bulyong Island section of the Murray River National Park, other islands within the park, and Rilli Island, Media Island and Kapunda Island Conservation Parks, each provide protection for important conservation assets. These areas are only accessible by boat, and provide the potential for more remote visitor experiences such as bird watching, canoeing, boating, or fishing amongst a secluded natural environment. Bush camping is also possible along the more accessible islands, particularly in the Bulyong Island section of the park.

The remote, natural setting of the Murray River National Park is one of its key assets, and any additional recreational infrastructure will be carefully planned to help protect these values. This plan contains zoning to identify areas of higher visitor use, with the remainder of the park managed primarily for conservation outcomes.



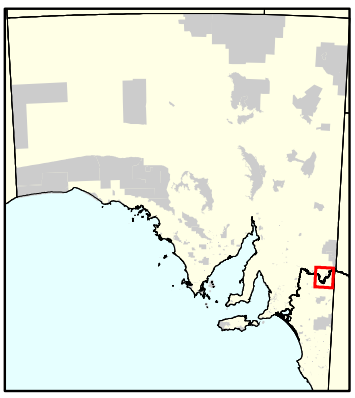


Figure 1

Murray River National Park

0km 5 10

LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Murray River National Park
- Other protected area
- Built up area

Significance and purpose

Together with Rilli Island, Media Island and Kapunda Island Conservation Parks, Murray River National Park forms a network of protected areas of approximately 14,885 hectares (refer to Figure 1). The parks were proclaimed for the conservation of valuable wetland and riverine environments, and to provide recreational opportunities including camping, fishing, canoeing, boating, and bushwalking.

Regulation of the river has degraded vegetation across the South Australian portion of the Murray River floodplain, including in Murray River National Park. However, extensive tracts of riverine vegetation remain which provide crucial habitat for wildlife. The parks protect keystone vegetation communities and species that define the ecological character of River Murray floodplains and have high habitat value. The park also protects species listed for conservation significance under the national *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *South Australian National Parks and Wildlife Act 1972* (NPW Act).

The parks provide habitat for a range of birds, amphibians, reptiles and fish, including species of national and state significance such as the regent parrot (*Polytelis anthopeplus*), the southern bell frog (*Litoria raniformis*), and the Murray hardyhead (*Craterocephalus fluviatilis*).

Visitors are able to connect with nature and enjoy a range of recreational opportunities within the Murray River National Park, which provides open space for local residents and is an important asset in encouraging tourists to the region. Interpretation is used to help visitors understand the importance of the park, including its history, First Peoples culture and heritage, biodiversity, and how water can be managed to achieve ecological outcomes.

The Murray River represents a landscape of profound cultural significance to First Peoples. This significance takes many forms, is multi-layered and is reflected in the histories, lived experiences, oral traditions and continuing engagement of First Peoples with the River Murray and its environs (Westall 2021). The parks provide protection of significant cultural heritage sites including graves, middens and canoe trees. Park management represents an opportunity for collaboration with First Peoples in the development of interpretation, the truthful telling of history, and the ongoing management of culturally significant sites.

The development and maintenance of environmental watering infrastructure within the Murray River National Park provides for the delivery of water for positive environmental outcomes across the park. This infrastructure includes regulating structures, banks and fishways. These structures are used to manage water for habitat improvement in various locations across the park and aid fish passage through the network of waterways. Disposal basins, pumps and pipelines across the park provide regional benefits through the appropriate management of salinity and water quality across the river system.

Kingston-on-Murray

The Kingston-on-Murray portion of the Murray River National Park is situated on a bend of the Murray River between the township of Kingston-on-Murray and the Sturt Highway bridge. It comprises a total area of 93 hectares, much of which can become inundated. This portion of the park includes the 7.5 hectare Thurk Island, which is managed for conservation.

Kingston-on-Murray provides habitat for at least 76 native bird species and provides areas suitable for native fish. This includes the nationally vulnerable regent parrot, and four other species listed under the NPW Act. This area also contains at least 24 native plant species, including the swamp daisy (*Brachyscome paludicola*) and wingless bonefruit (*Osteocarpum acropterum* var. *deminutum*), which are both species listed under the NPW Act. The regent parrot population in the Kingston-on-Murray area is of particular importance as it is a breeding colony utilising the hollows in mature red gums for nesting, and potentially uses the site year round.

The Kingston-on-Murray portion of the park provides space for fishing, canoeing, bird watching, and dog walking. Recent work by volunteers led by the Moorook Kingston-on-Murray Community Association has created a new trail along the waterfront in this section of the park, as part of a longer distance trail from the township of Kingston-on-Murray to Moorook. There is an opportunity to collaborate with these volunteers to build on the recreation opportunities this trail has created, including new resting spaces and bird hides. The potential to develop formal camping spaces has also been identified near the bank of the Murray River.

Katarapko

The Katarapko section of the Murray River National Park is situated across the river from Loxton and directly adjacent Berri.

Katarapko forms the largest section of the Murray River National Park at approximately 9,150 hectares, 45 percent of which is Katarapko Island – an island bounded by the Murray River and Katarapko Creek which is inaccessible by land and managed for conservation of a valuable wetland area. The remainder of the reserve is accessible from the Sturt Highway between Berri and Barmera and by crossing the floodplain south west of Berri to Eckert Creek.

The wetlands and creeks across Katarapko support habitat suitable for a range of fish species, including Murray cod (*Maccullochella peelii*), silver perch (Bidyanus bidyanus), and freshwater catfish (*Tandanus tandanus).* The network of waterways also support waterbirds, including threatened species such as the Rare Australiasian shoveler *(Spatula rhynchotis)* and spotless crake *(Zapornia tabuensis).* Threatened flora in Katarapko includes the Vulnerable pale flax-lily (*Dianella porracea*), and the Rare sand lily (*Corynotheca licrota*) and pale-fruit cherry (*Exocarpos strictus*).

Katarapko hosts a number of popular, dedicated campsites and contains Katarapko and Eckert creeks – significant waterways that flow through the park and provide canoe adventuring. Trails for walking and cycling provide further opportunity for recreation.

Rilli Island, Media Island and Kapunda Island Conservation Parks

Rilli Island (four hectares), Media Island (1 hectare) and Kapunda Island (1 hectare) Conservation Parks are three small islands within the main channel of the Murray River, adjacent the Katarapko section of Murray River National Park.

The sites have been proclaimed to conserve the natural features of small island environments within the Murray River main channel which are not represented widely in other reserve systems. Vegetation comprises river red gum woodland with a lignum understorey. The islands are managed for conservation.

Thiele's Flat

Thiele's Flat is a reserve of approximately 130 hectares located on the edge of Loxton township. The site takes in floodplain vegetation against the edge of the River Murray, and is popular for camping. The site also contains significant cultural heritage.

Thiele's Flat is proposed for addition to Murray River National Park in recognition of its cultural and environmental values, the local focus on protecting a valued recreational space, and the added management and compliance benefit a proclamation under the *National Parks and Wildlife Act 1972* provides.

Traditionally, camping has occurred in undesignated sites, and access from local vehicles have created significant track networks, leading to degradation of the site. Management of the site will seek to mitigate these impacts and provide for a more sustainable recreation model, which will include designating campsites and areas for day visitors.

Gurra Gurra and Lyrup Forest

Gurra Gurra is an area of 255 hectares of riverine woodland located across the river south of Berri, and directly opposite the main river channel from Katarapko. The area encompasses a portion of Gurra Gurra Creek at the western end of the Gurra Lakes Wetland Complex, a wetland of national importance. The park protects Causeway and Little Duck Lagoons, which are important areas providing habitat for many species of mammals, reptiles, birds, frogs, fish and invertebrates.

To the north of the Gurra Gurra complex and west of the township of Lyrup is Lyrup Forest, proclaimed as part of the Murray River National Park in 2009. This area of approximately 600 hectares contains several vegetation associations including river red gum forest, river box woodland, dryland tea-tree (*Melaleuca lanceolata*) forest, river saltbush (*Atriplex rhagodioides*) chenopod shrubland and *Tecticornia* samphire shrubland. Many threatened fauna species under the NPW Act have been identified in Lyrup Forest, including the Vulnerable broad-shelled tortoise (*Chelodina expansa*), the Rare carpet python (*Morelia spilota*) and the Rare striped honeyeater (*Plectorhyncha lanceolata*). Murray hardyhead have been recorded breeding in the Lyrup Lagoon, which is a site benefiting from the delivery of environmental water. Salt Creek is a refuge for waterbirds at certain times of the year, including large numbers of black swans (*Cygnus atratus*). Lyrup Forest also contains significant cultural heritage. Generally visitation is not actively encouraged across Lyrup Forest, with the main recreational use here and at Gurra Gurra being small-scale kayaking, boating and fishing.

Lyrup Flats

Lyrup Flats is a 2,000 hectare block along the floodplain on the northern side of the Murray River, north of the Lyrup ferry. The Lyrup Flats landscape is characterised by the incised ancestral floodplain of the Murray River with a variety of fluvial landforms including discontinuous levees, oxbows, back swamps, lakes and low terraces. Many of these wetlands are seasonally inundated.

