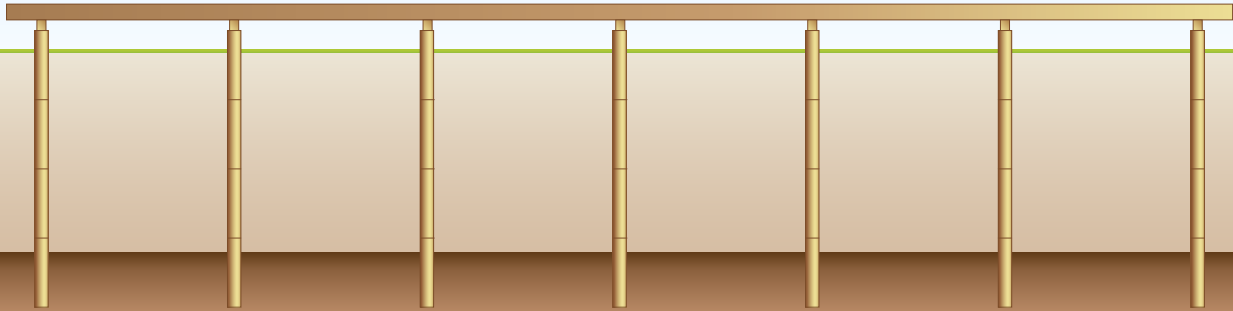


TTT Under House Piling involves operating under a lifted house to install deep piles designed in accordance with MBIE Guidance 2012, section 15.2, p. 15.7.



## The system

TTT Under House Piling is an option that caters to homeowners wanting to restore their house, as opposed to demolishing and rebuilding it. The existing house is lifted to achieve ground clearance of at least 2.4m and new piled foundations are then installed underneath. The piles are typically TTT Deep Pile Foundations, specifically designed to suit the tight access underneath an elevated house. The piles are typically 180mm uniform diameter TTT MultiPole UniLogs that are 1.0–2.4m long. These are joined together during installation using TTT MultiPole Connectors (simple pin connectors) until the required depth to a competent bearing stratum is reached.

## Site requirements

Access to pile positions is generally required to be a flat, level, straight path that is 2.0m wide and has 2.4m vertical clearance. Piles can generally be installed up to 1.0m away from existing structures.

## Installation

Installation typically takes 5 days. The piles are installed using a high frequency vibrator mounted on a Terex compact track loader (similar to a Bobcat). This installation process leaves the piles structurally undamaged, doesn't generate excessive noise, and doesn't transmit excessive vibrations. Combined with fast installation, this minimises disturbance to neighbouring properties.

## Engineering design, testing and sign off

One of our geotechnical engineers will be able to complete site-specific engineering design for the piles based on the pile loads provided by a structural engineer and geotechnical report for the site. The pile design includes calculations, design drawings, Producer Statement PS1 – Design, and accompanying pile design report able to be used to support the consent application.

During pile installation, the bearing capacity of the piles is tested to verify that the design loads are being met. For residential foundations, pile testing usually involves measuring pile sets based on the Hiley Formula. Combined with observation of the pile installation process to the satisfaction of the engineer and a Producer Statement PS3 – Construction from the pile installer, this will enable the engineer to sign off a Producer Statement PS4 – Construction Review.



# TTT Under House Piling

## Additional design options

After the piles are installed and trimmed to height, reinforcing rod can be grouted through their hollow core in order to tie them together, if required, before lowering the house down onto the newly-installed piles.

For sites where more than 300mm of lateral movement is expected for a future event, a few rows of closely-spaced, shallow TTT Ground Improvement piles acting as an in-ground retaining wall can reduce the lateral movement below 300mm to within the threshold suitable for TTT Deep Pile Foundations to be designed.



## Quick reference information

	Technical Category	Type of MultiPole used	Typical pole diameter	Typical pole length	Typical pole spacing	Typical installation method
Residential foundations	TC2 & TC3	UniLog	180-200mm	1.0-2.4m Poles can be joined to achieve depths of 8.0m+	1.0-4.0m	High frequency vibration using compact piling equipment

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