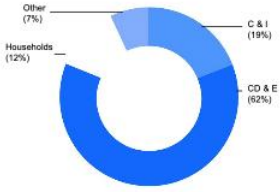
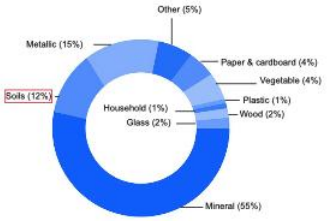
Nowadays, brick making has largely dissolved in London through global material sourcing, which precedes other construction materials (concrete, composite materials, steel) being introduced. It is only done in small quantities around London such as Kent and Sussex and the Chiltern Hills.

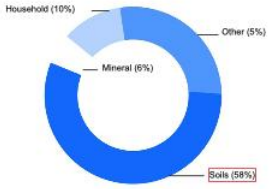
Clay now has become a by-product of the construction industry, particularly of civil engineering practices excavating vast amounts of soil for building foundations, basements and tunnels.
Whilst some of the extracted clay is recycled, mostly for backfilling purposes, the large majority is sent to Landfill.



UK waste split by waste material

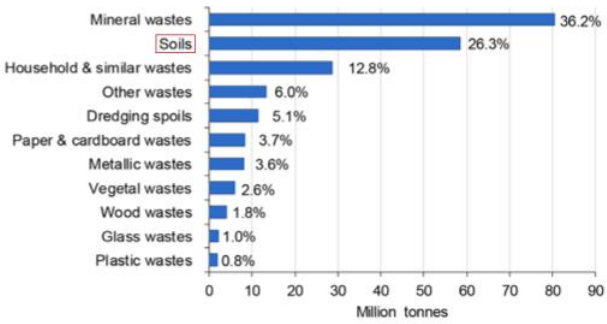


Waste recycling and other recovery



Landfill

UK waste split by source



Crossrail Boring (https://www.theconstructionindex.co.uk/assets/2020)

Thames Tideway Tunnel (https://www.thameswater.co.uk/media-library/2020)

City scale engineering projects such as Crossrail, Thames tideway super sewer, or basement excavations e.g. in Marylebone Square are extracting vast volumes of London Clay. Crossrail alone displacing 6 million tonnes.

Marylebone Square basement excavation (https://lirla.time-lapse-systems.co.uk/viewer/kier-marylebone-square-cor4/2021)

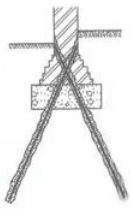
Ground settlement, sub structure techniques in London

The construction of substructures and the technique of excavation rely on many variables. The nature of the ground is a key factor but so is the type of building structure one is trying to provide foundations for.
Groundwater and whether or not a basement is to be provided are also important considerations.

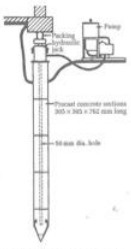
Most projects in London involve extending or altering buildings either by adding extensions or building up on top of them. When extending them, the new foundations need to be compatible with what exists or else the extension must be structurally separate with a "settlement" joint between the new and old. Sometimes when raising an existing structure, foundations have to be improved to carry the additional load.

Underpinning is the most commoway of doing this if the existing foundations are not adequate.

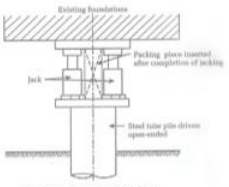
Methods of underpinning



Underpinning old wall with micropiles.



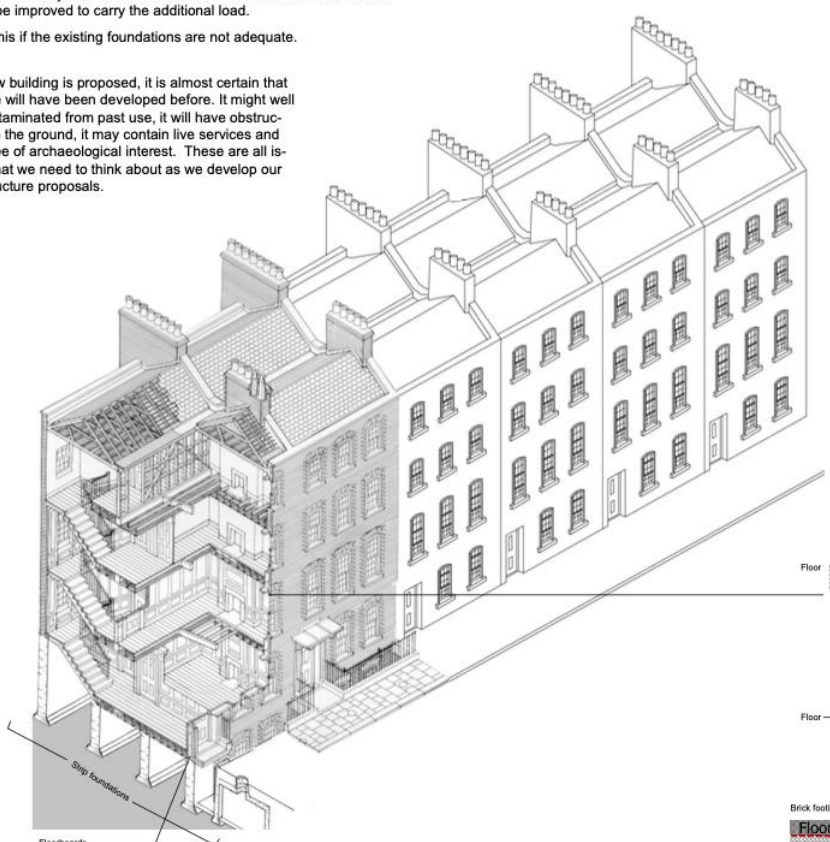
Underpinning with the Franki Miga pile.

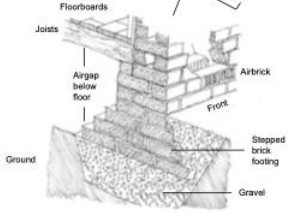


Underpinning with steel tube piles

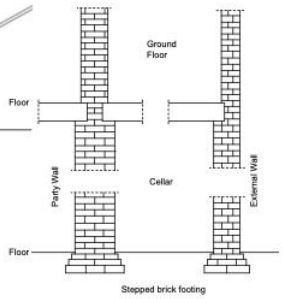
Underpinning with Pynford stools

If a new building is proposed, it is almost certain that the site will have been developed before. It might well be contaminated from past use, it will have obstructions in the ground, it may contain live services and could be of archaeological interest. These are all issues that we need to think about as we develop our substructure proposals.





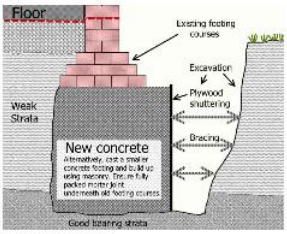
Where there are difficult ground conditions present, many foundations are piled. Many basements are formed with piled walls to enable them to be safely excavated in built up areas (or next to existing buildings) without excavations collapsing.



Stepped brick footing

There are some areas of London which are known to have poor ground and sometimes historical maps can give a clue. Clay in parts of Hackney, for example, was excavated and used for making bricks. The ground was filled in with poor quality material (probably from Victorian housing developments) and mean that some houses are very poorly founded.

Brick footing on concrete foundation/underpinning



New concrete underpinning (https://handycrowd.com/underpinning-walls-in-old-houses/2022)

Images: Tomlinson, M. J. Foundation Design And Construction, 2001