



Site options profile #L4D

Katarapko Floodplains East

Rilli Lagoon & Rilli Reach - Draft

Lock 3 Master Plan



Location: Weir Pool 3, River Chainage Markers 502 to 496

Land Tenure: Crown Land and Private Landholders

Wetland Size: Rilli Reach [(67 hectares (Ha))/Rilli

Lagoon (268 Ha)

Normal Pool Level: 9.8 mAHD

PROPOSED OPTIONS	
Option #1:	Improve floodplain condition in the southern (downstream) lagoon, by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, by enabling the retention of water through the installation of regulating structures and complementary embankments to a height of 12 mAHD.
Description	This option aims to support the capability to retain water through the installation of regulating structures and complementary blocking banks to 12 mAHD, in order to extend the duration of watering events such as those associated with high-flow events as well as prompting opportunities for delivering water via pumping. Connectivity could be improved by reinstating natural commence to flow levels and un-obstructed flow through the main inlets and connections within the wetland complex, through a review and remediation of sill levels and re-profiling of obstructed flow paths.
Outcomes	• Opportunities for conservation and improvement of floodplain vegetation. • Improved soil moisture conditions. • Replenish freshwater lenses over saline groundwater. • Support temporary wetland habitat to promote food sources for waterbirds.
Option #2:	Promote the conservation of the local regent parrot population and improve floodplain condition in the northern (upstream) basin, by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, by enabling the retention of water through the installation of regulating structures and complementary embankments to a height of 13 mAHD.
Description	The Katarapko Floodplains (East)/ Rilli Complex, falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the regent parrot recovery initiative. The strategic watering of this site, referred to in the initiative as 'Westbrooks Lagoon', to support the conservation and improvement of vegetation important to Regent Parrots, is seen as a key part of conserving the current population and is complementary to existing watering activities. Connectivity could be improved by reinstating natural commence to flow levels and un-obstructed flow through the main inlets and connections within the wetland complex, through a review and remediation of sill levels and re-profiling of obstructed flow paths.
Outcomes	• Opportunities for conservation and improvement of floodplain vegetation. • Improved soil moisture conditions. • Replenish freshwater lenses over saline groundwater. • Support temporary wetland habitat to promote food sources for waterbirds. • Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.
Option #3:	Improve connectivity by reinstating natural commence to flow levels and un-obstructed flow through Rilli Reach, through review and remediation of sill levels and re-profiling of obstructed flow paths and upgrading or replacing of floodplain infrastructure.

Description	An obstruction to flow exists at the road culvert structure across Rilli Reach, which if addressed would support improvements to flow and floodplain connectivity within the site. Connectivity could also be improved by reinstating natural commence to flow levels and un-obstructed flow through the wetland, through a review and remediation of sill levels and re-profiling of obstructed flow paths.
Outcomes	• Opportunities for conservation and improvement of floodplain vegetation. • Improved soil moisture conditions. • Replenish freshwater lenses over saline groundwater.

SITE BACKGROUND

Description

Katarapko Floodplains (East) consist of five of wetlands (Clarks Floodplain, Loxton Riverfront Reserve, Rilli Reach, Rilli Lagoons and Thiele Flat) located south of Berri and north of the township of Loxton on the east bank of the River Murray between Locks 3 and 4. Rilli Reach and Rilli Lagoons are located opposite the Murray River National Park, Katarapko Section and is protected by a Salt Interception Scheme designed to reduce salinity in the groundwater. It includes black box woodland on higher elevations of floodplain, with several flood runners throughout the floodplain^{1,2}.

Cultural Significance

The River Murray and Mallee Aboriginal Corporation (RMMAC) holds native title over the River Murray within the Lock 3 Reach. The First Peoples intimate knowledge and understanding of Country and active participation across all levels is vital to the effective management of this landscape.

Post-colonial Use

Since river regulation and the construction of locks and weirs along the River Murray, the water regime in the wetland complex has been altered. The lack of inundation in these areas has resulted in the decline of floodplain habitat within the wetland complex. Irrigation activities within Katarapko Floodplains (East) have also resulted in saline groundwater issues within these floodplains. A series of Salt Interception Schemes (SIS) have been installed in these areas to reduce the salinity impacts on the environment.

