TIMBER POLE
RAFT FOUNDATION

Foundation for a new residential dwelling, Christchurch, NZ

For a site with very low bearing capacity soil conditions, located in a Flood Management Area, a lightweight Raft Foundation was the best solution.

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Project background: Foundation for a new residential dwelling, Christchurch, NZ

- A foundation for a new 130m^2 residential dwelling was required.
- The dwelling was located within a Flood Management Area.
- The project was completed in 2023.

Project challenge:

- The geotechnical report indicated the site was located within the Flood Management Area and therefore a specified Finished Floor Level of approximately 1.1m above Existing Ground Level needed to be achieved.
- The ground conditions included a low bearing capacity peat layer which is potentially highly compressible, susceptible to decompression and may result in static settlements in excess of building code tolerances.
- Alluvial soils beneath the peat layer are liquefiable to at least 15m depth.
- The site had received a Technical Category 2 (TC2) classification which meant an enhanced foundation solution was required.
- The foundation solution had to be light and economical to install.
- There were neighbouring properties in close proximity on each side of the urban site.
- The client required a foundation solution that could be installed rapidly.

The NZ Ground Control solution:

- NZGC engaged a geotechnical engineer to investigate the site's suitability for foundation options.
- A lightweight Raft Foundation subject to a 75kPa ultimate bearing capacity was identified as being a suitable foundation solution.
- A 200mm gravel raft was also required to be installed beneath the Raft Foundation.
- NZGC provided the client with a foundation design that was both economical and able to be installed with equipment that could easily access the urban site.
- The site was excavated and prepared by a small excavator 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.
- The unique hollow core of the MultiPole means the product is lighter than traditional solid roundwood or steel products. This allowed for easier handling and installation on the small site.
- Installation was completed within a short time frame.
- Installation was successfully carried out without disturbing the neighbouring properties.

GROUND CONTROL

PO Box 99, Tuakau 2342 New Zealand | 0800 115 323 | nzgc.co.nz