

Water Sensitive Urban Design (WSUD) is a modern approach to **managing stormwater** that is now a requirement by councils across Australia. It uses the integration of physical and biological treatment systems to achieve more sustainable water quality outcomes without compromising flood security or aesthetics.

The primary purpose of a Stormwater Management Plan is to protect waterways from pollution carried in stormwater runoff. By incorporating stormwater collection into the Stormwater Management Plan, it can have the additional benefit of providing an alternative water source for the development, required under the Queensland Development Codes.

WSUD aims to minimise stormwater peak flows and to improve stormwater runoff quality through use of such techniques as:

- Rainwater tanks to collect roof water to enable reuse for irrigation, toilet flushing and general cleaning as well as to reduce peak flow velocities;
- Stormwater tanks to collect stormwater runoff to enable reuse;
- Vegetated swales, landscaped infiltration swales and rock drains to treat and convey stormwater throughout the site as well as providing an aesthetically pleasing alternative to grated drains;
- Stormwater treatment using gross pollutant traps, bioretention basins or constructed wetlands to ensure the quality of stormwater leaving the site is compliant with the water quality objectives of the receiving water body;
- Source controls such as surface treatments or a covered bunded area to ensure industrial wastes do not enter the stormwater system;
- Porous paving to reduce stormwater runoff from hard surfaces.



SSI can provide stormwater management advice for any size development. Each stormwater management plan will comply with any local Council or regulatory requirements and incorporate WSUD elements which are both appropriate for the site and offer multi-beneficial outcomes. We will work in with architects, planners, engineers, hydraulic designers and the client to ensure that the best and most integrated outcome is achieved.

Through computer modeling (MUSIC) we can determine the effectiveness of stormwater quality improvement devices and ensure that the water quality objectives for the site are met.

SSI has also developed a Rainwater Harvesting Model to determine the optimum tank size for the collection of rainwater based on the roof area, water demand and daily historic rainfall data for the region of interest. The model is able to accurately quantify the supply potential of rainwater, savings in water consumption, and the reduction in stormwater discharge from the site.

