



**SOLID, SAFE  
AND LASTING**

# Windsor Bridge, NSW.

## Background

When it came time to replace the historic but flood-prone Windsor Bridge, in Sydney's north-west, there was really only one choice in terms of durability and resilience.

### AT A GLANCE

**Builder:** Georgiou

#### Main concrete elements:

- Incrementally launched precast bridge sections
- Concrete piles/piers, abutments

**Photographer:** Jenny Evans/Getty Images  
| Mark Bowmer

## The Challenge

Originally built for horse-drawn vehicles and foot traffic in 1874, the Windsor Bridge had reached the end of its life by the early 2000s. Constructing something high enough to completely escape floodwaters wasn't feasible, so the challenge was to construct a replacement bridge that could better cope and rebound from severe flood events.

## Solution/Outcome

At 156 metres long, the new bridge comprises three lanes - two southbound and one northbound.

It is located 35 metres downstream of its predecessor and is three metres higher at the northern bank and six at the southern bank.

Delivered by contractor Georgiou, the new bridge was constructed as an incrementally launched bridge, with 10 concrete segments cast in a bed on the northern bank before being launched across the river.

The bridge superstructure is supported by four piers in the river. The piles for these piers were constructed from steel tubes filled with reinforced concrete, then topped with precast concrete pile cap 'shells' filled with concrete to support the bridge columns.

Abutment and retaining walls on each side of the river are also concrete.

Although the flood immunity of the new bridge is around the one in three-year flood level (compared to one in two for the old bridge), its real benefit stems from its strength and ability to resist damage that would otherwise result in lengthy and costly repairs.



The bridge faced its first major flood test in March 2021 - less than 12 months after completion - when it was submerged during the disastrous Eastern Australia floods. In March 2022 it was again flooded during another significant East Coast weather event, major flood event in July 2022.

Although the bridge went under water on each occasion, it re-emerged structurally sound - meaning this essential piece of infrastructure could be reopened to the community much more quickly than would have been the case with the old bridge.

### **BENEFITS OF USING CONCRETE:**

- Flood resilience - ability to withstand and reopen after severe flood events
- Durability and strength

