



Balfour Beatty Ground Engineering's (BBGE) technical ability ensures driven piling can be carried out in residential areas with minimum disruption to occupants.

Installing driven precast concrete piles adjacent to existing housing is relatively common, particularly in large phased developments. BBGE has undertaken numerous projects where piles have been driven within 5 metres of existing housing. One example is in Thamesmead where BBGE undertook a number of phases of a large residential development with later phases of the project being in close proximity to occupied properties.

The principal factors which dictate the suitability of driven piles adjacent to existing residential buildings are: ground conditions; pile loads; distance and the condition of the existing structure.

Ground Conditions: Dense / more compact ground, particularly near the surface will tend to increase levels of both noise and vibration.



Through Stent House Foundations, we offer a total package including complete design, manufacture and installation of piles, beams and floors.

Pile Loads: In general the higher the pile loading the more energy is required to install the pile and therefore the higher the noise and vibration. An exception to this is when a dense granular material is overlain by soft alluvial deposits. In this case little energy is required to reach the founding strata with only hard driving for a short duration. The soft alluvial material tends to have the effect of damping vibration at the surface.

Distance and Condition of Existing Structure: Obviously the greater the distance from the pile to the point of interest the lower the noise and vibration. Also the more structurally sound a building is, the less susceptible it is to damage.

Measures that can be taken to minimise the effects of noise and vibration are:

- A modern, well maintained piling rig and hydraulic enclosed hammer
- Appropriate packing between the hammer and pile
- The orientation of the piling rig
- Pre-bore the pile positions
- Reduce the hammer drop height

- Reduce the pile load – increase the number of piles

Of these measures, not all may be possible on a given site and some have cost implications. BBGE also will advise and reassure residents living nearby about the intended works and that they will be carried out with minimum disruption and using the best practical means in the circumstances.

A driven precast concrete pile will generate lower noise and vibration levels than a driven cast in situ pile for the following reasons:

- With precast piles the hammer blow is cushioned by a plastic insert and timber packing
- Hammer drop heights tend to be lower with precast piles to avoid damage to the pile
- The cross sectional area of a precast pile is normally lower for a given load thus less energy is required to cause penetration

FOR FURTHER INFORMATION CONTACT:

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