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35 Vartry Road: screening and scoping basement impact assessment

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1. Introduction

1.1 Background

This report presents a geohydrology report that is to be submitted with a structural methodology statement in support of a planning application for the proposed development of 35 Vartry Road, Tottenham, London N15 6PR (Figure 1.1). The local planning authority is Haringey London Borough Council (HBC).

1.2 Proposed basement works

35 Vartry Road comprises a two-storey mid-terrace house, with a small, single storey cellar, on the northern side of Vartry Road. It is surrounded by similar residential properties. The proposed development is to deepen and extend the cellar area to create a useable basement under much of the building footprint.

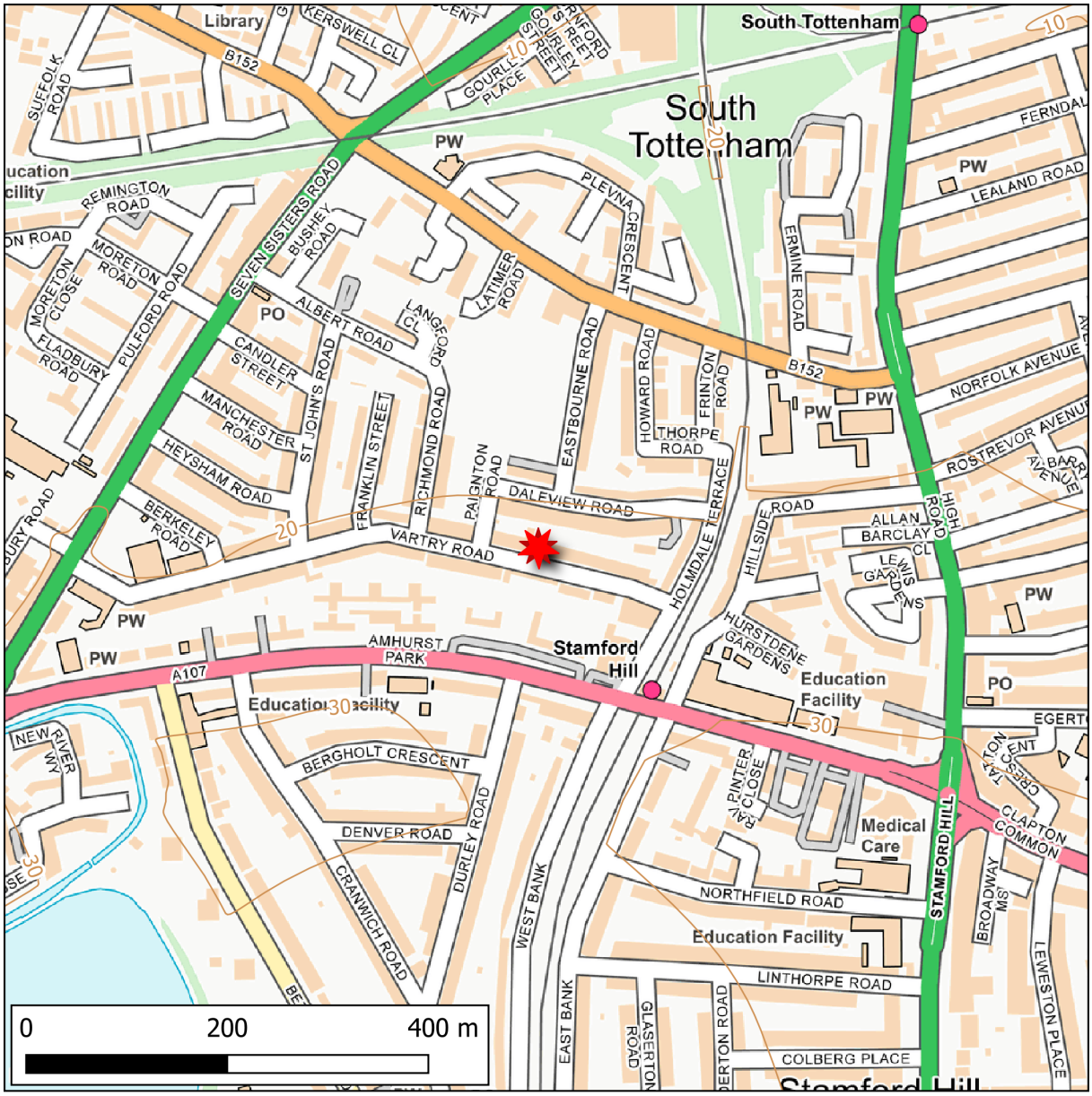
A section of the site is shown on Figure 1.2 and a plan is shown on Figure 1.3, showing the changes in depth and extent. The current height of the cellar is 1.69 m; the proposed height is 2.50 m.

