

Vibro Compaction (VC) for densification of sands

A depth vibrator rearranges sand grains into a denser state; suited to clean sands and hydraulic fills.

CAN BE CONSIDERED WHERE

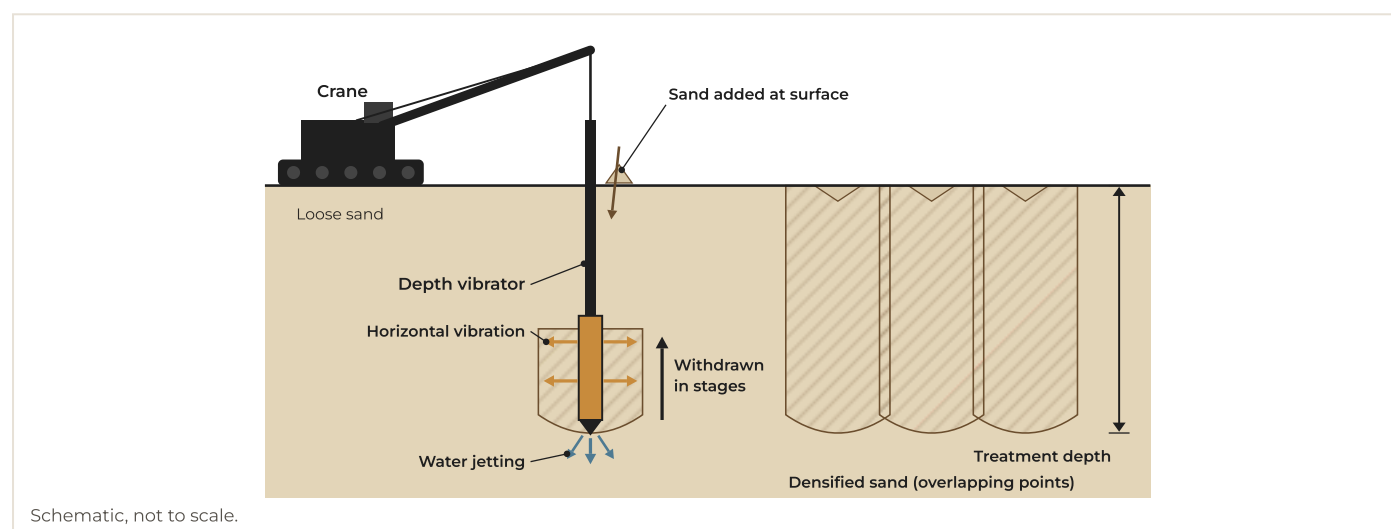
- Clean, loose sands and gravels with a low fines content.
- Hydraulic fills and land reclamation.
- Reducing liquefaction potential in suitable sands.
- Thick loose deposits that surface methods cannot reach.

LIMITATIONS

- Effectiveness drops as silt and clay content rises, and Vibro Replacement may then be considered.
- Needs a reliable water supply and site water management.
- Cemented layers or obstructions may need pre-drilling.

HOW IT WORKS

The vibrator penetrates to the design depth under its own weight, assisted by vibration and water jetting. It is then withdrawn in stages, held at each level until the sand around it is compacted.



DESIGN INPUTS

- Grading and fines content of the sand.
- CPT profile and target cone resistance or relative density.
- Required treatment depth.
- Point spacing and grid pattern.
- Groundwater level and liquefaction criteria where relevant.

EXECUTION CONTROLS

- Depth reached at each point.
- Holding time and vibrator power at each stage.
- Sand backfill volume per point.
- Data logs for every point.
- Water and spoil management.

VERIFICATION AND ACCEPTANCE

Design intent: What is required

Target cone resistance or relative density agreed with the consultant.

Production control: What was done

Data-logged depth, power and time for each point.

Acceptance: What was proven

Post-treatment CPT compared with the baseline and the target; plate load tests where specified.

DELIVERABLES

Method statement and risk assessment · Point layout drawings · Trial report · Data logs for every point · Verification CPT reports · As-built records