



Site options profile #L5

Gerard Wetland Complex

- Draft

Lock 3 Master Plan



Location: Weir Pool 3, River Chainage Markers 477 (inlet) to 473 (outlet)
Land Tenure: Leased to Gerard Community Council via Aboriginal Lands Trust and management by National Parks and Wildlife Service SA.

Creek Length: 2,856 m
Normal Pool Level: 9.8 mAH

PROPOSED OPTIONS	
Option #1:	Improve floodplain condition and outcomes associated with the Regent Parrot Recovery Project by: - Supporting and expanding the inundation extent of existing environmental watering activities - Increasing the duration of floodplain watering associated with managed and natural high-flow events, including weir pool raising, within the inner floodplain basins, through the installation of a structure and complementary bank to a height of 11.8 mAH.
Description	This option aims to support the capability to maximise the opportunity presented by weir pool raising and capacity to retain water, through the installation of a regulating structure and complementary blocking bank to 11.8 mAH. This will support the capacity to extend the duration of watering events such as those associated with high-flow events and weir pool raising, as well as prompting opportunities for delivering water via pumping. Current efforts to provide e-water to the site will be improved and managed extent expanded, under this option, which also includes the repairing of a breached bank. This area falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the Regent Parrot Recovery Project. The strategic watering of this site to support the conservation and improvement of vegetation important to regent parrots, is seen as a key part of the realising the conservation of the current population¹.
Outcomes	- Benefits associated with an improved watering regime. - Improved soil moisture conditions. - Conservation and improvement of vegetation important to regent parrots. - Support the conservation of the current regent parrot population.
Option #2:	Improve connectivity by reinstating natural commence to flow levels and un-obstructed flow through the main upstream inlets to the wetland complex, through review and remediation of sill levels and re-profiling of obstructed flow paths.
Description	Less frequent high flow events, drought mitigation measures and changes in land management have led to deposition of material along the connecting creeks at the upstream end of the wetland. The deposition of material has potentially created high points within the creeks and artificially high sill levels that could be remediated to support more natural commence to flow levels and allow for un-obstructed flow through the wetland.
Outcomes	- Benefits associated with an improved watering regime. - Enhanced capacity for greater exchange between the river and wetlands. - Reduced build-up of sediment and abundant bullrush (<i>Typha spp</i>).
Option #3:	Improve floodplain condition and outcomes associated with the Regent Parrot Recovery Project 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 11.8 mAH.
Description	This option aims to optimise the floodplain inundation and retention extent through the installation of regulating structures and complementary embankments. Preliminary investigations have identified that an operating height of 11.8 mAH could optimise outcomes whilst minimising impacts associated with construction and ongoing operations and maintenance. This increase in opportunity for e-watering and high-flow retention could lead to the improved condition of floodplain vegetation, including black box habitat.

	This area falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the regent parrot recovery initiative. The strategic watering of this site to support the conservation and improvement of vegetation important to regent parrots, is seen as a key part of the realising the conservation of the current population ¹ .
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.

Option #4:	Increase the extent of inundation proposed within 'Option 3' within outer lagoon through the installation of regulating structure and complementary embankment to a height of 12.3 mAHd.
Description	This option aims to complement the outcomes associated with 'Option 3' by increasing the extent of the managed area within the outer lagoon. It also seeks to introduce management flexibility by enabling the outer lagoon to be managed independently. This area falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the Regent Parrot Recovery Project. The strategic watering of this site to support the conservation and improvement of vegetation important to regent parrots, is seen as a key part of the realising the conservation of the current population¹.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.

Option #5:	Improve flow conditions within Putjeda Creek by re-profiling it to connect at pool.
Description	It is believed that Putjeda Creek was once a pool connected flowing creek and over time less frequent high flow events, drought mitigation measures and changes in land and river management have led to the deposition of material along the connecting creek resulting in its permanent disconnection. The creek could be excavated to lower sill levels in order to connect to the river at pool. This will improve the creek's connections with the river and improve the volume and frequency of flow through the creek. Recent works undertaken as part of the Riverine Recovery Project excavated material to ensure the creek connects at flows between ~15 and 20 GL. The influence of weir pool manipulation, in particular raising on improving outcomes and mitigating risks for the creek, needs to be further investigated.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.

SITE BACKGROUND

Description

Gerard is bounded by the River Murray to the southwest, Katarapko (Murray River National Park) to the east and southeast, Spectacle Lakes to the west and the town of Winkie to the north. Putjeda Creek is connected to the eastern side of the river, immediately south of Gerard. The creek is connected to the River Murray at the inlet (river marker 477) and runs approximately 2,860 m until it flows into the river at marker 473.

