

**18 Grove Terrace,**

**Job No. 15168**

**Basement Impact Assessment**

**Non-technical summaries**

**May 2017**

## Non-technical summaries

This report has been prepared in line with the guidance and sequential approach given in Camden Planning Guidance Basements and lightwells CPG4, July 2015. The report covers the proposed form of construction to be used in forming a one storey basement underneath the existing property without causing undue damage or disruption to this.

The contents of this report have been thoroughly checked and approved by a Chartered Structural Engineer (MIStructE).

### Desktop Study

A desktop study has been carried out to determine key features of the existing site, including surrounding buildings, trees, above and below ground water features, and local transport links. The study indicates that there are no significant features which will affect or be affected by the proposed development at 18 Grove Terrace.

A historical desktop study has also been carried out. The site history map contained within Appendix D shows that in 1866, a road had been constructed called 'Grove Road' on the site of the current road 'Grove Terrace'. It is highly likely that the road has since been renamed to Grove Terrace. If so this map shows the current property no 18. Grove Terrace was constructed prior to 1866.

The site address has been checked against the "New Basement Development and Extensions to Existing Basement Accommodation-Guidance Note" issued by London Borough of Camden-Dec '08 and the address is not within a location of surface water flood risk.

### Appraisal of Existing and Adjacent Structures

A visual inspection of all boundary walls has been carried out by Lyons O'Neill to identify any existing structural damage. No significant signs of historic or ongoing damage caused by structural movement were found. A full conditions survey will be carried out by the appointed Party Wall Surveyors, prior to any works commencing on site, as part of the party wall award process.

### Site Investigation

A site investigation was undertaken during September 2014. The works were undertaken by Southern Testing, and included a desktop study (Ref:JD11987).

The location and results of all window samples and trial pits are shown within the copy of the site investigation, contained within Appendix G. The 2 window samples showed a consistent site geology comprising of a layer of made ground, between 1.24m and 2m thick, underlain by a layer of London Clay, becoming stiffer with depth.

## Groundwater

No groundwater was encountered during the formation of the trial pits or the boreholes. As part of the investigate works, groundwater level monitors were also installed within the 2 boreholes constructed.

The monitoring wells measured standing water levels of 1.34m BGL and 2.01m BGL. The presence of standing water reflects a perched groundwater table within the made ground.

On the basis of the measurements to date, groundwater ingress is not expected to be a significant problem in terms of dewatering issues etc. during construction.

Given the very slight fall in the local/regional topography, hence almost negligible hydraulic gradient, and the very low/impermeable nature of the underlying clay materials, there is negligible risk of the proposed basement walls causing a 'damming effect' or mounding of water on the upstream faces. On the basis of the observations/comments, it is concluded that the proposed development will not result in any specific issues relating to the hydrogeology of the site.

### Effects on Surrounding Trees

Existing vegetation within the rear garden consists of borders containing a variety of ornamental shrubs, various fruit trees (pear and apple) and a grape vine. Vegetation within the neighbouring gardens includes maple, cherry, yew, cyprus, silver birch and various ornamentals shrubs/trees.

Given the small dimension of the trees and their distance from the proposed works these will not be affected.

### Proposed Structural Design

The drawings within Appendix B of this report illustrate the proposed scheme. The scheme has been developed on the basis of the information provided by the site investigation.

The proposed works involve the excavation of the existing floor to the front vaults and the formation of a new floor approximately 680mm lower than the existing. In order to allow the excavation, the vaults perimeter walls are proposed to be underpinned in reinforced concrete and the central wall between the 2 vaults is proposed to be underpinned in mass concrete. A new suspended RC slab cast on heave protection will span from the perimeter RC base to the central mass concrete underpinning.

At the rear of the property a new staircase will lead to the existing lower ground floor level. Part of the rear garden is proposed to be excavated down to existing lower ground floor level to allow for the new staircase. RC retaining walls are proposed to prop the soil around the new stair void in the permanent condition. These are located in board of the garden boundary walls on either side. The RC walls and the RC base in-between the walls are proposed to be cast in sequence.

As the basement will be formed within the Gravel layer sitting on top of the Clay layer, this will heave (upwards loading) as a result of the unloading of the soil. A heave protection layer will be used to the underside of the basement slab.

RC underpinning is suitable in clay soils with a low water table level, and affords the maximum useable space for the basement. The above is proven methods of construction which will result in low movements of the existing structure.

### **Proposed Drainage**

The below ground drainage to the building is thought to run out to Grove Terrace. This is to be verified using information from both Thames Water and a CCTV below ground drainage survey.

The proposed total amount of hard landscaping area to the rear garden will be kept the same as the existing condition. Existing surface water on the site either flows into drainage gully's which are then linked to the existing below ground drainage system, or soaks into the existing soft landscaping.

In the proposed condition, if the existing pipe running underneath the front vaults will be found deeper than the proposed foundation formation level then the new cavity drainage to the vaults will be connected into this pipe. Otherwise, the drainage serving the drained cavity to the vaults will be pumped up to reach the existing pipe within the front of the site and then link in with the existing drainage at this level. It is proposed that the existing connection of the combined foul and surface water to the sewer within the roadway will be maintained, where possible, based on the condition of this.

The drainage design will conform with the guidance in the Sewers for Adoption 6th edition i.e. no part of the site will be allowed to flood in a 1:30 year storm event.

### **Construction Sequence**

The proposed basement will not result in any specific issues relating to land or slope stability. Whilst a proposed sequence of construction is outlined in Section 10, the contractor will be expected to work up his own sequence, outlining the temporary works involved and when in the construction process these will be installed.

### **Control of Disturbance to the Neighbourhood**

Appropriate measures will be taken to keep dust pollution to a minimum. Such measures will include the use of water to suppress dust and soil being excavated from basement level, covers for conveyors and skips, and barriers installed around dusty activities that are undertaken externally.

All work will be carried out in accordance with BS 5228-1:2009 and BS 5228-2:2009. All works will employ Best Practicable Means as defined by Section 72 of the Control of Pollution Act 1972 to

minimise the effects of noise and vibration. All means of managing and reducing noise and vibration which can be practicably applied at reasonable cost will be implemented.

### **Movement and Damage Category**

The proposed works to form the basement will be designed and detailed so that any movement of the existing structure is no worse than "Category 1", defined as Very Slight within the BRE Digest 251 Table 1 and CIRIA 580 (Burland et Al). This will be agreed as part of the party wall process, and the movement of the existing building will be monitored twice weekly during the formation of the basement using targets placed to the face of the walls. Monitoring is discussed in more detail in the section 8 of this report.

All excavations beneath existing walls, particularly party walls, will be undertaken carefully, using low vibration tools to avoid impact on the existing structures. The use of these tools will be agreed with the contractor, prior to the works commencing.

### **Recommended Form of Construction**

The proposed scheme utilises underpinning to form the new basement. This is a tried and tested means of construction which does not require heavy equipment and results in minimal movements to the existing walls.