

Nice Place, Compton Avenue Basement Impact Assessment & Structural Method Statement



constructure

Structural Designers

Constructure Ltd
Unit 18 New Concordia Wharf
London SE1 2BB

constructure.co.uk
office@constructure.co.uk
020 7403 7989

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1. INTRODUCTION

Constructure Ltd were appointed in January 2019 for structural advice on the proposed new construction at Nice Place, Compton Avenue. This Basement Impact Assessment report, updated for September 2022, has been produced to accompany the Planning Application submission by GMA Architecture Ltd, describing the scope and nature of the structural works. It details the outline approach that will be taken to safeguard the integrity of adjacent buildings, highways and services, in particular with the construction of the proposed basement structures.

Local ground conditions have been assessed with targeted site investigations, scoped to ensure site conditions are known. This assists to reliably inform the structural design and construction sequence. This has been conducted to support the assessment of the two level basement construction.

Please refer to the appendix for a list of structural engineering drawings which support this report and show the shell and core works in detail.

1.1 THE EXISTING PROPERTY

Situated within the residential area of Highgate, the property is of 20th century origin and it is to be completely demolished and replaced by a completely new building.

1.2 THE PROPOSED WORKS

It is proposed to construct a new single-family detached house. The proposed works are summarise as follows:

- The formation of a double level basement under the entire footprint of the proposed superstructure, with these basement areas extending also under the front and rear gardens. The basement levels are proposed to accommodate a large swimming pool (c.25m), garage for 8 cars, games room, gym and cinema facilities, staff/guest quarters, and plant rooms. Front and rear lightwells will provide connectivity to the exterior.
- The ground floor is proposed to accommodate significant living spaces, and a grand staircase hall. The rear glazed elevation will overlook the rear garden, with the main dining room possibly formed as a double height space, with balcony overlooking.
- The first floor will comprise the master bedroom suites.
- The second floor is proposed to accommodate further bedrooms/suites, and be enclosed within steeply pitched mansard/flat roof.
- To the far end of the garden (west end of the site), an additional pavilion structure is to be formed, possibly across two levels, with this founded onto a mini-piled raft to avoid disturbance to tree roots

The basement structure would be formed of a reinforced concrete shell supported by piled foundations. The building form and requirement for high quality finishes would suggest that a concrete flat-slab framing to the superstructure could be appropriate, to simplify architectural detailing and services integration, as well as maximising ceiling heights.

The ground is known to be the London Clay Formation with no superficial deposits. A full site investigation has been scoped, targeting the site for the new house, and the pavilion structure also. This comprises a number of boreholes to around 20-25m depth,

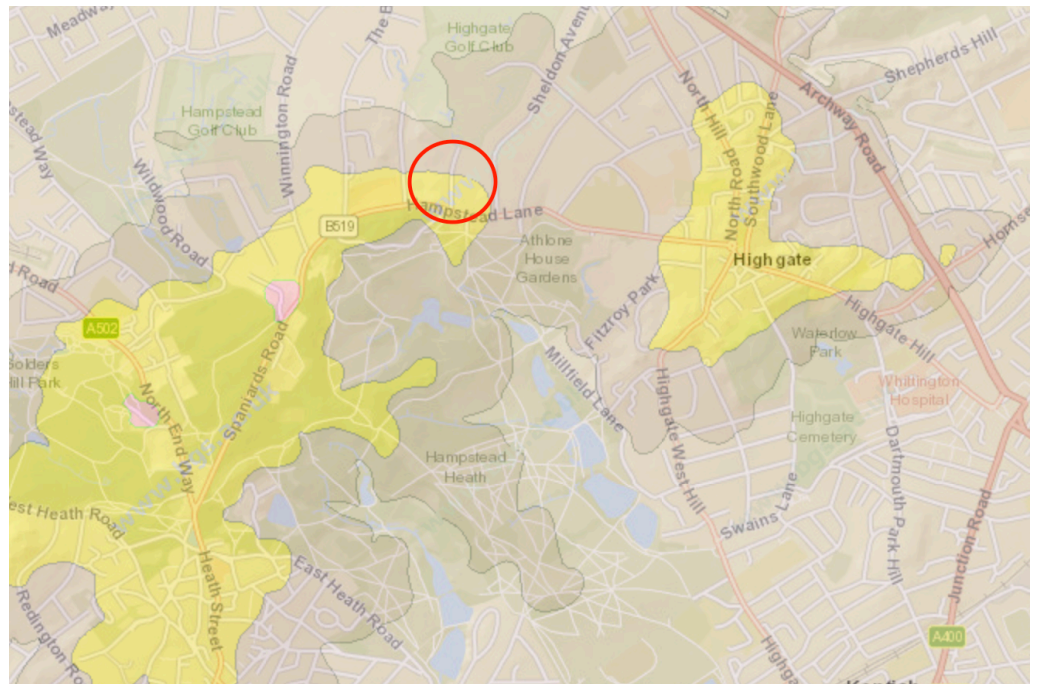
with trial pitting to locally assess tree roots/boundary wall conditions where relevant to the proposed works.

