DMREO™

TORONTO BATHS UPGRADE

LOCATION

The Toronto Baths are located on the picturesque foreshore of Lake Macquarie in Toronto, New South Wales. Situated approximately 30 minutes southwest of Newcastle, the site is a popular destination for both locals and visitors seeking safe, scenic, and accessible water-front recreation. Set within the heart of the Toronto Foreshore Precinct, the baths are easily reached via Victory Parade and lie adjacent to parks, walking paths, cafes, and other public amenities. The location offers panoramic views of Lake Macquarie and plays a key role in the area's revitalisation strategy, aiming to enhance public enjoyment of the natural environ-ment while supporting active lifestyles and tourism.

LOCATION:
Lake Macquarie,
Toronto, New South Wales

CONSTRUCTION START: APRIL 2024

CONSTRUCTION COMPLETION:
December 2024

HISTORY

In October 2024, a $1.4 million upgrade to the historic Toronto Baths on Lake Macquarie was completed in time for the summer season, significantly enhancing accessibility and safety. The project, jointly funded by the NSW Government's Places to Swim program ($1 million) and Lake Macquarie City Council, is part of the broader Toronto Foreshore Revitalisation initiative aimed at transforming the area into a vibrant recreational hub.

Key improvements include a fully enclosed swimming area with new jetty decking, protective netting, and an accessibility ramp, enabling safer and more inclusive use of the facility. The upgrades have been well received by local users, including members of the Toronto Early Swimmers Club, who praised the enhanced access for people with limited mobility. The initiative reflects a shared commitment by the council and the NSW Government to improve public access to waterways and promote community wellbeing.

PROJECT

The upgrade focused on safety, accessibility, and long-term sustainability—delivering modern infrastructure that enhances community use while protecting the natural environment.

A key feature of this project was the integration of innovative Fiber Reinforced Polymer (FRP) technology, supplied by DM Composites. DM Composites was engaged to supply FRP reinforcing bars and stirrups for the structural headstocks supporting the new jetty and access platform.

Unlike traditional steel reinforcement, FRP rebars offer superior corrosion resistance, particularly in marine environments where exposure to saltwater and humidity accelerates deterioration. This made FRP the ideal choice for the Toronto Baths, where long-term durability, low maintenance, and lifecycle performance were critical. The use of FRP reinforcement also contributed to reduced whole-of-life costs and aligned with Council's sustainability objectives by minimising future repair works and environmental impact.

The innovative application of FRP stirrups further enhanced the structural integrity of the jetty headstocks while simplifying installation due to their lightweight and non-conductive properties. DM Composites worked closely with the project engineers to ensure compliance with Australian standards and tailored the solution to meet both structural and environmental performance requirements.

KEY FEATURES

Compliance with CSA S806-12 Standards: To meet structural compliance, the FRP reinforcement design adhered to the Canadian CSA S806-12 code, ensuring that all elements achieved the required minimum concrete cover for durability and safety.

DM Composites delivered custom-fabricated stirrups and reinforcement tailored to the project's dimensional and structural requirements. Their capability to produce FRP elements in a range of diameters—from 4mm to 55mm—allowed the design team flexibility while ensuring constructability.

By incorporating non-corrosive materials and modern construction techniques, the upgraded Toronto Baths will require less maintenance over time, delivering significant lifecycle cost savings to the council and community.

CHALLENGES AND SOLUTIONS

During the design and material coordination phase of the Toronto Baths upgrade, a key challenge emerged regarding the concrete cover for the Glass Fiber Reinforced Polymer (GFRP) reinforcement used in the jetty headstocks. The original structural drawings specified a 30mm concrete cover to the reinforcement, which at first appeared to meet general expectations. However, upon closer review of the project specifications—particularly the requirement for compliance with CSA S806-12 standards—it became clear that this cover was insufficient.

Given that the FRP bars used in the project were 20mm in diameter, the actual required minimum cover was 40mm. This discrepancy posed a compliance issue that needed immediate resolution to avoid compromising the durability and safety of the structure.

DM Composites worked closely with the project engineers and the construction team to assess feasible solutions. One potential option was to redesign the stirrups to fit within the 30mm cover limitation; however, this would have involved structural recalculations and incurred additional engineering costs. Instead, after evaluating the options, the team agreed that the most practical and cost-effective solution was to increase the concrete cover to 40mm in accordance with the standard.

In parallel, queries were raised about the minimum possible stirrup size to allow for design flexibility and more efficient reinforcement layouts. DM Composites confirmed that their manufacturing capabilities allow for fully customizable stirrups, with rebar diameters ranging from 4mm to 55mm, offering significant adaptability for future applications. Although smaller stirrups were technically feasible, the primary objective remained compliance with the cover requirement and long-term structural integrity.

OUTCOME

Together with improvements such as a new jetty extension, a fully compliant accessibility ramp with handrails, and perimeter netting for swimmer protection, the upgraded Toronto Baths now provides a safer, more inclusive space for the community to enjoy. This collaboration between public authorities and private innovators highlights the growing role of advanced composite materials in building resilient, future-ready infrastructure across New South Wales.

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