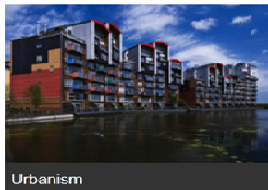


# Basement Impact Assessment

**4a Glenmore Road  
London  
NW3 4DB**



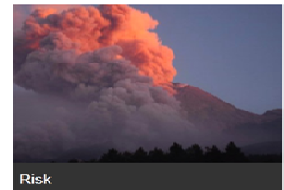
Buildings



Urbanism



Energy



Risk

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## 1.0 Introduction

The purpose of this report is to assess the potential impact of the basement proposals on neighbouring properties and the natural environment of the site.

The report is set out in accordance with the guidelines given in Camden Planning Guidance CPG4 - Basements and Lightwells (September 2013).

Relevant maps and other figurative information given in Camden Geological, Hydrogeological and Hydrological Study have been referred to in this report.

## 2.0 Stage 1 - Screening

The following sections summarises the outcome of the screening review as identified in CPG4. The results are documented below.

### 2.01 The site

No 4a Glenmore Road is a mid-terrace Victorian property of traditional construction arranged over 3 storeys with partial basement located directly below the main entrance corridor.



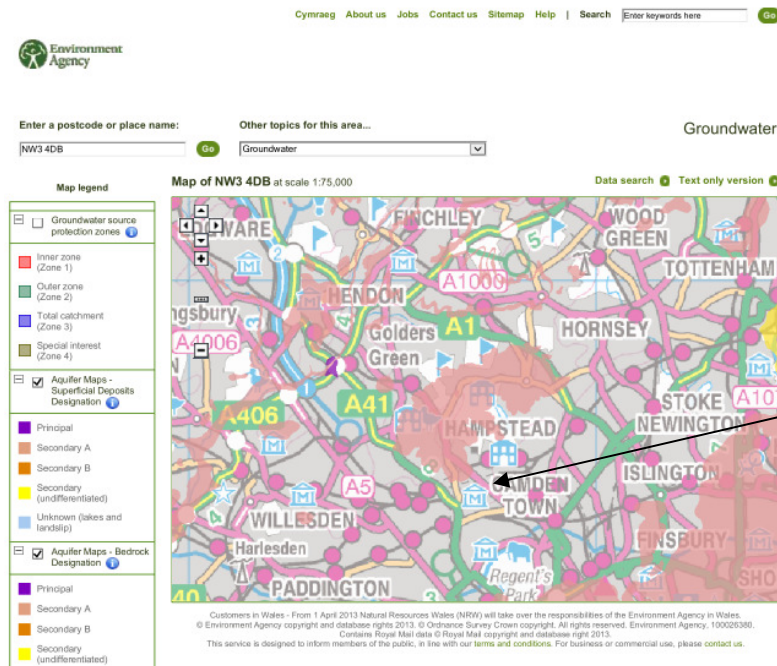
A visual survey of the property was undertaken prior to the intrusive ground investigation. The building appeared to be in reasonably good structural condition for its age. There were no visible signs of structural distress noted at the time of our visit.

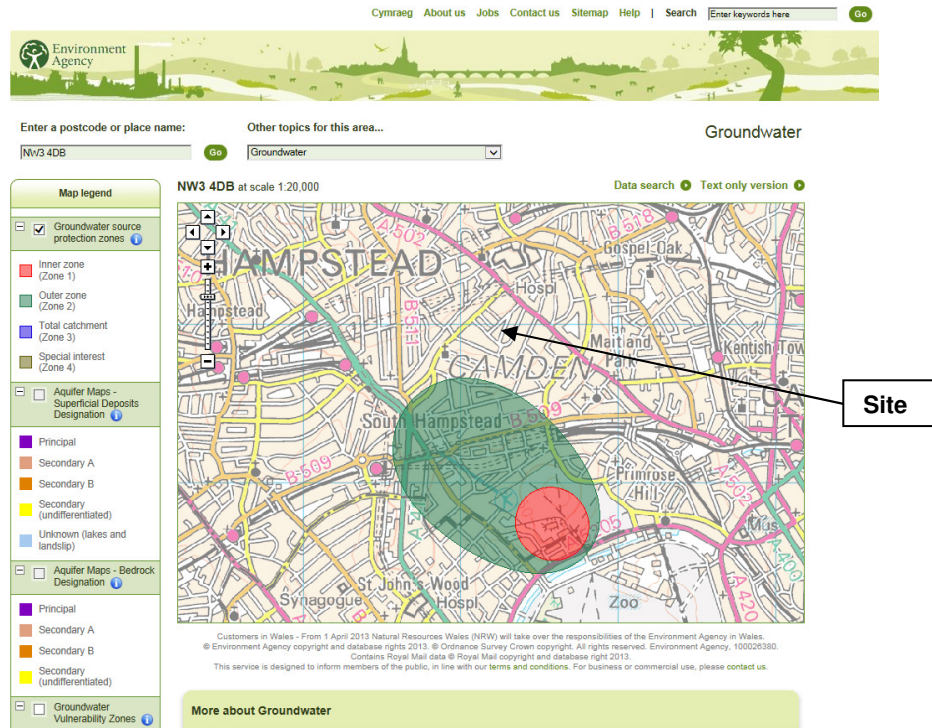
A brief visual overview of the terrace was also carried out at this time. A number of extended basements were noted to neighbouring properties on the same side of the street.

