

Tidal, non-tidal and freshwater constructed water bodies (CWBs)



Site Visits – 22 July 2013
Information Pack

Parrearra Lake

Purpose

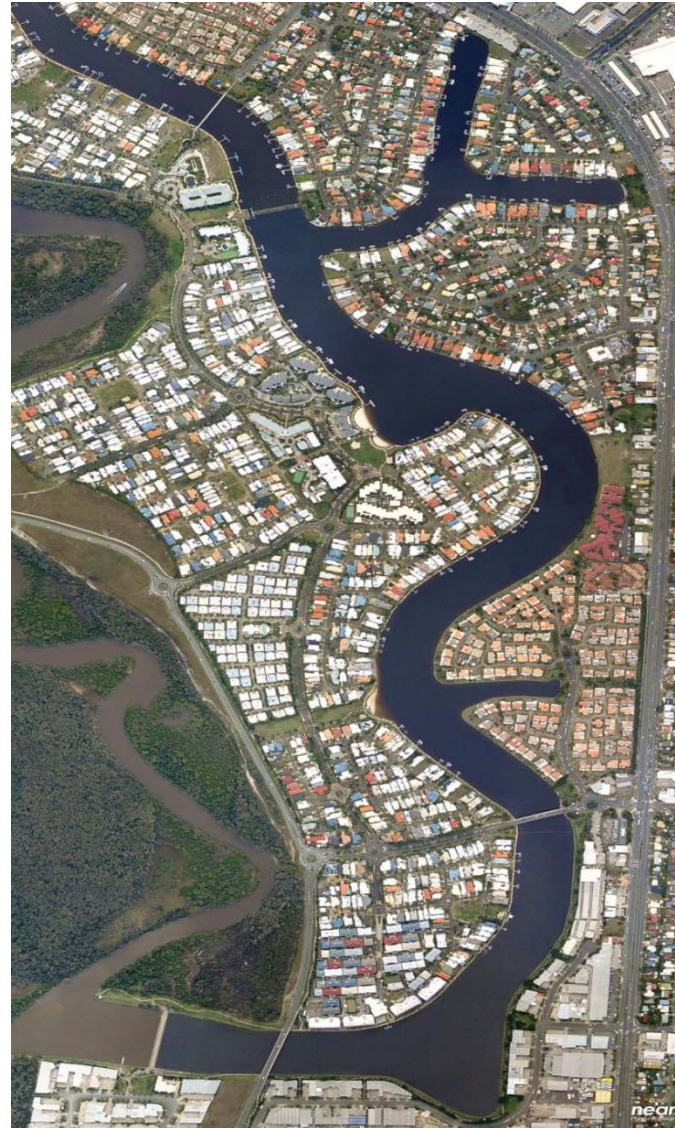
- Forms part of the Parrearra Flood Bypass Channel (an essential component of the flooding solution for the entire Kawana Waters development)
- Provides for public recreation uses (primarily boating).
- Uses and activities on the lake are controlled by a Lake Management Plan (endorsed by Council in 2001).

How the Lake Works

- The lake is formed by upstream and downstream weirs and perimeter revetment walls creating an area of approximately 47 Ha.
- The crest level of the downstream weir (tide control weir) is R.L. 0.9m, and the crest level of the upstream weir (flood control weir) is R.L. 1.83m.
- The nominal lake level varies slightly between R.L. 0.0 and R.L. 0.1m.
- Tidal exchange operates by means of level actuated penstock valves at each weir (inflow at the downstream weir at high tide, and outflow at the upstream weir at low tide), to achieve a 60 day turnover of the entire lake volume.
- Boating access to the Mooloolah River is provided by a navigation lock at the downstream weir. Vessel sizes are limited to 15m long and 4.5m wide.

Key Elements

- Construction of the lake commenced in the 1990's and was completed in the early 2000's.
- The area of the lake is dedicated as a Reserve under Council trusteeship. Council has responsibility for all operation and maintenance of the lake, including the tidal exchange system and the navigation lock.



Twin Waters Lake



Purpose

- Initial source of fill to achieve flood immunity and drainage for the estate.
- Provides visual amenity, active and passive recreation.
- Provides flood conveyance for an external catchment of 920 ha.
- The lake will be controlled through a Lake Management Plan to be endorsed by SCRC.