WETLAND ECOLOGY

Katarapko East Floodplains contains a number of smaller floodplain areas, all of them are currently watered by the Nature Foundation SA (NFSA) and aim to regenerate and sustain vegetation on the floodplain, mainly river red gums, black box and lignum shrubland. The conservation rating is low to high^{3,4}, but the ecological value has likely increased with the recent active management occurring at these sites.

Flora and fauna: The major vegetation communities within Katarapko East Floodplain include river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*) woodland, lignum and samphire/ chenopod shrublands. Low fauna diversity and abundances were recorded at these sites during the baseline survey in 2004, likely as a result of the temporal nature of the wetland and water quality issues⁵.

WETLAND MANAGEMENT

Current Management:

The Katarapko Floodplains (East)/ Rilli Reach and Rilli Lagoon sites are included in the NFSA's Water for Nature program, which is supported by the Commonwealth Environmental Water Office (CEWO) to deliver environmental water to wetland and floodplain sites along the Murray River. The current e-water delivery at Rilli Reach aims to improve the health of stressed mature red gum and black box woodlands. Efforts also aim to sustain black box, red gum and lignum seedlings germinated by the 2011 flood peak. A Salt Interception Scheme has been installed to help reduce the impact of saline groundwater. Complementary monitoring of the Rilli Lagoons has also been conducted since January 2016. Watering efforts here aim to improve habitat conditions for red gum woodland, lignum swales, and black box woodland. Options outlined within this profile seek to align and complement these activities.

Infrastructure:

Current water delivery within the Katarapko Floodplains (East) includes the use of water pumps and sprinkler irrigation methods, utilising a combination of temporary and permanent infrastructure. The installation of additional embankments and structures would help optimise the current management efforts and increase opportunities for outcomes within the floodplain.

ISSUES AND DRIVERS

As part of the Master Planning Project engagement process, an ongoing register of issues and drivers relating to sites and options was maintained. These highlighted key considerations and investigations that would need to be factored in and undertaken as part of any next steps towards realising the outcomes described within the option profiles. For Rilli Lagoon, these included:

Environmental

- Construction and operations need to be mindful of the presence of salt in groundwater and accumulation of salt from evaporation of surface water.

Community/Social

- Note that the Nature Foundation SA currently manage pumping to the sites; need to consult with them on water supply.

KEY STAKEHOLDER INVOLVEMENT

- Central Irrigation Trust (CIT)
- Commonwealth Environmental Water Office (CEWO)
- Loxton District Landcare
- Loxton Waikerie Council
- Murraylands and Riverland Landscape Board
- National Parks and Wildlife Service SA
- Nature Foundation of SA
- Regent Parrot Recovery Team
- River Murray and Mallee Aboriginal Corporation (RMMAC)
- SA Water
- Landholders