## 2.02 SUBTERRANEAN (GROUND WATER) FLOW SCREENING FLOWCHART

**Q1a:** Is the site located directly above an aquifer?

A: No. The site is in London Clay which is classified as an unproductive aquifer. See extract from Environment Agency map below.





**Extracts from Environment Agency Groundwater map**

**Q1b:** Will the proposed basement extend beneath the water table surface?

A: No. A site specific borehole investigation was carried out. Water was not encountered.

**Q2:** Is the site within 100m of a watercourse, well (used / discussed) or potential spring line?

A: Yes. See extract from Figure 11 below.



Extract from Figure 11 - Lost Rivers of London by Nicolas Barton

**Q3:** *Is the site within the catchment of the pond chains on Hampstead heath?*

A: No

**Q4:** *Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?*

A: No. The proposed basement is directly below an existing building but there is a small front lightwell extension which will be in the area of existing hard landscaping.

**Q5:** *As part of the site drainage, will more surface water (e.g. rainfall and run-off) than present be discharged to the ground (e.g. via soakaways and/or SUDS)?*

A: No. Runoff from the proposed lightwell will be collected into the proposed below ground drainage system.



**Q6:** *Is the lowest point of the excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line.*

A: No

#### **Non-technical summary - Subterranean (ground water) Flowchart**

The results of the screening flowchart answers confirms that the proposed development does not change the subterranean ground water flow, however the site appears to be within 100m of an underground watercourse as indicated on the map of the Lost Rivers of London. This is to be carried forward to the scoping stage.

#### **2.03 SLOPE STABILITY SCREENING FLOWCHART**

**Q1:** *Does the existing site includes slopes, natural or manmade, greater than 7° (approximately 1 in 8)?*

A: No. The site is sloping but the gradient of the slope is less than 7°. Reference has been made to Figure 16 of the Camden Geological, Hydrogeological and Hydrological Study

**Q2:** *Will the proposed re-profiling of landscaping at site change slopes at the property boundary more than 7° (approximately 1 in 8)?*