2. DESK STUDY

2.1 LOCAL GEOLOGY AND HYDROLOGY

From geological maps for the area [Figure 2], the ground conditions (which have been confirmed through targeted site investigations in the form of trial pits, and site investigation boreholes) are known to comprise Made Ground (composed by brown very silty sandy clay with roots) onto London Clay found at depths between 0.20 and 1.60m. Underlying these two layers Claygate Member is encountered, initially comprised of firm brown very sandy clay, below the initial horizon, firm becoming, stiff silty sandy clay was found to the maximum investigated depth.

Based on the groundwater observations during the investigation works, groundwater is likely to be encountered within the 6.5m deep basement excavation.



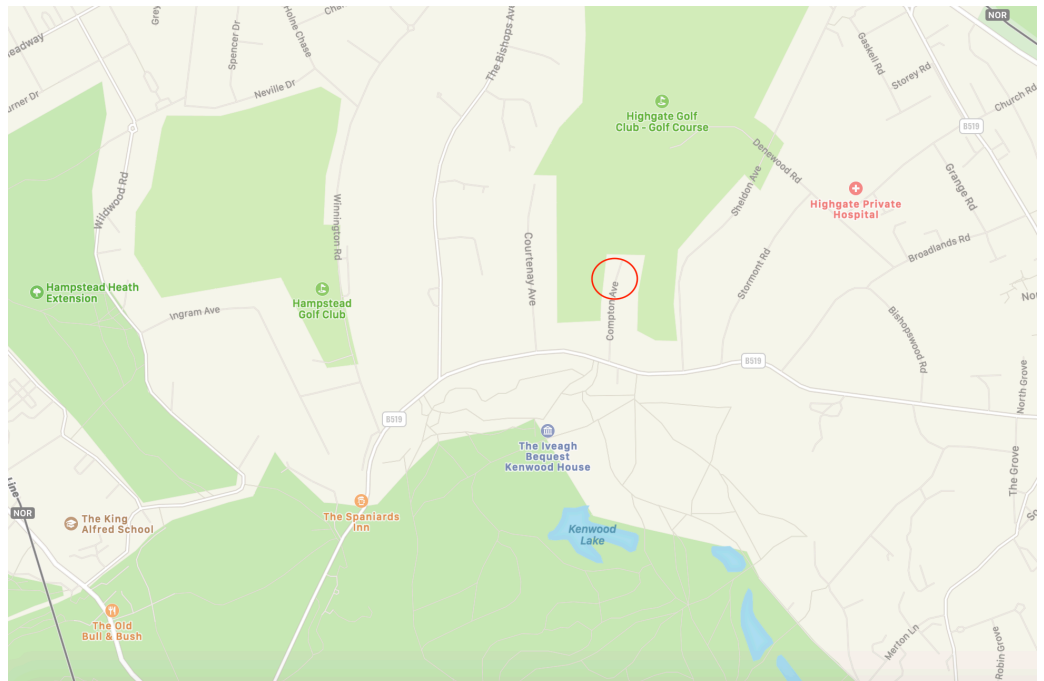
[FIGURE 2] LOCAL GEOLOGICAL MAP

2.2 LONDON UNDERGROUND AND RAILWAY LINES

From the map with underground lines overlaid [Figure 3] it can be seen that the site is sufficiently far from London Underground infrastructure, with the closest line being approximately 1500m away from the site boundary to the north. Therefore no consultation with the London Underground or TfL Asset Protection team is considered to be necessary.

