

Basement Impact Report

Address: 196 High Road, Haringey, N15 4NP

JMS Project Ref: L25/396/12

Issue Date: 24.03.2026

Client Ref: Piny Friedman

Preamble

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Revisions & additional material

Document History and Status

Revision	Date	Purpose/Status
Rev-	24.03.2026	First Issue

Document Details

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Project Number	L25/396/12
Project Name	196 High Road, Haringey, N15 4NP– Basement Impact Assessment
Planning Reference No.	N/A

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1.0 *Executive Summary*

- 1.1.1. The site location is 196 High Road, Haringey, N15 4NP. The site falls within the London Borough of Haringey. Grid Reference: TQ 33700 88805 (Easting: 533700; Northing: 188805)
- 1.1.2. The current site arrangement includes a residential property, composed of basement floor, ground floor, first floor and second floor.
- 1.1.3. The proposed development comprises of the creation of an extended basement under the footprint of the proposed building, and a reduced footprint to the existing ground floor. The property is to be converted into 3no. dwellings; 1no. maisonette over the basement and ground floor, and 2no. flats over the first and second floor.
- 1.1.4. The report is based on the information produced by the clients Architects, borehole data provided by British Geological Survey (BGS), and is intended to provide the basis for planning and may be subject to further design discussion and development with the successful Contractor.
- 1.1.5. The following assessments are presented:
 - Site Geology
 - Site Hydrology
 - CPG4 Screening Flowcharts
 - Construction Methodology
 - Outline Temporary and Permanent Works Proposal
 - Ground Movement and Damage Assessment
- 1.1.6. Refer to Architect drawings for:
 - Existing floor plans and elevations;
 - Proposed floor plans and elevations.

The authors of the assessments are:

 - Holly Peirson (Structural Engineer)
 - Daniel Staines (Managing Director): Reviewing/Checking Engineer
- 1.1.7. The construction methods proposed are standard underpinning construction technique. This is shown in Appendix 4 & 5 as indicative only. Please note that the drawings may be subject to confirmation of details and final input from the successful contractor.
- 1.1.8. A structural monitoring strategy to control the works and impacts to neighbouring structures will comprise, if required, of monitoring tools and scheduled movement registration. Slope monitoring is at the present not required, based on the information provided by the BGS. The engineer must be notified immediately if any slope stability issues are encountered.
- 1.1.9. The strategic drainage system is as designed by others.
- 1.1.10. This is a live document and that further detailed assessments will be ongoing as the design and construction progresses.

2.0 *Introduction*

This report has been prepared to set out the proposed design philosophy and construction method statement for the proposed basement construction at 196 High Road, Haringey, N15 4NP. It will summarise the basis of the structural and civil engineering design and will be issued to all relevant parties including the Client, Local Planning Authority and Design team members.

This report is for the exclusive use of the Client and should not be used in whole or in part by any third parties without the express permission of JMS Engineers in writing.

This report should not be relied upon exclusively by the Client for decision-making purposes and may require reading with other material or reports.

The scope of the proposal is for the creation of proposed basement under the footprint of the proposed ground floor.

The report is based on the information produced by the clients Architects, & borehole data provided by trial holes examination on site and is intended to provide the basis for planning and may be subject to further design discussion and development with the successful Contractor.

The work carried out comprises a Basement Impact Assessment, which is in accordance with the procedures specified in the planning guidelines for the London Borough of Haringey. The aim of the work is to assess if the proposed basement will have a detrimental impact on the surroundings with respect to groundwater and land stability and in particular to assess whether the development will affect the stability of neighbouring properties, local and regional hydrogeology and whether any identified impacts can be appropriately mitigated by the design of the development.

2.1. *Sources of Information*

2.1.1. The following baseline data have been referenced to complete the BIA in relation to the proposed development:

- Current/historical mapping provided by Google Maps and Online Historic Maps resources;
- Association of Specialist Underpinning Contractors (ASUC), Guidelines on safe and efficient basement construction directly below or near to existing structures;
- Fiona Cobbs, Structural Engineer's Pocket Book;
- Architect's floor layouts, sections and elevations.
- BS8000-0:2014: Workmanship on construction site.

2.2. *Existing and Proposed Development*

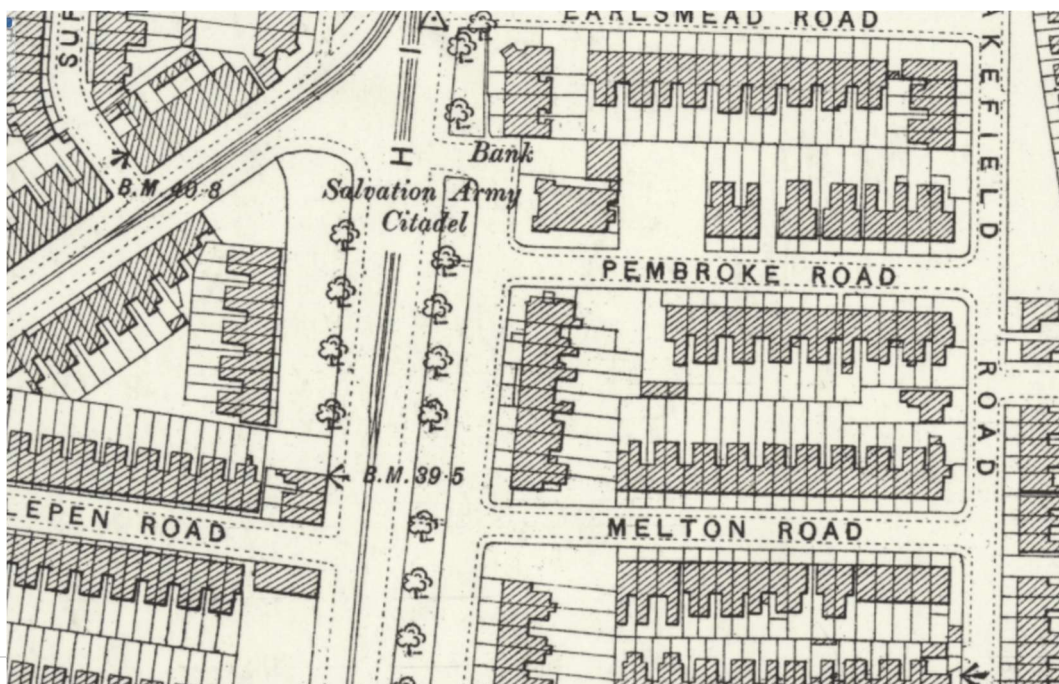
- 2.2.1. The existing property is currently unoccupied. Refer to drawings in the Appendix.
- 2.2.2. The adjacent property to the north of 196 High Road, Haringey, N15 4NP appears to house various residential flats and is also 3 storeys tall with flat roof and masonry parapet standing slightly elevated to that of 196 High Road, Haringey, N15 4NP.
- 2.2.3. The adjacent property to the south of 196 High Road, Haringey N15 4NP appears to be one single dwelling and is also formed of 3 storeys, however, with a pitched roof spanning from front to back of the property.
- 2.2.4. The property at 196 High Road, Haringey, N15 4NP, and adjacent properties are not in the Listed Building Register.
- 2.2.5. Underground infrastructures are not present beneath/close to the site. Refer to Transport for London Property Asset Register in Appendix
- 2.2.6. Existing and Proposed development drawings are provided by SAM Planning Services. Refer to relevant Architect's drawings for details.
- 2.2.7. The proposed development will utilise standard underpinning construction technique which include sequenced stages of works as denoted by the ASUC "Guidelines on safe and efficient basement construction"
- 2.2.8. The outline construction programme for the proposed development, shown as indicative only in appendix 4 & 5, is to be agreed with successful contractor.
- 2.2.9. The full extent of the proposal will see the existing basement extended and a rear extension to broadly match the footprint of the basement. The proposed works will be within the existing boundaries of the property. Due to this there will be a minimal increase in the impermeable surface area.

2.3. *London Borough of Haringey*

- 2.3.1. The London Borough of Haringey was established in 1965 by the amalgamation of three former boroughs.
- 2.3.2. It shares borders with six other London boroughs; Enfield, Waltham Forest, Hackney, Islington, Camden, and Barnet.
- 2.3.3. Haringey covers an area of more than 11 square miles, with 196 High Road situated within the Tottenham area, to the south east of the borough.



- 2.3.4. The locality of the property in this area of Tottenham is largely flat, low-lying land beside the River Lea.
- 2.3.5. The following historical maps indicate the development of this area over the period.
- 2.3.6. Published 1840 – 1880



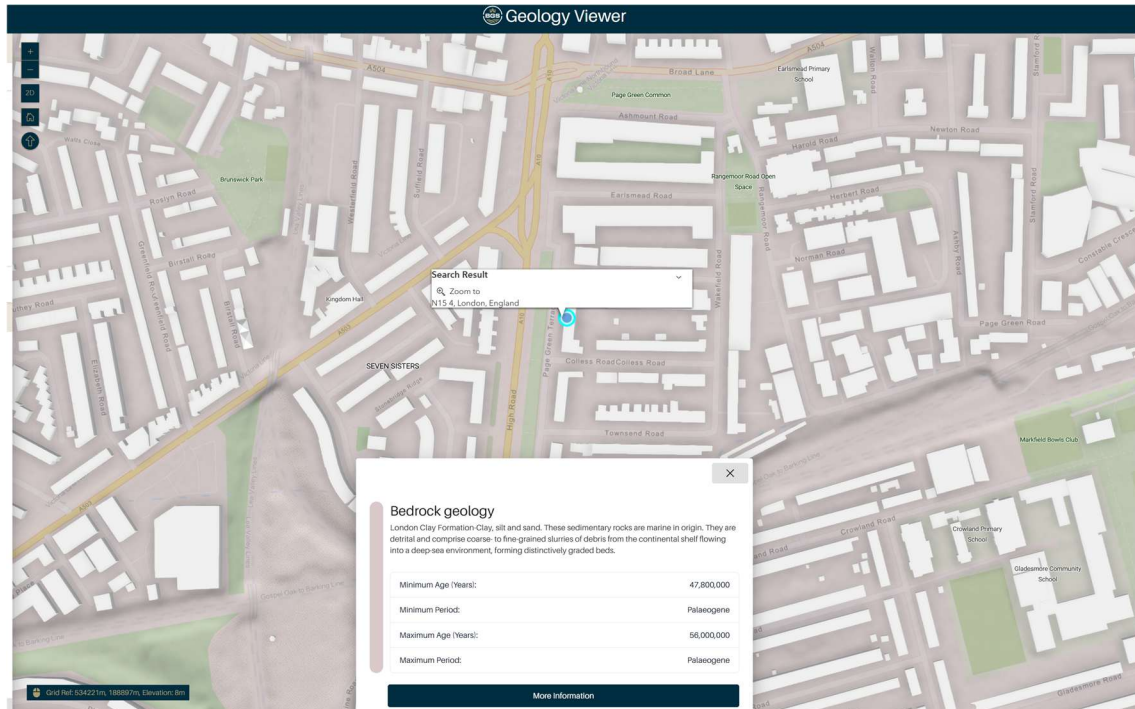
- 2.3.7. The earliest recorded back, dating to the mid Victorian era shows an area largely undeveloped, with large country estates, such as Stonebridge House, which 196 High Road is now situated.
- 2.3.8. Published 1885 – 1900
- 2.3.9. This second map published circa 35 years later, we can see the area has transformed to very urban and densely populated area with lots of terraced housing in typical Victorian arrangement.
Published 1892-1914
- 2.3.10. The final map is from the similar period, but to a different scale, and shows the property outline clearly, indicating that it has remained largely unaltered since this period. When compared to a current day map, the streets and houses on plan remain relatively unchanged, confirming that all properties are, more or less, from the same period.