Degraded river red gum, black box and river cooba (*Acacia stenophylla*) woodlands on the lower floodplain are remnants of forests from before Murray River regulation. The Disher Creek Saline Drainage Disposal Basin is also present in Lyrup Flats, and is used as a disposal basin to reduce river salinities as part of a broader program to improve river health. Part of Disher Creek Basin is an important habitat for one of only five remaining populations in South Australia of the nationally Endangered Murray hardyhead.

Lyrup Flats provides opportunities for birdwatching, fishing and camping. Secluded campsites are located along the Murray River, and the site allows for dogs throughout provided they are on a lead of no more than three metres.

Paringa Paddock

Paringa Paddock contains areas of riverine woodlands, wetlands and river flats covering 1,161 hectares, adjacent the highway between Renmark and Paringa. River red gum and river box line the floodplain. The wetland complex includes a number of permanent and temporary wetlands that provide habitat for birds and reptiles, and a small population of koalas (*Phascolarctos cinereus*), which were introduced to the region in the middle of last century.

The area protects at least 51 native plant species, two of which, the squat picris (*Picris squarrosa*) and the creeping boobialla (*Myoporum parvifolium*) are listed as Rare under the *National Parks and Wildlife Act 1972*. It provides habitat for least 130 native species, including eight species of conservation significance under the Act. The site contains water regulating structures that allow for connection to the River Murray at normal pool level, and for river flows to pass through the site when river levels are elevated. These structures can also be used to retain water from natural or managed watering events, prolonging inundation times for the benefit of local flora and fauna.

Paringa Paddock is day visit only without fires, and contains numerous walking, geocache and cycling trails originally developed by the Renmark Paringa Council and the local community. Other popular recreational activities include fishing and dog walking. Paringa Paddock is situated close to major townships and accommodation centres, making it an ideal location for day visits. The Goat Island section is managed primarily for conservation, with the Goat Island Track providing a gentle trail around the outside of the island. This island is the birthplace of Ruby Hunter, an influential Indigenous musician and dedicated community member.

Bulyong Island

The Bulyong Island section of the Murray River National Park is a series of waterways and islands of approximately 2,380 hectares immediately north of the township of Renmark. Though this section of park is only accessible by boat, it is a popular recreation site for canoeing, small boating, house-boating, fishing, camping and general relaxation. Motorised water vessel events, involving high speed navigation through the creeks system within and around the park, have also been held in this section of the park.

Bulyong Island is within the Riverland Wetland of International Importance under the Convention on Wetlands of International Importance (the Ramsar Convention), which extends from the South Australian border in the north and east through to Bulyong Island in the south. Bulyong Island is the only part of the Murray River National Park that is included in the Riverland Ramsar site.

Challenges and opportunities

Key challenges and opportunities in the protection and management of the Murray River National Park are:

- Understanding and responding to the impacts of a changing climate on the riverine environment.
- Actively managing and encouraging the rehabilitation of environments which have been degraded as a consequence of river regulation and past use.
- Managing impacts of pest plants and animals and implementing control of priority species as part of landscape control programs to protect habitat and threatened species.
- Providing visitor access for enjoyment of a range of recreation and outdoor activities in a way that protects other park values while limiting inappropriate visitor use, such as off-road driving in four wheel drives and dirt bikes.
- Encouraging appropriate commercial operations in the park that provide greater visitor services in-line with park values.
- Managing camping and other recreational uses across a series of protected areas extending across a large geographical range.
- Protecting cultural sites and features from erosion, pest animals, visitor activity, natural hazards or land management activities.
- Managing the increasing risk of bushfire and inappropriate fire regimes in the park to ensure visitor and community safety and ecological advantage.
- Working collaboratively with First Peoples on the management of culturally significant areas and other aspects of park management.
- Collaborating with a wide variety of stakeholders and programs to manage water across the Murray River landscape to improve ecological outcomes within the park.
- Managing potential impacts to park assets from floodplain water, including through managed inundations, weir pool manipulations and natural flooding.
- Facilitating the construction, maintenance and operation of appropriate floodplain infrastructure such as regulators, blocking banks, piping and pumps within the park in a manner that promotes and supports park values.
- Partnering with volunteer groups and other local stakeholders to improve environmental, recreational and cultural outcomes in Murray River National Park.
- Working with a range of recreational users, including jet-skiers, boaters, swimmers and kayakers, to facilitate safe access.

Park Management Zones

Section 39 of the *National Parks and Wildlife Act 1972* provides for protected areas to be separated into discrete management zones within a park management plan.

Zoning maps have been prepared for each of the protected areas that comprise the Murray River National Park (see Appendix 1). Though the management of conservation areas will vary across the landscape, the strategic management prescriptions for Conservation Zones are general across all park areas.

Visitor use zones have been created to demonstrate areas where visitor use developments will be focussed. Generally, these visitor use zones are in previously degraded areas, or in areas where visitor use infrastructure already exists.

Certain activities are anticipated across the park irrespective of zoning that are complimentary with the conservation aims central to park management, including the setting aside of certain areas for the exclusive traditional use of First Nations people and the construction and ongoing management of water regulating infrastructure.

Conservation 1

The focus for the Conservation 1 Zone is the preservation and rehabilitation of native vegetation, balanced with low-impact sustainable visitation. Envisioned public use includes kayaking, walking and cycling. New trails may be developed within this zone, subject to an assessment of impacts. Other visitor facilities may include ancillary developments associated with trails or for the protection of important assets, such as fencing, signs, interpretation, picnic tables, small shelters, bird hides, toilets, small parking bays and lookout points. Public vehicle access is permitted on designated tracks in the Conservation 1 Zone. The management (including construction, operation, repair or replacement) of water regulating structures to improve ecological outcomes is envisioned within this zone. Licenced irrigation infrastructure also ocurs within this zone, and licence holders will continue to have access in accordance with licence conditions.

Conservation 2

Conservation 2 Zones are areas of high conservation focus, and reduced public access. These areas will have no vehicle access to the general public, no new trails developed, and minimal visitor facilities. Visitor access is generally by boat only, including the potential for low impact, self-sufficient bush-camping adjacent the water in some areas. The management (including construction, operation, repair or replacement) of water regulating structures to improve ecological outcomes is the primary activity envisioned within this zone.

Visitor Use Zone (Kingston-on-Murray)

The development of allocated, drive-in campsites and day visit areas is planned in the Kingston-on-Murray Visitor Use Zone, subject to an assessment process to determine risks to other park values. Ancillary visitor facilities envisaged in this zone includes tables, signage, and shelters. The development of any additional facilities will be focussed on previously cleared areas. This area is already used for unallocated, low-impact bush camping, and this use will continue to be permitted, subject to formal campsites being developed.

Visitor Use Zone (Katarapko)

The Katarapko Visitor Use Zone encapsulates a range of waterfront campsites and day visit areas, with visitor facilities including toilets, shelters and signage. Minor works to upgrade and restore existing tracks, as well as to rehabilitate closed tracks, are envisioned throughout the zone. Additional day visit infrastructure is envisaged within this zone, including park entryways and nature play spaces, subject to an assessment of risks to other park values.

Visitor Use Zone (Lyrup Flats)

The Lyrup Flats Visitor Use Zone encapsulates a range of waterfront campsites and day visit areas, with visitor facilities including cleared campground areas, toilets, shelters and signage. Additional ancillary infrastructure associated with day visit areas and campsites, such as toilets, picnic tables, shelters, and park entryways may also be developed, subject to an assessment of risks to other park values. The maintenance, development and, where possible, rationalisation of tracks will occur within this area.

Visitor Use Zone (Paringa Paddock)

The Paringa Paddock Visitor Use Zone is a relatively degraded area with little existing visitor use infrastructure present. To help promote the recreational use of Paringa Paddock, additional visitor use infrastructure is planned within this area, subject to future approvals. Proposed infrastructure improvements includes parking, signage, trailheads, and nature play facilities. No camping is intended within this zone, or the greater Paringa Paddock area.

Visitor Use Zone (Gurra Gurra)

The potential to develop dedicated campsites for booking has been identified in the Gurra Gurra Visitor Use Zone. Development of formal campsites will only occur following an assessment of risks which takes into consideration safe access from the highway, and potential impacts to the floodplain environment from increased vehicle traffic. Should formal campsites be developed, ancillary facilities associated with these campsites, such as tracks and picnic tables may also be developed in this area.

Visitor Use Zone (Thiele's Flat)

The development of allocated, drive-in campsites and day visit areas is planned in the Thiele's Flat Visitor Use Zone. Ancillary visitor facilities associated with these campsites and day visit areas may include tables, signage, toilets and shelters. The development of any additional facilities will be focussed on previously cleared areas. This area is already used for unallocated, low-impact bush camping, and this use will continue to be permitted, subject to formal campsites being developed.

Kingston-on-Murray Caravan Park Zone

This area is used as overflow for the local caravan park. It is characterised by an open area of lower conservation value with existing shelters and picnic tables, sharing a boundary with the caravan park. This use will continue subject to lease or licence conditions.

