Client: Mr. A Green.

Project: 58b King Henrys Road, London

Title: Proposed Basement Impact Assessment. (Structures)

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Revision	Purpose/ Description	Originated	Reviewed	Authorised	Date

Revision A – Addition of basement screening flowchart queries within section 2.0

Contents of the report

Appendices

1.0 Introduction

The proposed development of 58b King Henry's Road, London (refer to Appendix 1 for plans and sections) comprises of the excavation of a single storey height basement beneath the existing building footprint.

The purpose of this report is to assess the potential impact of this basement proposal and establish the effects on neighbouring properties, a number of which have recently had basement developments.

2.0 Basement Impact Screening

Based on the London Borough of Camden, Guidance documents for subterranean development (Issue 01, Nov 2010), a screening process and review has been undertaken utilising the Appendix E flowchart guidelines. The results are documented below;

2.1 Subterranean (groundwater) flowchart questions.

Q1a: Is the site located directly above an aquifer?
A. *No.*

Q1b: Will the proposed basement extend beneath the water table surface?
A. *No.*

Q2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?
A. *No.*

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 landscaped areas?

A. *No. The proposed basement is directly beneath an existing building and will be within its existing footprint area.*

Q5: As part of the site drainage, will there be more surface run-off discharged to the ground.

A. *No. The proposed basement is directly beneath an existing building and as such there will be no change to the existing conditions.*

Q6: Is the lowest point of the proposed excavation close to or lower than, the mean water table of any local pond or spring line?

A: *No.*

2.1.1 Summary Statement of Subterranean (groundwater) flow

Based on the above flowchart answers, there is no change to existing conditions on the site with regards to subterranean groundwater flow.

2.2 Surface flow and flooding screening flowchart questions.

Following the flowchart for surface flow and flooding, the questions have been evaluated with the resulting answers below;

Q1: Is the site within the catchment area of the catchment ponds on Hampstead Heath?

A: *No.*

Q2: As part of the proposed site drainage, will surface water flows be affected from the existing route?

A. *No. There is no change to the existing drainage.*

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

A. *No. The proposed basement is directly beneath the existing footprint of the existing building.*

Q4: Will the proposed basement result in changes in profile of the inflows of surface water being received by the adjacent properties or downstream watercourses?

A. *No.*

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

A. *No.*

2.2.1 Summary Statement of Surface flow and flooding screening flowchart questions.

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

2.3 Slope Stability screening flowchart

Following the flowchart for slope stability, the questions have been evaluated and response are as follows;

Q1. Does the existing site include slopes, natural or manmade greater than 7°?

A. *No.*

Q2. Will the proposed re-profiling of the landscaping at the site change slopes at the property boundary to more than 7°

A. *No, re-profiling of the landscape. Basement excavation is within the existing footprint of the building.*

Q3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?

A. *No.*

Q4. Is the site within a wider hillside setting in which the general slope is greater than 7°?

A. *No.*

Q5. Is the London Clay the shallowest strata at the site?

A. *No.*

Q6. Will any trees be felled as part of the proposed development works or within a zone of tree protection?

A. *No.*

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

A. *No.*

Q8. Is the site within 100m of a watercourse or a potential spring?

A. *No.*

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

A. Yes, the site has been remodelled approximately 90 years ago.

Q10. Is the site within an aquifer?

A. *No.*

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. But the proposed basement works are more than 5m away from the highway.

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

A. *No. It is worth noting that a number of houses along the terrace have basement extensions, including a recently constructed basement in the adjacent house.*

Q14. Is the site over or within an exclusion zone of any tunnels?

A. *No.*

2.3.1 Summary Statement of Slope stability screening flowchart.

Based on the above review of the slope stability flowchart questions, there is no adverse affect or changes to the existing ground/slope conditions.

2.4 Overall summary of the Screening flowcharts

In summary, taking into account the basement screening flowcharts, there will be no adverse affect on the surrounding hydro-geological or slope stability conditions. A precedent has also been set with the neighbouring properties (with the row) all having existing basement extensions.
The newly constructed 58e property, constructed in 2012 and recently completed also contains a basement level in its design, with the civil and structural engineering services being undertaken by David Dexter Associates.

3.0 Site Context

2.1 The Site

The site is located along King Henry's Road which runs perpendicular to Primrose Hill Road. The existing property is part of a 1970's development of 3-storey terrace houses that back onto an existing Network Rail retaining wall. The terrace as built in the 1970s comprised 11 houses with two types: 56 – 56e were originally 4 bed houses with a slightly bigger proportion and 58 -58d were originally constructed as 3 bedroom houses occupying a slightly smaller site area. Over their history the houses have been adapted by their owners with a variety of alterations to their accommodation, elevations, extensions and basements.

Fig. 1. Aerial View of 58b King Henry's Road.