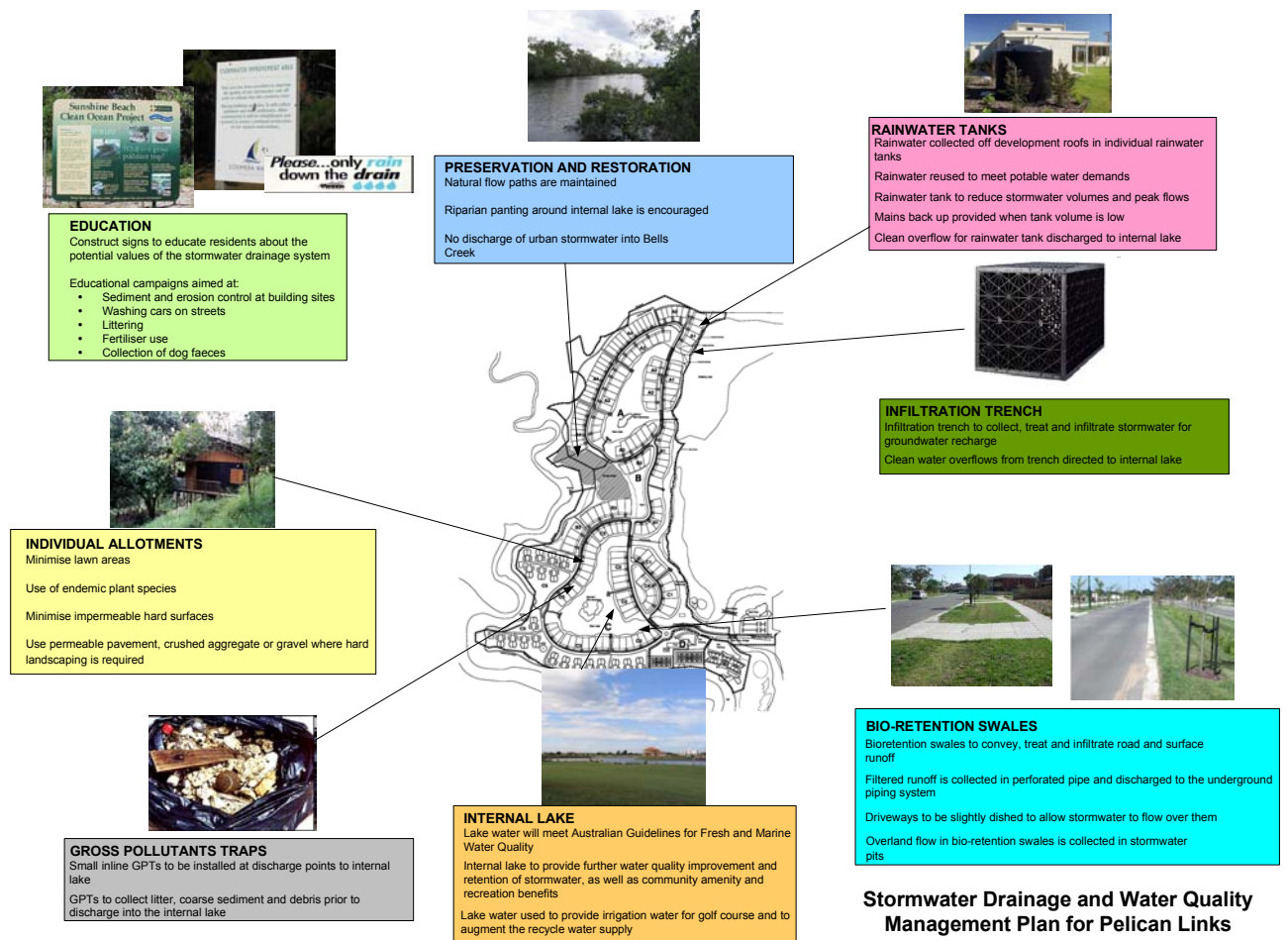


Project List

Pelican Links Sustainable Subdivision

Pelican Links is a unique residential community enjoying a prime location adjacent to the Club Pelican Golf Course and the natural environment of Bell's Creek at Caloundra in South East Queensland. SSI prepared a stormwater drainage and water quality management plan for the development which incorporated the following key features:

- The preservation and restoration of existing natural valuable elements such as riparian planting around Bells Creek;
- An education campaign aimed at reducing stormwater pollutants at their source;
- Rainwater tanks to provide potable water supply for the allotments as well as to reduce stormwater volumes and peak flows;
- Infiltration trenches located along the rear of allotments to collect, treat and infiltrate surface water runoff for groundwater recharge;
- Bio-retention swales located along the sides of roadways to convey, filter and biologically treat surface runoff from roads and other hard surfaces;
- Gross Pollutants Traps (GPTs) to collect litter, coarse sediment and other debris prior to discharge into the internal lake;
- An internal lake to provide community amenity as well as stormwater retention and additional water quality improvement.



SSI Stormwater Management Plans deliver improved environmental performance and increase the value of your development through increased visual amenity and reduced reliance on mains water.

Southport Central High Rise Development

Mango Hill Catholic School

Garrick St Luxury Apartments, Coolangatta

Kelvin Grove Urban Village Student Accommodation Building

The Kelvin Grove Urban Village (KGUV) is a redevelopment site located within close proximity to the Brisbane CBD. The development had strict sustainable design guidelines that must be adhered to before approval would be granted.

SSI produced the Sustainable Stormwater Management Plan for the student accommodation building within the KGUV that incorporated the following WSUD components:

- Source controls like covered bins and signage;
- 200 kL Rainwater tank to enable onsite reuse of rainwater;
- 50 kL onsite detention tank to reduce stormwater runoff peak flows;
- Bioretention system for treatment of stormwater before it leaves the site;
- Vegetated swales to divert and treat stormwater from an upstream catchment.



St Andrews War Memorial Hospital

Archerfield Industrial Development

Dutton Park Mixed Residential & Commercial Development

Marvel Street, Byron Bay

SSI completed a cutting edge Stormwater Management Plan for a prestige medium density housing development in Byron Bay. The WSUD elements adopted for the site include:

- Composting toilets to reduce mains water demand and sewage discharge;
- Rainwater tanks that will be located under each of the residences for potable and non-potable water supply;
- An infiltration trench that will collect, treat and discharge all overland flow and overflows from the rainwater tanks;
- A grassed swale and vegetated contour banks to direct and dissipate overland flow on the site to the infiltration device;
- Porous paving to infiltrate flows off impervious areas and minimise the runoff from the site to the street.



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