- 2.3.11. *Contains Ordnance Survey data © Crown Copyright and database right 2013.*

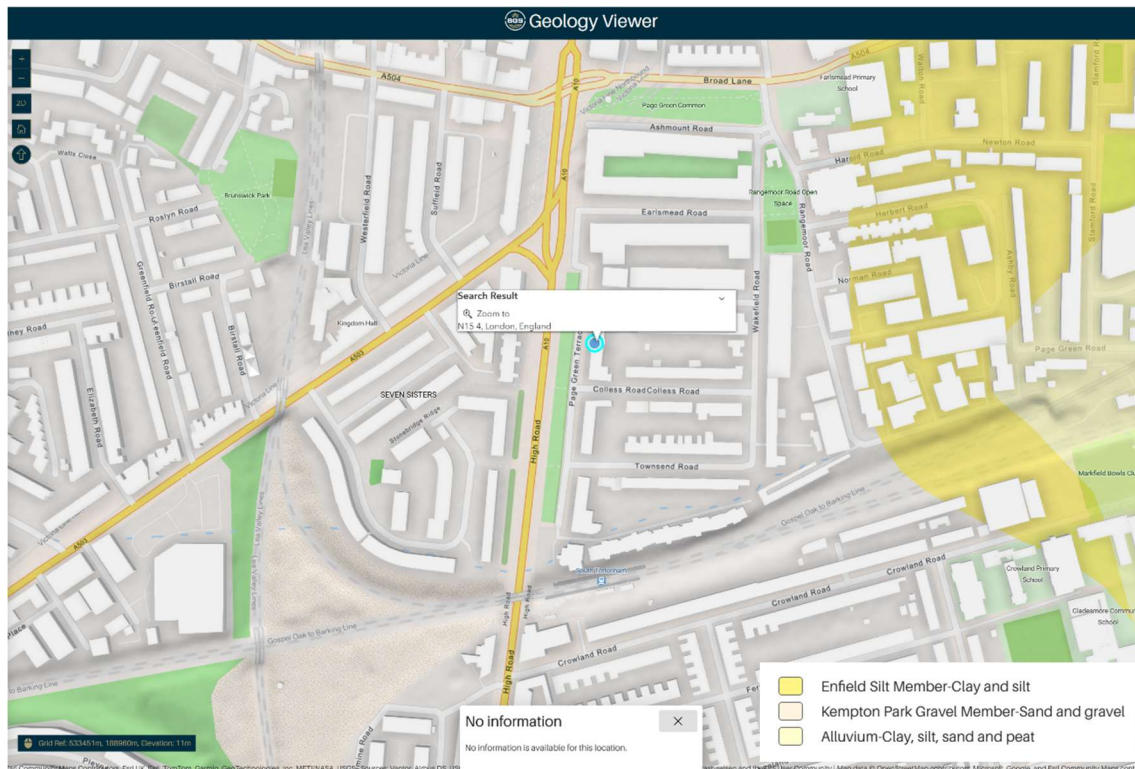
3.0 Site Geology

3.1. Bedrock Geology



3.1.1. The 1 geological map for this area, made available by the BGS, shows the sites bedrock geology to be London Clay Formation comprising of Clay, Silt and Sand.

3.2. Superficial Geology



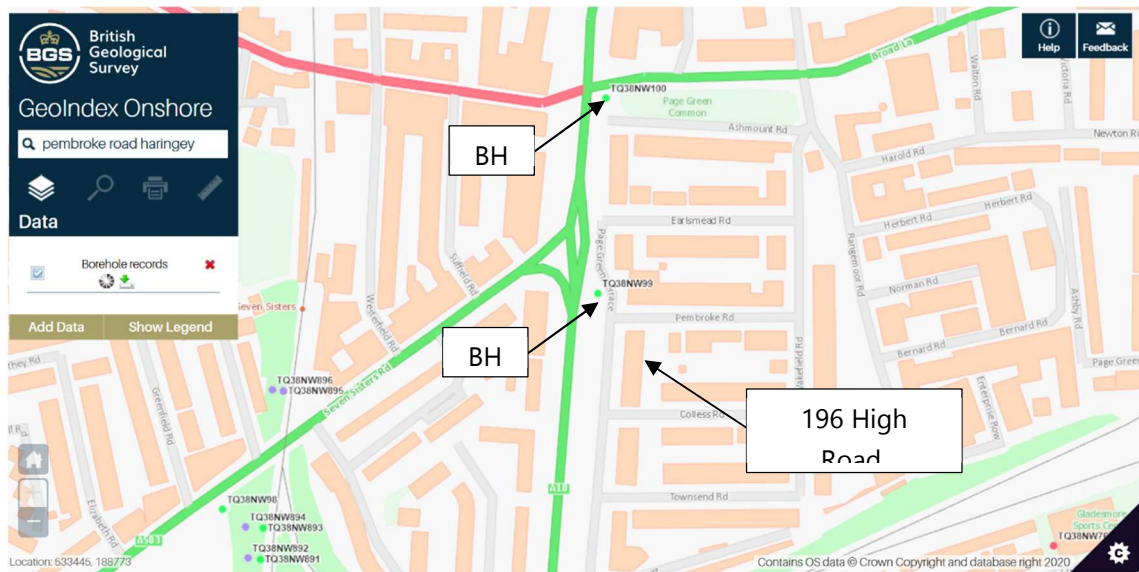
3.2.1. The superficial drift deposits are not recorded at this location, but based on the surrounding area we could expect this to be a mixture of Enfield Silt member comprising of clay and silt, and alluvium clay, silt, sand and peat.

- 3.2.2. Most of Haringey is underlain with London Clay with all superficial deposits in the locality broadly consisting of cohesive materials such as silts and clays.

3.3. Boreholes

- 3.3.1. The borehole logs were provided by the BGS. The sample was taken from approx. 0.03 and 0.11 miles from site (206 Page Green Terrace, London N15 4NP and 11 Ashmount Rd, London N15 4DD respectively), as can be seen on the map. Two boreholes were sampled, both at circa 24m depth. The borehole data shows fair representation of the expected soil and ground conditions on site as proved by lower depth excavations supervised by this Company in and around the area.

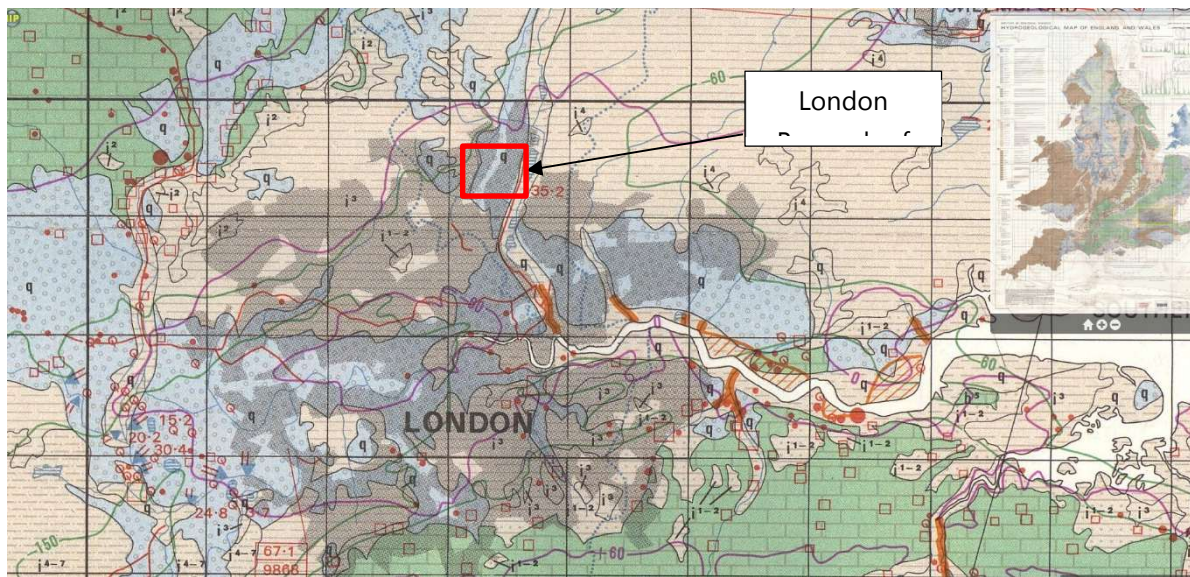
- 3.3.2. See Appendix for Borehole details.



- 3.3.3. Borehole log BH1 indicates 0.6m (0.00m to 0.6m bgl.) of made ground, topsoil. This is followed by 5.4m deep (0.6m to 6.4m bgl.) strata of firm to stiff fissured brown silty clay and then stiff to very stiff fissured grey silty clay with occasional partings of fine sand below stiff London clay is recorded until the bottom of the borehole (24.0m bgl.). Slight groundwater seepage was encountered during the survey overnight. Typical safe bearing capacity for firm clay is 75 – 150 kN/m² and stiff clays ranges between 150 – 300 kN/m² (Cobb, 2015).
- 3.3.4. Borehole log BH2 indicates 1.20m (0.0m to 1.2m bgl.) of made ground fill consisting of loose brown clayey sand. This is followed by 0.6m deep (1.20m to 1.8m bgl.) strata of stiff mottled brown silty clay with some gravel. From here to 4.7m (1.8m to 4.7m bgl) stiff fissured brown silty clay (London Clay) and to the bottom of the borehole (24.0m bgl) stiff to very stiff fissured grey silty clay with occasional partings of fine sand below (London Clay). Groundwater was not encountered during the survey. Typical safe bearing capacity for firm clay is 75 – 150 kN/m², stiff clays ranges between 150 – 300 kN/m² and very stiff clay ranges between 300 – 600 kN/m² (Cobb, 2015).

4.0 Hydrology

4.1. GS Hydrogeology Map Extract



- 4.1.1. Key: Relates to areas in the box of interest:
- 4.1.2. Blue: Quaternary Sands and Gravels – Include glacial, fluvioglacial and plateau gravels, river terrace deposits, raised beaches and marine sands and gravels of differing origin, but all of limited importance as aquifers.
- 4.1.3. Yellow: All yellow areas defined as 'Concealed aquifers; aquifers with limited or local potential.
- 4.1.4. The Hydrogeology study will enable:
- Identification of maximum probable flood at any location
 - The variation in water production from catchments
 - The relationship between a catchments surface water and groundwater resources
 - Expected flood flows over a spillway, at a culvert, or in an urban storm drainage system
 - Required reservoir capacity to allow adequate water for irrigation or municipal water supply in drought conditions
- 4.1.5. Every building must be designed and constructed in such a way that there will not be a threat to the building or the health of the occupants as a result of flooding and the accumulation of groundwater.
- 4.1.6. Basements affect groundwater flows as the displaced water has to find a new course around the area of obstruction, the newly diverted flow may have the potential to cause problems for nearby buildings.

