

# TIMBER POLE RAFT FOUNDATION



## New foundation for an existing residential dwelling, Christchurch, NZ

A Raft Foundation was designed to provide a clever solution that could be installed under an existing dwelling in earthquake-affected Christchurch, NZ.



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## Project background: New foundation for an existing residential dwelling, Christchurch, NZ

- A new foundation was required to replace an existing damaged foundation.
- The site was in a TC3 classified area that had been affected by the devastating Christchurch earthquakes.
- The project was installed in 2015.

## Project challenge:

- The residential building needed to be able to withstand any future earthquakes.
- The foundation solution needed to be installed under an existing dwelling.
- The foundation solution could not rely on end-bearing piles.
- The foundation solution needed to be able to withstand major lateral movement (300 to 500mm).
- The foundation also needed the functionality to be re-levelled following a future earthquake event.
- A more economical and lightweight option to a Type 2B surface structure was required.
- The site access was off a residential street, in close proximity to neighbouring properties.
- Installation was not allowed to have any impact on these neighbouring properties.
- Installation needed to be rapid, and equipment needed to have a small footprint.
- Access was restricted, so unloading and handling of materials and equipment needed to be easy.

## The NZ Ground Control solution:

- A Raft Foundation was identified as being able to satisfy the stringent design specifications while still being economical to build.
- The existing dwelling was raised by professional house movers to a height of 2.4m.
- The site was excavated and prepared ready for installation of the Raft Foundation.
- Raft Foundation components were delivered to site, then purpose-built equipment was used to assemble and complete the Raft Foundation on site, up to and including the timber bearers.
- The unique hollow core of the MultiPole means the product is lighter than traditional solid roundwood or concrete products. This allowed for easier handling and installation in the restricted height working area under the house.
- Installation was successfully carried out without disturbing the neighbouring properties.
- The Raft Foundation can be combined with Ground Improvement using timber piles for sites with worse ground conditions.