No. 58b is part of the smaller group of 3 bed houses within the terrace (5 houses numbered 58 - 58d).

The three immediate neighbours to the east of the property (Nos: 58, 58a and 56e) have all constructed basement additions.

No. 58e which lies at the end of the original 1970s terrace and is a brand new end of terrace house constructed as an independent structure comprising basement level and 3-stories of super structure. David Dexter Associates are consultant engineers on the construction of 58e which is now nearing completion. Having surveyed and monitored the existing terrace during the construction of the new house we are well placed to comment on the existing ground conditions and any potential impact from the proposed basement at 58b.

2.2 Existing Sub-structure and Foundations

The existing set of terrace houses are supported by a series of end bearing piled foundations, which transfer the loading from the structure down below the level of the existing track bed of the adjacent Network Rail main line, approximately 10m below the existing King Henrys Road (KHR) ground level.

The existing retaining wall which effectively supports the higher level KHR is formed from engineering brickwork and comprises of an additional counterfort wall which runs beneath the terraced buildings. No additional load from the new proposed basement will be allowed to transfer onto the existing retaining wall or counterfort wall. The counterfort wall which was encountered during sub-structure works at 58e KHR was found to be formed from clinker concrete. The remaining material between the counterfort walls was found to be relatively free-draining material, which would have been used to prevent a build-up of water pressure behind the retaining wall.

The existing ground floor level is suspended and supported on a series of reinforced concrete beams which bear onto the adjacent piles.

2.3 The Proposed Development

Details of the proposed basement development can be seen within Appendix 1, plans and sections have been drawn by Francis Architects.

The development of the basement in terms of groundworks would comprise the following;

- Excavation beneath the existing ground floor level.
- The reinforced concrete walls would also act as a retaining wall to the driveway of the property.
- No loading would be transferred onto the existing Network Rail retaining wall.

2.4 Topography

The site is located on an ancient slope which was part of Primrose Hill. The design of the existing Network Rail counterfort wall takes this slope into account and the existing property sub-structure also take into account the existing topography and sub-strata.

The ground level outside of 58b KHR is approximately at +44.660m OD, which the approximate top of existing Network Retaining wall level located at 42.364m. Although these levels will need to be re-checked on-site.

The proposed basement, due to its proposed location beneath an existing building will therefore not affect the surrounding topography.

2.5 Drainage

This proposed development will not significantly increase the existing drainage output from this property. As such, there is adequate capacity within the existing combined public sewer system running along KHR.

As the development is subterranean and largely within the existing footprint of the building or existing hard landscaping, there will be no increase in hard-standing and the catchment area for rainfall is unchanged and unaffected.

The proposed basement will therefore not have an adverse effect on the drainage of the land (in terms of rainfall) or on the capacity of the existing public sewer.

2.6 Flooding

Based on appropriate checks with the Environment Agency, there is no perceived of risk of flooding within the Primrose Hill area.

During excavation of the newly completed residential property, 58e KHR, no ground water was registered during excavation. The free-draining material behind the counterfort wall and effectively beneath the 58 KHR terraced row effectively prevents a build-up of water. As such localised flooding is also noted as not an issue.

2.7 Geology

The geology beneath the property is as follows, based on a 20m deep borehole undertaken at the 58e new build property.

- 0-4.50m Made ground comprising a mixture of general fill material with fragments of brick and concrete.
- 4.30-4.50 A weak layer of concrete was noted.
- 4.5-10m (+35.0m OD) London Clay formation. The material consisted of stiff to very stiff closely fissured, laminated (0°) silty clay with occasional gypsum crystals and trace pyrite nodules.

- Below 13m a blocky structure was evident with the fissures generally tight and clean with the material being noted as very stiff to hard in consistency.

Ground Investigation undertaken by Core Geotechnics, report no. 11102 dated 22/08/2011.

4.0 Conclusions

3.1 Summary of proposals

Based on the existing site conditions and surrounding properties basement developments of this size do not adversely impact on the surrounding environment or properties.

The following items should be noted;

- No additional loading will be placed onto the existing Network Rail retaining wall.

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

- Topography. No adverse effect on the basement or the basement on the topography of the site.
- Drainage. No adverse effect on the existing drainage in addition to no increase in hard-standing within the catchment area.
- Flooding. No perceived risk of either localised flooding or within the surrounding area.
- Geology. The proposed structural solution will need to take into account the existing Network Rail retaining wall. A precedent for this has been set in the recently completed development of the 58e property.

Overall the potential impact of the proposed basement on slope stability is considered negligible.

Appendix 1

Francis Architects
Plans & Sections of proposed basement.

Appendix 2

Borehole records from the new 58e KHR Development

Appendix 3

Existing Network Rail historical plan

Appendix 4

Original engineering drawings and pile layout for the construction of 56-58d King Henry's Road For General Information.