1.3 Scope of Report

Haringey London Borough Council has no guidance on preparation of basement impact assessments (guidance was drafted, but withdrawn). However there is a driver to undertake this from the strategic flood risk assessment (SFRA). This report presents the surface water, and sub-surface water, screening report for a basement development that takes the format from Camden's CPG4 screening and scoping stages, and makes reference to the basement impact assessment guidance of ARUP (2010)[1].

Stephen Buss Environmental Consulting Ltd was instructed in September 2026 to complete this report. The report has been prepared by Dr Stephen Buss MA MSc CGeol. Dr Buss is a UK-based independent hydrogeologist with more than 25 years' consulting experience in solving groundwater issues for the Environment Agency, water companies and other private sector organisations. Dr Buss's CV and publications list is available at www.hydro-geology.co.uk.

[1] ARUP, 2010. Camden geological, hydrogeological and hydrological study. Guidance for subterranean development.



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Figure 1.1: Location

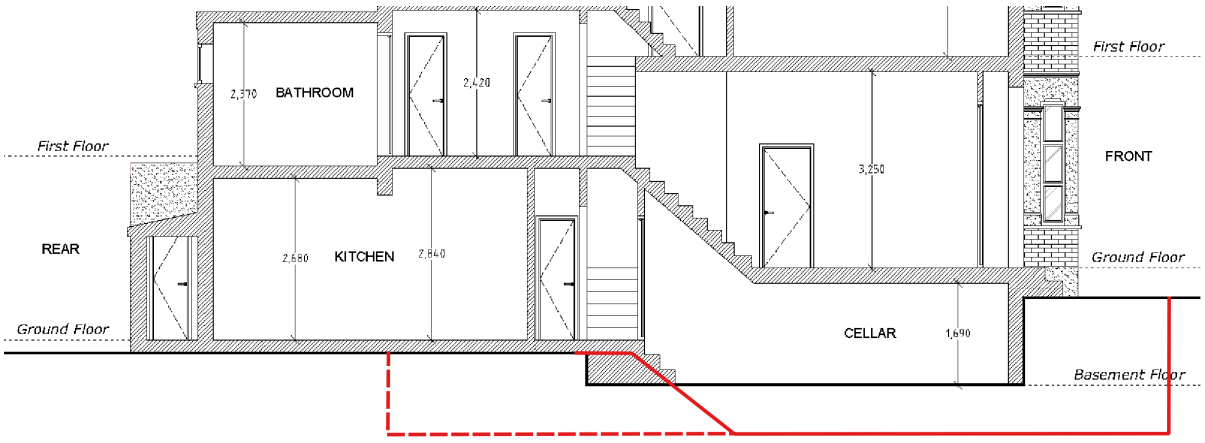


Figure 1.2: Current section and proposed section outline in red. Shown looking east.

After AJS Planning drawings VR.35.PR.105 and VR.35.EX.105

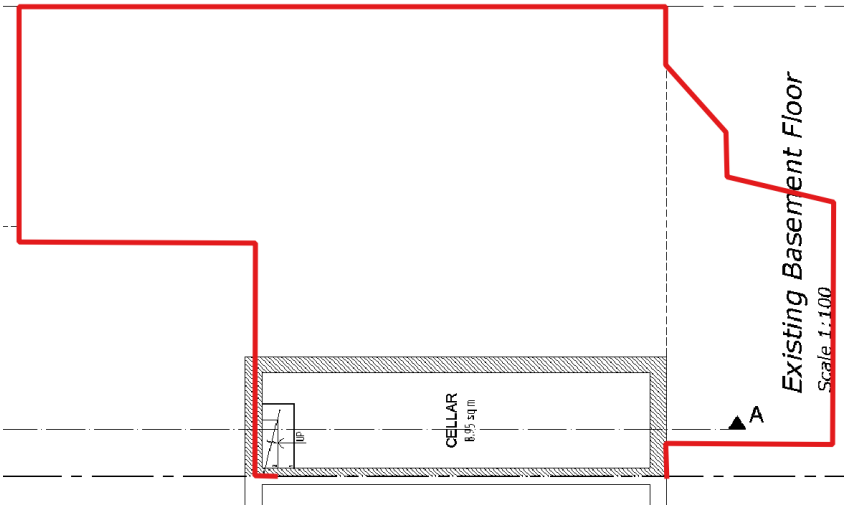


Figure 1.3: Current plan and proposed plan boundary outline in red.

