



Fonterra Picasso & Otakiri Irrigation Tank & Silo Facility, Edgecumbe, NZ

Deep Pile Foundations using TTT MultiPoles were installed for large storage tanks and silos as part of a new Fonterra facility.



DEEP PILE



GROUND IMPROVEMENT



SUSPENDED FLOOR



RAFT



UNDER HOUSE



BRIDGES

Deep Pile Foundations

Project background: Fonterra Picasso & Otakiri Tank & Silo Facility, Edgcumbe, NZ

- The main contractor, Techo Limited, required a design and install solution.
- Deep Pile Foundations for new storage tanks and silos were required.
- The project was completed in 2017.

Project challenge:

- The foundations needed to be able to support the weight of 3000 tonne storage tanks.
- Concrete rings needed to be installed around the base of the tanks to an accuracy of +/- 3mm.
- The foundations needed to be able to support the weight of 200m³ silos.
- The ground condition was abrasive pumice sand.
- H5 treated Radiata Pine timber piles were determined as the best solution to be installed down to the founding layer.
- The original design was for 18.0m long poles which was revised based on the results of extensive test piling.
- Geotechnical investigation was carried out to verify the pile design.
- Pile Driver Analyzing (PDA) testing to verify pile capacity needed to be carried out.
- Piles had to be installed with specific accuracy.
- Installation needed to be rapid.
- The strict health and safety requirements of Fonterra needed to be met.
- The site was extremely busy with numerous contractors working on site at the same time.

The TTT MultiPole solution:

- TTT Uglie MultiPoles, 4.5m x 300mm SED, 686 pieces, 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.
- Any design changes on site were responded to quickly due to TTT Products involvement with the design.

- Once the founding layer had been reached the poles were cut off above ground at the level required for installation of the concrete rings and bases.
- The subcontractor, Markovina Pile Driving South Island, was able to successfully install the TTT MultiPoles with the accuracy and speed required.
- Pile Driver Analyzing (PDA) testing for Dynamic Load was carried out to verify pile capacity, and a geotechnical ultimate load capacity of up to 860kN per pile was successfully achieved.



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TTT MultiPole