Appendix F: Annex 1 - Basement Impact Assessment

Environmental Statement
Volume III

Appendix F Ground Conditions Annex 1 - Basement Impact Assessment

A Basement Impact Assessment (BIA) is required for any basement development, including any excavation or extensions to existing basements. Specific policy is provided by Camden Planning Guidance 'CPG 4 Basements and Lightwells'.
Under CPG 4 'it is required that consideration is given to a scheme's impact on local drainage and flooding and on the structural stability of neighbouring properties through its affect on groundwater conditions and ground movement.

The level of information required in the BIA relates to Camden Development Policy DP27 and is commensurate with the scale, location and complexity of the scheme.

DP27 states that:

> *"the Council will require an assessment of the scheme's impact on drainage, flooding, groundwater conditions and structural stability, where appropriate."*

The environmental statement (ES) assesses the proposed development's potential impacts on drainage, flooding, groundwater conditions and structural stability, specifically in Chapter 12: Water Resources, Drainage and Flood Risk and Chapter 13: Ground Conditions of the ES and Appendix E (Flood Risk Assessment carried out by Pell Frischmann in April 2012) and Appendix F of the ES (desk based ground conditions assessment carried out by Pell Frischmann in February 2012).

Under Camden Planning Guidance CPG 4, the screening stage has to clearly set out why or why not a full BIA is required.

Stage 1 Screening

Stage 1 Screening comprises an assessment against the flowcharts (Figures 1, 2 and 3 of CPG 4) and be presented along with the information set out at the end of Paragraph 233 of the Camden Geological, Hydrogeological and Hydrological Study. This information is as follows:

Figure 1:

Question 1a: Yes, the site lies above a Secondary 'A' aquifer (Refer to paragraph 13.63 of Chapter 13: Ground Conditions of the ES and paragraph 4.2 of Appendix F: Ground Conditions Desk Study of the ES).

Question 1b: Yes, the ground water level is expected to be between 2.71 and 4.15 m bgl (Refer to Paragraph 12.72 of Chapter 12: Water Resources, Drainage and Flood Risk of the ES). The proposed basement (new car lift pit) will extend from the existing basement level (-4.50 m bgl) to the existing sub-basement level (-7.36 m bgl).

As the answer to Question 1 (a and b) is 'yes', the matters require further investigation. This is described as follows:

Stage 2 - Scoping

> *"The scoping stage of the BIA requires you to identify the potential impacts of the proposed scheme"*

Identification of the potential impacts of the proposed scheme in relation to Question 1 (a and b) are addressed from paragraph 13.76 of Chapter 13: Ground Conditions and from paragraph 12.110 of Chapter 12: Water Resources, Drainage and Flood Risk of the ES.

Stage 3 – Site investigation and study

> *"The third stage of the BIA – site investigation – is undertaken to develop an understanding of the site and its immediate surroundings. The degree of investigation will vary depending upon the matters of concern identified in the screening and scoping stages, and therefore will be dependent on the location of the proposed basement within the borough, its size and setting in relation to existing development on the site and its relationship to adjacent properties and nearby features of importance."*

The site investigation and study of the proposed scheme in relation to Question 1 (a and b) is addressed in paragraph 13.61 of Chapter 13: Ground Conditions, and paragraph 12.79 of Chapter 12: Water Resources, Drainage and Flood Risk.

Stage 4 – Impact assessment

> *"This stage is concerned with evaluating the direct and indirect implications of the proposed project. Essentially this involves a comparison between the present situation (the baseline) with the situation as it would be with the basement in place (i.e. constructed). Therefore the BIA should describe, quantify and then aggregate the effects of the development on those attributes or features of the geological, hydrogeological and hydrological environment which have been identified (in the scoping stage) as being potentially affected. "*

The evaluation of the direct and indirect implications of the proposed project in relation to Question 1 (a and b) is addressed from paragraph 13.76 of Chapter 13: Ground Conditions of the ES and from paragraph 12.110 of Chapter 12: Water Resources, of the ES.

Question 2: No, The site is located over 1km from the River Thames. There are no other watercourses located in close proximity to the development (refer to paragraphs 12.54 and 12.56 of Chapter 12: Water Resources, Drainage and Flood Risk).

Question 3: No, the site is not within the catchment pond chains on Hampstead Heath.

Question 4: No. No increase in impermeable surfaces is proposed in the development. (refer to paragraph 4.3 of Appendix E: Flood Risk Assessment of the ES).

Question 5: The proposals for the site indicate that there will be no change to the external footprint of the development and that there will be no increase in impermeable area, therefore there will be no increase in surface water run-off from the site. (refer to paragraph 4.3 of Appendix E: Flood Risk Assessment of the ES).

Question 6: No, the site is not close to or lower than the mean water level in any local pond or spring line.

Figure 2:

Question 1:

No, there no natural or handmade slope greater than 7 degrees within the site.

Question 2:

No, there is no re-profiling that will change the slopes at the property boundary to more than 7 degrees.

Question 3:

No the development does not neighbour land with a slope greater than 7 degrees.

Question 4:

No, the site is not within a wider hillside setting in which the general slope is greater than 7 degrees.

Question 5:

No. The stratigraphy consists of a first 1.3-4.3 m layer of made ground (top level 25.2-22.7 mOD), followed by a 2.3-5.9 m layer of sand and gravel (top level 20.9-24.0 mOD). London clay layer extends for 20.3-22.7 from level 18.1-18.6 mOD, down to the Woolwich and Reading beds. (Refer to Table 13-5 of Chapter 13: Ground Conditions of the ES).

Question 6:

No trees will be felled as part of the proposed development.

Question 7:

No. There is no historical presence of seasonal shrink-swell subsidence and/or evidence of such effects at the site.