THEME 1:
Protecting natural values

The Murray River National Park encompasses a range of ecosystems at varying levels of ecological health, from remote areas of high natural quality and wetlands of national and international importance, through to relatively degraded sites including salt disposal basins. A focus across the park is for the protection and rehabilitation of natural vegetation communities by maximising the outcomes from high river flows through targeted conservation efforts.

A variety of species listed for conservation significance under the *Environment Protection and Biodiversity Conservation Act 1999* and *National Parks and Wildlife Act 1972* have been recorded across the Murray River National Park. This includes 23 NPW Act listed flora, and 41 fauna listed under either the national EPBC Act or the state NPW Act. Management of the park will focus on identifying and protecting suitable habitat for these and other protected species. This management will include identifying areas where minimal visitor use will be maintained to reduce impacts, improve the habitat quality of the park, and limiting inappropriate visitor impacts such as through off-road biking and four-wheel driving.

Successful conservation efforts will require the control of pest plants and animals. Pest plants can cause loss of biodiversity by competing with native plants, impeding their growth and dislocating them from their natural environment.

The *Xanthium strumarium* complex, including the Californian and Noogoora burrs, are of management concern in Murray River National Park, as well as the parasitic Golden dodder (*Cuscuta campestris*). The weeds are commonly found along watercourse margins. Golden dodder is a particular threat to production in irrigated crops and forage. In the River Murray area, *Xanthium sp.* are a major host for golden dodder.

Flood events, including natural floods, managed inundations and weir pool manipulations, provide greater ingress into Murray River National Park for weed species. Eradication is an impractical management aim within the park for these species, given their prevalence. Efforts to control these weeds and contain their spread will be concentrated on public access areas, particularly camping areas and areas of high conservation value. High priority infestations will be managed in accordance with regional management plans.

African boxthorn (*Lycium ferocissimum*) and prickly pear (*Opuntia sp.*) trees have been identified in the park previously. When detected, these species will be removed as quickly as possible because of their present limited distribution, their regional risk, and their potential for expansion into established native vegetation.

Rabbits pose a significant risk in Murray River National Park by removing vegetative cover and encouraging weeds through selective grazing of more palatable species. This impact increases erosion, decreases the habitat quality of the park, and damages sites of cultural heritage. The benefit of controlling rabbits can be observed in the stabilisation of sand dune environments where intensive rabbit control has been carried out.

Past control programs have demonstrated that the complete elimination of rabbits from the park is impractical. Ongoing control of rabbit numbers will likely include a combination of approaches, such as the release of Rabbit Haemorrhagic Disease Virus (Calicivirus), and localised intensive responses such as baiting and destruction or fumigation of warrens where required and as appropriate, ensuring the protection of cultural heritage sites throughout any management actions.

No assessment has been made of the number of foxes and cats in the reserve. On-going control will continue, including by baiting, trapping or shooting programs as required.

No feral pigs have been recorded in the park. Given the potential for pigs to ingress from interstate along the river corridor, and the risk this presents, every effort will be made to eradicate any feral pigs sighted.

Total grazing pressure will be monitored to determine impacts to plant diversity and habitat quality by native and introduced fauna. Control of introduced herbivores is a priority. Where documented evidence indicates that total grazing pressure is unsustainable and impacting the conservation values of the parks, strategic management will be considered for native species. This includes species such as the western grey kangaroo (*Macropus fuliginosus fuliginosus*), red kangaroos (*Osphranter rufus*) and euros (*Osphranter robustus*), which have previously impacted on the regeneration of native vegetation across the floodplain through overgrazing. Little corellas (*Cacatua sanguinea*) have also caused impacts to certain areas, in particular causing damage to native trees within the national park.

Strategic management should consider non-lethal management actions in the first instance. Where these actions are considered ineffective or not feasible, culling may be implemented where this remains the only practicable method of management. Kangaroo control may also include commercial harvest options. Any culling will follow strict procedures for the humane destruction of animals.

Climate change is expected to bring increased temperatures and decreased rainfall to the South Australian Riverland region (Green and Pannell, 2020), and potential reductions to river flows. Implications of climate change may include more time in drought, a change in density and distribution of native plants, increased risk of extinction of vulnerable species, changes to the fire regime, and increased soil erosion. Actions in Murray River National Park should be adaptive to take climate change into account, incorporate assessments of vulnerability to climate change, and be consistent with any regional climate change adaptation plan.

An increase in bushfire frequency and intensity resulting from longer fire seasons, less opportunities for hazard reduction burns, more extreme and catastrophic fire danger days and increased evaporation is also anticipated. Management of fire risk is undertaken in accordance with fire management guidelines, and with reference to the relevant Bushfire Management Area Plan (BMAP). Fire planning provides the most effective mitigation strategies to lessen the risk, intensity and spread of future bushfires, make suppression more achievable and safer, and an ecological tool to maintain or improve the biodiversity of the bush while consuming hazardous fuels.

Fire management strategies, including the reduction of fuel loads for visitor and community safety, must be balanced with ecological needs. In the fragmented habitat of the River Murray, there is an increased risk of localised extinction if a fire burns entire habitat patches. This is especially relevant for hollow dependent species such as the regent parrot (*Polytelis anthopeplus*) whose hollowed habitats can take more than 200 years to form. This supports the need for targeted ecological burning in balance with the reduction of fuel loads to reduce the risk of large, uncontrolled bushfires burning entire habitats.

Objective

Protect natural values by managing threats from pest species and creating quality habitat for wildlife.

Strategies

- Maintain and improve the quality and extent of habitat within the parks for priority species.
- Protect priority species by retaining areas of minimal visitor use, encouraging natural regeneration or rehabilitation of suitable habitat, and managing inappropriate visitor use.
- Manage pest plants in accordance with regional management plans, with a particular focus on the management of declared plants in visitor areas and areas of high conservation value.
- Implement management programs for introduced and native species where total grazing pressure indicates adverse impacts to ecological values.
- Undertake an adaptive management regime to ensure impacts from climate change are responded to appropriately and in a manner consistent with any regional climate change adaptation plan or vulnerability assessment.
- Use monitoring and research to inform management and climate change adaptation actions for vulnerable species and ecosystems.
- Implement fire management activities as per the relevant fire management plan to minimise likelihood and impact of bushfires, and to maintain and enhance park values.
- Collaborate with volunteer groups, First Peoples, and other stakeholders to protect and manage the conservation values of the park.

THEME 2:
Providing opportunities for recreation in a natural setting

The Murray River National Park offers a range of opportunities for recreation and outdoor activities that enhance the lifestyle, health and wellbeing of the community and promotes visitors to the region.
A network of trails and tracks provide for walking and cycling, and the system of creeks and river access points throughout the park allow for fishing, kayaking, canoeing and small boating.

The development of further trails for walking and cycling has been identified as an opportunity across the park, with a particular focus on interlinking trails and working with stakeholders to develop regional trail networks. Building on opportunities created by existing trails will also be explored, for example new resting spaces and bird hides.

Dogs are only permitted in Murray River National Park within designated areas, provided they are kept on a lead and are under effective control at all times. Areas permitting dogs includes Kingston-on-Murray, Lyrup Flats, the Rodeo Grounds portion of Katarapko, and Paringa Paddock. The potential impacts of dog walking on public safety and native wildlife will be monitored and reviewed if necessary. Dogs will not be permitted in areas of high environmental sensitivity.

Recreational fishing is permitted throughout the Murray River National Park – popular species include golden perch (*Macquaria ambigua*) and yabbies (*Cherax destructor*). The European carp (*Cyprinus carpio*) is the most common fish to catch in the park and, if caught, it is illegal to return it to the river alive. Some fish in the Murray are protected species, such as freshwater catfish (*Tandanus tandanus*) and Murray cod (*Maccullochella peelii*). Park users should make themselves aware of any fishing restrictions and requirements before fishing in the park. These requirements are actively managed under the *Fisheries Management Act 2009*.

The park offers an opportunity for commercial tour operators, particularly canoeing, hiking, and cultural tours. The approval process for any commercial tourism operator will consider risks to other values of the park.

Camping in the Murray River National Park mainly occurs in designated camping areas in the popular Katarapko and Lyrup Flats sections of the park. The opportunity to provide additional low-impact camping in designated sites has been identified in Gurra Gurra, Thiele's Flat, and Kingston-on-Murray. Campsites in designated sites need to be booked, and booking fees apply.

Some river users seek to camp on the waterfront, or anchor or temporarily moor houseboats within park boundaries in areas where there are minimal services and no formal designated campsites. Basic bush camping will be permitted for houseboats, small boaters and kayakers in areas adjacent traversable water courses in the Bulyong Island section of the park and along the boundary of Katarapko Island. All bush campers will need to abide by the *National Parks and Wildlife Act 1972* and self-manage all waste including toilet paper.

The number of individuals taking part in undesignated waterside camping is relatively low, and therefore impacts are relatively minor. Impacts from riverfront bush camping will continue to be monitored, and may be restricted should impacts be observed or it is deemed necessary for management. Should impacts become unsustainable, a requirement to book may be introduced to keep visitor numbers to an appropriate number that protects the natural environment and the secluded qualities campers seek to experience. Responsible camping will continue to be promoted. Visitors must ensure they are aware of any restrictions in place for camping or mooring in the park, and be aware these restrictions may change from time to time based on weather conditions or to allow the regeneration of impacted camping areas.