A: No

**Q3:** *Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7° (approximately 1 in 8)?*

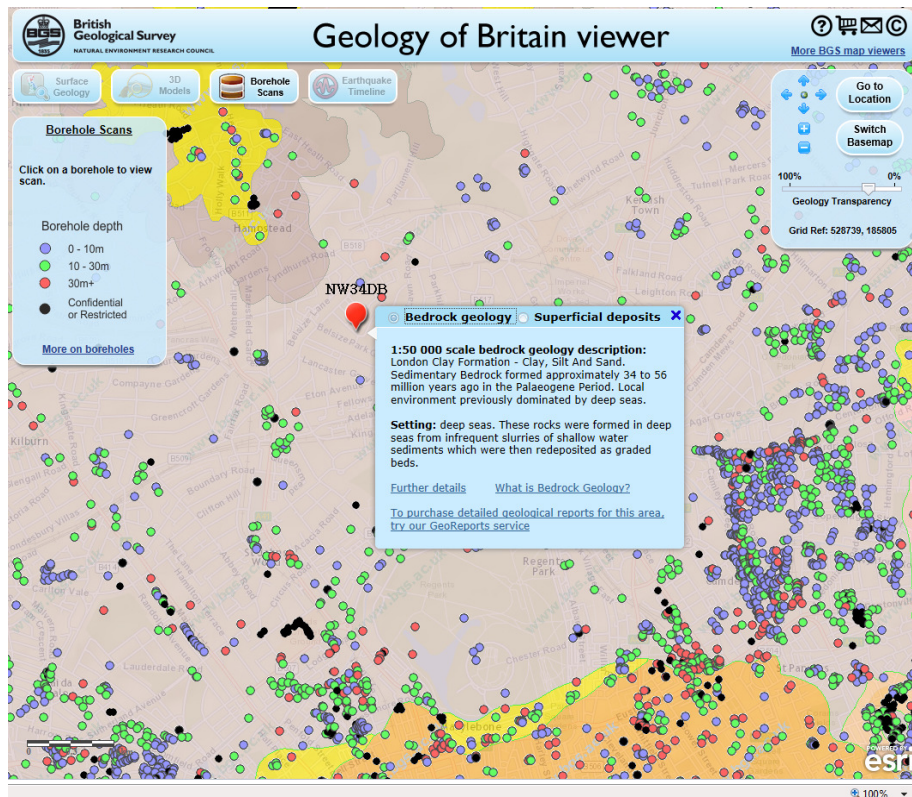
A: No

**Q4:** *Is the site within a wider hillside setting in which the general slope is greater than 7° (approximately 1 in 8)?*

A: No

**Q5:** *Is the London Clay the shallowest strata at the site?*

A: Yes. See extract from British Geological Survey maps. Also a site specific borehole confirms London Clay strata.



Extract from British Geological Survey Database

**Q6:** Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained?

A: No. The Sycamore tree on the rear boundary is greater than 8m away from the proposed basement works.

**Q7:** Is there a history of seasonal shrink-swell subsidence in the local area, and /or evidence of such effects at the site?

A: Yes. There is a small section of hard landscaping in the rear courtyard which shows signs of shrink-swell subsidence. However there does not appear to be any visible signs of damage to the existing single storey structure adjacent to the tree. Heave protection to be provided to new basement slabs.

**Q8:** Is the site within 100m of a watercourse or potential spring line?

A: Yes. See extract from Figure 11 above.



**Q9:** *Is the site within an area of previously worked ground?*

A: No. A review of historic maps did not indicate previous pits or workings.

**Q10:** *Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?*

A: No. See extract from the Environment Agency map above. Water was not encountered in the Site specific borehole and trial pit excavations undertaken.

**Q11:** *Is the site within 50m of the Hampstead Heath ponds?*

A: No

**Q12:** *Is the site within 5m of a highway or pedestrian right of way?*

A: Yes. The wall of the proposed light well will be designed as a retaining wall to the pedestrian footpath and the highway. The design will allow for a surcharge load of 10kN/m<sup>2</sup> acting on the wall.

**Q13:** *Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?*

A: Yes.

**Q14:** *Is the site over (or within the exclusion zone of) any tunnels or railway lines?*

A: No.

#### **Non-technical summary - Slope Stability Screening Flowchart**

The results of the slope stability flowchart confirm that the ground is susceptible to shrink swell movement. It also identified that the front wall of the light well is within 5m of a highway, and the depth of foundations to neighbouring properties will be increased.

## **2.04 SURFACE FLOW AND FLOODING SCREENING FLOWCHART**

**Q1:** *Is the site within the catchment of the pond chains on Hampstead Heath?*

A: No

**Q2:** *As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?*

A: No.

**Q3:** *Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?*

A: No

**Q4:** *Will the proposed basement development result in changes to the profile of inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?*

A: No. There will be no change to the existing inflows of surface water being received by adjacent properties.

**Q5:** *Will the proposed basement development result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?*

A: No. Materials used are inert in their nature and will not affect surface water quality.

