



ABBAY PYNFORD

CASE STUDY

Lewes Terraces



UNDERPINNING



Name: Lewes Terraces

Location: Lewes, Sussex

Value: £300,000

Duration: 20 weeks

Client: Shire UK

Loss Adjuster: Innovation Group

Insurer: Direct Line



These two attached terrace houses in Sussex were suffering from subsidence due to the poor bearing capacity of the ground beneath the rear projections, which caused large cracks to form in the walls.

Site Access & Design

The site access to these properties was the first consideration of the project. As they were not only on a tight residential street but were also set significantly below street level, even one of our specialist mini rigs would not be able to gain access. Our engineers opted for a Micropiled solution, as Micropiles can be installed with equipment that can be carried through the property.

Bungaroosh & Shoring

An added complexity (and interest) of this project was the rear wall of the main house was made of Bungaroosh. Bungaroosh is a composite building material used almost exclusively in the Brighton and surrounding areas in the mid-18th and late 19th centuries. It is made of miscellaneous materials in



View under structural wall on Pynford Stools. Metal shoring and timber raft shuttering visible.

response to the high brick tax at the time. Due to its poor resistance to climatic changes, it was important not to take any chances with the supporting shoring system. We designed a substantial raking shore system, supporting the whole rear of the houses to reduce this risk.

Mitigating Risk Through Innovation

The existing foundations were minimal at this stage of the subsidence process, which posed a significant risk of collapse, added to by the Bungaroosh wall.

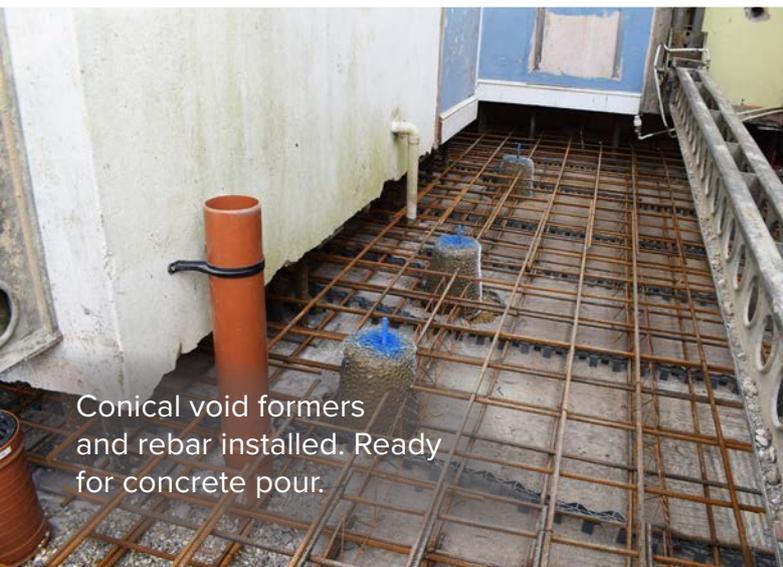
To minimise this risk our in-house engineers designed the piled raft to be installed backwards. This entailed building the raft first, creating some initial support for the structure above, then piling through the slab.



Floor removed & existing wall supported by Pynford Stools. New drainage installed. Ready for raft build.

This process is rarely done and required original design thinking to allow piles through the slab and create a solid connection between the slab and the raft.

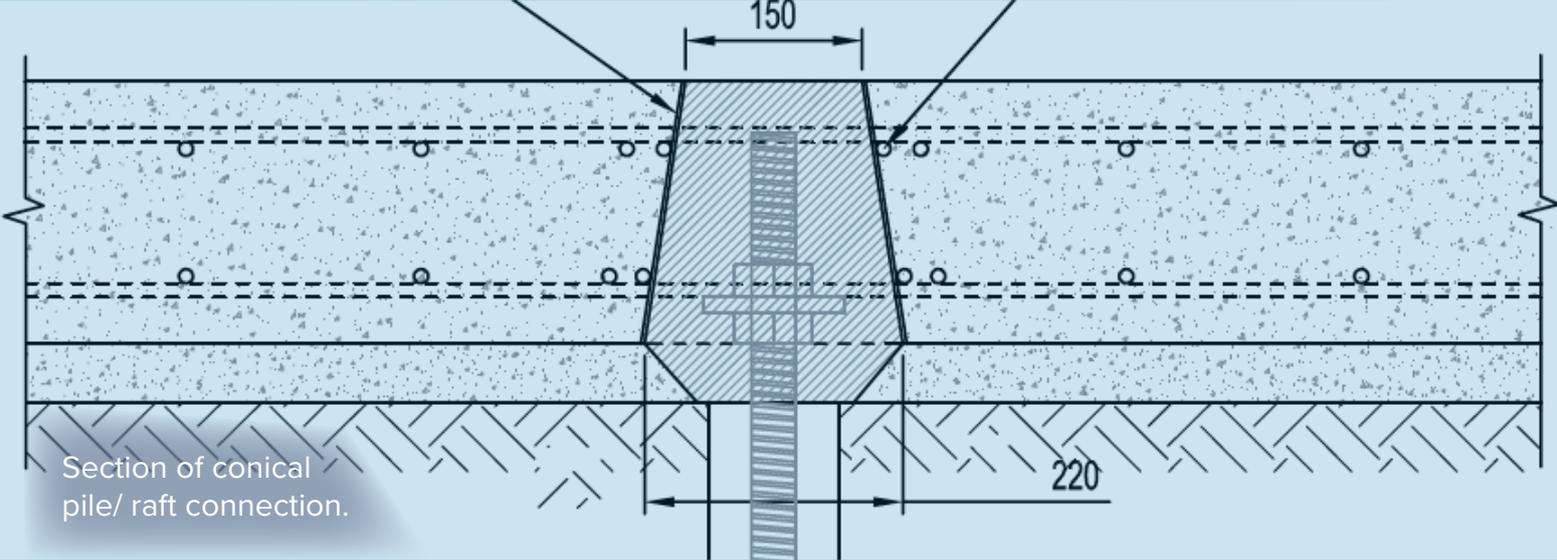
Traditionally in a piling first process, steel fixing would project from the pile to be formed into the raft, creating a solid connection. However, as this was not an option, we created a conical opening in the poured slab. This shape (tapering to the top) not only facilitated the Micropile installation but crucially, once formed, meant that the weight of the structure and raft would create a permanent connection. If left as a traditional circular pile, the poor conditions below would have allowed the possibility that the houses could continue their downwards movement.



Conical void formers and rebar installed. Ready for concrete pour.



Post concrete pour, stones forming conical voids are removed. Ready for piling.



Section of conical pile/ raft connection.

The conical voids were formed from wire mesh and infilled with stone to prevent collapse during the concrete pour. Once set the stones were removed leaving a void ready for piling.

Although this was a new underpinning process for our Special Works Crew, the project went smoothly, completing on time and in budget.



Mircopile installation



Mircopile post-installation.

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