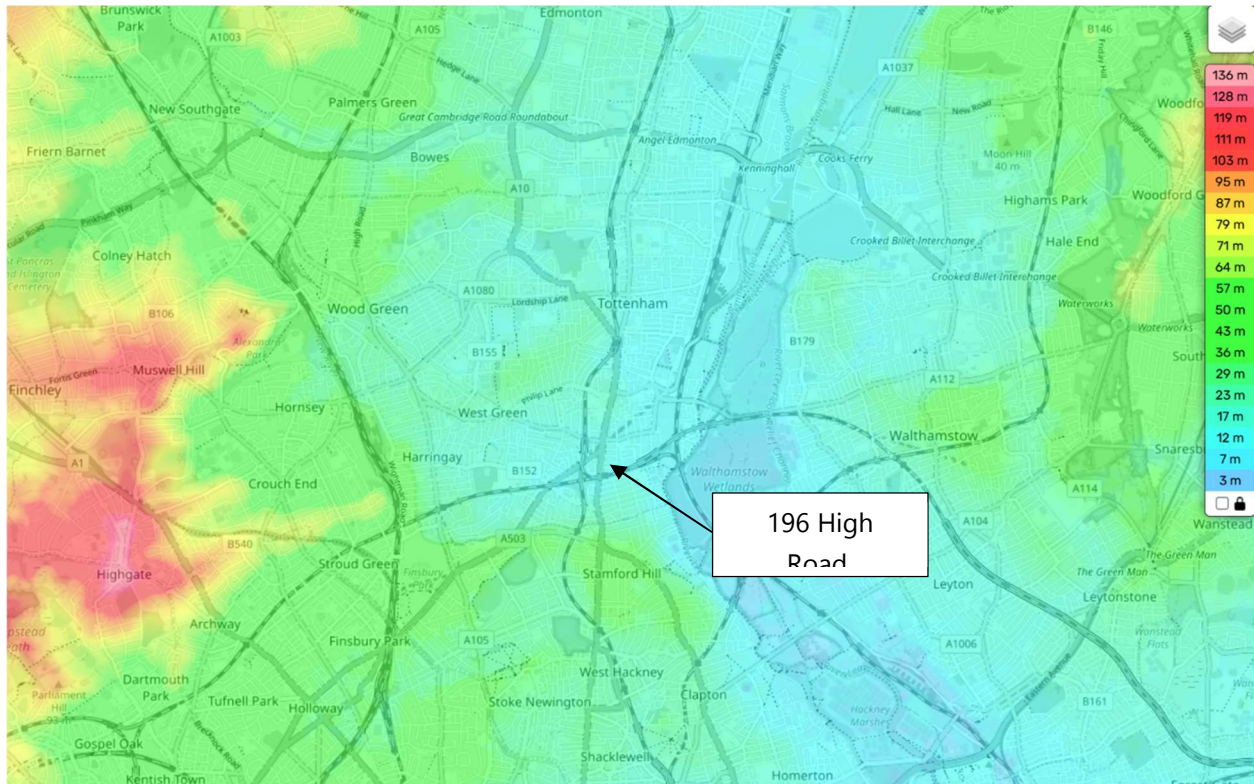
5.0 CPG4 Screening Flowcharts

For the purposes of this report reference has been made to Appendix E of the Arup document screening tools, which includes a series of questions within a screening flowchart for three categories; groundwater flow; land stability; and surface water flow.

5.1. Slope Stability

5.1.1. Does the existing site include slope, natural or man-made, greater than 7° (approximately 1 in 8)?

5.1.2. *No. The following topography map shows reasonably flat ground around our area of interest in Haringey - all the sloping ground is all to the west of Haringey and Islington.*



5.1.3. Will the proposed re-profiling of landscaping at site change slopes at the property boundary to greater than 7° (approximately 1 in 8)?

5.1.4. *No. The proposal does not include landscaping that affects the boundaries.*

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

5.1.6. *No. The neighbouring sites are at a similar gradient.*

5.1.7. Is the site within a wider hillside setting in which the general slope is greater than 7° (Approximately 1 in 8)?

5.1.8. *No. The wider gradient is less than 1:8.*

5.1.9. Is London Clay the shallowest stratum on the site?

5.1.10. *Yes. London Clay is the shallowest stratum – carry forward to scoping stage.*

5.1.11. Will any trees be felled as part of the proposed development and/or are there any proposed works within any tree protection zones where trees are to be retained?

- 5.1.12. *No. No trees are to be felled.*
- 5.1.13. Is there a history of shrink swell subsidence in the local area and/or evidence of such effects at the site?
- 5.1.14. *No. There is no such evidence to the existing building or neighbouring properties.*
- 5.1.15. Is the site within 100m of a watercourse, or spring line?
- 5.1.16. *No. The River Lea is approx. 700m east of the site and set of Warwick Reservoir beyond this.*
- 5.1.17. Is the site within an area of previously worked ground?
- 5.1.18. *No. Historic records indicate that the site has only been built on in the late 18th Century & was built on land with agricultural or horticultural use prior to that.*
- 5.1.19. Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering will be required during construction?
- 5.1.20. *No– the site lays within an area that water level is not recorded. Presumed to be below basement formation level. Notify the engineer if otherwise.*
- 5.1.21. Is the site within 50m of any ponds?
- 5.1.22. *No. there is no evidence the site is within a 50m zone of any ponds.*
- 5.1.23. Is the site within 5m of a public highway or pedestrian right of way?
- 5.1.24. *No, as shown by Google maps attached in the Appendix.*
- 5.1.25. Will the proposed basement significantly extend the differential depth of basements relative to neighbouring properties?
- 5.1.26. *No. The extension of the basement is marginal only*
- 5.1.27. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?
- 5.1.28. *No – see TfL Transport Asset In Appendix.*

5.2. Surface Flow and Flooding

5.2.1. Is the site within a catchment area?

5.2.2. *No. The site is outside the catchment area. As shown on the map below*

5.2.3. 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?

5.2.4. *No. It will be largely unaffected.*

5.2.5. Will the proposed basement development result in a change in the proportion of hard surfaces/paved external areas?

5.2.6. Yes, however this will only be minimal.

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

5.2.8. *No. There will be no change in the surface water flow off-site as a result of this proposal. Surface water will be discharged via existing connection*

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

5.2.10. *No. There will be no change in the surface water flow off-site as a result of this proposal.*

5.2.11. Is the site in an area known to be at risk from surface water flooding? Or is the proposed basement below the static water level of a nearby surface water feature?

5.2.12. *No. The UK Government Long Term Flood Risk map shows areas of potential flood zones which the site does not fall within any of the Risk categories (see Appendix).*

5.3. Surface Water (Flood Risk)

5.3.1. Given the development does not lie within any flood zones and is not subject to overland flooding, no special construction features are required to mitigate fluvial flooding.

5.3.2. Any surface water could be attenuated using SUDs permeable paving and drained into the existing public sewer system at a reduced runoff rate.

5.4. SUDs Considerations

5.4.1. Consideration of SuDS is a planning requirement for major developments in order to provide betterment to the runoff regime post-development. SuDS are designed to replicate the natural course of drainage as closely as possible with a view to reducing the impact of flooding, removing pollutants at source and combining water management with green space. Any solution needs to be agreed with appointed Civil/Drainage Engineer.

5.4.2. The following hierarchy for surface water disposal is considered where reasonably practicable:

- Into ground (infiltration);
- To a surface water body;
- To a surface water sewer;

- To a combined sewer.

5.4.3. For this development the London Borough of Haringey Council has been identified as the Lead Local Flood Authority (LLFA) and as such are responsible for the approval of SUDs proposals. The requirements are set out in the London Borough of Haringey guidance document. In accordance with the guidance, the surface water design follows the criteria and incorporates SuDS wherever practicable.

5.5. *SUDs Incorporation and Maintenance*

5.5.1. The site geology is generally clay, therefore it is unlikely that surface water can be disposed of via infiltration. A flow control and attenuation system is proposed in order to restrict the rate of runoff to the equivalent greenfield runoff rate. The final system will be agreed once the planning layout will be approved, in order to evaluate the opportunity for SUDs features that maximise amenity and biodiversity benefits.

5.5.2. Maintenance of the system shall include for regular inspections at varying intervals depending on the system requirements. In this case, the responsibility for maintaining system will be with the property owner.

5.6. *Surface Water Strategy*

5.6.1. The surface water strategy is based upon the SuDS implementation as outlined above and the hierarchy for surface water disposal as follows:

- Store rainwater for later use - rain water storage to be utilised where possible.
- Use infiltration techniques, such as porous surfaces in non-clay areas - infiltration is unlikely owing to the general geology in the area which is predominantly clay.
- Attenuate rain water in ponds or open water features for gradual release
- Surface water runoff is restricted before discharging to the public sewer at a reduced rate. The equivalent greenfield runoff rate found is minimal and therefore impractical to restrict to such a rate, mainly due to blockage potential. Therefore, proposals are to reduce flows to a rate which is considered reasonably practical which can be determined by using a typical SUDs Evaluation Sheet. Flow rate will be controlled by the rump rate with chamber sized to attenuate flows for the worst case duration of the 1:100 year storm event, inclusive of climate change.
- Direct rainwater direct to the watercourse – N/A
- Discharge rainwater to a surface water sewer/drain – N/A

6.0 *Scoping Stage*

The purpose of scoping is to assess in more detail the factors to be investigated in the impact assessment. Potential consequences are assessed for each of the identified potential impact factors.

It is considered that the scope of the investigation complies with the guidance issued by the Council and is therefore a suitable basis on which to assess the potential impacts.

6.1. *Groundwater Flow*

- 6.1.1. It is believed that water levels are below that of the proposed excavation depth and is reinforced by the findings of historic boreholes, however slight water seepage may be present.

6.2. *Slope Stability*

- 6.2.1. London Clay is the shallowest stratum on this site and the structural design of the retaining walls and slabs will take this into account accordingly.
- 6.2.2. The existence of basements in adjoining buildings is presumed to be absent. However, the structural engineering proposal for this scheme involves the use of underpinning to form the structural box below ground which should have no negative effect on neighbouring properties.
- 6.2.3. Due to the limited soils information available the following parameters are to be assumed within the designs: Using k_0 , the earth pressures are considered 'at rest'. Active pressure (k_a) will be mobilised if the wall moves 0.25-1% of the wall height, while passive pressures (k_p) will require movements of 2-4% in dense sand or 10-15% in loose sand/fill.

k_0 values adopted:

- 0.50-0.60 for normally consolidated clay,
- 0.35 for dense sand,
- 0.6 for loose sand/fill
- 1.0-2.8 for over-consolidated clays such as London clay.

(source: Structural Engineer's Pocket Book, Eurocodes by Fiona Cobb)

7.0 Construction Methodology/ Engineering Statements

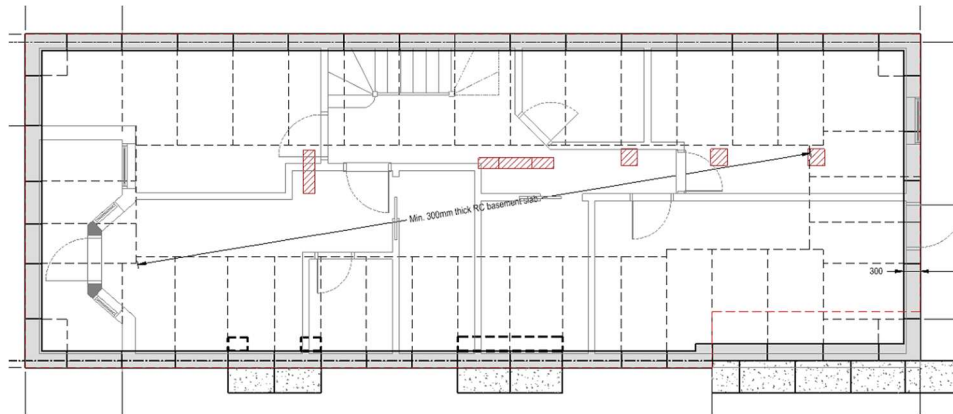
7.1. Outline Temporary and Permanent Works Proposals

- 7.1.1. This method statement has been prepared to provide information on the likely methods for Basement Construction, subject to confirmation of details and final input from the successful contractor.
- 7.1.2. The final methods will be subject to the limitations and constraints noted in this document. Any revised matters associated with the Method Statement will be issued for review and comment prior to any site construction works.
- 7.1.3. The method of construction is to be agreed by all parties, with specific reference to the potential for vibrations and noise from the basement construction.
- 7.1.4. A detailed method statement for means of access, site logistics and intended vehicle movements, particularly spoil removal, will be agreed with the main contractor prior to commencing any site works and any variations reported accordingly.
- 7.1.5. All services surveys, diversion agreements and temporary supply requirements will be agreed, and approvals will be in place prior to commencement of works.
- 7.1.6. Existing building condition surveys will be carried out prior to commencing any works, of neighbouring property.