After AJS Planning drawings VR.35.PR.101 and VR.35.EX.101

2. Physical Setting

2.1 Site History

Prior to its development in the late 1800s, the area of Vartry Road was greenfield land (maps.nls.uk). By the turn of the 19th/20th Centuries the housing on Vartry Road had been built, along with St John's Church, to the west of number 35 but south of the road.

There has been no significant change to the layout of the area since 1914, except that the church has been demolished and replaced by a retirement housing complex some time in the late 20th Century.

There is no evidence of local springs or watercourses on the historical maps.

2.2 Drainage and Topography

Ground surface around the site slopes northwards. Ground elevation is about 21.7 m above Ordnance Datum (AOD), from Environment Agency LIDAR data (Figure 2.1). The level of the garden is about 0.5 m below that at the front.

The closest surface water body is a remnant of the New River water supply, which is about 450 m south-west of the property, adjacent to East Reservoir (Figure 1.1). The level of the New River - at about 30.0 m AOD - is higher than the land to the north-east. The level of East Reservoir is a little lower, at 28.5 m AOD.

The site is on the catchment divide between the River Lee about 1.2 km to the east and the Hackney Brook (a tributary of the River Lee) about 1.0 km to the south. The Hackney Brook is a 'lost river[2]' which is now culverted beneath the city.

The site is in flood zone 1, for planning purposes, and therefore a flood risk assessment is not necessary on the basis of risk of river flooding. The site is not itself at risk of surface water flooding, according to Environment Agency modelling (Figure 2.2). The site is in a critical drainage area (no. 057), according to the Haringey strategic flood risk assessment[3] (SFRA).

2.3 Geology and Hydrogeology

Bedrock at the site over London Clay: a silty clay mudrock. There are no outcrops of superficial deposits within 300 m (Figure 2.3).

The London Clay was drilled to 39 m depth at a borehole (GeoIndex[4] reference TQ38NW132) near Stamford Hill Station, and its base was proved at 51 m depth at a borehole[5] (TQ38NW604) near East Reservoir. The London Clay effectively isolates the main aquifer of the London Basin from surface activities.

Logs of boreholes, from site investigations in the vicinity of Vartry Road are available from the British Geological Survey GeoIndex:

- About 250 m north-west of the site, six boreholes[6] (e.g. TQ38NW118) were constructed to between 10 and 20 m for a site investigation off Albert Road. Between 0.6 and 1.3 m of made ground overlies weathered, then intact London Clay. Most of the boreholes encountered seepages of groundwater, but only three of the six developed a rest water level: one within about 1 m of ground level, one at about 4.5 m depth and one at about 6 m depth.

[2] Barton, N.J., 1993. The Lost Rivers of London 3rd edition.
[3] https://haringey.gov.uk/sites/default/files/2025-11/strategic-flood-risk-assessment-sfra-level-1-report-2022.pdf
[4] https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/845902
[5] https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/846378
[6] https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/845888

- About 350 m north-east of the site, three boreholes[7] (e.g. TQ38NW538) were constructed to between 10 and 20 m for a site investigation off Ermine Road. Between 0.6 and 1.75 m of made ground overlies clayey head deposits, to between 2.0 and 2.6 m depth, over weathered, then intact London Clay. Groundwater was encountered in only one of the three boreholes; the rest water level was at about 3.5 m depth. (The site is adjacent to a small dry valley, which is why there is head deposits.)
- About 350 m west of the site, two boreholes[8] (e.g. TQ38NW542) were constructed to 7.6 m for a site investigation off Heysham Road. Between 0.6 and 1.5 m of made ground overlies weathered, then intact London Clay. Groundwater was not encountered in either of the boreholes.

There are no licensed water wells within 100 m of the site.

Not being close to any geological boundaries, between the Claygate Formation and London Clay, or the Bagshot Formation and the Claygate Member, there is limited potential for development of a spring line near the site.

2.4 Local Basements

It is assumed that most, if not all, of the adjacent buildings have single-storey cellars like the existing building.

