Roxborough
GROUND IMPROVEMENT
www.roxboroughgroundimprovment.com

Northern Ireland
31F Killyman Road,
Moy, Dungannon,
BT71 7SJ
Phone: 028 8778 4700

Republic of Ireland
4 St. Brigids Road,
Drumconda, Dublin
DO9 P2Y1
Phone: 01437 2493

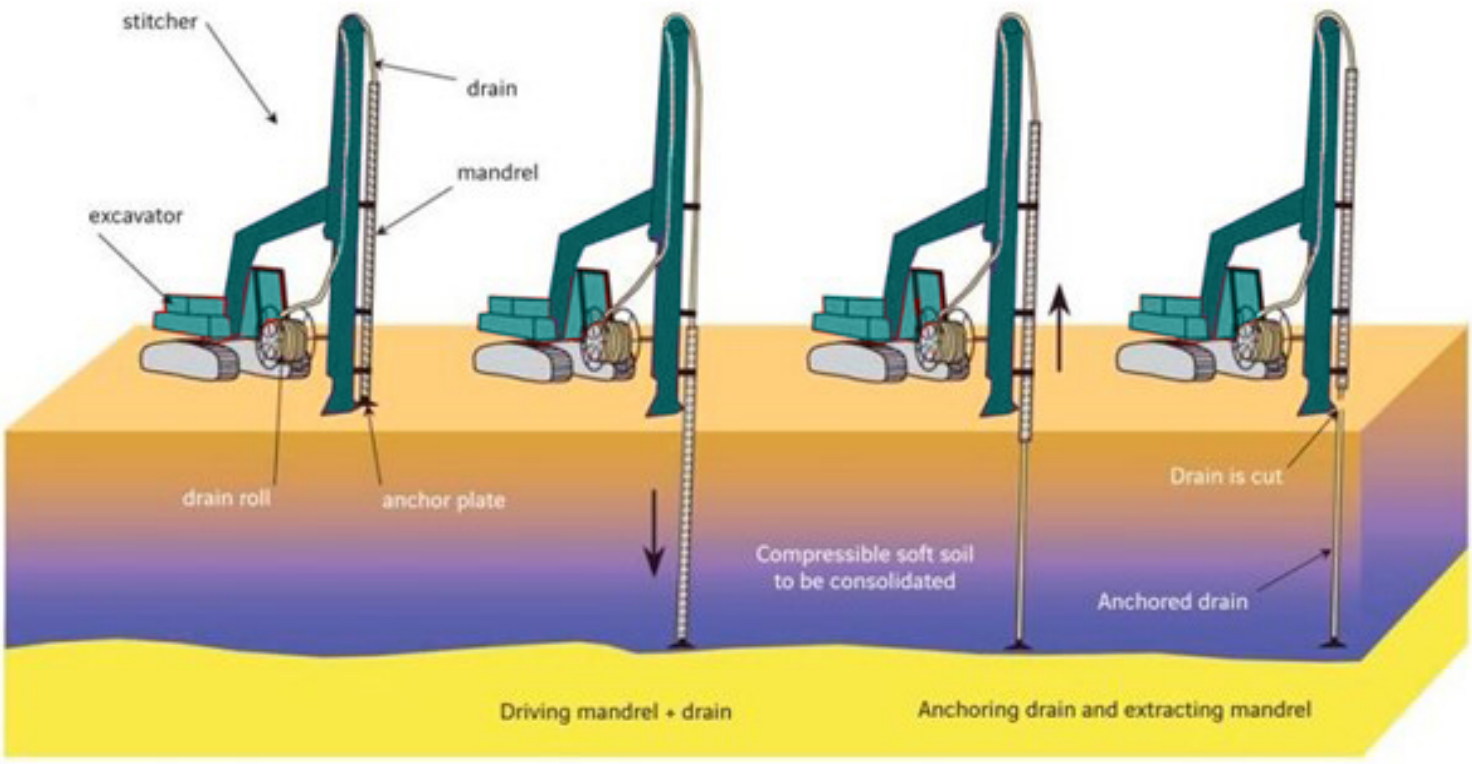
Mainland UK
Unit 4, 7 Montrose Road,
9 Chelmsford, Essex
CM2 6TE
Phone: 01245 901201

Vertical Wick Drains

Vertical Wick Drains (VWD's) consist of a corrugated plastic drainage core wrapped with a non-woven geotextile.

The drainage core provides a path for the water of consolidation to move to the surface while the geotextile prevents soil particles from clogging the drainage core.

In the vertical application, the wick drains are installed with specialised equipment that drives the strips of wick drain into the ground. Vertical wick drains, in conjunction with a preload, provide a drainage path for water-saturated areas to speed up settlement. Saving the project time and money compared to a preload alone or having to use piles.