Crossrail 2 runs circa 4km to the east, which is considered far enough away to not require consultation.

The closest overground line is circa 1km to the north east, which again is considered far enough away to not be of significance.



[FIGURE 3] LONDON UNDERGROUND

2.3 FLOOD RISK

With reference to the Environment Agency's Flood Risk map, and the Camden Flood Risk Management Strategy, it can be seen that the site lies outside any flood risk zones. As such, a Flood Risk Assessment is not deemed required. Refer to section 5.1.

2.4 EXISTING UTILITIES AND UNDERGROUND SERVICES

Existing services including sewers and drainage runs will be identified prior to commencing the works. The proposed new drainage is anticipated to be connectable to the existing outfalls to the public system.

2.5 NEIGHBOURING PROPERTIES

Nice Place is a detached property, therefore the works are not affected by any of the surrounding buildings and there is no need for party wall agreements unless the proposed piles intersect a 45 degree line.

3. STAGES 1 & 2: SCREENING AND SCOPING ASSESSMENTS

Highgate planning applications are required to follow the Camden Planning Guidance CPG4 sets out the assessment requirements, the initial stages being a screening and scoping assessment, the checklists for which are addressed below. These inform the further desk study in subsequent sections.

3.1 STAGE 1: SCREENING

SCREENING CHECKLIST: SUBTERRANEAN GROUNDWATER FLOW			
CONSIDERATION		RESPONSE	JUSTIFICATION
1A	Is the site located directly above an aquifer?	YES	The site is located above a Secondary 'A' Aquifer as designated by the EA.
1B	Will the proposed basement extend beneath the water table surface?	YES	The proposed basement level is about 96.50m OD and may extend below the water table.
2	Is the site within 100m of a watercourse, well (disused/used), or potential spring line?	YES	The nearest surface water feature is 16m East of the site.
3	Is the site within the catchment of the pond chains on Hampstead Heath?	NO	The property is located topographically North of the Highgate chain area
4	Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	YES	The footprint of the existing buildings and the new areas of hardstanding will approximately double and a small hard surfaced area also proposed.
5	As part of the site drainage, will more surface water (eg rainwater and run-off) than at present be discharged to the ground (eg via soakaways and/or SUDS)?	NO	No increase in surface water is expected to the ground. The site underlain with London Clay means that the drainage required to continue to be connected to the public sewer system
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 man water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?	YES	The watercourse, which may be a springlike, to the Northeast is at an elevation of c. 100m OD which is above the level of the proposed basement.

SCREENING CHECKLIST: SLOPE STABILITY			
CONSIDERATION		RESPONSE	JUSTIFICATION
1	Does the existing site include slopes, natural or man-made, greater than 7°, or 1 in 8?	NO	Longitudinal fall (front to rear) is 2m over 20m (1/10) Transversely this is seen to be 0.5m over 5.5m (1/11)
2	Will the proposed re-profiling of the landscaping at site change slopes at the boundary to more than 7°, or 1 in 8?	NO	Change in floor level will, at all four sides, be retained by secant/contiguous pile wall
3	Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°, or 1 in 8?	NO	The neighbouring land across the boundary follows the natural topography of between 0° and 7° (where Q2 does not apply)
4	Is the site within a wider hillside setting in which the slope is greater than 7°, or 1 in 8?	NO	Natural slope is seen to be between 0 and 7° in accordance with slope angle map.
5	Is the london clay the shallowest stratum at the site?	NO	The site is underlain by the Claygate Member.
6	Will any trees be felled as part of the proposed development, and/or any works proposed within tree protection zones where trees are to be retained?	YES	An 18m high oak, 15m high hornbeam, two holly trees, 4m and 7m in height and a 9m high cypress are due to be removed from the rear gardens, with a 3m high lime and 4m high maple from the front garden of Nice Place. All other trees are to remain. The basement excavation will also fall within the protection zones of a number of mature trees, most notably within the front and rear gardens of Far End and at the Northern boundary with Highgate Golf Course.
7	Is there a history of seasonal shrink/swell subsidence in the local area, and/or evidence of such effects at the site?	YES	The area is prone to these effects as a result of shrinkable London Clay and abundant mature trees.
8	Is the site within 100m of a watercourse?	YES	The nearest surface water feature is 16m East of the side.

