



Key achievements

- Keller's innovative solution by executing large diameter vibro stone columns (1.1 meters) helped in optimizing overall construction time and cost.
- The solution addressed settlement requirement and liquefaction mitigation.
- The vibro stone column solution has comparatively lower carbon footprint than the other possible solution.

Application

Ground Improvement

Technique

Vibro Stone Column

Market

Power

Client

Power Grid Corporation of India Ltd.

Main contractor

ABB Power Technologies

Contract Value

INR 270 Millions

Keller business unit (s)

Keller Ground Engineering India Pvt Ltd.

The Project

Powergrid Corporation of India Ltd (PGCIL) proposed India's 1st Ultra High Voltage Direct Current (UHVDC) of 6,000MW capacity energy highway project to transmit the generated energy from Arunachal Pradesh in North East India and Bhutan to Agra (Central India), a distance of 1,728km. Keller was commissioned by the main contractor to execute ground improvement work for a converter station in Assam which was spread over 1,000,000 m² and consists of electrical equipment structures such as service building, valve control hall, P1, P2, AC transformers, tower foundations and other heavy structures.

The Challenge

The geotechnical investigation of the proposed site suggested that the subsoil comprised of poorly graded loose to medium fine sand followed by medium to stiff and then dense silt layer. This virgin soil condition was not suitable for the proposed structures as bearing capacity of soil was low and also susceptible to liquefaction, as the project site falls under seismic zone "V".

The Solution

Keller's solution to address the associated challenge involved ground improvement works using top feed vibro stone columns of diameter ranging from 0.8 meters to 1.1 meters. The selection of large diameter stone columns helped to reduce the construction time to a great extent.. Adequacy of the job was verified by performing stone column load test and real time monitoring of installation works by automated devices.