The Riverland Dinghy Club has held motorised water vessel events in and adjacent to the Bulyong Island section of Murray River National Park since 1981. The Riverland Dinghy Club hosts a calendar of six events per year, and a number of these events cross into waterways within park boundaries. During these events, waterways along the race course are closed for general visitor use.

Bulyong Island is part of the Riverland wetland complex declared under the Convention on Wetlands of International Importance (the Ramsar Convention). Motorised water vessel events are permitted to occur in Bulyong Island under the 'wise use' principle of the Ramsar agreement, which seeks to maintain wetland values and functions, while delivering sustainable benefits for human well-being (Department of Sustainability, Environment, Water, Population and Communities, 2012).

Motorised water vessel events within Bulyong Island will continue to be supported at the current scale. Additional motorised water vessel events in Bulyong Island, or events in other sections of the park, will not be approved as a precautionary approach to avoid cumulative impacts.

Close collaboration with event organisers will ensure potential impacts continue to be managed appropriately. All events require approval under the *National Parks and Wildlife Act 1972*, as well as other approvals which may be required under the *Harbors and Navigation Act 1993* and *River Murray Act 2003*.

One of the primary factors that draw visitors to the Murray River National Park is its natural setting. However it is recognised that sensitively designed additional infrastructure may be required in some of the more popular areas of the park to facilitate user access and enjoyment, and limit impacts. New and existing recreation sites will be designed and renovated to provide access for people living with disability wherever possible. Visitor use zones have been developed to describe specific visitor use hubs across each of the park areas, where required.

While certain areas are designated under this plan for the development of visitor facilities, any development must consider the conservation of wildlife, the protection of cultural heritage, the promotion of the objects of the *River Murray Act 2003*, and the Objectives for a Healthy River Murray under that Act.

Continuing engagement with park stakeholders and volunteers, including the Friends of Riverland Parks, Friends of Paringa Paddock, Moorook Kingston-on-Murray Community Association, First Peoples, and local councils will ensure the ongoing management of the park is led by community groups and those with a strong interest in the park.

Objective

Promote responsible public access to the park that provides for a variety of low impact recreation opportunities.

Strategies

- Consider tourism opportunities that align with park values, provide an enhanced visitor experience and generate economic activity.
- Monitor the potential impact of bush camping along the waterfront at Bulyong Island and Katarapko Island areas of the park, and manage visitor use should impacts be observed.
- Encourage good camping practices, particularly in areas without formal designated sites and facilities, by promoting and encouraging ‘leave no trace’ camping.
- Encourage and work collaboratively with Friends of Parks groups, First Peoples, local councils, and the community to develop and manage recreational access across the park.
- Collaborate with volunteer groups and other stakeholders to develop additional visitor facilities within the park, in accordance with the zoning outlined in this management plan.

THEME 3:
Protecting heritage and promoting culture

The Murray River National Park is the traditional lands of the First Peoples of the River Murray and Mallee, and this group is formally represented in discussions with Government by the River Murray Mallee Aboriginal Corporation (RMMAC). First People's heritage and ongoing cultural connection is a defining characteristic of the park, and takes many forms.

The park protects a range of documented archaeological sites and materials such as middens, stone artefacts, scarred trees, ovens and ancestral burial sites. All First People's sites, objects and remains are protected from damage, disturbance or interference by the *Aboriginal Heritage Act 1988*, regardless of whether they have been registered or reported. Protection of known and unknown heritage sites will be achieved through ongoing involvement and consultation with RMMAC. Park managers will continue to work with RMMAC to develop protocols for the protection of sites, the recording of new sites, and the management of threats on land such as pest species and inappropriate vehicle access.

The landscape itself is also embedded with a significance to the identity, traditional knowledge, lore, histories and practices of First Peoples. The park and the various forms of cultural heritage it contains are indivisible aspects of First Peoples identity.

The heritage and cultural values of the park were greatly impacted through the colonial and agricultural history of the site with the displacement of Aboriginal people and a significant alteration of the landscape. Impacts from grazing stock brought into the site and the development of buildings, yards, fencing and tracks continue to be evident. The felling of trees for timber across the district is likely to have led to the destruction of a number of culturally modified trees, while regulation of the river, pest species, and the impact of increased visiting public have also led to significant impacts to the cultural landscape.

While the proclamation of the park and initiation of protection strategies are intended to reduce impacts to First Nations heritage sites, risks still remain. Key risks are vehicle traffic, natural erosion, pest animals, ground disturbance from pest plant and animal control, and infrastructure development and maintenance.

Management of the park will seek to minimise further impacts to heritage and restore the cultural landscape by maintaining a collaborative relationship with First Peoples, tailoring work programs and methods to avoid and minimise risks to known and unknown cultural heritage sites, and implementing pest control and rehabilitation projects.

The visiting public will be provided information through interpretation and online to ensure cultural assets are protected. Interpretation of park values will include community and First Peoples perspectives, and promote culture and heritage. This interpretation will be developed in collaboration with RMMAC.

Park management will aim to collaborate with RMMAC to provide greater First Peoples involvement in how this traditional land is managed, which is a broad strategic aim of RMMAC for the region (River Murray and Mallee Aboriginal Corporation, 2019).

First Nations people also form a significant neighbour to the park, with the Gerard Aboriginal Community directly adjacent Katarapko. A relationship will continue to be maintained with Gerard to ensure that park management considers the views of the Gerard community.

Opportunities should be explored to facilitate First Peoples to utilise areas of the park for traditional purposes. Management activities, such as installing gates or re-routing tracks, may be used to restrict or discourage general public access to areas which are set aside for the purpose of traditional, cultural uses.

A Cultural Heritage Management Plan has been prepared taking into account Katarapko and other floodplains outside of Murray River National Park. This plan will continue to be revised and used as a basis for managing Indigenous cultural heritage. While this plan only covers the Katarapko portion of the park, the principles and objectives of this plan remain mostly relevant for the remainder of the park, and should be used as a basis for management across each area of the park.

Incorporating other areas of the Murray River National Park into a Cultural Heritage Management Plan should be explored to ensure consistency in the management of sites, programs and the overall relationship between First Peoples and park managers.

Remnants of the colonial and agricultural history of Murray River National Park can be found in buildings, fencing, obsolete drainage structures and stockyards. This includes the heritage listed Calperum Homestead, which is on private land surrounded by park. Effort will be made to provide privacy to occupants of dwellings that are completely surrounded by parks. Assets associated with the Calperum Homestead on park, such as the old shearing shed, yards, and grave, will be protected and maintained.

The remains of Cragg's Hut provides further evidence of early European settlement and is supported by interpretation that visitors can explore on the Cragg's Hut walking trail.

Objective

Maintain and enhance cultural values in the park, and work with First Peoples to protect and promote culture.

Strategies

- Engage with First Peoples through established working committees and protocols.
- Collaborate with First Peoples to develop appropriate interpretation materials and codes of conduct to ensure the visiting public, contractors and departmental staff are aware of their obligations in respect to Aboriginal heritage.
- Expand the relevant actions and principles contained in a Cultural Heritage Management Plan across the entirety of the Murray River National Park.
- Mitigate the impact of vehicle traffic on Aboriginal heritage, through the rationalisation of the track network.
- Manage the risk to heritage posed by pests and pest control programs through a consultative process.
- Maintain European heritage sites to avoid impacts from visiting public or natural degradation wherever possible.
- Work with First Nations stakeholders including RMMAC rangers to provide appropriate access to the park to enable cultural surveying of sites.
- Collaborate and develop protocols with First Peoples to set aside areas for cultural use in the Katarapko section of the Murray River National Park.
- Explore opportunities to incorporate cultural burning practices in fire management activities.
- Explore opportunities for re-naming geographical features to reflect First Peoples' heritage.

THEME 4:
Managing water resources across the park

While Murray River National Park protects multiple areas of healthy riverine native vegetation, other areas have been degraded from changes in the natural flow regime of the river and the ephemeral wetting and drying cycles of its floodplains. This has led to prolonged inundation of low-lying areas, while higher elevation areas receive less frequent flows than occurred in the past. The water table has also risen in some areas, bringing saline groundwater closer to the surface. These processes have impacted on native vegetation in the park.

The reduction of water available to the environment across the park, particularly given anticipated climate change impacts, represents a significant risk to conservation outcomes for the park. However, the management of water for the environment also represents the greatest opportunity for ecological restoration.

Infrastructure has been developed across Murray River floodplains to manage water at the landscape-scale. This infrastructure includes regulators, banks, weirs, and pipelines within Murray River National Park. This infrastructure provides water to the floodplains through managed inundations to better replicate the natural flooding events that would have occurred prior to river regulation, even at times of lower flow. For permanently inundated areas of the park, water regulating infrastructure can facilitate intermittent drying events to simulate the previous variability in river levels.