Planning applications for buildings adjacent to 35 Vartry Road have been reviewed to identify the likelihood of there being deeper basement structures. The following properties appear likely to have full basements.

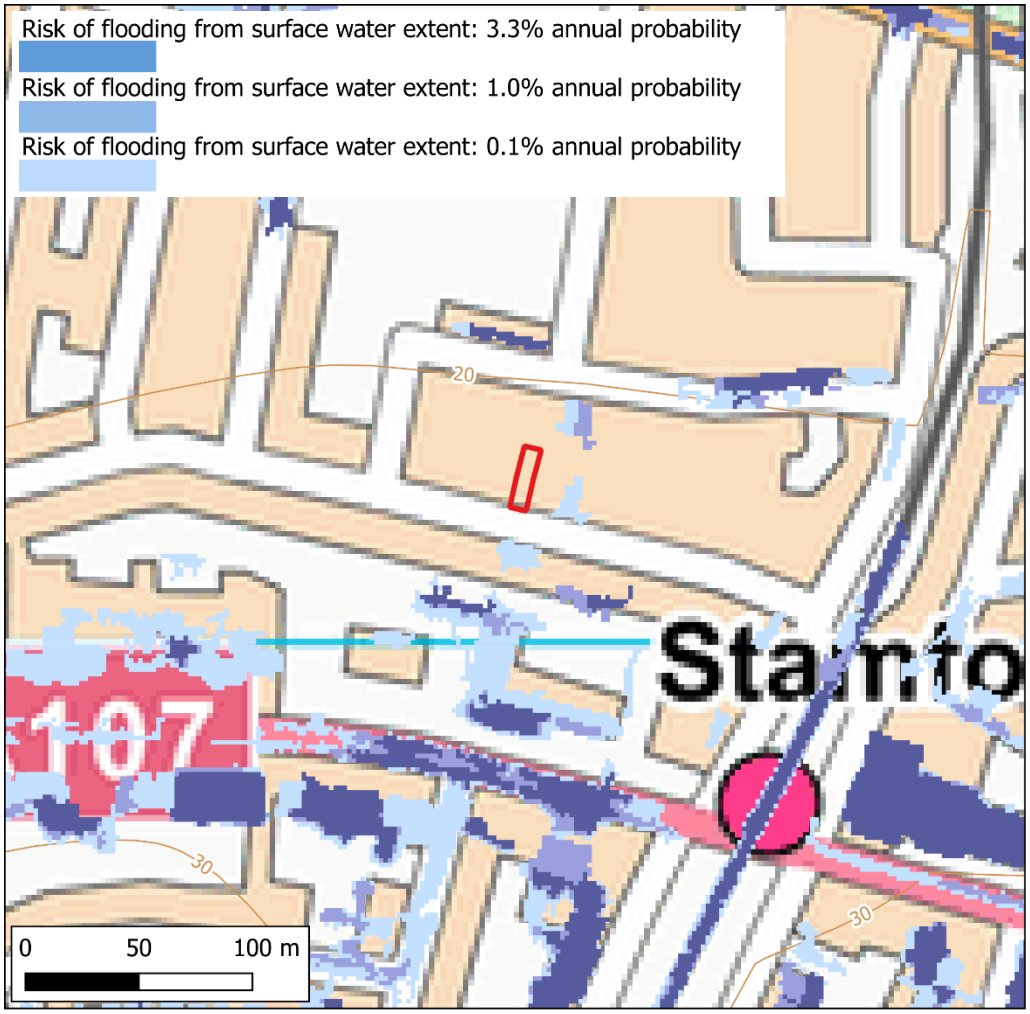
- 45 Vartry Road (5 doors west of number 35) - a single-storey basement development beneath the footprint of the house (planning reference HGY/2021/1829). A site investigation was undertaken with boreholes to 30 m. Groundwater was not encountered during drilling.
- 39 Vartry Road (2 doors west of number 35) - a single-storey basement development beneath the footprint of the house (planning reference HGY/2018/3258). No site investigation is apparent online.
- 19 Vartry Road (8 doors east of number 35) a single-storey basement development (planning reference OLD/1986/1678). No documents online.
- 51 Daleview Road (north-west of 35 Vartry Road) - a single-storey basement development beneath the front part of the house (planning reference HGY/2019/3153). No site investigation is apparent online.