How the Lake Works

- The lake is formed by an upstream and downstream weir and perimeter revetment walls creating an area of approx. 40ha.
- The water quality of the lake is excellent due to the lakes proximity to the Maroochy River and daily tidal exchange from the Maroochy River through pipes in the weir structure.
- The lake conveys flood waters up to Q100 from the external catchment that includes the Sunshine Coast Airport.
- The weir level interface with the Maroochy River is 0.44m AHD and allows for overtopping of approx. 270 tides events per year with maximum lake level fluctuations of 0.3m.

Key Elements

- Lake was approved in 1998 as part of a major land rezoning and the lake construction was completed in 2003.
- The approval of the lake does not include a sinking fund.
- Currently the lake is the Developer's responsibility with hand over to SCRC proposed upon the lake achieving water quality and construction standards.

Sunshine Cove Lake

Purpose

- Initial source of fill to achieve flood immunity for estate.
- Provides visual amenity, active and passive recreation.
- Provides flood storage/conveyance for external catchment of approx. 800 ha.
- Future lake controlled through a Lake Management Plan to be endorsed by SCRC.

How the Lake Works

- The lake is formed by an upstream and downstream weir and perimeter revetment walls creating an area of approx. 21Ha.
- The water quality and lake level of 0.75m AHD is maintained by a salinity pump station and pipe which pumps water from Cornmeal Creek to the top end of the lake and turns over the entire lake volume within 30 days.
- The lake conveys flood waters up to Q100 from the external catchment between the surface of the lake and the lake edge batter of the allotments.
- The weir interface with Cornmeal Creek is 35m wide and allows overtopping by tides of up to 1.15m AHD with an average lake fluctuation of approx. 0.4m.

Key Elements

- Lake was approved in 2004 and will become Drainage Reserve upon handover.
- \$2.47m sinking fund agreed based on lifecycle cost of lake infrastructure (weir, salinity line and revetment walls).
- Salinity Pump - runs 21hrs/day turns over lake volume of approx. 915MI in 30 days.
- Currently the lake is Developer's responsibility with hand over to SCRC 3yrs after last stage or longer until lake is achieving water quality criteria.



Pelican Waters

Purpose

- Initial source of fill to achieve flood immunity for estate.
- Provides visual amenity, active and passive recreation including ocean access to Pumicestone Passage via a lock structure.
- Provides flood storage/conveyance for both Lamerough and Duckholes Creeks.
- Lake controlled through a Lake Management Plan endorsed by Council 2006.

How the Lake Works

- The lake is formed by an upstream and downstream weir and perimeter revetment walls creating an area of approx. 24Ha.
- The water quality and lake level of 0.60m AHD is maintained by a salinity pump station and pipe which pumps water from Pumicestone Passage to the top end of the lake and turns over the entire lake volume within 30 days.
- The lake conveys flood waters up to Q100 from the external catchment between the surface of the lake and the lake edge batter of the allotments.
- The weir interface with Lamerough Canal is approx. 52m wide and is overtopped by high tides and flood events.

Key Elements

- The lake concept was approved as part of a rezoning approval in 1996 with the lake construction commencing in stages from 2004.
- \$2.5m sinking fund agreed based on lifecycle cost of lake infrastructure.
- Salinity Pump - runs 20hrs/day turns over a lake volume of 980ML in 30 days.
- Currently the lake is Developer's responsibility with the Lock and Weir hand over to SCRC



Lake Kawana



Purpose

- Source of fill for much of the Kawana Waters development (required filling to achieve flood immunity).
- Public recreation facility for aquatic sports (e.g. rowing, canoeing, kayaking), as well as for a range of informal recreational activities.
- Uses and activities on the lake controlled by a Lake Management Plan (endorsed by Council in October 2008).

How the Lake Works

- The lake is formed by an outlet weir and perimeter revetment walls creating an area of approx. 72Ha.
- The outlet weir is located at the southern end of the lake, where the lake discharges to Pangali canal. The level of the top of the weir is set at 'Mean High Water Spring Tide', and maintains a nominal lake level of R.L. 0.65m.
- A pump station and pipe pumps saline water from Mooloolah River to the northern end of the lake to maintain brackish (saline) conditions. Normal pump operation will turn over the entire lake volume every 60 days, but pumps can be operated to achieve 30 day turnover if circumstances warrant.

Key Elements

- The lake was identified in the 1996 Caloundra Planning Scheme and was approved in 1999, with first stage of construction commencing in 2002.
- Currently the operation of the salinity exchange system and maintenance of lake water quality is Developer's responsibility with hand over to SCRC no earlier than two years after final stage (later if water quality criteria not achieved).