Port Chalmers Container Terminal





BarChip Reduced the Carbon Footprint by 1,663 Tonnes.

Location: Dunedin, New Zealand

Owner: Port Otago Ltd

Contractor: Martinus Rail, with SouthRoads, M3

Concrete and Allied Concrete

Reinforcement: BarChip48 Macro Synthetic Fibre

As part of a \$13.5m redevelopment, the Port Chalmers Container Terminal replaced its 50-year-old railpad with a 340 m long, 4-track rail sliding construction using BarChip fibre reinforced concrete track slab, together with BarChip fibre reinforced external pavements. Covering an area of 6,500 m², the upgrade improves safety and efficiency in container handling while reducing maintenance needs and supporting more sustainable port operations.

The works demanded high precision, with rail components installed to tolerances of just 3 mm, ensuring a modern system built for long-term reliability.

In total, 438.7 tonnes of steel reinforcement was replaced with just 19 tonnes of BarChip48 macro synthetic fibre. Along with simplified logistics and faster construction, this change resulted in a direct carbon reduction of 1,663 tCO $_{2}$ -eq.

Contractors also improved construction efficiency with a fibre reinforced solution. With the original design, all steel and rail tracks needed to be installed before being encased in a single concrete pour. With BarChip, a two stage sequence could be employed. First, a BarChip reinforced base slab is installed, providing structural support and a precise platform for installing rail baseplates. The second stage pour then encases the rails and delivers the final running surface for straddle carriers.

The BarChip fibre reinforced concrete track slab and hardstands provide Port Otago with a modern, corrosion free concrete solution designed for long term durability and reduced maintenance in a harsh coastal environment.







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