

This is an extract of the full report which was submitted as part of Cranbrooks Documents to the Inspector reference - Document 3 - Arup Geotechnics - RBKC Town Planning Policy on Subterranean Development

Arup**Geotechnics**

Royal Borough of
Kensington & Chelsea

**RBKC Town Planning
Policy on Subterranean
Development**

Phase 1 - Scoping Study
DRAFT

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ARUP

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Job number 123002

5.4 Nuisance caused during works

The main forms of nuisance and disturbance during basement works are:

- Noise and vibration;
- Dust;
- Visual impact;
- Obstruction of pavements (partial or complete);
- Bringing excavated spoil up to awaiting skips/vehicles;
- Transporting the spoil away from the site, using local roads;
- Delivery of construction materials to the site.

In general, these effects are at least of similar, and sometimes of greater, magnitude than equivalent categories of disturbance created by other types of residential building works (such as replacing a roof, converting a loft, or adding a conservatory).

In residential areas, particularly in terraced streets, noise and vibration from construction works can be of particular concern to local residents. Behavioural studies have shown that people in their own homes are much less tolerant of noise and vibration than, say, office workers in their place of business. Similarly, people are much less tolerant of noise at night than in the daytime, and less tolerant of unexpected, intermittent noises than of anticipated, regular sounds. These psychological differences underlie the various British Standards³ that give guidance on the noise and vibration limits acceptable to humans.

5.5 Safety during the works

It is important to consider the health and safety risks that are associated with underpinning works of the type that is frequently used to form basements, especially when underpinning historical structures that were not constructed to modern engineering standards.

A relevant example is the case in February 2001 in which a construction worker was killed during the refurbishment of St. Mary's Church, Bryanstone Square, Westminster, W1. The work at St. Mary's included lowering the crypt floor and underpinning the existing foundations. During the underpinning, a 1.5 tonne section of masonry fell from the underside of an unsupported wall, hitting the operative working within the excavation. The Health & Safety Executive (HSE) successfully prosecuted both the structural engineer and principal contractor for various breaches of health and safety legislation. A summary of the prosecution is presented on the HSE website at www.hse.gov.uk/press/2005/e05016.htm. The HSE inspector commented that:

"[the incident] could have easily been avoided, had appropriate and straight forward safety measures been in place... [it] came about through the failure to take appropriate action in relation to a potential risk in the underpinning work, that had been brought to the attention of both the structural engineer and the contractors. The possible risks should have been addressed by uncomplicated measures including a detailed structural investigation, suitable and sufficient risk assessments and adequate protective measures, such as propping of the foundations."

The HSE's comments on this case indicate that underpinning can be undertaken safely, provided that appropriate engineering and safety measures are planned and carried out.

³ British Standards Institution (1985) BS 6611: *Evaluation of the response of occupants of fixed structures, especially buildings and offshore structures, to low frequency horizontal motion*. BSI London.
British Standards Institution (1987) BS 6841: *Measurement and evaluation of human exposure to whole-body mechanical vibration and repeated shock*. BSI London.
British Standards Institution (1992) BS 6472: *Evaluation of human exposure to vibration in buildings*. BSI London.