



MARINE STRUCTURES

WEBB DOCK WEST

Controlled Modulus Column Rigid Inclusions

AUSTRALIA



Owner

Port of Melbourne Corporation

Engineer

N/A

General contractor

McConnell Dowell

Period of works

September 2014-October 2015

Main figures

Controlled Modulus Columns

5,485 columns, Dia 0.36, 0.4, 0.42. Depth ~15.50m.



Project description

The context was that container trade at the Port of Melbourne was projected to increase to approximately 5.5 million containers by 2025, increase that could not be accommodated in this time frame by Swanson Dock (two container terminals) nor Port of Hastings (longer term development). The Webb Dock precinct, Port Melbourne, offered the best potential to provide increased capacity in the short term. This involved dredging, installing navigation aids and upgrading infrastructures.

Ground conditions

Behind the future new wharf was identified the need for ground improvement underneath the asphalt area (20,000m²), with Controlled Modulus Columns being designed as a bridge over the Coode Island silts layer, transferring the load down to the more competent Fisherman's Bend silts layer.

Solution

Menard was awarded the installation of approximately 5,500 CMC, of 360 to 420mm diameter and 9 to 21m deep. The equipment consisted of a Liebherr CMC rig and associated concrete pump. Approximately 85,000lm were drilled in less than 5 months, consuming about 12,000m³ of concrete. All 14 static tests performed showed excellent results of the technique.

The collaborative works of Menard and Mc Connell Dowell led to the technical success of the project and to its completion ahead of program.