[7] https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/846312
[8] https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/846316, https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/846315



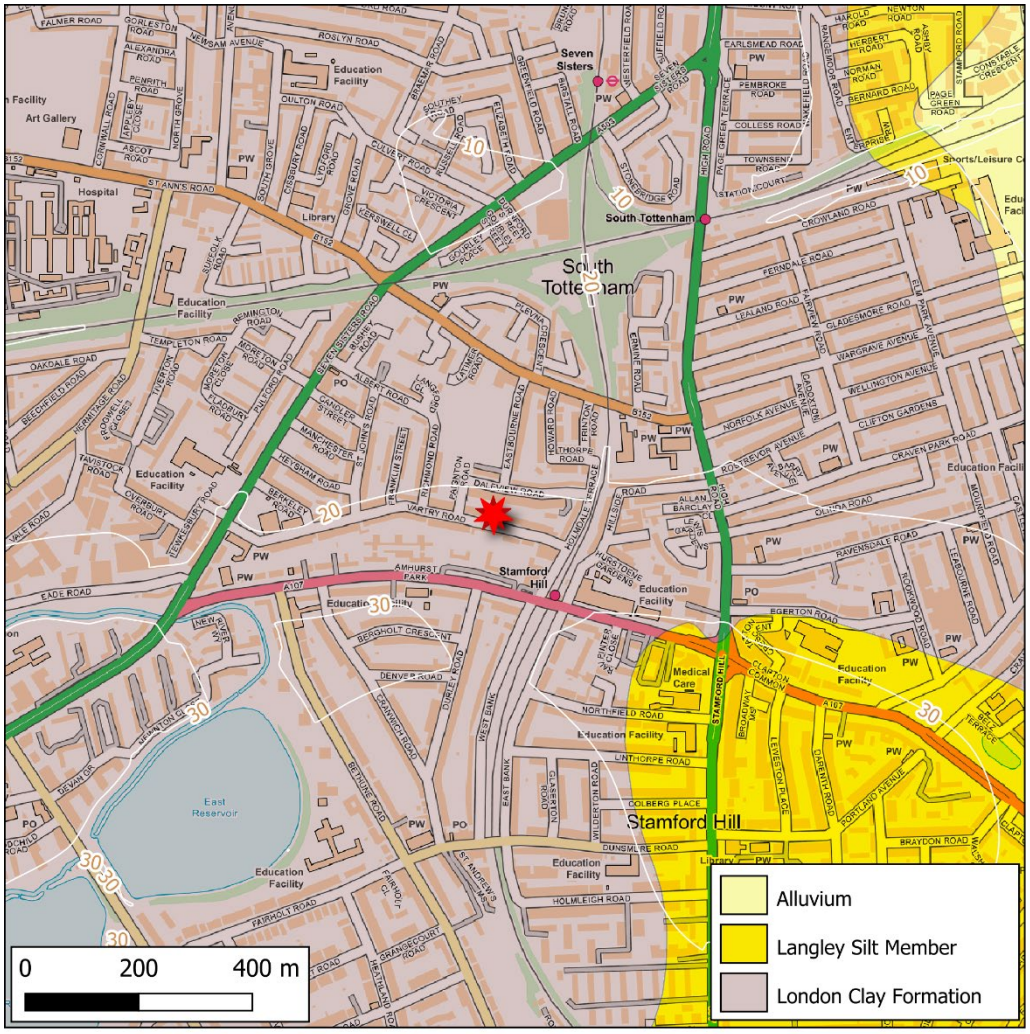
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Figure 2.1: Ground elevation



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Figure 2.2: Risk of surface water flooding



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Figure 2.3: Mapped geology

3. Basement Impact Assessment Screening: Groundwater

Groundwater screening follows the procedure outlined in Section 4.1 of the Camden BIA pro-forma.

1a) Is the site located directly above an aquifer?

NO. The geological map and the site boreholes indicate that permeable deposits are not present beneath the site (Section 2.3). Beneath the clayey near-surface deposits a significant thickness of London Clay isolates the deeper aquifer units of the London Basin aquifer from the surface.

1b) Will the proposed basement extend beneath the water table surface?

NO. The London Clay does not host a flowing groundwater body, and no water table is expected at the site. On drilling local boreholes (Section 2.3) water was sometimes observed as seepages from the London Clay, which sometimes led to the development of a rest water level. Where this occurred, the rest water level was normally several metres below ground. This is an indication that any groundwater occurs in isolated pockets at variable depth in the London Clay.