**Q6:** *Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature?*

A: No. see Figure 15 below

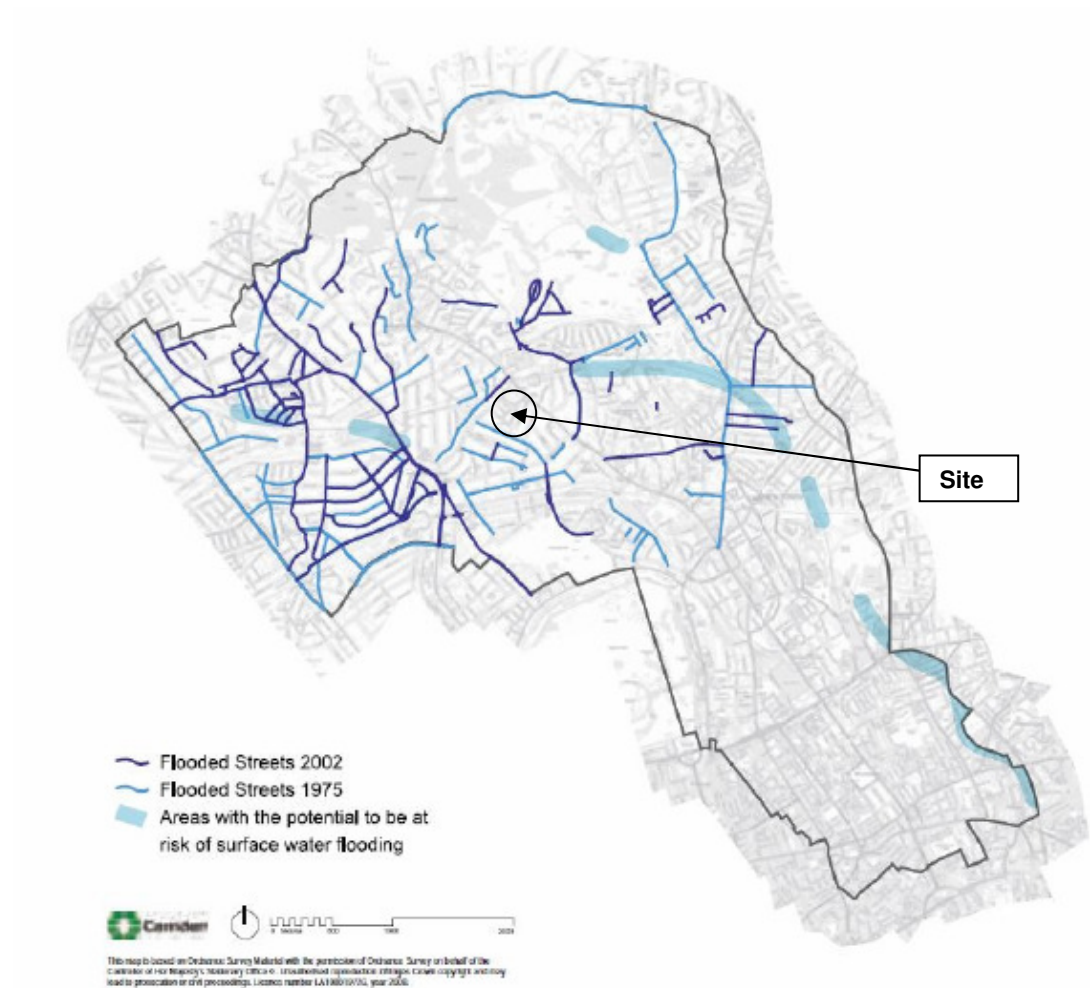


Figure 5 from Core Strategy, London Borough of Camden

## Camden Geological, Hydrogeological and Hydrological Study Flood Map

213923

FIGURE **15**

**Non-technical summary - Surface Flow and Flooding Screening Flowchart**

Based on the above flowchart answers, there is no adverse effect or change to existing surface flow or flooding conditions.

**3.0 Stage 2 - Scoping**

The screening stage (Stage 1) identified the following issues that need to be assessed.

**3.01 SUBTERRANEAN (GROUND WATER) FLOW SCREENING FLOWCHART**

Screening identified that the site is potentially within 100m of an underground water course as indicated on the map of Lost Rivers of London.

A site specific borehole and trial pit were excavated to verify ground and groundwater conditions. There were no recorded groundwater strikes within the excavations.

**3.02 SLOPE STABILITY SCREENING FLOWCHART**

Screening identified the following items that need to be assessed.

**Q5:** *Is the London Clay the shallowest strata at the site?*

A: Yes. See extract from British Geological Survey maps. Also a site specific borehole confirms London Clay strata. Refer to data included in the report prepared by Chartered Geologist - Brown 2 Green Associates Ltd.

**Q7:** *Is there a history of seasonal shrink-swell subsidence in the local area, and /or evidence of such effects at the site?*

A: Yes. There is a small section of hard landscaping in the rear courtyard which shows signs of shrink-swell subsidence. However there does not appear to be any visible signs of damage to the existing single storey structure adjacent to the tree.

