

Dynamic Replacement (DR) for reinforcing soft ground

Large granular columns driven into soft ground by a falling weight, using Dynamic Compaction equipment.

CAN BE CONSIDERED WHERE

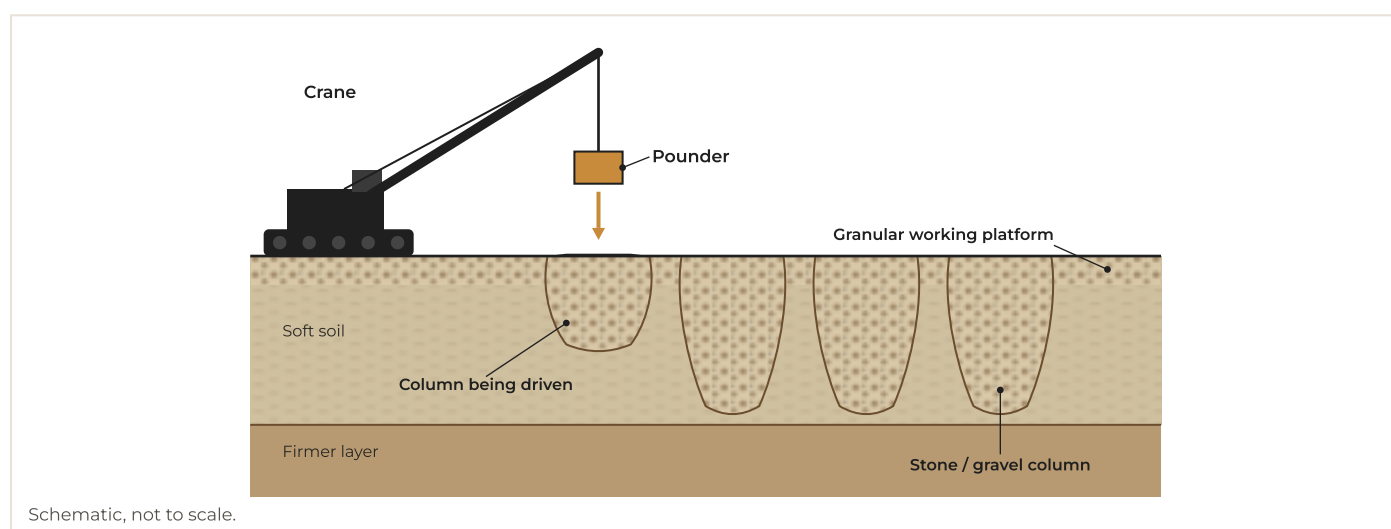
- Soft silts and clays, or mixed fills with high fines content, where Dynamic Compaction alone is not effective.
- Storage areas, platforms, embankments and lightly loaded structures.
- Improving bearing capacity and reducing settlement in the upper soft layer.

LIMITATIONS

- Depth is limited: DR suits soft layers near the surface.
- Very soft soils may not give enough lateral support to the columns.
- Large volumes of suitable granular material are needed.

HOW IT WORKS

A granular working platform is placed first. The pounder is dropped to form a crater, which is filled with stone or gravel; repeated drops drive the material down and outwards, forming a column.



DESIGN INPUTS

- Site investigation: soft layer thickness and strength, groundwater level.
- Loads and performance criteria.
- Column diameter, spacing and target depth.
- Granular material specification.
- Energy parameters and constraints.

EXECUTION CONTROLS

- Setting out of every column.
- Drops and crater depth per column.
- Granular material volume per column.
- Level surveys of the platform.
- Daily production records.

VERIFICATION AND ACCEPTANCE

Design intent: What is required

Bearing and settlement criteria agreed with the consultant.

Production control: What was done

Drops, crater depth and material volume for each column.

Acceptance: What was proven

Plate or zone load tests, pressuremeter tests where specified, and settlement monitoring.

DELIVERABLES

Method statement and risk assessment · Column layout drawings · Trial report · Column production records · Level surveys · Load test reports