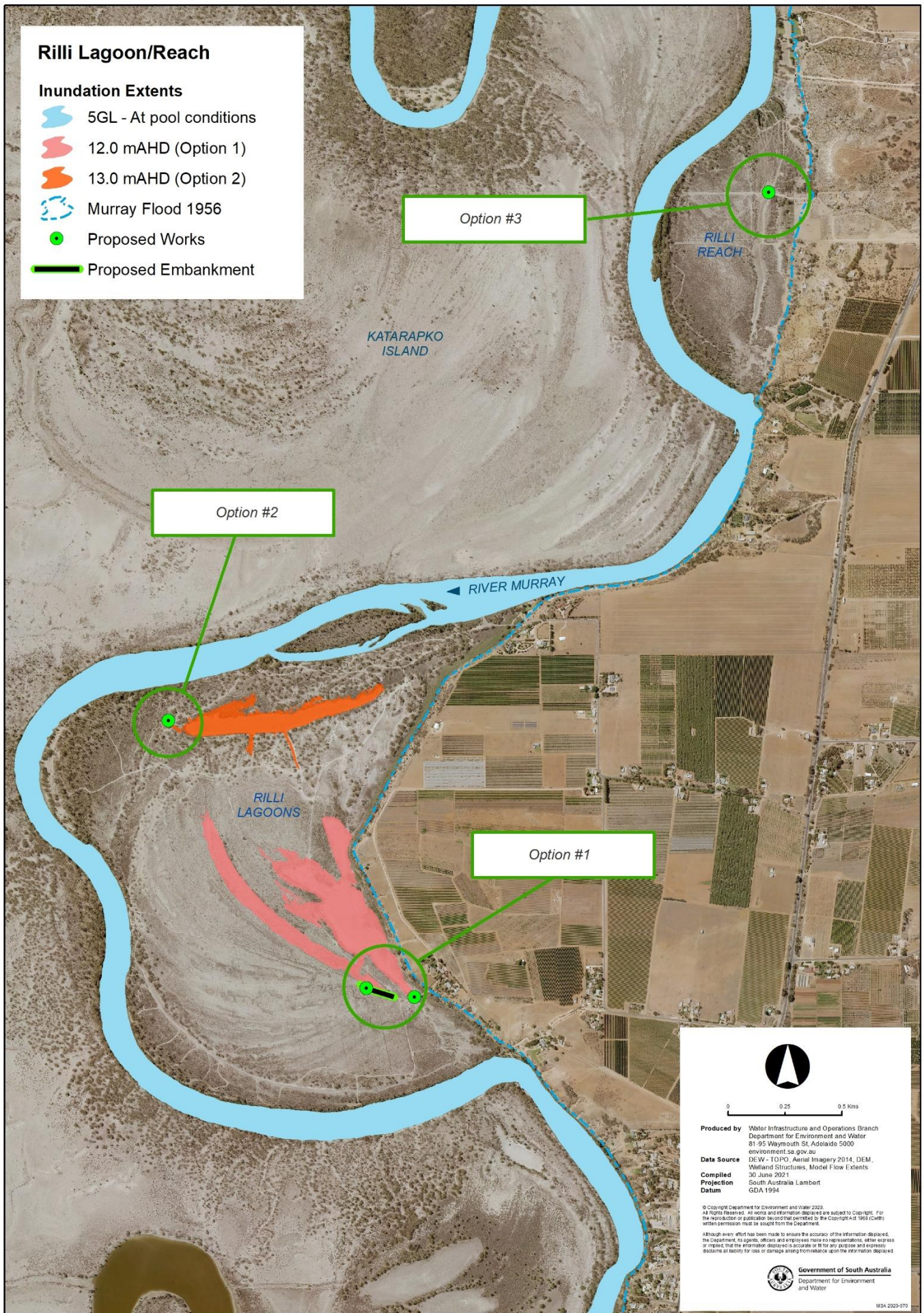
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1. Jensen A, South Australia, Department of Environment and Natural Resources, South Australian River Murray Wetlands Management Committee. Wetlands atlas of the South Australian Murray Valley: a summary of current knowledge of Murray Valley wetlands as a basis for integrated catchment management. Adelaide: Dept. of Environment and Natural Resources; 1996.
2. Jensen A. Delivery of Environmental Water by Water For Nature Program in the South Australian River Murray Valley 2013-16. NFSA; 2016 Oct.
3. Jensen A, South Australia, Department of Environment and Natural Resources, South Australian River Murray Wetlands Management Committee. Wetlands atlas of the South Australian Murray Valley: a summary of current knowledge of Murray Valley wetlands as a basis for integrated catchment management. Adelaide: Dept. of Environment and Natural Resources; 1996.
4. Thompson MB. River Murray Wetlands - Their Characteristics, Significance and Management. Adelaide: University of Adelaide for the Department of Environment and Planning and the Nature Conservation Society of South Australia; 1986.
5. SKM. River Murray Wetlands Baseline Survey – Final Report. Sinclair Knight Merz, Armadale. Prepared for the River Murray Catchment Water Management Board.; 2004.

Rilli Lagoon/Reach

Inundation Extents

-  5GL - At pool conditions
-  12.0 mAHD (Option 1)
-  13.0 mAHD (Option 2)
-  Murray Flood 1956
-  Proposed Works
-  Proposed Embankment



0 0.25 0.5 Kms

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Data Source DEW - TOPO, Aerial Imagery 2014, DEM,
Welland Structures, Model Flow Extents

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Projection South Australia Lambert
Datum GDA 1994

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