2) Is the site within the catchment of the pond chains on Hampstead Heath?

NO. The site is distant from the pond chains.

3) Is the site within 100m of a watercourse, well (used/disused) or potential spring line?

NO. There are no current surface water bodies within 100 m of the site. The site lies between the New River and the River Lee. There are no known water wells within 100 m of the site.

Geological conditions indicate that there is no potential for development of a spring line at the property, as the 1:50 000 geology map indicates that it is located in the centre of the outcrop of London Clay, and there are no superficial deposits nearby.

4) Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?

NO. The development is entirely beneath the current footprint of the house and the paved ares to the front, so surface water flows will be unchanged.

5) As part of the site drainage, will more surface water (e.g. rainfall and runoff) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?

NO. Discharge to the ground is not proposed.

6) Is the lowest point of the proposed 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 or spring line?

NO. The nearest water body is the New River at 450 m distance. It is at a higher elevation than the site but this is too far from the site to be a concern, especially given that there are not permeable superficial deposits beneath the site.

4. Basement Impact Assessment Screening: Surface Flow

Surface flow screening follows the procedure outlined in Section 4.3 of the Camden BIA pro-forma.

1) *Is the site within the catchment of the pond chains on Hampstead Heath?*

NO. The site is distant from the pond chains.

2) *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?*

NO. The basement will be beneath the footprint of the existing building, and the area of the new front access is currently paved. There will not be an increase in impermeable area across the ground surface above the basement, so the surface water flow regime will be unchanged.

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

NO. The basement will be beneath the footprint of the existing building, and the area of the new front access is currently paved. There will not be an increase in impermeable area across the ground surface above the basement, so the surface water flow regime will be unchanged.

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

NO. The basement will be beneath the footprint of the existing building, and the area of the new front access is currently paved. There will not be an increase in impermeable area across the ground surface above the basement, so the surface water flow regime will be unchanged.

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

NO. The basement will be beneath the footprint of the existing building, and the area of the new front access is currently paved. There will not be an increase in impermeable area across the ground surface above the basement, so the surface water flow regime will be unchanged.

6) *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 of flooding, for example because the proposed basement is below the static water level of nearby surface water feature?*

NO. The findings of this BIA together with the Haringey Local Flood Risk Management Strategy and the Haringey Strategic Flood Risk Assessment, in addition to the Environment Agency online flood maps (Figure 4.1) show that the site has a very low flooding risk from surface water, sewers, reservoirs (and other artificial sources), groundwater and fluvial/tidal watercourses.

The site is located within a Critical Drainage Area so a separate flood risk assessment (FRA) may be required.

5. Site Conceptual Model

5.1 Current Groundwater Conditions

Ground beneath 35 Vartry Road comprises (mostly) clayey Made Ground and clayey in-situ formations. Based on the mapping and local borehole evidence the ground to be excavated from beneath the house will be London Clay.

On drilling local boreholes (Section 2.3) water was sometimes observed as seepages from the London Clay, which sometimes led to the development of a rest water level. Where this occurred, the rest water level was normally several metres below ground. This is an indication that any groundwater occurs in isolated pockets at variable depth in the London Clay.

There is therefore no consistent water table in the London Clay. There may be pockets of siltier deposits that host a little water within the excavation depth of the basement. (Though this is unlikely as they have been beneath a roof for more than 100 years.)

5.2 Impact Assessment

The basement excavation is to take place above any consistent groundwater body. Therefore there is no risk of affecting the groundwater flow regime.

In the absence of any contradictory data, it is expected that the neighbouring basements (at numbers 33 and 37) do have small cellars of a similar design to that of the current cellar at number 35. Ther is no hydrogeological reason to expect that these will be affected by the development.

6. Conclusions

Potential environmental impacts of the proposed basement development at 35 Vartry Road have been considered. The following summary conclusions are made:

- Available geological information indicates that the site is underlain by London Clay, with no superficial deposits.
- Any groundwater present in the London Clay occurs in isolated pockets at variable depth. There may be pockets of siltier deposits that host a little water within the excavation depth of the basement, but these are not likely to be laterally continuous.
- With no continuous groundwater body beneath the site, there will be no change to the local groundwater regime on construction of the basement.
- Risk of flooding from rivers and surface water at the site is very low, though the site is within a critical drainage area. Basement development will not change the local flood risk.

These conclusions are considered to be robust and no further investigations are recommended.