



Impression Pile

Making a lasting impression

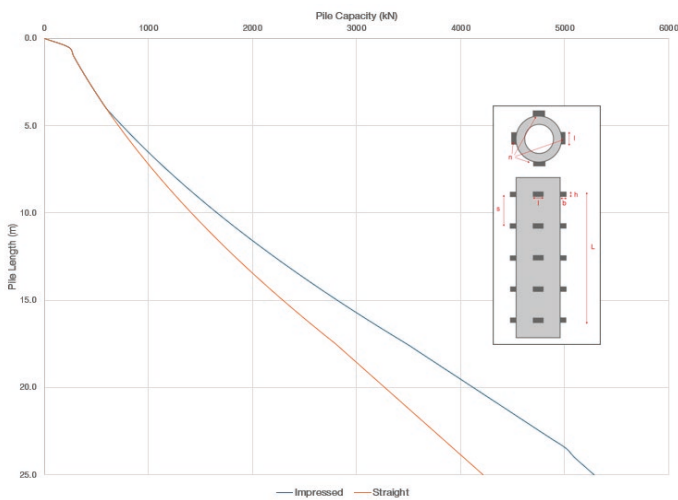
→ Redefining sustainable construction

Impression Pile

Making a lasting impression

Enhancing pile shaft friction is the key to increased load bearing capacity, reduced embodied carbon, and reduced spoil volumes on site. Through continuous development we have refined the design method and installation process to maximise stakeholder benefits.

Capacity of straight shafted pile vs impressed pile (900mm dia)

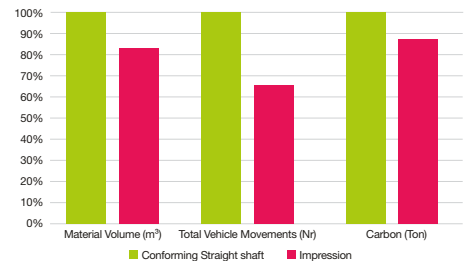


Background/Motivation

The Impression pile was developed to enhance the shaft capacity of dry bored piles, and therefore permit shorter piled foundations.

This not only reduces the embodied carbon but can also avoid augering into water bearing strata. This reduces the project cost, improves the quality of the pile construction and enhances overall site productivity.

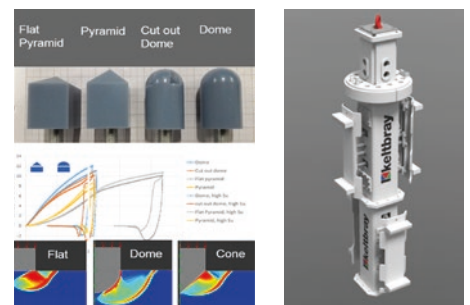
Analysis of 150Nr 900mm dia. piles, SLS load 4MN



Standard pile capacity vs impressed pile capacity. Graph showing reduction in concrete volumes and spoil volume

