

Vopak Storage Tanks

Port Botany, NSW

A vibro compaction solution provided a uniform foundation layer for a new bitumen storage tank farm and loading facility within its existing Port Botany terminal.



The project

Tank storage provider Vopak commissioned Lend Lease to design and build a bitumen storage tank farm and loading within their existing facility at Port Botany. The site is underlain by loose to very loose sand between 4.5m and 9m depth, some of which had been treated by vibro compaction in the mid-1980s for storage tanks that had since been removed.

The challenge

The site's variable ground conditions presented a number of challenges: the loose sand had to be able to carry a 250kPa service load and was at risk from liquefaction. Additionally, while previous treatment was well executed, there was a potential for differential settlement of the new tanks. The works were required within an existing operating petro-chemical storage and import terminal.

The solution

Keller used vibro compaction to densify the previously untreated areas, creating a more uniform foundation for the new facility. Keller compacted an area of approximately 1,500m² of very loose to loose sand to achieve a minimum CPT cone tip resistance of 10MPa. Vibro compaction was carried out on a square grid, with treatment to a nominal depth of 10m, in just three weeks.

Project facts

Owner(s)

Lend Lease

Keller business unit(s)

Keller Australia

Main contractor(s)

Vopak Pty Ltd

Solutions

Bearing capacity / settlement control

Markets

Industrial

Techniques

Vibro compaction