Water regulating infrastructure is operated and managed external to park management. Park managers will work with agencies to ensure these structures continue to promote the ecological values of the park and encourage rehabilitation. This infrastructure will require ongoing maintenance and operational works, which will be facilitated across the park to enable greater environmental outcomes. The sensitivity of the landscape and other values of the park will be considered in developing new infrastructure.

The development of previous hydrological infrastructure has created barriers to fish and turtle movement across the floodplain. Fish and turtle passage has been facilitated through formal fishways, provision of baffles within in-stream structures, and placing gravel infill within rock banks to create 'turtle ramps'. Additional infrastructure may be developed to facilitate flow and fish passage through creek systems in the park.

Separate to infrastructure that enables environmental watering, Murray River National Park also contains or is adjacent to two operational disposal basins, where saline water from irrigation runoff and salt interception schemes is deposited: Disher Creek Saline Disposal Basin and Berri Saline Disposal Basin. Disher Creek Basin is located within the Lyrup Flats section of the Murray River National Park while Berri Basin is located directly adjacent the northern boundary of the Katarapko section of the park

Disposal basins have caused localised impacts due to an increase in salinity; however, they are recognised as an important component in managing the influx of salt into the river system and maintaining the holistic health of the Murray River. In the case of the Murray River National Park, these disposal basins also provide important habitat for the nationally Endangered Murray hardyhead and other species. Ecological management of these basins is focussed on supporting Murray hardyhead while minimising other impacts.

Parts of Katarapko Island were used as a disposal basin prior to the park's formation. The development and use of this disposal basin led to the degradation of native vegetation in the area, in particular river box and river red gums. This area is no longer used as a disposal basin and is now a recovering wetland. Ecological improvement will be sought by varying lagoon levels and flushing regimes. Salinity levels within the wetland will be monitored and flows managed to keep salinity to within target levels.

The volume of water directed to disposal basins across the Riverland district has been reducing over time due to the rehabilitation of irrigation water supply systems, improved water management, and improved irrigation practices (Department of Environment, Water and Natural Resources, 2017). This trend is expected to continue. Management of disposal basins across the Murray River National Park will require ongoing investigation and review to facilitate ecological outcomes as inflows to disposal basins continues to reduce. The ongoing focus of managing current and former disposal basins will be on improving their ecological condition, including providing for greater tree recruitment and survival, and the preservation of several key species including the salt tolerant Murray hardyhead.

Managed inundations will be undertaken in accordance with the *Landscapes South Australia Act 2019* and the *River Murray Act 2003*, with the intention of contributing to the objectives of the Murray Darling Basin Plan. Park managers will work closely with other agencies and groups to maximise the benefit derived from inundations. This will include targeting overgrazing species in areas recently inundated to encourage regeneration, and the active management of weed ingress following a high water event. Fire risk, which can increase due to vegetation increasing and curing following an inundation, will also be managed to protect important assets. Overall management of water across the park will be adaptive, to ensure it takes into account the latest evidence, and is in line with the broader Murray Darling Basin Plan and ecological objectives for the floodplain.

Inundation of park infrastructure occurs due to both managed inundations and naturally high river flows. Access to the park following inundation can cause track and waterway bank damage. Popular visitor uses following flooding such as fishing and yabbying, though generally permitted throughout the park, can also have significant impacts.

An adaptive management strategy is required in considering public access following environmental watering and natural flooding events, whereby impacts are observed and mitigated over time and management is adjusted according to the extent of flooding and impacts observed.

Areas of the park, including campsites and access tracks, may be closed for public access during flooding in circumstances where the safety of the public or employees cannot be appropriately managed. This needs to be balanced with the opportunity for visitors to experience areas of the park during floods, which can be a useful opportunity for education on the inundation program and the ecology of the area.

Management of potential cultural heritage impacts through the inundation program will be managed as an ongoing site priority.

Objective

Park managers collaborate with a range of other agencies and programs to facilitate positive outcomes to park values through the management of water across the park.

Strategies

- Maximise the benefit achieved by managed inundations through targeted efforts to encourage natural regeneration.
- Ensure risks to visitor safety from flood events, either from managed inundations or natural flooding, are appropriately managed.
- Work with other agencies, groups and First Peoples of the River Murray and Mallee to reduce risks to heritage sites wherever possible from natural flooding or managed inundation.
- Facilitate the ongoing maintenance and improvement of water manipulation infrastructure within Murray River National Park.
- Continue to work with stakeholders to ensure key species across the park are protected through the management of water across the landscape, including the nationally Endangered Murray hardyhead.
- Work with stakeholders to facilitate new and modified floodplain and wetland hydrological infrastructure to achieve improved ecological outcomes, including connectivity between river, creek, wetland and floodplain environments.
- Work with other agencies and stakeholders to monitor the impacts of disposal basins on the values of the park, and promote the health of ecosystems through management of disposal basin water.

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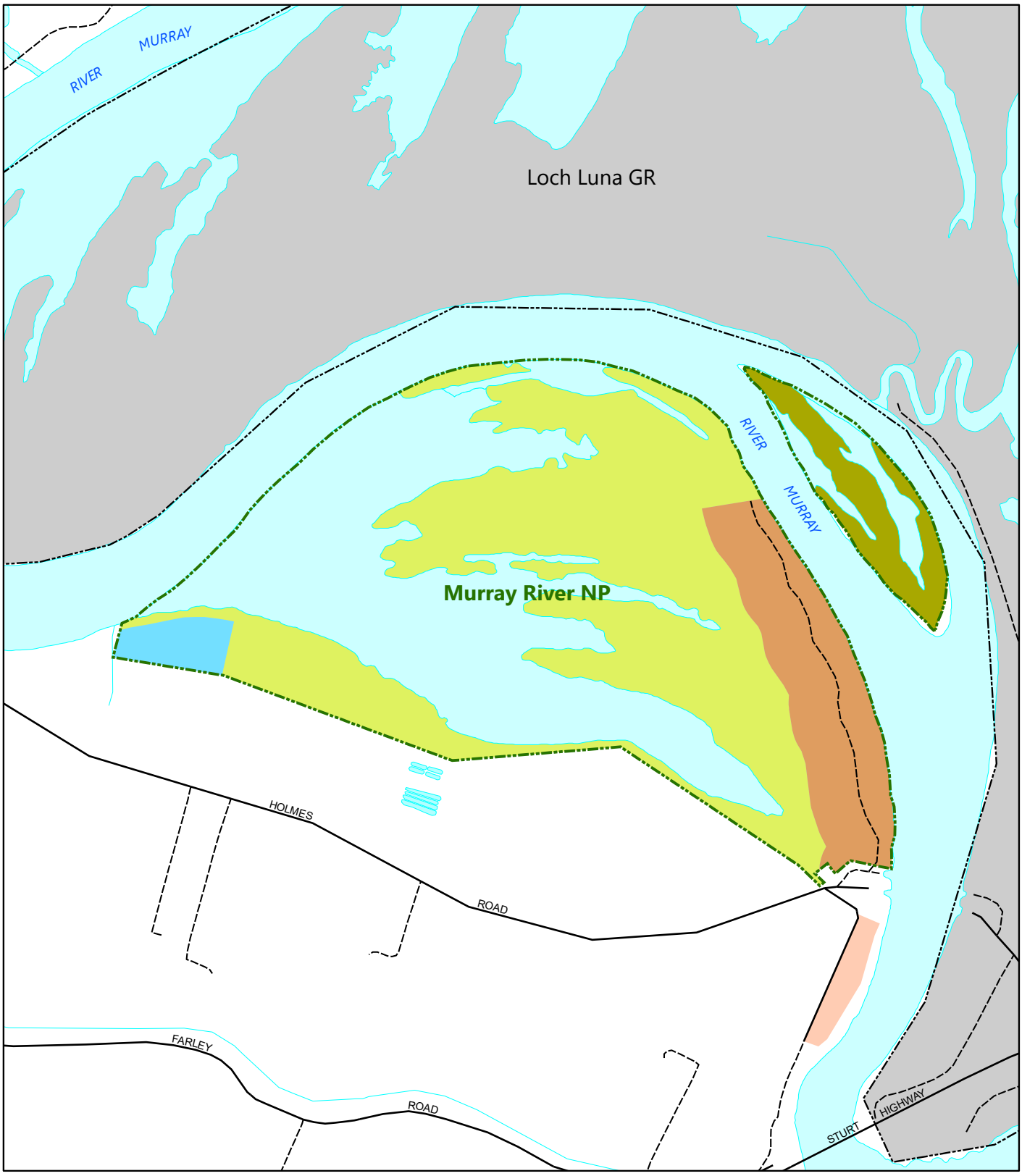
Appendix 1: Zoning maps



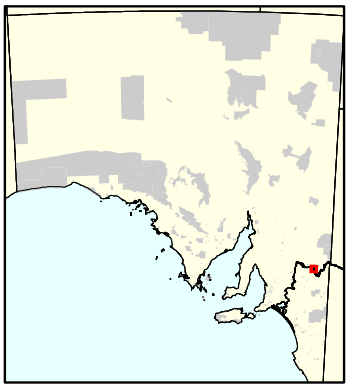
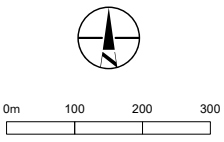


