



What are stone columns?

Stone column ground improvement involves adding vertical columns of stone into the ground to a depth of at least 4m below the ground surface. A layer of compacted gravel can then be put over the top of the columns, ready for the construction of new house foundations. The stone column method is quick to construct and can be done at any time of the year.

How are stone columns constructed?

Stone columns are constructed by experienced contractors using specialist equipment. The construction uses an excavator with a vibrating probe to feed stone into the ground, forming a vertical column of stone.

Some stone column rigs feed stone into the ground through the vibrating probe, exiting at the bottom, and other rigs require the stone to be fed in from the ground surface down the vertical hole in the ground. Both types use a vibrating probe that densifies the surrounding soils to help feed the stone into the ground.

How do stone columns improve the ground?

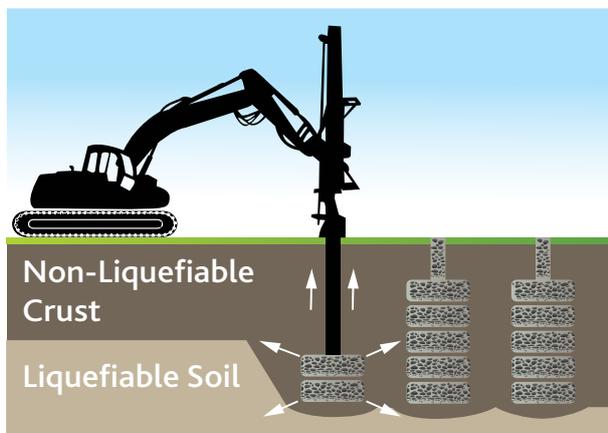
Stone columns help to limit the amount and consequences of future liquefaction by:

- Densifying the soil through vibration and introducing stone into the soil
- Reinforcing the soil creating a stiff composite soil mass.

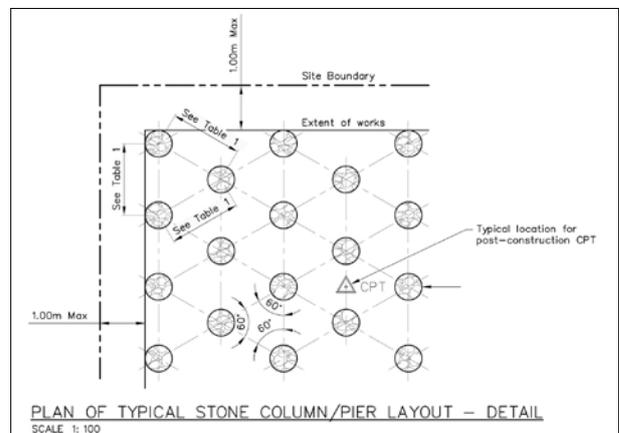
By achieving this, the non-liquefying soil crust is thickened and stiffened to reduce the likelihood of undulations, tilt and uneven ground surface subsidence from liquefaction of the underlying soil layers, therefore reducing damage to the house foundations.

In addition, stone columns may sometimes provide the soil with an increased drainage path to help reduce excess pore water pressure that can lead to liquefaction, so the columns can reduce the consequences of liquefaction when this occurs.

The stone column method is quick to construct and can be constructed at any time of the year



Stone columns



Typical triangular grid installation pattern

An advantage of stone columns is that no dewatering or excavation is required for the construction and they typically have a short construction period.

What soils suit stone columns?

Stone columns are best suited to sandy soils. A greater concentration of stone columns are required in siltier soils.

Because of the large equipment required and the requirement for an area to store the stone (gravel), this method may not be practical for smaller properties or those with limited access.

Stone columns are best suited to sites with sandy soils



Specialist stone column equipment and stockpile of stone (gravel)