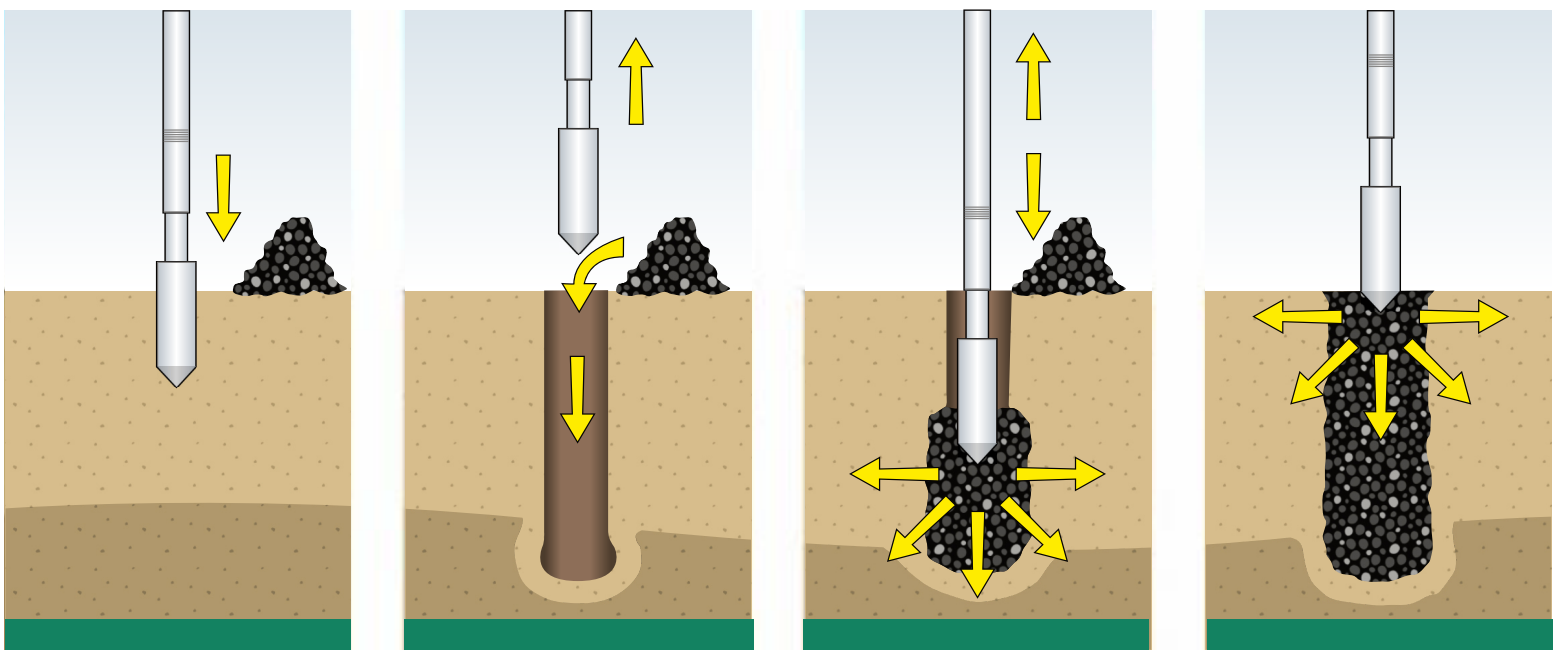


Advantages of Vertical Wick Drains

- ✔ **Speed the consolidation of foundation soils**
- ✔ **Provides a path for entrained water during settlement**
- ✔ **Relatively Inexpensive method of Ground Improvement**

Vibro Stone Columns

Vibro stone columns (**VSC's**) are a ground improvement technique which improves weak soils with the installation of densely compacted columns made from stone or aggregate via vibration.



The vibrating vibroflot on the purpose built rig penetrates the ground until reaching the required design depth for the columns.

The vibroflot is then raised out of the hole and aggregate is poured in via a hopper on the rig.

The vibroflot is then lowered again compacting the stone within the soils around it. This process is repeated until there is a densely compacted column created.

The stone columns and the confining soils form an integrated foundation support system having low compressibility, improved load bearing capacity and decreased settlement. In cohesive soils the columns act as reinforcement and provide a drainage path for excess pore water.

Advantages of Vibro Stone Columns:

- ✔ A **very versatile** Ground Improvement method that can be adjusted to a wide variety of soil conditions and foundation requirements.
- ✔ A **time and cost-effective** solution when dealing with poor ground. As there is no spoil this ensures there is no expensive waste to landfill. The method enables the contractor to utilise standard shallow footings which, in turn, leads to additional savings.
- ✔ Vibro Stone Columns require no cement, concrete or steel, along with being spoil free, this considerably reduces the carbon footprint to make Vibro Stone Coloumns a very **sustainable ground improvement solution**. Recycled aggregates can also be used for installation when available.
- ✔ **Lower noise and vibration** compared to traditional piling methods makes it an ideal method for works near existing buildings or environments.

Rigid Concrete Inclusions (RCI's)

Rigid Concrete Inclusions (RCI's) are a Ground Improvement method using unreinforced, concrete columns installed in very soft soils to meet settlement criteria and improve bearing capacity for support of shallow foundations and a ground bearing slab of a structure.

They are considered ground improvement because they are not structurally connected to the building they support.
In addition to the RCI's, an essential element of rigid inclusion ground improvement is the load transfer platform, or LTP/LTL. This is a layer of granular, structural fill that bridges the load between the RCI's and prevents too much point stress on the footing.