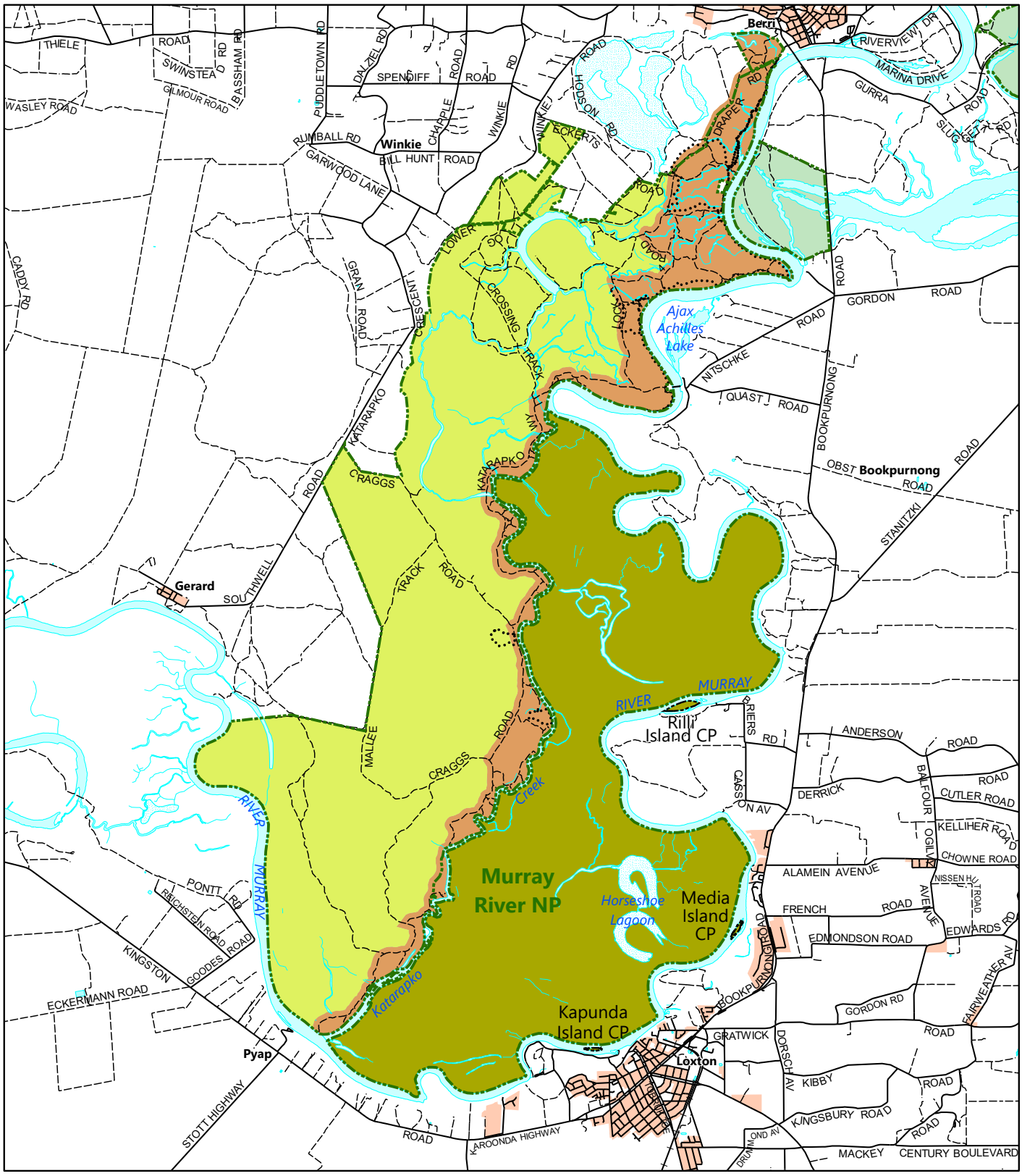
Figure 2

Kingston-on-Murray Zoning



LEGEND

- Sealed road
- Unsealed road
- Watercourse
- Waterbody
- Murray River National Park
- Other protected area
- Built up area
- Caravan Park Zone
- Conservation 1 Zone
- Conservation 2 Zone
- Visitor Use Zone



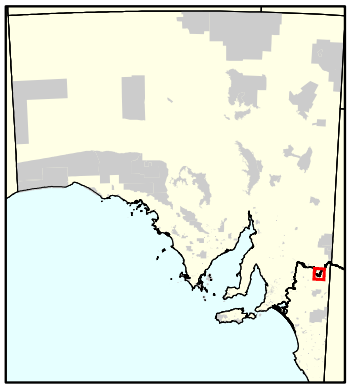


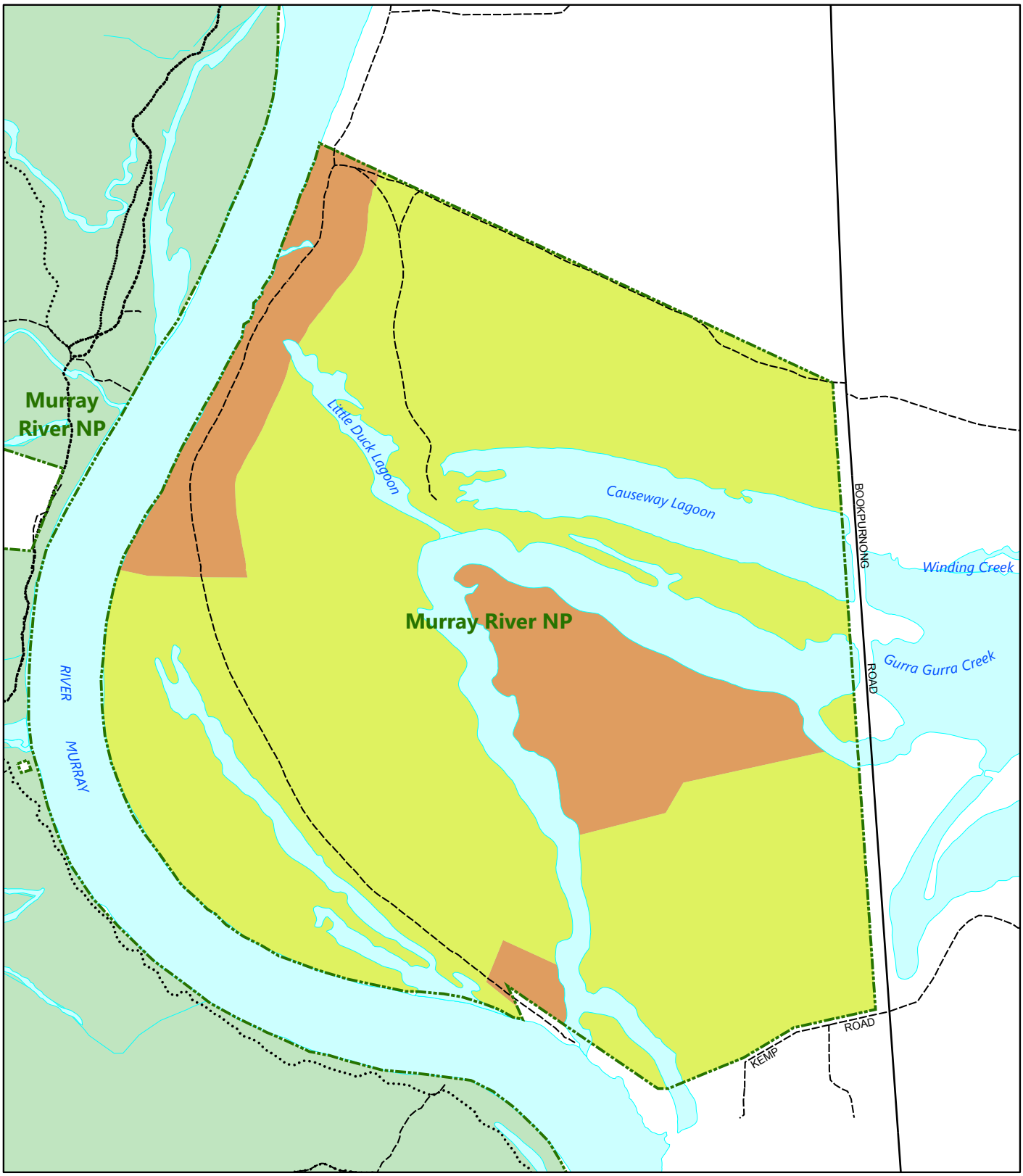
Figure 3

Katarapko Zoning

LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Non-perennial waterbody
- Built up area
- Visitor Use Zone
- Conservation 1 Zone
- Conservation 2 Zone
- Murray River National Park
- Other protected area