Soil test data included in the report prepared by Brown 2 Green Associates Ltd classifies the Clay as 'high plasticity'.

The basement extension and proposed underpinning will be at a sufficient distance not to be affected by tree root action.

**Q12:** *Is the site within 5m of a highway or pedestrian right of way?*

A: Yes. The wall of the proposed light well extends to the back of the pavement and is therefore within 5m of a public highway.

The wall of the light well will be designed as a retaining wall subject to the required surcharge loads from Highway Loading - min 10kN/m<sup>2</sup>.

The front wall of the main basement (under the footprint of the main building) is approx. 6m away from the public highway. The load spread from Highway Loading (based on a 45 deg. dispersion angle) is sufficient far away from the main basement and therefore does not have an impact.

**Q13:** *Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?*

A: Yes. A portion of the existing Party Walls on both sides of the property will need to be underpinned to suit the proposed levels of the basement extension.

The depth of underpinning required will be greater on the right hand Party Wall than the left hand when viewed from the front of the property.

The thickness of reinforced underpinning will be designed to provide the required capacity for the imposed vertical loads, lateral earth pressures and to suit allowable ground bearing pressures.

### **3.03 SURFACE FLOW AND FLOODING SCREENING FLOWCHART**

No items were identified that require further assessment as part of the screening stage.



## **4.0 Stage 3 - Site Investigation and study**

A site specific ground investigation was undertaken under the guidance of Chartered Geologist from Brown 2 Green Associates Ltd.

The investigation consisted of a number of trial pits and a single borehole. Details of the borehole and laboratory tests undertaken are included in the SI report.

In summary, the ground conditions consist of a thin layer of Made Ground over firm to very stiff Clay. No water was encountered in the excavation.

### **4.01 Existing sub-structure and Foundations**

Trial pit excavation confirmed that the existing foundations consist of corbelled brick footing bearing directly onto the Clay strata.

The existing ground floor is a suspended timber floor supported on a series of brickwork sleeper walls.

The existing cellar has solid brickwork walls and a concrete ground bearing slab.

### **4.02 Proposed Development**

Details of the proposed basement development are illustrated on drawings included in Appendix 3 and on the relevant Architectural drawings.

The development of the basement in terms of ground works will consist of the following:

- Excavation beneath the existing cellar and ground floor structure, and front light well.
- Reinforced concrete walls / underpins which will also act as retaining walls.

The assumed sequence of construction is indicated on the structural drawings included in Appendix 3.

### **4.03 Topography**

The site is located on a sloping site and is in the middle of a row of terrace houses. There is a partial cellar under the property on the downward section of the slope.

The proposed basement extension is under the front portion of the footprint of the building and therefore will not affect the surrounding topography.

### **4.04 Drainage - surface water**

The proposed basement development is largely within the footprint of the building or existing hard landscaping. Therefore there the surface water runoff from the property will not be increased.

### **4.05 Flooding**

Based on the appropriate checks as part of the Stage 1 screening, there is no perceived risk of flooding of the site.

#### 4.06 Geology

The geology on the site consists of a thin layer of Made Ground over firm to very stiff Clay.

Ground Investigation was undertaken by Brown 2 Green Associates Ltd.

## 5.0 Conclusions

Based on the existing site conditions and our assessment of the likely building damage, it is concluded that the proposed basement development will not adversely impact on neighbouring properties and the natural environment of the site.

The key items assessed within this report are summarised as follows:

- Subterranean (ground water) flows - no adverse effect
- Slope stability - no adverse effect
- Flooding - no perceived risk of either localised flooding or within the surrounding area.
- Geology - a site specific investigation was undertaken. Water was not encountered during the investigation. The underlying stratum is firm to very stiff Clay which is suitable for basement developments of this size.
- Anticipated extent of structural damage - this has been categorised as category '0' - Negligible in accordance with Burland et al.

The relevant geotechnical information contained within this report has been reviewed by Mr Philip Miles BSc,MSc, FGS, CGeol who is a Chartered Geologist and Director of Brown 2 Green Associates Ltd.



Tyrone Bowen MEng CEng MStructE  
Director - Structural Engineering  
CAR Ltd

## APPENDIX 1 (Site Investigation Report)

Refer to separate report prepared by Brown 2 Green Associates  
Ltd

## APPENDIX 2 (Structural Calculations)

## APPENDIX 3 (Structural Drawings)