

Westfield Warringah Mall Redevelopment, Sydney

Case study – Inverted culvert units



Inverted culverts provide flood protection for Northern Beaches shopping centre

Flood prevention formed a major part of a redevelopment for a shopping centre on Sydney's Northern Beaches. When Westfield Warringah Mall decided to undertake a significant \$310 million redevelopment, an upgraded drainage system was integral to the project. Before the mall was built more than 50 years ago, Brookvale Creek flowed through the site and the drainage system ran the risk of flooding in a major rain event.

Humes manufactured about 100 metres of inverted culverts which effectively line the creek bed to provide a new drainage system. Account Manager Paul Vincent said the culverts were made to a custom design by modifying existing moulds. "The unique requirement for this project was that the water flow be slowed when the creek is under flood. We delivered a solution for that by moulding a ripple effect on the inner walls". The effect is a corrugated finish on the inverted leg up-stands. To further slow the flow of water, the client arranged sandstone rock on the precast base after installation.

Differing heights in the creek banks and depths of the creek bed required a stepped section which resulted in as many as eight variations in size for the inverted culverts. "It came down to delivering what the client wanted. We worked together to make it happen and in the end the client was impressed," Mr Vincent said.

The most challenging aspect of this project was the active creek. It could only be dammed for a short period and that put the pressure on for a fast production timeline. In-situ concrete works would have taken too long, and precast offered a speedy solution with Humes turning the project around in less than eight weeks.

Safety was a key consideration for this project, and by choosing precast concrete less on-site labour was required. The delivery of the culverts also had to be meticulously planned, to take into account the creek flow, any rain events and the operations of the shopping centre which continued to trade.

"It was a sometimes challenging but very interesting project to be a part of," said Mr Vincent. "It's different to our everyday work and great to have a finished project that's on show and serves an important purpose".

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Project

Westfield Warringah Mall
Redevelopment, Sydney

Principal

Scentre Group

Product supplied

100 metres of inverted culvert
units (eight variations in size)

