



# What are driven timber poles?

Driven timber poles or driven timber piles are installed vertically in the ground in a triangular grid pattern to at least 4m depth below the ground surface.

A layer of compacted gravel can then be placed over the top of the installed poles, ready for the construction of new house foundations.

Construction of driven timber poles ground improvement is fairly quick and simple, generally taking less than one week for most residential properties.

The installation of timber poles can only be constructed on land clear of buildings.

## How do driven timber poles improve the ground?

Driven timber pole ground improvement helps to limit the consequences of future liquefaction by:

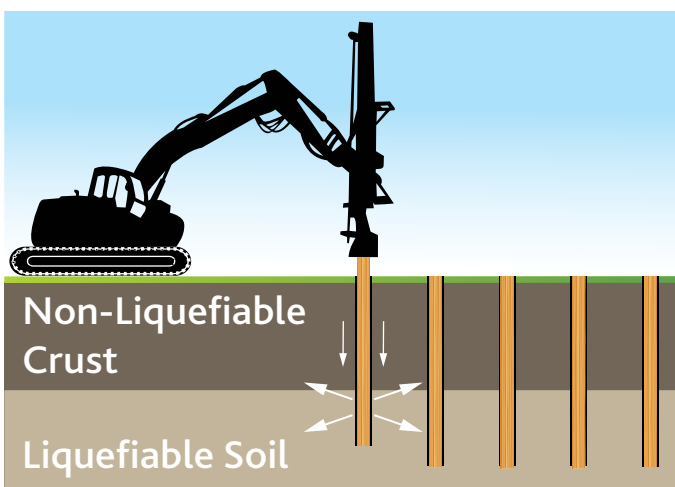
- Displacing soil laterally to densify the soil, and increase soil stiffness between poles. This increased stiffness improves the soils resistance to liquefaction and its damaging effects
- Redistributing the vertical stresses, thereby resulting in more even settlement of the ground surface.

## How are driven timber poles installed?

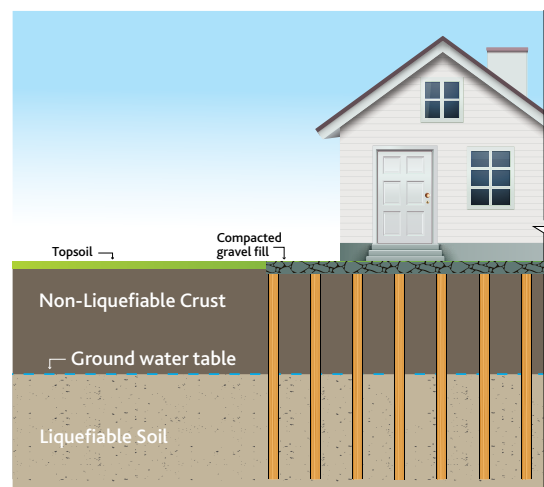
Timber poles may be driven into the ground using either a pile-driver or a vibrating plate mounted on a tracked excavator. The vibrating plate method causes less noise and potentially damaging vibrations and is therefore the preferred option when working in residential areas.

Timber pole installation is quick to construct and can be carried out at any time of the year.

**Construction of driven timber pole ground improvement is fairly quick and simple, generally taking less than one week for most residential properties**



*Driven timber poles*



*Driven timber poles with a new house constructed above*



Left: Driven timber pole installation during the Ground Improvement Pilot Project using a pile-driver mounted on an excavator



**Where can driven timber poles be used?**

Driven timber poles can be used in almost all soil types.

Timber poles may be difficult to install in dense soil layers. Dense soils can cause unacceptable vibration on neighbouring properties and stress on the piling rig and may damage the top and base ends of the poles. However, as contractors become more experienced (and more suitable installation equipment is used) this is likely to become less of an issue.

In some cases pre-drilling holes (for the timber poles) may be needed. However, pre-drilling requires careful design and construction monitoring to ensure sufficient densification of soil between the timber poles and sufficient contact between the surrounding soil and the timber pole is achieved.

One advantage of driven timber poles it that they can easily be installed on smaller properties or those with restricted access, close to property boundaries and against fences and other obstacles.

Above and below: Timber pole installation during the Ground Improvement Pilot Project, using a vibratory plate fixed to an excavator