0km 1 2



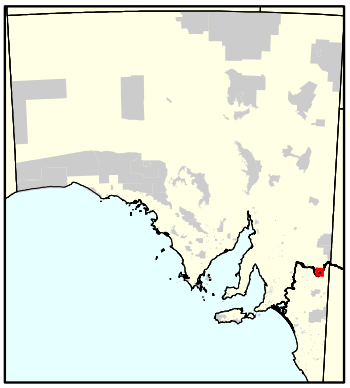
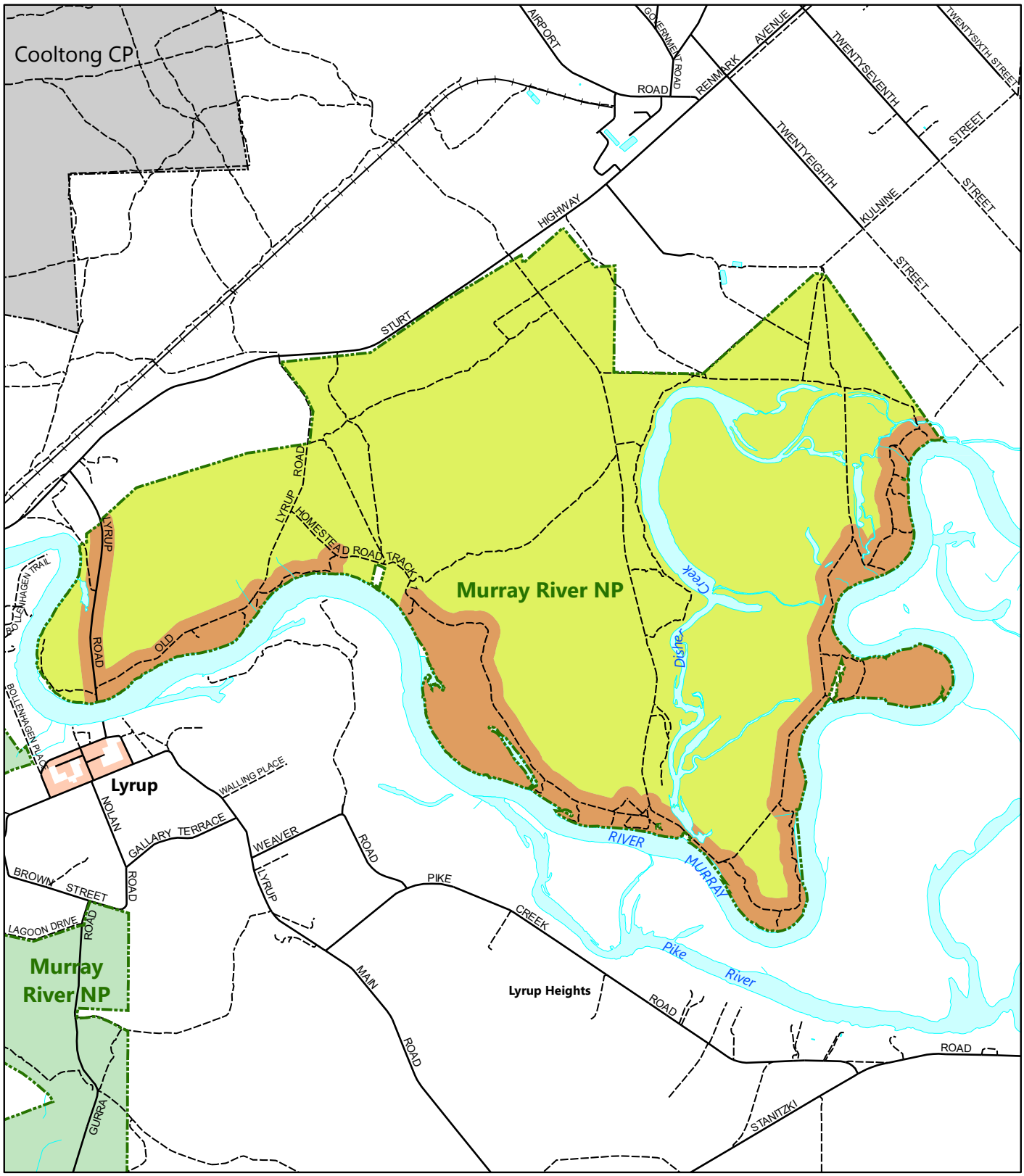


Figure 4

Gurra Gurra Zoning

LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Visitor Use Zone
- Conservation 1 Zone
- Murray River National Park
- Other protected area
- Built up area



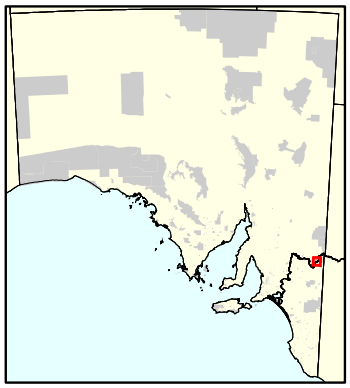


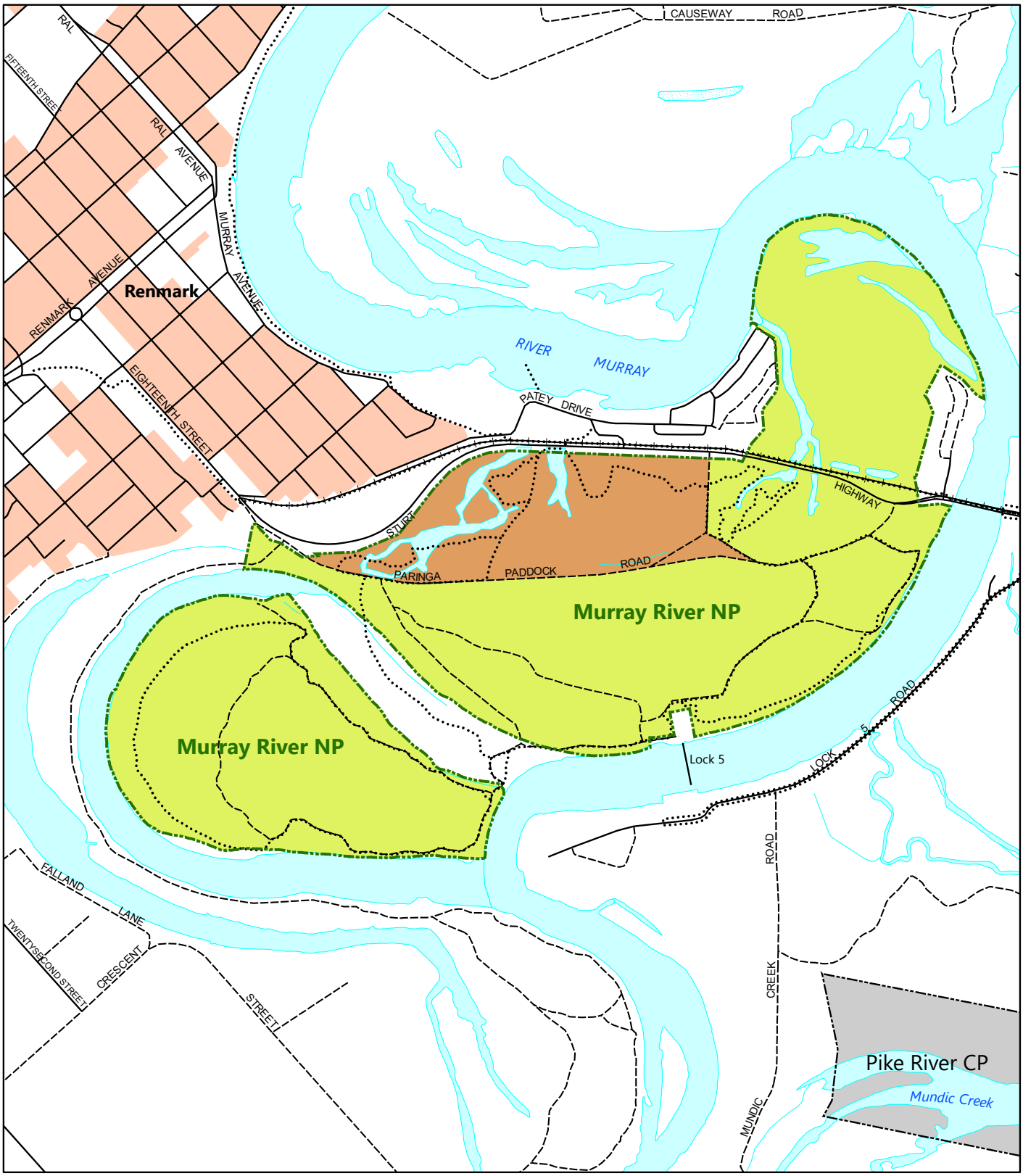
Figure 6

Lyrup Flats Zoning

LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Visitor Use Zone
- Conservation 1 Zone
- Murray River National Park
- Other protected area
- Built up area

0 km 0.5 1



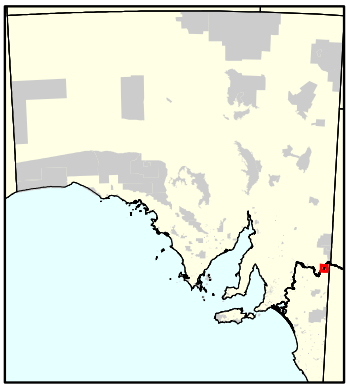
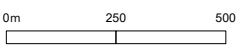


