

Port Drive Upgrade

Brisbane, QLD

A project with rapidly changing ground conditions whilst still providing our client with a cost and time effective solution and an overall installation of over 11,500 linear metres of rigid inclusions.



The project

Port of Brisbane Pty Ltd (PBPL) is responsible, through a Road Franchise Agreement with the Department of Main Roads (TMR), for the maintenance and upgrade of Port Drive at the Port of Brisbane. Part of this upgrade requires the construction of a new overpass to the existing Kite Street roundabout.

The challenge

The solution adopted by the client involved two high level abutments and heavy loaded Reinforced Soil Structure (RSS) walls. To address the ground conditions (fills overlying soft Holocene clays and clayey sands, and Pleistocene clays) and satisfy the designed settlement criteria under the RSS walls, the client specified the installation of a rigid inclusion square grid pattern with columns at close spacing's.

The solution

The specified grid spacing of the rigid inclusions was as low as 1.3m, and as such Keller anticipated that ground heave could be problematic. In response to this Keller proposed to the client a system of rigid inclusions installed by both displacement and/or replacement method. In combination with careful platform monitoring, this solution enabled the client to swap easily from one method to the other when heave was deemed to be outside the specified tolerance. Using this process, Keller installed a grid of rigid inclusions comprising of 1,015 elements to depths ranging from 9.0m to 13.0m. Even with a restriction of site area, regularly changing installation methodology and the close proximity of live traffic, Keller still completed the job ahead of program and within budget.

Project facts

Owner(s)

Seymour Whyte

Keller business unit(s)

Keller Australia

Main contractor(s)

Port of Brisbane Pty Ltd

Solutions

Bearing capacity / settlement control

Markets

Infrastructure

Techniques

Rigid inclusions