

Offshore Stone Columns in Pulau Tekong

Pulau Tekong, Singapore

Keller executed non-dredged ground improvement method and its first major application of Keller offshore stone column technology.



The project

Located at the northeastern coast of Singapore, Pulau Tekong, is the largest remote island in Singapore. A land reclamation contract was awarded to TOA Corporation and Jan De Nul Joint Venture.

The challenge

In most parts of the project, dredging and filling was adopted to form the perimeter bund prior to the construction of the sand key. However, this method posed concerns of instability to the existing sand key. Keller proposed Offshore Vibro Replacement to improve the strength and deformation characteristics of the soft clay prior to sand filling. This also ensure that the foundation for sand key was stable during sand filling and to meet the settlement criteria of the rock revetment structure on the sand bund.

The solution

Approximately 43,000 linear meters of stone columns were installed using Alpha-S and Keller Gravel Jet system. The Gravel Jet system allowed the construction of columns to 25 m below sea level.

Project facts

Owner(s)

Housing and Development Board

Keller business unit(s)

Keller ASEAN

Main contractor(s)

TOA Corporation - Jan De Nul Joint Venture

Solutions

Bearing capacity / settlement control

Markets

Infrastructure

Techniques

Vibro stone columns

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