7.2. Sequence of works

- 7.2.1. Establish site access & hoarding.
- 7.2.2. Investigatory works as required for full detailed design.
- 7.2.3. It is presumed that all the temporary works to ensure stability to adjacent properties are provided during demolition as designed and specified by contractor.
- 7.2.4. It is the contractor's responsibility to take all necessary steps to ensure that the structure is adequately propped, shored and braced to ensure that during the progress of the works excessive deflections and deformation of the structure do not occur. Therefore, the contractor shall discuss with the engineer any proposals for temporary works. It is frequently necessary for the contractor to brace or prop existing openings so that isolated load bearing piers may be underpinned. The contractor is to allow in his tender price for all propping, shoring and bracing to ensure that the works may be safely undertaken with no undue disruption to the structure.
- 7.2.5. In addition, no floors are to be removed to allow the excavation of the basement until adequate propping has been provided to ensure continuity of support of opposing walls. Propping system to remain insitu until new floor has been fully installed and strapped. Design of propping is a contractor designed item, unless instructed otherwise.
- 7.2.6. The sequence of works shall be based on a maximum leg length of approx. 1.0m. and max. of 1.2m. The agreed sequence of operations shall be strictly adhered to. In case the contractor wishes to alter any sequence, it must be discussed in prior with the engineer and/or local authorities and any amendment must be confirmed in writing.

- 7.2.7. Sequenced underpinning/sequenced construction sections can take place as per indicative sketch



below. Underpinning to be connected to central slab and existing basement slab with dowel bars (to SE specification).

- 7.2.8. During the excavation, the contractor shall take all the necessary steps to prevent softening of the ground. The contractor shall also ensure that the base of the excavation shall not become contaminated by loose material falling into the excavation. The contractor shall take steps to ensure that the size of the excavation loosely matches the required size agreed with the engineer /local authorities. Excessive overbreak will not be permitted and the contractor shall provide all necessary trench sheeting and strutting to prevent overbreak. The contractor might be required to provide sheeting and strutting to prevent any ingress of loose material beneath the existing floor.
- 7.2.9. Prior to concreting, the contractor shall incorporate shear keys to permit shear transfer between adjacent retaining wall legs. Where necessary, projecting dowel bars should be cleaned of all loose dirt prior to concreting.
- 7.2.10. The underside of all existing footings (where exposed by excavation in preparation for underpinning) shall be cleaned of all loose soil and fragments. Any major projections or inclusions such as bricks, broken concrete or boulders shall be broken away from the underside of the existing footing. Prior to concreting the underpinning leg, the existing footing should be clean and firm and level, so the dry packing may be accomplished satisfactorily.
- 7.2.11. All concrete shall be grade C35 (unless specified otherwise) and strictly operated according to the concrete specifications contained in BS8110:Part 1:1985. It should be noted that the concrete should be adequately compacted with a vibrator poker to ensure adequate density. The concrete for the retaining wall legs should be brought up to 75mm from the underside of the existing footing.
- 7.2.12. Once the retaining wall legs have set (at least 3 days after concrete placement) the gap between the underside of the existing footing and the top of the new footing is to be packed with dry concrete. Mix proportions for the dry concrete are to be by weight 1:3 (cement: zone 2 sharp sand) with combex non-shrink admixture added in accordance with manufacturers recommendation. The constituents are to be mixed dry and small volume of water is to be added that such that when compressed, a small bar of the mixture retains its shape. The dry packing concrete is then

to be rammed solid into the gap between the underside of the existing footing and the top of the new footing using a steel bar.

- 7.2.13. A sufficient time should elapse between the completion of dry packing and the excavation of any retaining wall legs in the vicinity. The curing time shall be 72h between adjacent bays, unless stated otherwise.
- 7.2.14. Internal waterproofing membranes, screeds and finishes are to be placed at completion of the retaining wall boxes and ground floor slab.
- 7.2.15. The final sequence of working in detail will be agreed with the successful main contractor and any variations reported accordingly. It is worth mentioning that retaining wall legs may be punctured by the services entering the building. The means of “sleeving” these services shall be agreed with the engineer during the progress of the works.
- 7.2.16. Based on the size of the proposed development, it is presumed that it is likely that the bays construction will be undertaken on “top down” construction method can be constructed in one pour, to be confirmed by the successful contractor.
- 7.2.17. Based on the size of the proposed development, and the proposed levels, the underpinning depth is between 2.4m-3.0m which is likely to be constructed in one pour. This is to be confirmed by the successful contractor and by the finalized architectural layouts.
- 7.2.18. Refer to Appendix 3 for typical details and notes for underpinning construction in multi-stages pouring. (Note: details are INDICATIVE only, shown only for illustrative purposes.) contractor to advise.
- 7.2.19. It is to the successful contractor’s discretion to finalise appropriate methodology based on site accessibility and resources.

7.3. Establish Access & Hoarding

- 7.3.1. The hoarding will be located around the property to enclose all works.
- 7.3.2. A plywood hoarding will be erected with vertical standards, anchored to the ground. The hoarding will be fully secure with a lockable door for access. Suitable heights and colours will be in accordance with the Local Authority requirements.

7.4. Waterproofing System and Screed

- 7.4.1. For all basement areas, the Architect will prepare design details in conjunction with a specialist contractor. The waterproofing system will be installed in accordance with the Architects details in conjunction with the specialist contractor technical specifications once the basement slab is complete.
- 7.4.2. The floor finishes, which may include insulation and under floor heating, can then be laid in accordance with the Architects details. A cement and sand screed will be applied on the slab surface.
- 7.4.3. The height of the basement and relative level of the water table determines that Types A (barrier), B (structurally integrated) or C(drainage) protection against ingress of water will be satisfactory, as defined by BS 8102:2009. The basement will be constructed and detailed to achieve a Grade 3 Level of Performance, as defined by BS 8102:2009.

Table 2 Grades of waterproofing protection

Grade	Example of use of structure ^{A)}	Performance level
1	Car parking; plant rooms (excluding electrical equipment); workshops	Some seepage and damp areas tolerable, dependent on the intended use ^{B)} Local drainage might be necessary to deal with seepage
2	Plant rooms and workshops requiring a drier environment (than Grade 1); storage areas	No water penetration acceptable Damp areas tolerable; ventilation might be required
3	Ventilated residential and commercial areas, including offices, restaurants etc.; leisure centres	No water penetration acceptable Ventilation, dehumidification or air conditioning necessary, appropriate to the intended use

^{A)} The previous edition of this standard referred to Grade 4 environments. However, this grade has not been retained as its only difference from Grade 3 is the performance level related to ventilation, dehumidification or air conditioning (see BS 5454 for recommendations for the storage and exhibition of archival documents). The structural form for Grade 4 could be the same or similar to Grade 3.

^{B)} Seepage and damp areas for some forms of construction can be quantified by reference to industry standards, such as the ICE's *Specification for piling and embedded retaining walls* [1].

7.4.4.

Figure 1: Grades of waterproofing protection

- 7.4.5. To achieve Grade 3 Performance, we propose either a drained cavity installed in front of the concrete wall; or an applied waterproofing membrane applied and bonded to the internal faces of the pins. Waterproof concrete will also be employed.

7.5. *Ground Movement and Damage Impact Assessment*

- 7.5.1. At this site, a basement already exists beneath the building; therefore, the proposed works will not involve excavation into previously unrelieved ground, with the exception of a small area of basement extension. This extension is limited in extent and will result in only a very minor additional unloading effect. Overall, the net unloading of the London Clay is anticipated to be very small, typically less than 5 kN/m².
- 7.5.2. Given this limited reduction in vertical stress, any associated heave is expected to be negligible. Movements at the centre and edges of the excavation, including within the area of extension, are likely to be very small and well within tolerable limits, with no significant long-term swelling effects anticipated.
- 7.5.3. It should also be recognised that such assessments are inherently conservative, as they do not fully account for the restraining effects of the existing structure, floor slab stiffness, and any underpinning works, all of which will further limit ground movements.
- 7.5.4. Consequently, movements at or beyond the site boundaries are expected to be negligible and will not adversely affect adjoining or nearby structures.#
- 7.5.5. Standard good practice measures should nevertheless be incorporated into the design to accommodate any minor heave forces, although these are expected to be minimal in this case.
- 7.5.6. If required, provision of a compressible layer or void beneath the slab may be considered; however, given the very low magnitude of unloading, significant uplift pressures are not anticipated.
- 7.5.7. In addition to the above, neighbouring structures have been reviewed in accordance with the classification given in Table 2.5 of CIRIA C580, and where appropriate considered within a Building Damage Assessment.
- 7.5.8. The negligible heave movements predicted have been included in the assessment and are considered conservative. In practice, these movements may slightly offset any minor settlements associated with structural loading.
- 7.5.9. Trees are unlikely to be removed as part of the proposed development, with works limited to cutting back only. Although they are not remote from the structure, their continued presence means their zone of influence will remain largely unchanged; therefore, any change in soil moisture conditions is expected to be minimal.
- 7.5.10. Accordingly, damage to adjoining and nearby structures is expected to fall within Category 0 (negligible). The level of movement anticipated, including that associated with the small basement extension, is minimal and well within acceptable limits.
- 7.5.11. These predictions assume that construction will be carried out to an appropriate standard of workmanship in accordance with BS 8000.

7.6. *Existing Drainage*

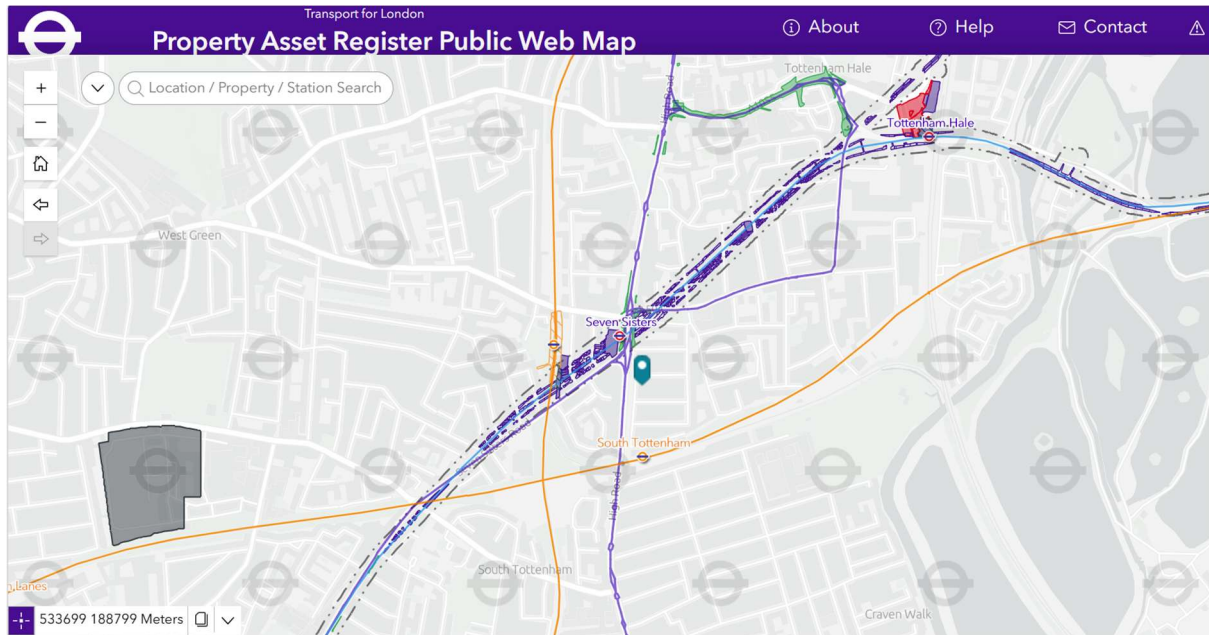
- 7.6.1. Should existing public sewers be found within 3m of the development then a formal build-over/diversion application will be made. All necessary documentation required to form the

application will be compiled. Submission will be made to Thames Water and consultation undertaken so secure technical approval.

