



## Swimming pool at Remuera Gardens Retirement Village, Auckland, NZ

MultiPole Uglie poles were installed as a Deep Pile Foundation to support a swimming pool as part of the Remuera Gardens Retirement Village.



DEEP PILE



GROUND IMPROVEMENT



SUSPENDED FLOOR



RAFT



UNDER HOUSE



BRIDGES



# TTT Deep Pile Foundations

## Project background: Swimming pool at Remuera Gardens Retirement Village, Auckland, NZ

- A Deep Pile Foundation was required for an indoor swimming pool facility in an established retirement village.
- The project was completed in 2017.

### Project challenge:

- The foundation needed to be able to support the weight of a heavy concrete swimming pool and building.
- The foundation was to be installed in a location where a previous structure had been demolished but the original foundation piles remained.
- The founding layer varied across the site, and there was very weak soil above the founding layer which would provide negligible lateral support.
- H5 treated Radiata Pine timber piles were determined as the best solution to be installed down to the founding layer.
- Comprehensive geotechnical investigation needed to be carried out to verify the pile design.
- Pile Driver Analyzing (PDA) testing to verify pile capacity needed to be carried out.
- Installation needed to be rapid.
- The retirement village was already occupied so disruption and noise had to be minimised.
- The site was constricted with pile positions located extremely close to existing buildings.

### The TTT MultiPole solution:

- TTT Uglie MultiPoles, 13.0–17.0m x 340mm SED, were identified as being able to satisfy the stringent design specifications of the Deep Pile Foundation required.
- The unique hollow core of the TTT MultiPole allowed for fast installation via vibration and pile driving.
- TTT co-ordinated with the structural engineer to ensure pile locations did not clash with original foundation piles.
- TTT carried out geotechnical testing to establish geotechnical parameters which the engineer used to design the Deep Pile Foundation and provide accurate pile length requirements for all sections of the foundation.

- The constricted site meant relatively small equipment needed to be used – the subcontractor, Markovina Pile Driving had the right equipment and expertise for the project.
- The constricted site also meant that in order to reach the depth requirements piles needed to be joined on site with proprietary polyethylene PE100 sleeve joiners.
- Each Uglie MultiPole was machined on one end so that the joiner fit securely.
- Pile Driver Analyzing (PDA) testing for Dynamic Load was carried out to verify pile capacity, and a geotechnical ultimate load capacity of up to 215kN per pile was successfully achieved.



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