

High Energy Impact Compaction (HEIC) for large-area ground improvement

A towed non-circular roller delivers high-energy impacts to compact large areas and near-surface layers.

CAN BE CONSIDERED WHERE

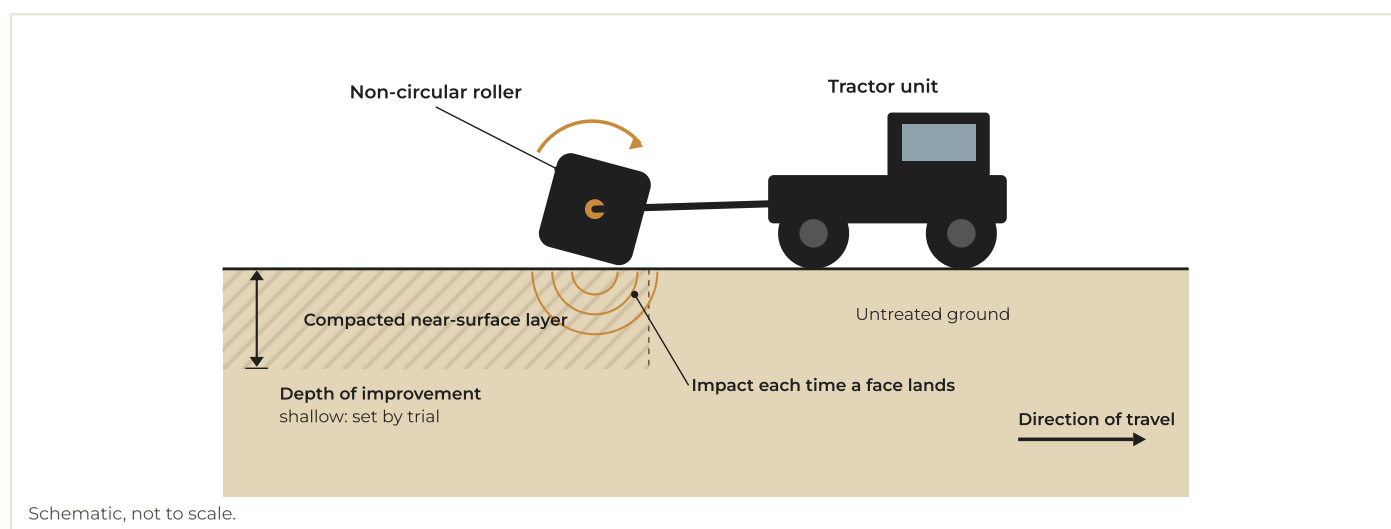
- Large-area granular fills and earthworks platforms.
- In-situ densification of near-surface loose sands and collapsible soils.
- Roads, airfields, industrial yards and laydown areas.
- Proof-rolling to locate soft or weak zones before construction.

LIMITATIONS

- Treatment depth is shallower than Dynamic Compaction or Rapid Impact Compaction.
- Needs large, open areas for runs at operating speed.
- Saturated fine-grained soils respond poorly.

HOW IT WORKS

The roller is towed by a high-powered tractor unit. Its flat faces and corners make the centre of mass rise and fall as it rotates, so each face strikes the ground as an impact rather than a static or vibratory load.



DESIGN INPUTS

- Site investigation: soil profile, moisture content, groundwater level.
- Fill material and thickness, if treating fill.
- Performance criteria: target density, stiffness or settlement.
- Required depth of improvement.
- Available area and run lengths; distance to structures and services.

EXECUTION CONTROLS

- Pass count and pattern for each area, tracked by GPS where available.
- Towing speed within the agreed range.
- Level surveys at agreed pass intervals.
- Moisture condition of fill material.
- Daily production records.

VERIFICATION AND ACCEPTANCE

Design intent: What is required

Target density, stiffness or settlement criteria agreed with the consultant.

Production control: What was done

Pass counts, speed and level change recorded for each area.

Acceptance: What was proven

Field density tests, plate load tests or CPT against the criteria.

DELIVERABLES

Method statement and risk assessment · Treatment area plans · Trial report with agreed passes · Pass records and coverage maps · Level surveys · Verification test reports