8.0 Conclusion

- 8.1.1. The proposed re-development at 196 High Road, Haringey can be achieved using standard construction techniques and materials.
- 8.1.2. Where mechanical means are necessary to construct permanent works, these can be of a type that generates low vibrations to which the surrounding buildings have a form and construction that is robust and resistant to.
- 8.1.3. We can therefore conclude with confidence that the construction of the proposed development generally, and the subterranean basement in particular, will not affect the integrity of the surrounding building stock or overload the near-surface geology.
- 8.1.4. There are no critical utilities beneath the site that cannot be relocated easily to accommodate the construction and, as there is no change in use proposed there will be no significant increase in foul discharge to the sewer despite the increase in level of accommodation.
- 8.1.5. The techniques proposed for the subterranean element of the building and the nature of the underlying geology minimises the risk of instability, ground slip and movement.
- 8.1.6. The review of the proposals has concluded that the predicted damage to the neighbouring properties would generally be 'Negligible' (Category 0).
- 8.1.7. On this basis, the damage that would inevitably occur as a result of such an excavation of the proposed basement, will in practice be separated by a number of weeks during which time construction will take place. This will provide an opportunity for the ground movements during and immediately after excavation to be measured and reviewed so that propping arrangements can be adjusted if required.
- 8.1.8. The proposal increases the coverage of impermeable areas and therefore contributes to increased overland flows. As part of a site specific FRA for new developments, an assessment of surface water runoff and temporary flood storage on the site should be undertaken. Development should seek to reduce surface water runoff rates through the appropriate application of Sustainable Drainage Systems (SuDS).