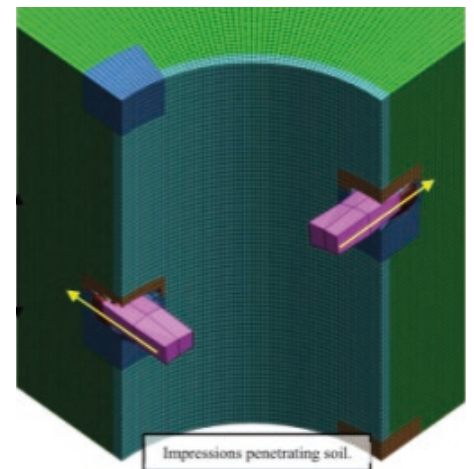
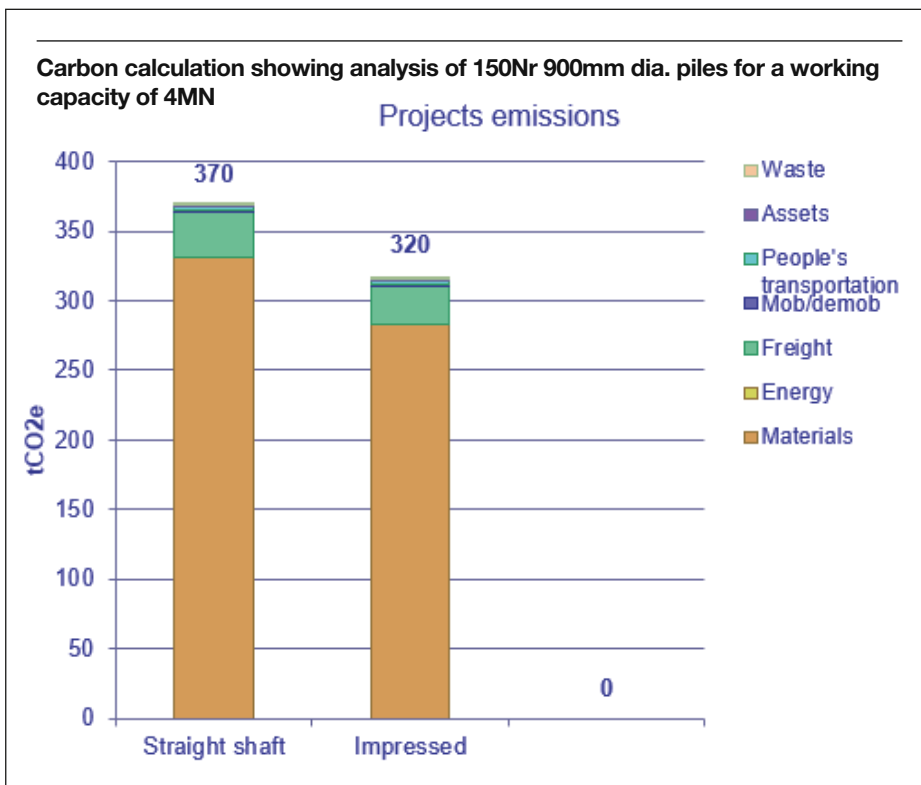
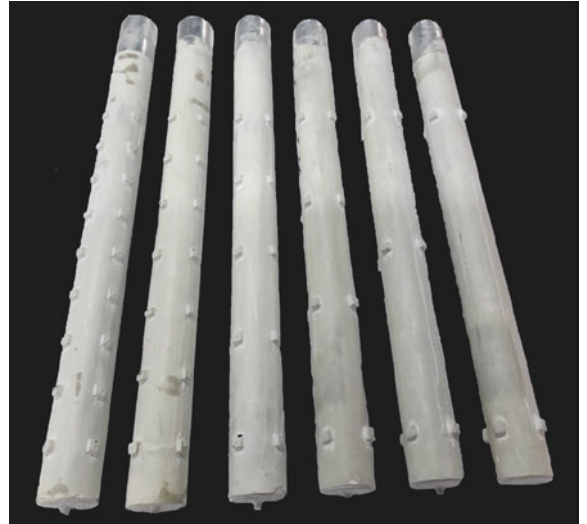
Technical

- The impression tool is a bespoke, hydraulically operated device, covered by two patents
- Piles can be impressed in a range of bore diameters from 600mm to 1500mm, typically to depths of 30m
- Construction starts with a bored pile that is then impressed and the base then cleaned
- Piles are designed to Eurocodes and installed in accordance with BS EN 1536
- Pile testing recommendations in accordance with ICE SPERW (2017)
- Live cameras within the tool provide feedback to the site team during construction



Tangible benefits

- Reduced costs compared with straight shafted bored piles
- Enhanced bearing capacity by typically 25%, reducing pile depth and/or diameter
- Reduced material volume quantities, typically 10%-20%
- Up to 40% reduction in vehicle movements from concrete and spoil
- Up to 15% saving in embodied carbon from the piles alone
- A ductile geotechnical failure mechanism providing predicable settlement performance and a more resilient foundation
- Production rates not adversely impacted compared with a straight shafted pile



In summary

Our Impression pile is a repeatable, reliable construction technique, generating efficiencies through design. Impression piles enhance pile capacity, reduce material volumes, reduce total vehicle movements and ultimately embodied carbon savings.

Impression piles are ideally suited to dry bores in normally consolidated and over-consolidated clays such as those found within the geology of the London Clay basin.

Extensive small scale and large-scale pile tests have been completed on a range of pile diameters. A simple analytical design method has been developed, derived and published by independent consultants.



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