

# BEST PRACTICE STORMWATER MANAGEMENT

## ABOUT THE PORT OF BRISBANE

Queensland's premier multi-cargo port and Australia's most diverse port, the Port of Brisbane facilitates significant trade and economic growth in a responsible, social and environmentally sustainable manner.



## Improving waterway health

Port of Brisbane Pty Ltd (PBPL) and its partners are improving the health of the Brisbane River and Moreton Bay by reducing sediment run-off in the catchment, in Queensland's first scientifically-based and assessed offsite stormwater treatment project.

The multi award-winning project – led by PBPL – is redefining best practice in stormwater treatment and changing the way we manage sediment pollution to deliver the best environmental, community and industry outcomes.

PBPL is investing more than \$1 million over three years to fund the project and maintain the site.

## Addressing the problem

Sediment run-off is a significant issue facing Queensland's waterways and marine environments. Locally, it significantly impacts the water quality and ecosystem health of the Brisbane River and Moreton Bay.

Each year approximately 80% of sediment pollution (approximately 400,000 tonnes) in the lower Brisbane River comes from just 20% of the catchment – mostly from eroded creeks in the Lockyer Valley. Heavy rainfall events cause these degraded creeks to erode further, dirtying the water which then transfers sediment to Brisbane River and into Moreton Bay.

After the 2013 Queensland floods more than 2 million tonnes of sediment was deposited in the Port's navigational channels, requiring extensive maintenance dredging works to safely re-open the channel. Significant volumes of sediment continued past the port into Moreton Bay Marine Park.

As a result, PBPL sought to identify the most effective way of treating sediment run-off, with the aim of improving overall waterway health while also reducing impacts of potential future flood events. Existing research showed that tackling sediment pollution at its source would deliver the greatest environmental outcomes.

## Award winning project



Sustainable Water Management Award  
Minister's Grand Prize



QLD Environmental Excellence Award



Environmental Transport Award



From left: Prior to site works; Onsite inspections; During works  
Page opposite – from left: Grade control structure; Bank stabilisation; Revegetation

## Tackling sediment pollution at its source

In 2015, PBPL partnered with a range of environmental organisations, independent experts and government agencies to implement the pilot project in the Lockyer Valley, 100 kilometres upstream of the port.

The project involved the restoration of 950 metres of Laidley Creek – adjacent to valuable horticultural land – which had become badly degraded over time.

PBPL partnered with landowners Mulgowie Farming Company (MFC) and other stakeholders to design and deliver the works, building upon previous work by the Lockyer Valley Regional Council, Queensland Government and Healthy Waterways and Catchments following the 2013 floods. All work was guided by the project's Scientific Steering Committee with research prepared by the Australian Rivers Institute (Griffith University), Alluvium and BMT-WBM.

The works involved:

- clearing weeds and other degraded vegetation
- bank stabilisation
- installation of grade control structure
- re-planting 4,000 native trees and grasses
- long term maintenance of vegetation.



Working with our partners

## Delivering positive results

The Offsite Stormwater Treatment Project is delivering excellent environmental outcomes.

In the first year alone, the pilot project prevented 4,800 tonnes of sediment – the equivalent of 250 truckloads of dirt – from entering Laidley Creek, the Brisbane River and Moreton Bay, and will continue to do so every year. Over time and as the vegetation matures, the bank's resilience will also continue to increase.

However the benefits go beyond significantly improving regional water quality.

The project has also reduced soil erosion, improved flora and fauna habitats, and reduced weeds. Importantly for Mulgowie Farming Company – one of the Lockyer Valley's biggest fresh vegetable growers – it has also improved agricultural productivity at the site by providing improved land security and protection from major flooding events.

Over time and with increased take-up of offsite stormwater treatments by PBPL and others across SEQ, it is also likely to reduce maintenance dredging requirements at the Port of Brisbane.

PBPL is actively sharing our learnings and the project findings with interested stakeholders around South-east Queensland. The results of the project will help inform the development of the Queensland Government's offsite stormwater management policy, benefitting regional communities and businesses across the state.