Figure 7

Paringa Paddock Zoning



LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Non-perennial waterbody
- Visitor Use Zone
- Conservation 1 Zone
- Murray River National Park
- Other protected area
- Built up area

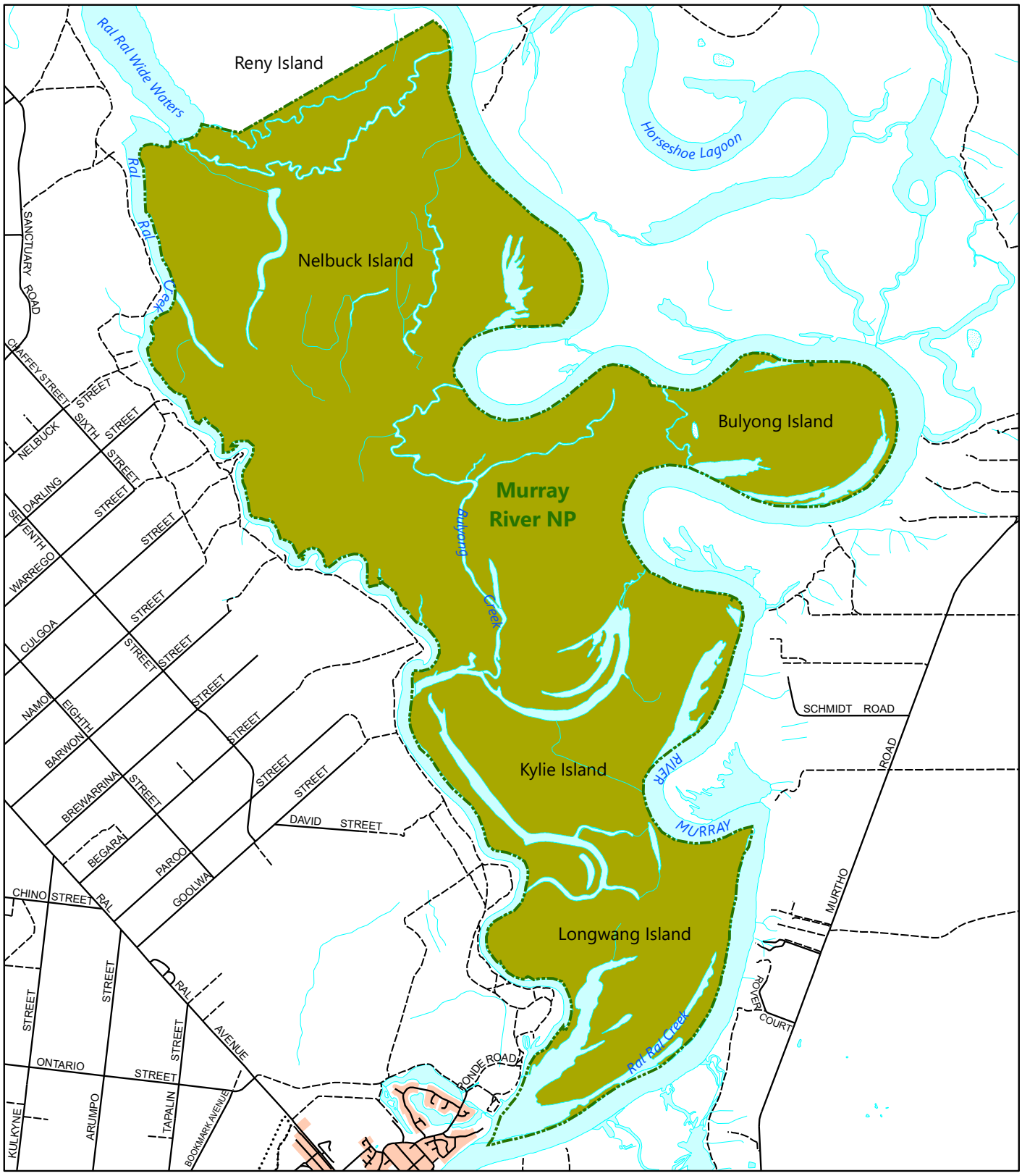
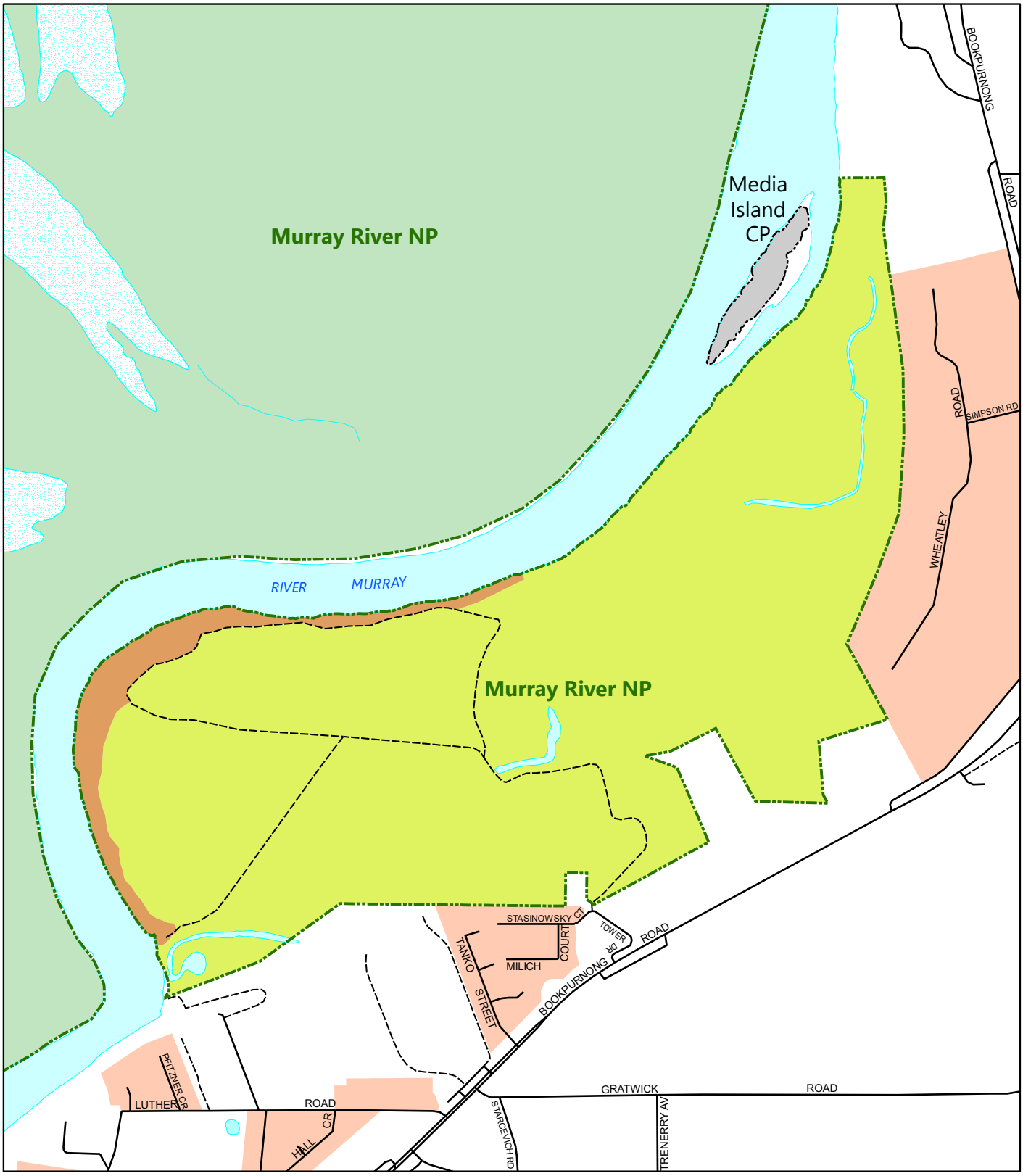


Figure 8

Bulyong Island Zoning

LEGEND

- Sealed road
- Unsealed road
- Walking trail
- Disused or dismantled railway
- Watercourse
- Waterbody
- Non-perennial waterbody
- Conservation 2 Zone
- Murray River National Park
- Other protected area
- Built up area



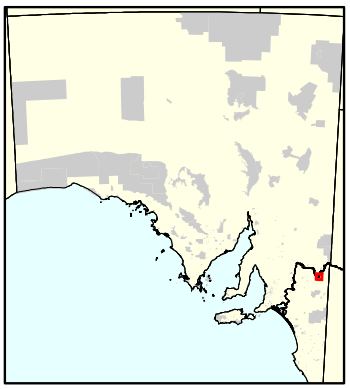


Figure 9

Thiele's Flat Zoning

LEGEND

- Sealed road
- Unsealed road
- Watercourse
- Waterbody
- Non-perennial waterbody
- Conservation 1 Zone
- Visitor Use Zone
- Murray River National Park
- Other protected area
- Built up area

For further information please contact:

Department for Environment and Water.
Phone Information Line (08) 8204 1910, or see SA White Pages for your local Department for Environment and Water office.

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