Historical and Cultural Significance

Putjeda Creek is an area of high cultural value to the Gerard Community and the wider First Peoples of the River Murray and Mallee Region (First Peoples) community. The area around Gerard is the land of Ngawait, Erawirung and Ngayawung. The people of Gerard today have various kinship ties with the Aboriginal peoples of the Riverland and Eyre Peninsula (primarily as a result of the relocation of Aboriginal people from the Ooldea Mission in 1952). The community at Gerard is the largest group of Aboriginal people living together in the Riverland area of South Australia as a discrete Aboriginal community.

WETLAND ECOLOGY

Flora: The dominant wetland vegetation types on the floodplain include river red gum woodland (*Eucalyptus camaldulensis*), black box woodland (*Eucalyptus largiflorens*), lignum and samphire shrubland, and sedgelands. No nationally listed species have been recorded at the site. See references for further details of species composition².

Fauna: There are a number of listed species that have the potential to occur at this site, including the vulnerable regent parrot (*Polytelis anthopeplus monarchoides*) which has been recorded close to Putjeda Creek. Southern bell frogs (*Litoria raniformis*) are present at this site during pumped environmental watering events^{2,3}.

WETLAND MANAGEMENT

Current Management:

There are no structures that are actively managed to support water outcomes within Putjeda Creek. During the summer months, the creek often flows backwards (from outlet to inlet), due to restricted flows. Silting issues have also been identified within the creek, further restricting flows. Efforts to connect the creek at pool level will minimise these issues.

In collaboration with the Gerard Community, staff at the Murraylands and Riverland Landscapes Board currently pump e-water to the surrounding flood runners. Efforts to improve flow in this area will maximise environmental outcomes. During moderate flow events, i.e. ~15 to 20 gegalitres (GL) Putjeda Creek will fill with water, but it often goes stagnant due to restricted flows. Re-profiling portions of the creek as well as repairing a breached bank will improve these management conditions. There are also some roads and tracks that will have limited accessibility during an 80 GL inundation event, which will be further examined under the Constraints Measures Project.

Infrastructure:

Previous works completed aimed to restore the environmental and cultural values of the Putjeda Creek by improving the creek's connections with the river. This included the following works to allow for better flows:

- Re-profiling of the upstream inlet connection of the creek to the river.
- Removal of the high section (200-300m) at the downstream connection to the river.
- Upgrade to the 'gravel crossing' across the creek with box culverts/vehicle passage and excavation of a small section of creek to enable greater water flows at this point.
- Re-profiling of the downstream outlet connection to the river.

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 Gerard Complex, these included:

Environmental

- There are some risks associated with acid sulfate soils at this site⁴. This would require further assessment before any construction works or wetting and drying activities are undertaken.
- Construction and operations need to be mindful of the presence of salt in groundwater and accumulation of salt from evaporation of surface water.
- Note that Weir Pool Manipulation could potentially help deliver water for options 4 and 5.

Cultural

- Gerard Community are key stakeholders for this site.
- Construction works need to be mindful not to disturb areas of cultural importance.

Operational/logistics

- Sand will potentially be a confounding issue for re-profiling requirements.

KEY STAKEHOLDER INVOLVEMENT

- Central Irrigation Trust (CIT)
- Commonwealth Environmental Water Office (CEWO)
- Gerard Aboriginal Community
- Murraylands and Riverland Landscape Board
- National Parks and Wildlife Service SA
- Regent Parrot Recovery Team
- River Murray and Mallee Aboriginal Corporation (RMMAC)
- SA Water

REFERENCES

1. Harper M. Maximise Water Delivery for Regent Parrot Outcomes – Water for the Environment Program. Prepared by the South Australian Regent Parrot Recovery Team for the Commonwealth Environmental Water Office, Australian Department of the Environment and Energy.; 2020.
2. Peake M. Riverine Recovery Project- Secondary Structures - Native Vegetation Management Plan. SA Water; 2019.
3. EBS Ecology. Riverine Recovery Project Vegetation Assessment & Management Plan. Report to Department for Environment and Water.: EBS Ecology, Adelaide; 2019.
4. Grealish G, Shand P, Grocke S, Baker A, Fitzpatrick R, Hicks W. Assessment of Acid Sulfate Soil Materials in the Lock 1 to Lock 5 Region of the Murray-Darling Basin. CSIRO: Water for a Healthy Country National Research Flagship.; 2010.