Appendix 1: Transport for London Property Asset Register



Appendix 2: Proposed Plans

Proposed Basement



Proposed Ground



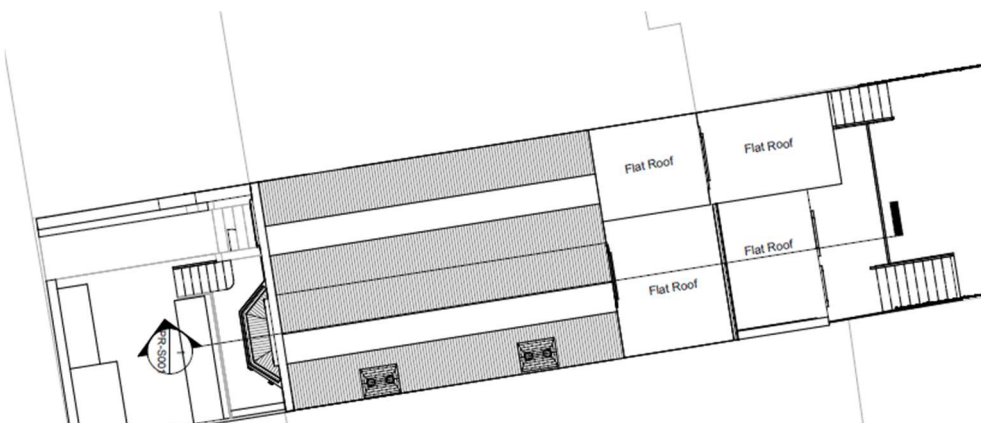
Proposed First floor



Proposed Second

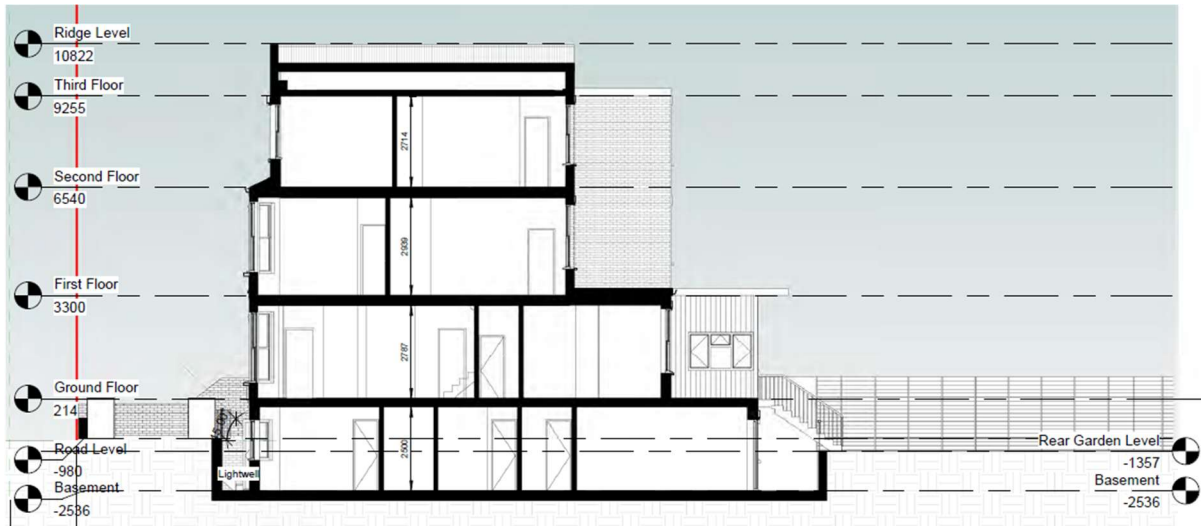


Proposed Roof

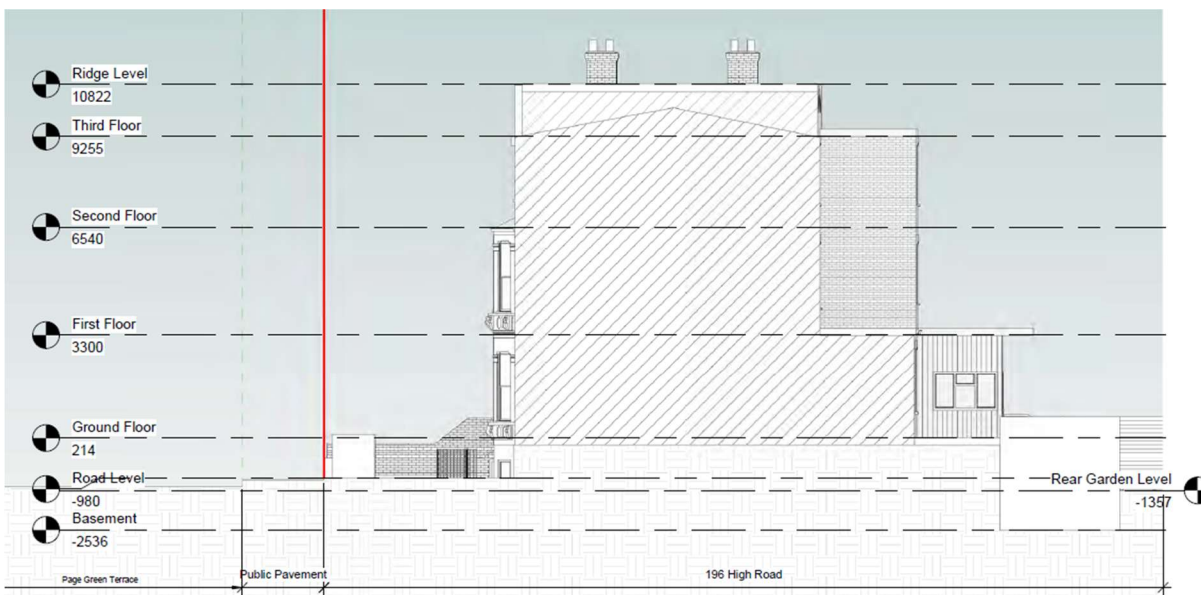


Appendix 3: Proposed Sections and Elevations

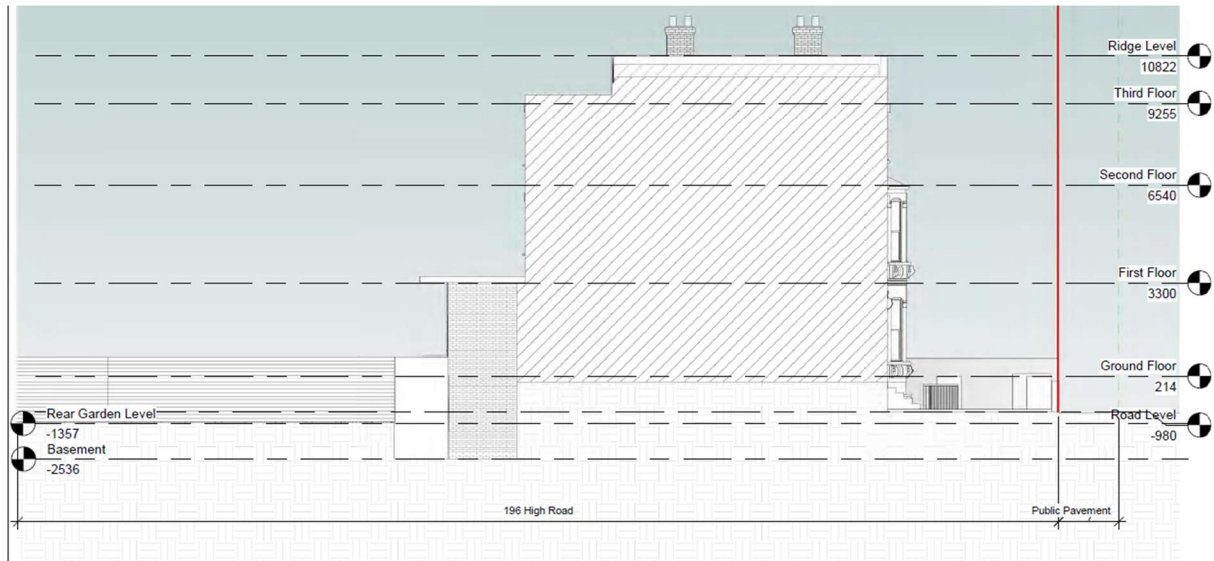
Proposed



Proposed Side Elevation



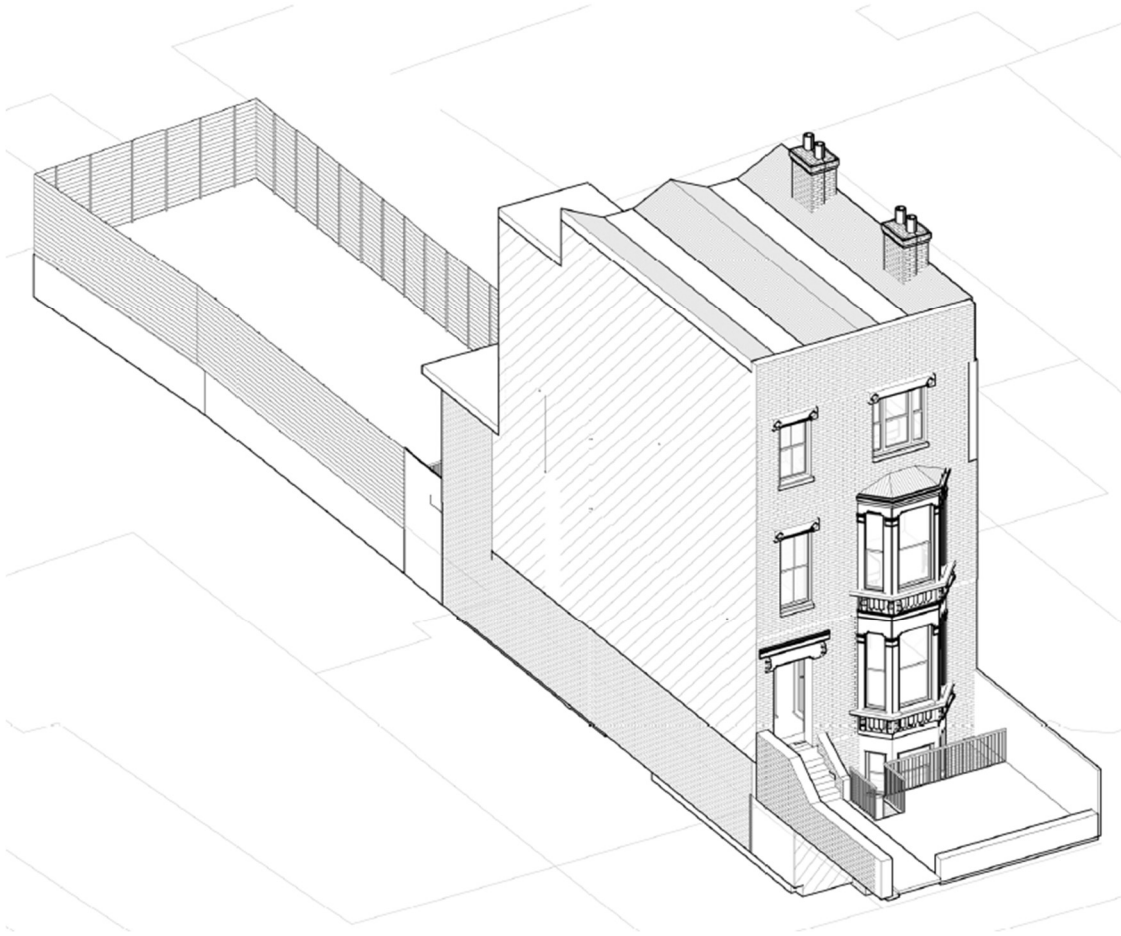
Proposed Side Elevation



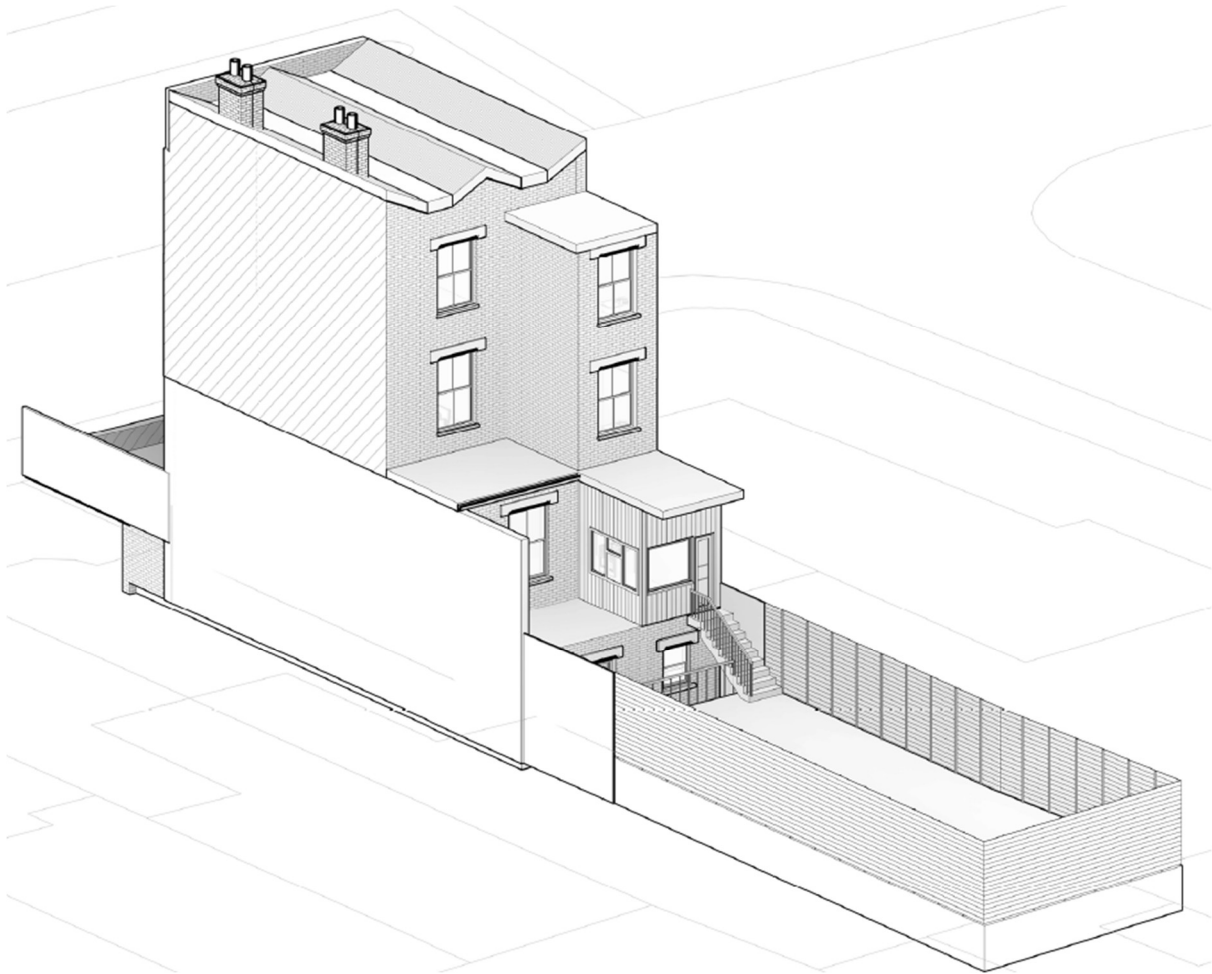
Proposed Front and Rear Elevations



Proposed Front

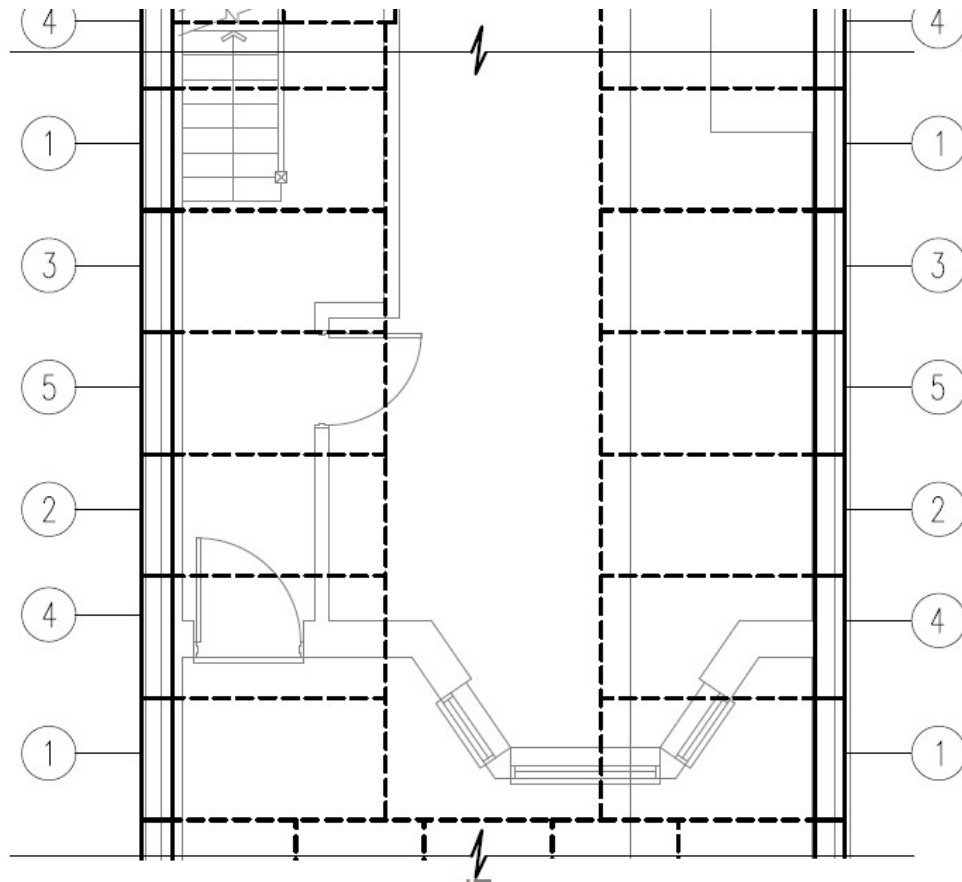


Proposed Rear



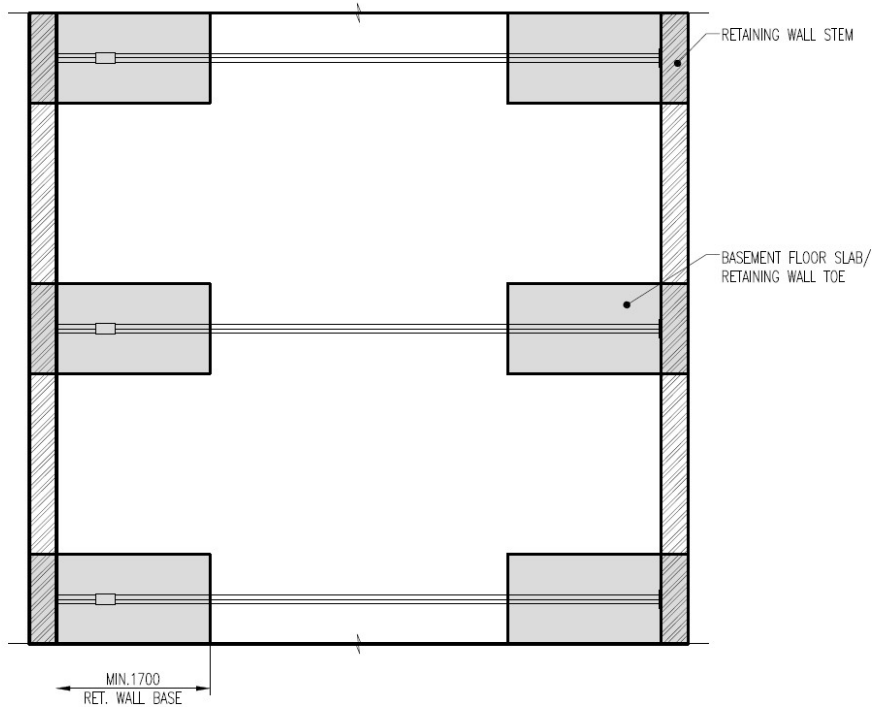
Appendix 4: Plan on envisaged basement works

INDICATIVE ONLY



TYPICAL SEQUENCE OF UNDERPINNING

- A. EXCAVATE BAYS MARKED (1)
- B. CONCRETE BAYS MARKED (1)
- C. 3 DAY'S TO ALLOW CONCRETE UNDERPINNING TO SET & SHRINK
- D. DRY PACK BETWEEN UNDERPINNING & ORIGINAL FOUNDATION
- E. 24Hrs. TO ALLOW DRY PACK MORTAR TO GAIN STRENGTH
- F. EXCAVATE BAYS MARKED (2)
- G. PROCEED AS FOR B. – E. ABOVE FOR BAYS MARKED (2)
- H. REPEAT PROCESS F. – G. FOR REMAINING BAYS IN SEQUENCE MARKED ON PLAN



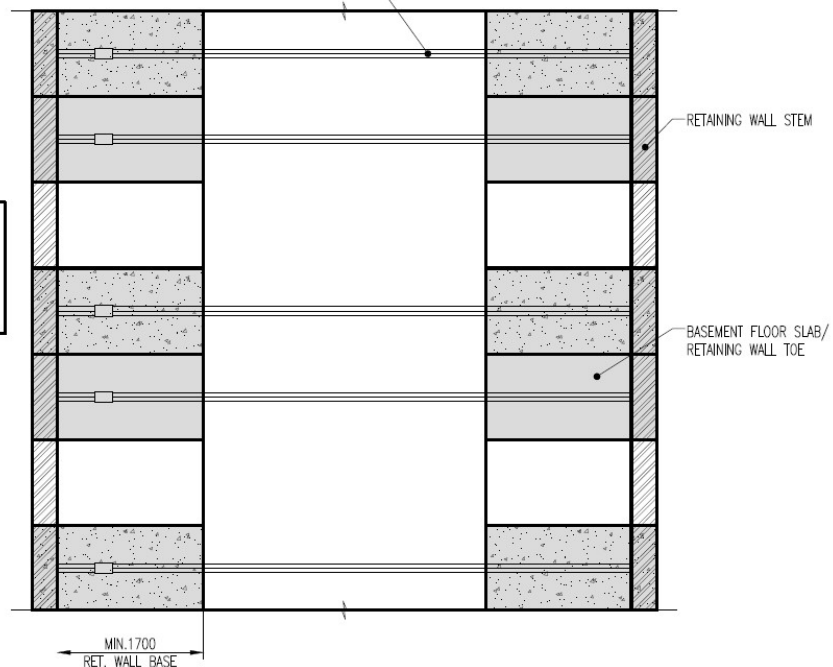
PLAN ON BASEMENT WORKS

PROP TO BE INSTALLED AT BASE LEVEL OF
BASEMENT TO PROVIDE TEMPORARY
SUPPORT TO NEW RETAINING WALLS.
PROVIDE 1 No. PROP PER BAY ALL
INSTALLED IN ACCORDANCE WITH THE
MANUFACTURERS INSTRUCTIONS.

