

## Tuas Hull Shop

Tuas, Singapore

Keller's alternative multi-product ground improvement scheme resulted in substantial savings over the conforming driven pile design.



### The project

Jurong Shipyard, a fully-owned subsidiary of Sembcorp Marine, is a leading shipyard offering integrated services and customized solutions in ship repair, building and conversion and offshore engineering to a world-wide clientele. The development consisted of construction of dry docks, hull block assembly workshop and other structures located in a recently reclaimed Tuas View extension. Working directly for the owner, Keller designed and executed a ground improvement scheme for the hull block workshop.

## The challenge

Site investigation reports revealed that the sub-soil consisted of 30 m thick reclamation fill comprising mostly of sand fill with up to 12 m sandy clay. A marine clay of 9 m thick was also found in the south-eastern part of the area where the workshop will be constructed.

## The solution

Keller performed Vibro compaction and installation of Prefabricated Vertical Drains (PVDs) with surcharge. PVDs were installed to a depth of 25 to 40 m with a 5.6 m high surcharge in the area where the sandy clay and marine clay layers were found. An area of over 30,400 square meters was completed within one and a half months. Vibro compaction works were also carried out to improve the sandy layer that ranged from 15 m to 28 m. An area of more than 126,400 square meters was treated.

## Project facts

### Owner(s)

Jurong Shipyard Pte Ltd

### Keller business unit(s)

Keller ASEAN

### Main contractor(s)

Keller Foundation (S E Asia) Pte Ltd

### Solutions

Bearing capacity / settlement control

### Markets

Industrial

### Techniques

Vibro compaction

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