



CASE STUDY

Merri Creek Bridges

Melbourne, VIC, Australia

Reinforced Earth Walls
TerraPlus®

Owner: Vicroads
Consultants: Sinclair Knight Merz
Contractor: Abigroup Contractors
Construction: September 2004

Background

The 17 km Craigieburn Bypass, an important upgrading of Melbourne's road network, will link the Hume Freeway near Mt Ridley Road at Craigieburn, to the Metropolitan Ring Road at Thomastown. The bypass will encourage traffic to remain on the freeway network and away from local roads, greatly improving road safety and reducing congestion. Motorists will enjoy uninterrupted travel on the bypass between Craigieburn and Thomastown, with expected travel time savings of up to 30 minutes during peak hour journeys.

The bypass is expected to deliver more than \$1 billion of economic benefits to Victoria, over 30 years, through lower travel times, fewer accidents, fuel savings and road safety improvements.

The \$306m project is fully funded by the Australian Government, being delivered by the State Government road agency, VicRoads, in four stages. Work on the bypass started in May 2002, with completion expected during the second half of 2005.

Features along the bypass include interchanges, shared pathways and crossings, landscaping and noise walls.

Challenge

Abigroup contractors approached The Reinforced Earth Company (RECO) to design and supply over 3000m² of Reinforced Earth abutments for the following major bridges:

- South Bound Exit Ramp
- Curly Sedge Creek
- O'Herns Road Bridge and Pedestrian Underpass
- Merri Creek Bridges

Merri Creek begins near Wallan, a town on Melbourne's northern outskirts, and joins the Yarra River at Dight's fall, Collingwood approximately 70km downstream.

The Creek is highly treasured from an environmental perspective; hence any development along its course is extremely sensitive and should have minimum aesthetic and environmental impact on its surroundings.



Main picture and above: Merri Creek Bridges, Victoria

Transport infrastructure



Left: Merri Creek Bridges, Victoria.
Above: Facing panel mould development.

Solution

RECO designed the abutment walls with the bridge loads supported on piles, in accordance with Vic Roads Specification Section 682 to a design life of 100 years. Deliverables included:

- Detailed Design including Design Drawings and Specifications.
- Technical assistance throughout the design and construction phase.
- Manufacture and delivery of the specialised construction materials: steel reinforcing strips and concrete facing panels.

For the Merri Creek Bridges RECO worked closely with Abigroup's Project manager, Mr. Rob Cairns in developing a new random Bluestone appearance for the facing panels of the reinforced soil walls.

The panel was specially created to achieve a look, which mimics that created traditionally by fixing natural Bluestone rock to cast *insitu* walls.

Special features/benefits

The benefits of using a precast panel were that the contractor was saved valuable construction time and safety issues of fixing rock to the wall at heights of up to 15m were eliminated.

Project specifications

System	TerraPlus®
Finish	Random Bluestone Rock
Structure	False bridge abutment (road-over-creek)
Area	3042m ²
Max. Height	15.4m
Length	166m
Design load	23kPa (uniform live load)
Design life	100 years