Question 8:

No. The site is located over 1km from the River Thames. There are no other watercourses located in close proximity to the development (refer to paragraph 12.54 and 12.56 of Chapter 12: Water Resources, Drainage and Flood Risk).

Question 9:

No the site is not within an area of previously 'worked ground' (refer to paragraphs 14.53 – 14.136 of Chapter 14: Archaeology (Buried Heritage Assets) of the ES).

Question 10: (See Question 1a and 1b for Figure 1 above)

Question 11: No the site is not located within 50m of the Hampstead Heath ponds.

Question 12:

St. Giles High street and a pedestrian right of way cross the existing building area (Refer to Figure 1-1 of Chapter 1: Introduction to the ES of the ES). Nevertheless, the new excavation site is positioned below the existing Centre Point House building (refer to paragraph 4.31 and 4.32 of Chapter 4: Proposed Development of the ES), more than 5m further from the existing ways. Furthermore, the excavation works do not impact on critical infrastructure (Refer to Table 5-4 of Chapter 5: Refurbishment, Demolition and Construction).

Question 13:

No, the new car lift pit will not change the maximum depth of the existing building basement. (refer to paragraph 4.31 of Chapter 4: Proposed Development of the ES). Furthermore, the distance between the new car lift pit and the neighbouring building foundations is sufficient to guarantee that they will not be affected by the new excavation.

Question 14:

No. The London Underground exclusion zone extends for 3m from the underground tunnels and the excavation area is outside this exclusion zone.

Figure 3:

Question 1: No, the site is not located within the catchment pond chains on Hampstead Heath.

Question 2: As the development proposals do not increase the impermeable area on site, there will be no increase in surface water run-off from the site (refer to paragraph 4.3 of Appendix E: Flood Risk Assessment of the ES).

Question 3: No. No increase in hard surfaced / paved external areas is proposed in the development (refer to paragraph 4.3 of Appendix E: Flood Risk Assessment of the ES).

Question 4: No, the proposed basement will not result in changes to the profile of inflows of surface water inflows to receiving properties or watercourses.

Question 5: No, as the proposed basement construction is within the existing basement limits and the minor basement alterations will not impact the water quality being received by downstream watercourses. The River Thames is located over 1km away from the site and the huge dilution capacities of the Thames would prevent any impacts (Refer to the mitigation section from paragraph 12.144 of Chapter 12: Water Resources, Drainage and Flood Risk of the ES).

Question 6: No. Thames Water was consulted regarding the history of sewer flooding and indicated that they have no record of sewer flooding within the vicinity of the site. As a result, there is considered to be a low risk of surface water flooding to the site (refer to Paragraph 3.2 of Appendix E: Flood Risk of the ES).

Further to the assessment against the CPG4 flowcharts, Camden's Geological, Hydrogeological and Hydrological Study Guidance for subterranean development describes the Information likely to be needed for screening for a BIA. This is addressed in the ES under the following sections / paragraphs:

1. Characteristics of the Project
• Brief description of the proposed development.
This is addressed under the heading 'Overview' in 'Chapter 4: Proposed Development' of the ES.

• A plan showing the boundary of the development including any land required temporarily during construction.
This is addressed by Figure 1-2 Redline Boundary in 'Chapter 1: Introduction' of the ES

• The physical form of the development (layout, dimensions, construction materials, etc).
This is addressed throughout 'Chapter 4 Proposed Development' of the ES.

• A work programme for construction, operation and commissioning phases, and restoration and after-use where appropriate.
This is addressed throughout 'Chapter 5 Refurbishment, Demolition and Construction' of the ES.

• Construction methods.
This is addressed throughout 'Chapter 5 Refurbishment, Demolition and Construction' of the ES.

• Information about mitigation measures being considered.
This is addressed under the heading Refurbishment, Demolition and Construction Mitigation Measures of 'Chapter 5 Refurbishment, Demolition and Construction' of the ES and under the 'Impact Assessment and Mitigation' Measures section of each technical chapter of the ES.

• Details of any other permits required for the project.
N/A

2. Location of the Project
• Maps and photographs showing the location of the project relative to surrounding buildings, topography, natural and man-made features.
This is addressed by the Existing and Proposed Drawings submitted as part of the planning application

3. Characteristics of the Potential Impact

• Impacts on soils, land use, water quality and hydrology.

This is addressed by the 'Potential Impacts and Mitigation Measures' section of Chapter 13: Ground Conditions of the ES and 'Impact Assessment and Mitigation Measures' section of Chapter 12: Water Resources, Drainage and Flood Risk' of the ES.

• Nature and scale of the impacts (i.e. short, medium and long-term, permanent and temporary, positive and negative).

This is addressed by the 'Potential Impacts and Mitigation Measures' section of Chapter 13: Ground Conditions of the ES and 'Impact Assessment and Mitigation Measures' section of Chapter 12: Water Resources, Drainage and Flood Risk' of the ES.

• Extent of the impacted area.

This is addressed under the headings 'Introduction' and 'Baseline Conditions' of Chapter 12: Water Resources, Drainage and Flood Risk' of the ES and under the heading 'Introduction' and 'Baseline Conditions' of Chapter 13: Ground Conditions of the ES and by the section 'Site Data Searches' of Appendix F: Ground Conditions Desk Study of the ES.

• Mitigation incorporated into the project design to reduce, avoid or offset significant adverse impacts.

This is addressed under the heading 'Summary of Refurbishment, Demolition and Construction Impact Mitigation Measures' and Summary of Operational Impact Mitigation Measures of Chapter 13: Ground Conditions of the ES and under the heading 'Mitigation Measures' of Chapter 12: Water Resources, Drainage and Flood Risk' of the ES.