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9	Is the site within an area of previously worked ground?	NO	Not according to the information we currently have.
10	Is the site within an aquifer? If so will the proposed basement extend beneath the water table such that dewatering may be required during the construction?	YES	The site is located above a Secondary 'A' Aquifer as designated by the EA. The proposed basement level is about 96.50m OD and may extend below the water table.
11	Is the site within 50m of the Hampstead Heath ponds?	NO	Ponds are some 600m away
12	Is the site within 5m of a highway or pedestrian right of way?	YES	The extend of the basement is 5m away from the closest pedestrian right of way which is Compton Avenue, a private road
13	Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	YES	Proposed excavations include a two-level basement which will considerably lower the foundation level but this should be at enough distance from the neighbouring properties foundation to avoid causing any inconvenience
14	Is the site over (or within exclusion zone of) any tunnels e.g. railway lines?	NO	Railways are overground and approximately 1000m to the north, including the Northern Line, set into a cutting

SCREENING CHECKLIST: SURFACE FLOW AND FLOODING IMPACT IDENTIFICATION

CONSIDERATION		RESPONSE	JUSTIFICATION
1	Is the site in the catchment of the pond chains in Hampstead Heath	NO	The property is located topographically North of the pond chain

2	As part of the proposed site drainage, will surface water flows (eg volume of rainfall and peak run-off) be materially changed from the existing route?	YES	The footprint of the existing buildings and new areas of hardstanding will approximately double and a small hard surfaced area is also proposed in the Northwest of site. The drainage routes within the site will likely change as a result. Whilst the total volume entering the mains system may increase as a result of impermeable soils and increase hard landscaping, the peak run off rate is to be reduced from existing levels by way of attenuation tanks with a restricted outflow, thus reducing the likelihood of overwhelming the sewer system.
3	Will the proposed basement development result in a change in the proportion of hard surfaced/paved external areas?	YES	The footprint of the existing buildings and new areas of hardstanding will approximately double and a small hard surfaced area is also proposed in the Northwest of site.
4	Will the proposed basement result in changes to the profile of the inflows (instantaneous and long term) of the surface water being received by adjacent properties or downstream watercourses?	YES	Possibly, the site in is an area of subsurface streams that flow in a Northwesterly direction on to Highgate Golf Course, given the depth of the proposed basement it is possible some impact will occur.
5	Will the proposed basement development result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	YES	Ditto

6	Is the site in an area identified to have surface water flood risk according to either 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?	NO	The site is not considered to be at risk from surface water flooding.
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3.2 STAGE 2: SCOPING

The screening assessment identifies the following matters, which are required to be studied and justified or discussed further.

- The site is located above a Secondary 'A' Aquifer as designated by the EA.
- The proposed basement level is about 96.50 m OD and may extend below the water table.
- The lowest point of the proposed excavation is lower than the mean water level of the local pond in the northwest.
- The footprint of the existing buildings and new areas of hardstanding will approximately double and a small hard-surfaced area also proposed in the northwest of site
- Trees will be felled as part of the proposed development
- There is a history of seasonal shrink-swell associated with the underlying London Clay.
- The site is within 100 m of a watercourse
- The site is located above a Secondary 'A' Aquifer as designated by the EA
- The proposed basement may extend beneath the water table
- The site is within 5 m of a public highway.
- The proposed basement will significantly increase the differential depth of foundations relative to neighbouring properties.
- Surface water flows (.eg volume of rainfall and peak run-off) may be materially changed from the existing route
- The proposed basement development may result in a change in the proportion of hard surfaced / paved areas
- The proposed basement development may result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses
- The proposed basement may result in changes to the quantity of surface water being received by adjacent properties or downstream watercourses