

# Vibro Concrete Columns (VCC)

## Introduction

Vibro Concrete Columns, also known as VCC's, are a quick, simple, cost effective foundation solution for soft soils, and offer a good alternative to piling.

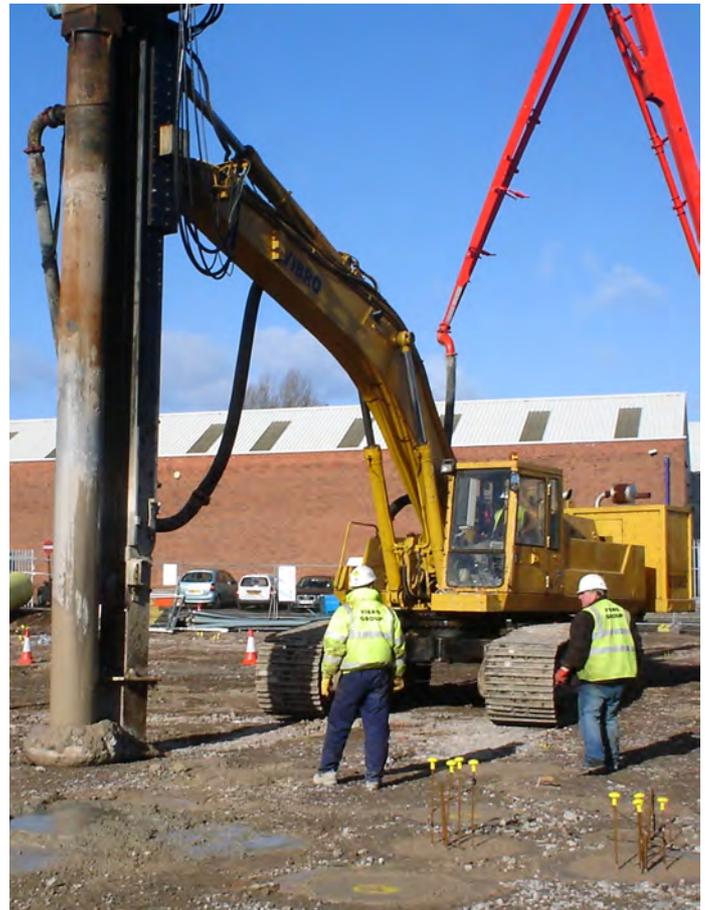
VCC installation is a fast technique, with typical production rates of 200-300 linear meters per day, depending on the soils.

Vibro Concrete columns are also a sustainable option as they produce minimal spoil and use less concrete than piles, as they tend to be shorter.

The VCC process involves the accurate positioning of the vibroflo tube at the column location, followed by the pumping of fresh concrete into the internal tube. The vibroflo is then vibrated into the ground to the design depth, whilst concrete continues to be pumped to avoid contamination of the VCC.

At the founding depth the base is further compacted by surging the Vibroflo which creates an enlarged bulb at the base, resulting in shorter column lengths than piles. When the required improvement is achieved the Vibroflo tube is gradually lifted to the surface as the concrete continues to be pumped through the tube.

The rate of withdrawal and concrete pressure is controlled by a monitoring system to ensure a high quality VCC, with top to bottom total integrity.



*Installation of Vibro Concrete Columns (VCC)*

## Advantages

- Suitable for soft/ weak soils
- Shorter and using less concrete than piles
- Minimal noise & vibration
- High production rates
- Cost effective alternative to piles

## Applications

Structures built on weak soils such as:

- Road & rail embankments
- Industrial & Commercial structures
- Low rise residential developments

# Vibro Concrete Column (VCC)



*VCC Poker with Expanded Head Adaptor*



*Expanded Head VCC's with Reinforcement steel*

If required Vibro Concrete Columns can be installed with expanded heads to reduce the potential for the column punching through the floor slab. Steel starter bars and reinforcement steel can also be installed within the column to accommodate compressive up to 750kN and low transverse loadings.

The VCC process is most appropriate where there is limited thickness of soft/weak soil. Soils to be improved can include alluvial soils such as peats, silts and soft clays, overlaying competent soils. It is applicable in soil strata with a shear strength of 15-60 kPa. In specific conditions VCC's can be utilised in soils with a shear strength of 8-15 kPa if the thickness of these soils is less than 1.0m thick.



VCC used for an Industrial Warehouse



VCC used for a Residential Development

The construction and installation of Vibro Concrete Columns is a very quiet process with minimal vibration, which is dependant on the insitu soils. This permits the installation of Vibro Concrete Columns close to existing structure, potentially as close as 1.5m.

Generally no spoil is produced, due to the displacement system, which is particularly advantages on contaminated sites.