

CASE STUDY

More than 100 piles repaired at critical Port River Rail bridge

SUMMARY

Client

Department for Infrastructure and Transport (SA)

Location

Port Adelaide, South Australia

Challenge

144 square concrete piles on a critical rail bridge required structural restoration in a harsh saltwater environment.

Sector

Transport

Solution

PileMedic™ by QuakeWrap Fibre-Reinforced Polymer (FRP) Laminate Jackets.

Outcome

Full structural restoration and corrosion protection was achieved for all 144 piles, extending the life of the asset without heavy equipment.

Products

PileMedic™

Hychem delivered a revolutionary structural rehabilitation solution for the Port River Rail bridge in South Australia, restoring 144 deteriorating concrete piles without the need for demolition.

Utilising the innovative PileMedic™ FRP system, the project provided a durable, corrosion-proof solution that met all engineering requirements and design life expectations in an environmentally sensitive marine sanctuary.

The challenge

The Department for Infrastructure and Transport faced a significant challenge with the deterioration of 144 concrete piles supporting the vital Port River Rail bridge. Located in a harsh saltwater environment that is also a dolphin sanctuary, the project required a non-invasive solution that could restore the piles' strength and provide long-term corrosion resistance without using heavy demolition or construction equipment. The system had to be structurally robust, durable, and environmentally sensitive.



The engineered solution

QuakeWrap's PileMedic™ system, supplied by Hychem, was identified as the ideal technology. This revolutionary system uses advanced carbon or glass fibre laminates that are wrapped around the existing pile to form a durable, stay-in-place formwork. The annulus is then filled with a high-strength grout, creating a seamless, corrosion-proof repair that provides exceptional tensile and flexural strength. This lightweight, modular approach allowed for all work to be completed from small barges, eliminating the need for heavy equipment and minimising environmental impact.

The outcome

The project successfully restored and protected all 144 piles, safeguarding the long-term structural integrity of the Port River Rail bridge. The innovative PileMedic™ system provided an extremely durable and corrosion-resistant solution that met all engineering and design life requirements. The project stands as a benchmark for non-invasive structural rehabilitation, proving that even the most challenging remediation projects can be completed efficiently and sensitively with world-class material technology.