 Lockyer Valley is known as Australia's 'salad bowl' due to its highly productive soils.

 Floods and storm events threaten many farms in Lockyer Valley as large amounts of soil are eroded from the banks of degraded creeks, cutting into valuable horticultural land. Research shows more than 80% of sediment in Moreton Bay originates from here.

 Over time, many creeks have become degraded. Banks have become steep and invaded by weeds, and will continue to worsen over time unless action is taken.

 Brisbane's drinking water is collected at Mt Crosby Water Treatment Plant. The cleaner the water, the less expense required to ensure the water meets standards.

 The Brisbane River is one of the city's greatest natural assets, with significant aesthetic and lifestyle value.

 Port of Brisbane undertakes maintenance dredging to keep navigational channels open. The less sediment that comes down the river, the less dredging is required.

 Moreton Bay is a beautiful marine park with significant ecological, social and economic value. The Bay is affected by the sediment that comes down the river and is increasingly changing from a sandy environment to a muddy environment.

## Testimonials

“Given the Port of Brisbane’s commitment to water quality outcomes, it made sense to prevent sediment from entering the streams at the source. While removing sediment from the stream is extremely important, the contribution to the associated environmental outcomes including enhanced terrestrial habitat connectivity, improved fish habitat, weed reduction, increased waterway shading, improved aesthetic water quality and reduced nutrient and agricultural contaminant runoff is invaluable. The investment delivers against over half of the SEQ Natural Resource Management Plan targets. It brought together landowners, researchers, project managers, earthworks and landscaping contractors to deliver an innovative solution to a major regional issue.”

Paul McDonald,  
Healthy Waterways and Catchments Ltd.

“During the 2013 floods our farms and waterways were severely impacted having sustained substantial erosion. We were keen to work with the Port of Brisbane to develop innovative ways to stabilise our creek banks and protect our farm from further erosion. We have co-invested in the project and will continue to work with the Port to stabilise more of our waterways. The work has improved our flood resilience and helps us protect our infrastructure and land assets.”

Fabian Carniel,  
CEO, Mulgowie Farming Company.

## Our project partners

Healthy Waterways and Catchments, Mulgowie Farming Company, Lockyer Valley Regional Council, Queensland Government (Department of Environment and Heritage Protection, Department of Infrastructure, Local Government and Planning, Department of Science, Information Technology and Innovation), Planfuture, Alluvium, BMT WBM, Griffith University (Australian Rivers Institute),

## For more information

For more information about our environmental work, please contact the Port of Brisbane Pty Ltd Environment Team: +617 3258 4888 | [www.portbris.com.au](http://www.portbris.com.au) | [info@portbris.com.au](mailto:info@portbris.com.au)



## Environmental stewardship

PBPL has a strong track record of balancing environmental responsibilities with the trade impacts associated with being Queensland’s primary multi-cargo port. Our work is guided by an internationally accredited Environmental Management System and our day-to-day operations include an extensive and beyond-compliance monitoring program, investment in environmental research, the roll-out of renewable energy projects and initiatives as well as partnerships with local environmental organisations to support valuable community projects and initiatives.

## Complementing onsite treatments

Typically, stormwater is treated at the site of new developments in urban areas. Port of Brisbane is no different, with extensive infrastructure and controls installed across the port to support onsite stormwater treatment including water sensitive urban design, grass swales, proprietary engineering structures, and roofing and bunding.

Today, Port of Brisbane views offsite stormwater treatment as complementary to onsite methods, to ensure our programs reflect the latest in best practice and continue to deliver the greatest environmental outcomes for the port and the broader community.

On low-risk developments such as new warehouses or container terminals, we will seek to replace some onsite treatments with more effective offsite methods. The quality of stormwater management will remain high and, in many cases, reduce the cost of port development and increase the development design options available. Developers will have the option to access this program through PBPL’s development approval process.