



Key achievements

- Innovative design and Construct ground improvement solution satisfying the cost budget and construction time of the port operator
- Delivered the project with excellent safety record in an operating port of Maersk's group company

The project

Gujarat Pipavav Port Ltd (GPPL), a group company of A.P. Moller - Maersk was expanding the existing terminal facilities at Pipavav, Gujarat. As a part of expansion, approx. 100,000 m² area was needed for stacking 4 to 5 containers along with RTG beams (for equipment's) connected with approx. 4km of road works. Keller was commissioned by GPPL to design and construct specialised geotechnical services using ground improvement technologies.

The challenge

Being the operating port, the main challenge was to design an innovative solution for such large area which is not only optimal in cost but also faster in construction. Soil investigation carried out by Keller suggested that the soil had low bearing capacity and is also prone to settlements in long run. Additionally, Safety standards were much stringent being a group company of Maersk.

The solution

Keller designed and executed 0.9m diameter vibro stone solution below container yard and RTG beams that met the settlement criteria and increase the bearing capacity of soil. Vibro stone columns and geotextiles were also designed below specified chainages of road works prior to filling and compaction works. Plate Load tests were conducted to ascertain the efficiency of ground improvement works done. All the stone columns were monitored using automatic data recording systems to ensure adequate depth of treatment and compaction efforts

Application

Ground Improvement,
Earthworks

Technique

Vibro Stone Column

Market

Ports and Harbor

Client

Gujarat Pipavav Port Ltd

Main contractor

Keller Ground Engineering
India Pvt Ltd

Contract Value

INR 250 Millions

Keller business unit (s)

Keller Ground Engineering
India Pvt Ltd