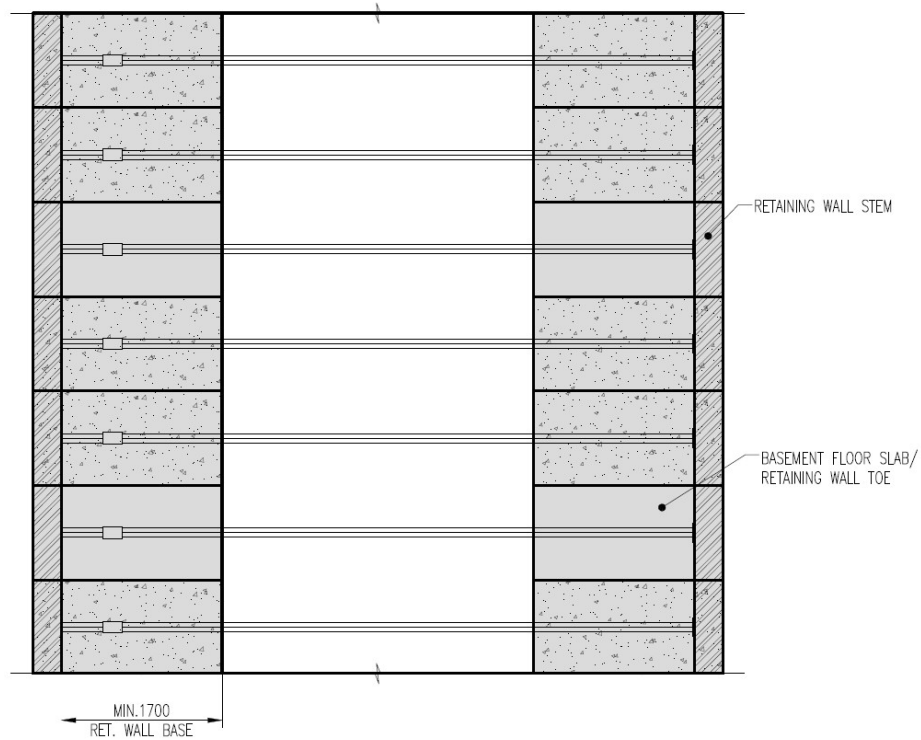
NOTE:

 DENOTES AN AGE OF CONCRETE
OF AT LEAST 3 DAYS

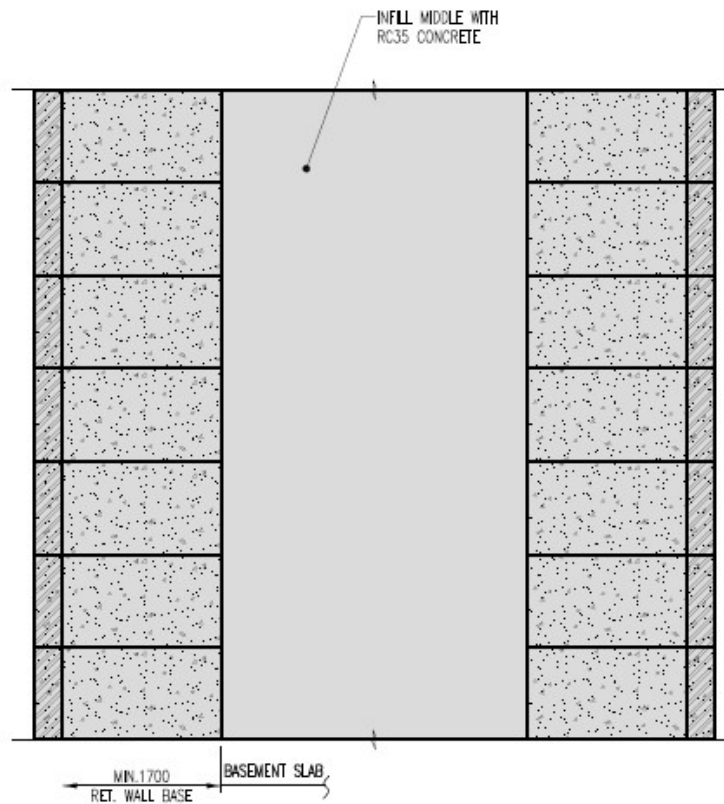
 NEW CONCRETE



PLAN ON BASEMENT WORKS



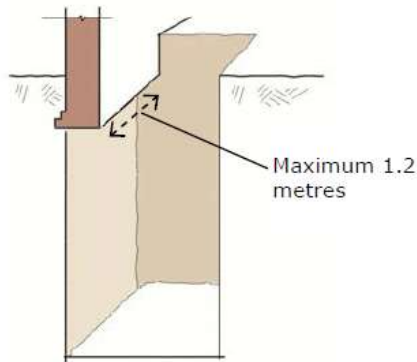
PLAN ON BASEMENT WORKS



PLAN ON BASEMENT WORKS

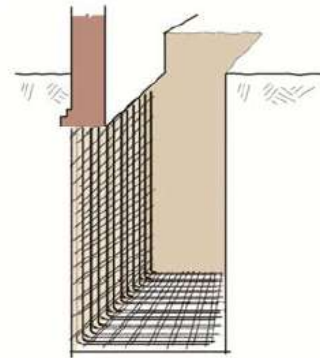
SCALE 1:50

Appendix 5: Typical Underpinning sequence (ASUC Guideline)



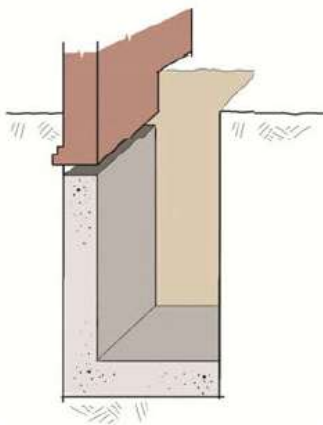
1. Excavation must be fully supported by props and shoring.
2. Edge protection to prevent falls into the excavation must be installed.
3. A temporary vertical prop or support may be placed under the wall to keep any loose bricks or masonry in place.
4. The main load from the existing wall will span onto the wall and foundations on either side of the excavation.

Stage 1. Excavation



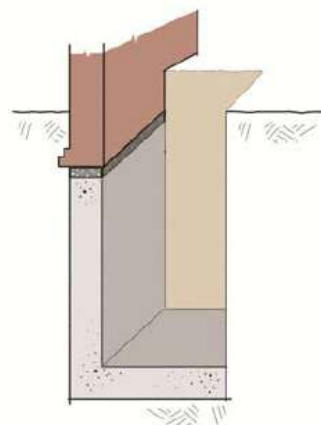
1. Reinforcement is fixed into position.
2. Reinforcement details are given in the engineering design. It is critical that the reinforcement is installed as detailed in the design.
3. The design will usually require a shear connection between adjacent underpins. This is generally achieved using dowel bars between adjacent pins or by building shear keys in the concrete underpin walls.

Stage 2. Reinforcement



1. Concrete is placed in the toe first.
2. Once the toe is sufficiently cured the concrete wall is poured.
3. Shuttering, usually timber, is used to hold the concrete for the wall in place while it is placed.
4. Gap of approximately 75mm left between the top of the concrete and the underside of the existing foundation.

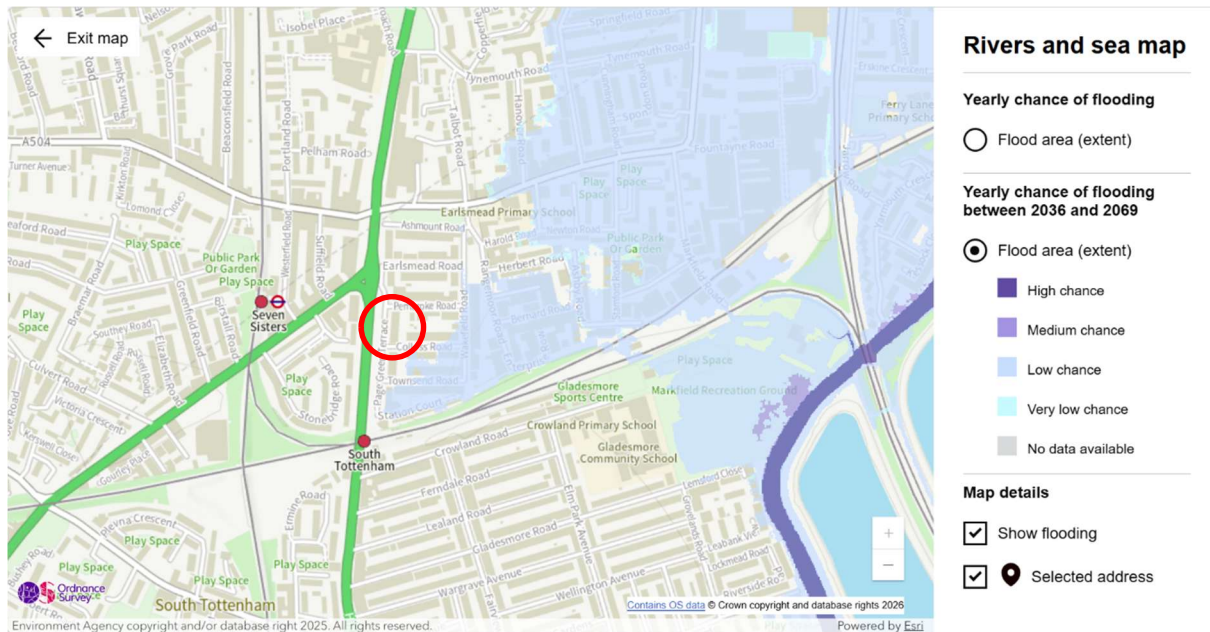
Stage 3. Concrete placement



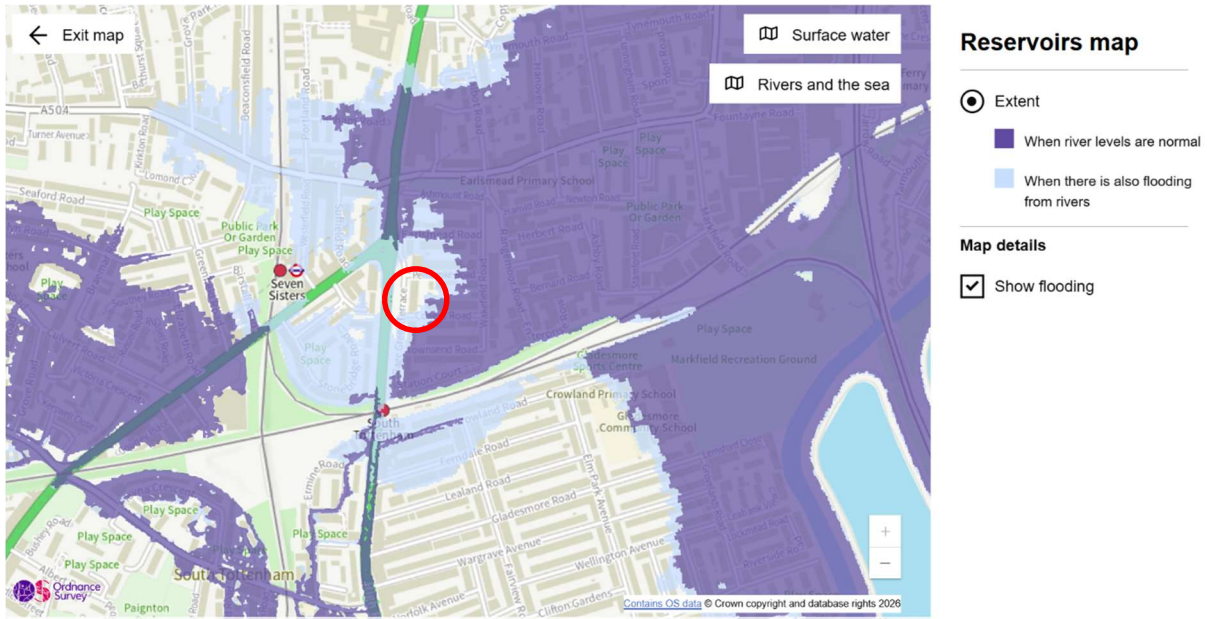
1. After a minimum of 24 hours dry-pack is rammed into the 75mm void that has been left above the new underpin.
2. Dry-pack is a mix of sharp sand and cement. It is easy to handle and has a low shrink volume, minimising settlement of the wall onto the new underpin foundation.
3. The completed underpin must be supported horizontally either by horizontal propping or by backfilling the excavation until the ground slab and possibly other permanent works are constructed.

Stage 4. Dry packing

Appendix 6: Flood Risk Maps



The site has a high risk of surface water flooding and a very low risk of flooding due to rivers or seas. As the site is very close to the East Reservoir there is a risk of flooding due to the reservoir.





British
Geological
Survey

BGS ID: 845866 : BGS Reference: TQ38NW99
British National Grid (27700) : 533674,188846

RECORD OF BOREHOLE NO.134

TQ/38 NW/99

Ground level: +37.8 ft. O.D. nearby

Dia. of boring 8 in. to 8 ft.

Type of boring: Shell and Auger

Lining tubes 8 in. to 10 ft.

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	O.D. level	
	2'0"	D		2'0"	+35.8	Topsoil
	7'0"	D				Firm to stiff fissured brown silty clay (London Clay)
	12'0"	D				
	17'0"	D				
	22'0"	D		22'0"	+36.8	
	36'0"	D				Stiff to very stiff fissured grey silty clay with occasional partings of fine sand below 53 ft. (London Clay)
	41'0"	D				
	46'0"	D				
	51'0"	D				
	56'0"	D				
	63'0"	D				
	66'0"	D				
	69'0"	D				
	71'0"	D				
7.2.59	76'0"	D				
7.2.59	80'0"	D		80'0"	+42.2	
Key to type of sample:			Remarks: (Observations on ground-water, etc.)			
U (4) — 4 in. dia. undisturbed sample			Slight ground-water seeped into the borehole during the night of 7.2.59			
U (1) — 1 in. dia. " "						
D — disturbed sample						
W — water						
S — standard penetration test.						
No. in brackets given						
No. of blows/12 in. penetration						
LONDON TRANSPORT EXECUTIVE						Soils No:
BORINGS FOR PROPOSED VICTORIA LINE UNDERGROUND RAILWAY						3/1990
(CONTRACT 849)						FIG. 34
GEORGE WIMPEY & CO., LTD.			CENTRAL LABORATORY			HAYES

Scale
1 in. to 10 ft.
Drawing No.
5218

Contact BGS: ngdc@bgs.ac.uk

Appendix 7: Borehole details

RECORD OF BOREHOLE NO.135

TQ/38NW/100

Ground level: +34.8ft. O.D. Newlyn

Dia. of boring 8in. to 80ft.

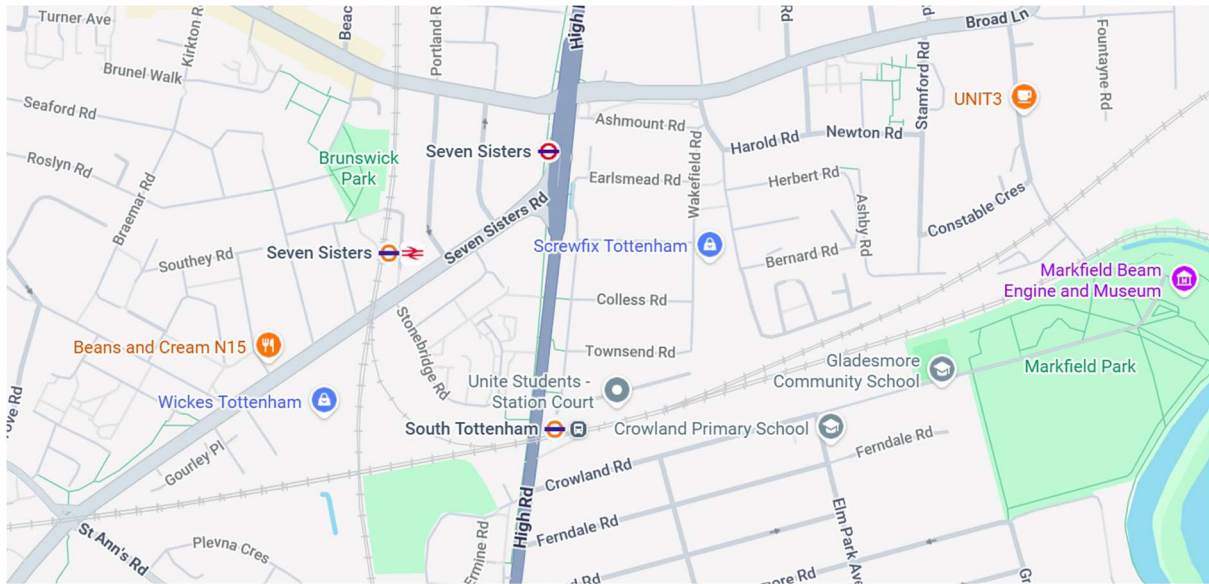
Type of boring: Shell and Auger

Lining tubes: 8in. to 7ft. 6in.

Daily Progress	Samples		Change of Strata		Description of Strata
	Depth	Type	Legend	Depth O.D. level	
	1'0"	D		4'0" +30.8	Fill (loose brown clayey sand)
	6'0"	D		7'0" +29.8	Stiff mottled brown silty clay with some gravel
	11'0"	D			Stiff fissured brown silty clay (London Clay)
	16'0"	D			
	21'0"	D		19'6" +19.5	
	26'0"	D			
	31'0"	D			Stiff to very stiff fissured grey silty clay with occasional partings of fine sand below 56ft. (London Clay)
	36'0"	D			
	41'0"	D			
	46'0"	D			
	51'0"	D			
	56'0"	D			
	61'0"	D			
	66'0"	D			
	71'0"	D			
	76'0"	D			
	80'0"	D		80'0" -45.2	
52.52					
72.29					
Key: in type of sample			Remarks: (Observations on ground-water, etc.)		
U (4) — 4 in. dia. undisturbed sample			No ground-water was encountered during boring		
U (16) — 16 in. dia. undisturbed sample					
D — disturbed sample					
W — water					
S () — standard penetration test					
No. in brackets gives					
No. of blows/2 in. penetration.					
LONDON TRANSPORT EXECUTIVE					
BORINGS FOR PROPOSED VICTORIA LINE UNDERGROUND RAILWAY					
(CONTRACT 849)					
					Soils No.
					5/1950
					FIG. 35

Contact BGS: ngdc@bgs.ac.uk

Appendix 8: Google Maps/Haringey Maps

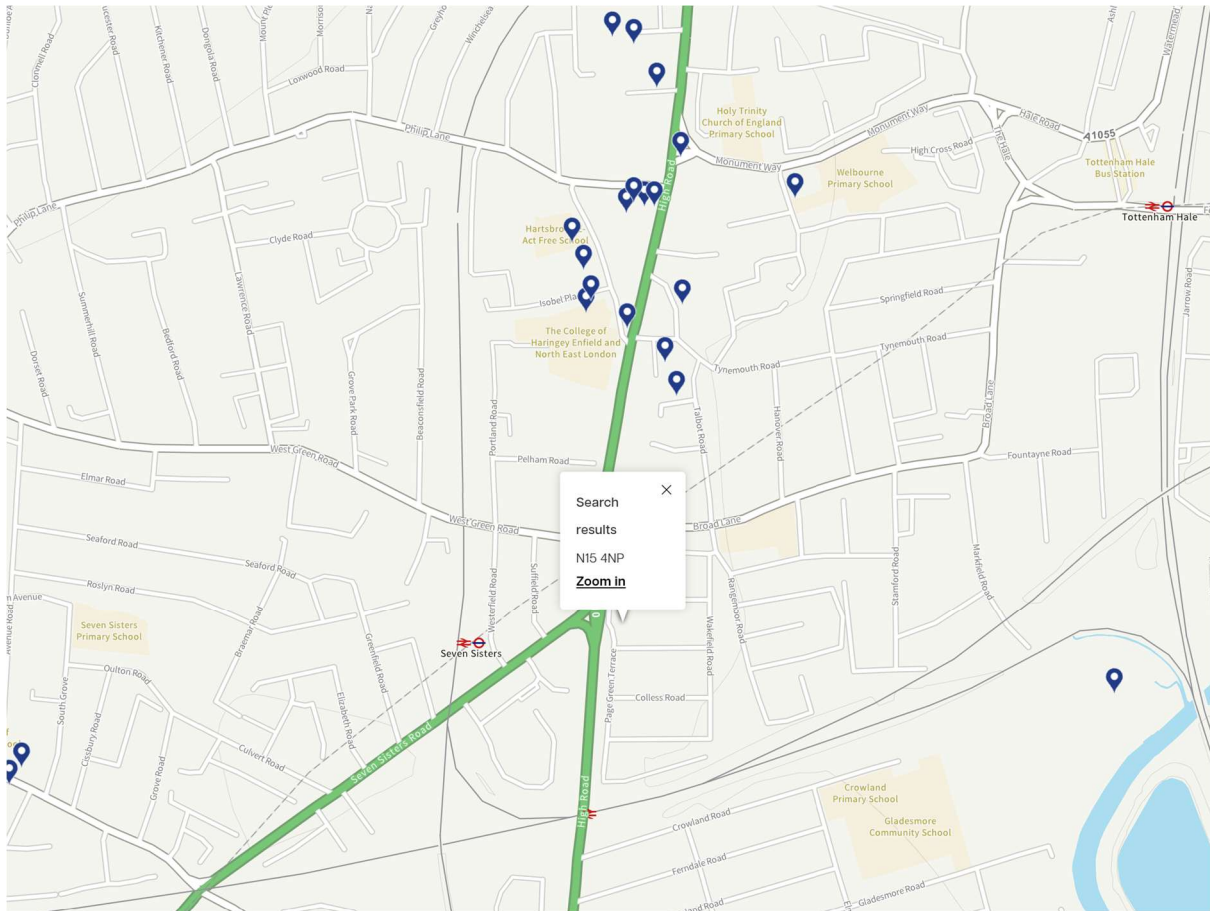




**London Borough of Haringey
Ward Map, 2002-present**



Appendix 9: Map of Listed Buildings (Source: Historic England website)



Appendix 10: Map showing Trees Preservation Order (TPO)

Map of tree preservation orders

