



43 Stanhope Gardens,
N6 5TT

**Structural Method Statement
and Basement Impact
Assessment**

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1.0 Non-technical Summary

Structural Design Studio Limited were appointed by the Client, Sophia Markinov Jones and Gideon Simeloff, to advise on the structural implications of constructing a new basement extension to the existing cellar beneath part of the footprint of the existing ground floor of the main house. The following report has been prepared to help ensure that the structures on both the site and neighbouring sites are safeguarded during the works.

The report provides information in accordance with the advice provided in Haringey's Basement Planning Policy.

A desktop study of the site has been completed to establish the site's history and a risk-based interpretation used to inform the onsite testing. A site specific ground investigation comprising of trial pits and boreholes has been completed by Site Analytical Services (SAS) to confirm soil and groundwater conditions, as well as the size and profile of the existing foundations to the building. The results of this investigation have been used to provide information on the local ground conditions and to inform the structural scheme design.

This report supports the conclusion that should the works be completed by a competent contractor, the basement extension can be constructed without any significant adverse effect on the property, neighbouring properties, groundwater, surface water or on the stability of the adjoining ground.

Based on our current knowledge of the building and calculations, if the works are carried out in accordance with our proposed design then the likelihood of damage to the property should be limited to Category 2 as set out in CIRIA report C580. As the property is detached the likelihood of damage to the neighbouring properties should be limited to Category 1 as set out in CIRIA report C580.

2.0 Description of Existing Buildings and Site

The existing building at 43 Stanhope Gardens is a two storey semi-detached house located in Haringey. The house has a small existing cellar under part of the front of the house which currently serves as a space for storage and plant.



43 Stanhope Gardens, Front Elevation (Google Maps, 19.05.2022)

The main house is square on plan with a double frontage onto Stanhope Gardens. It is bounded by No.41 Stanhope Gardens and No.45 Stanhope Gardens to the north east and south west respectively. There is a long rear garden which bounds onto Shepherd's Close and Shepherd's Hill.

No. 43 Stanhope Gardens is not a listed building and neither of the neighbouring buildings are Listed.

Historic maps suggest the site was first built on in the early 19th Century (Edwardian era), with the earliest map studied dated 1922 showing buildings have been developed in the area.

The building appears to be in reasonable condition and is traditionally constructed with timber roof and floors supported on load bearing masonry internal and perimeter walls. The floors are assumed to span between the perimeter walls and the load bearing spine walls in the centre of the building.

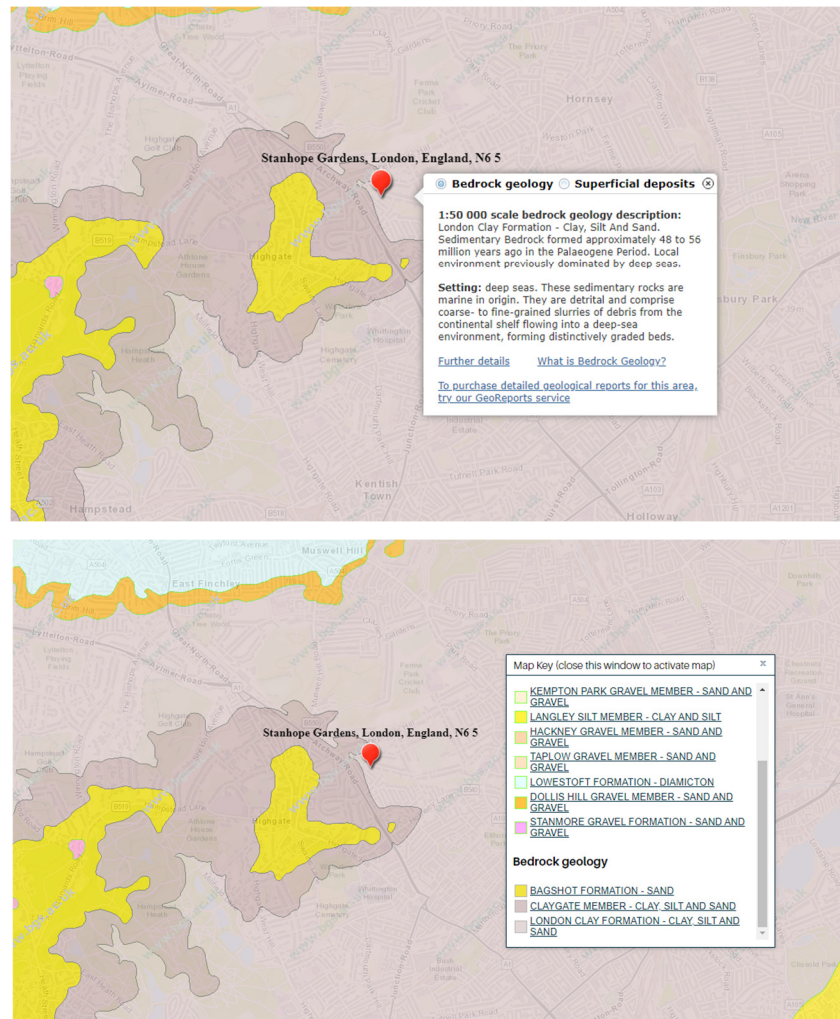
The overall stability of the buildings appears to be provided by the cellular layout of the masonry walls and diaphragm action of the timber floors at each level.

Access is gained to the site from the front of the property via 43 Stanhope Gardens.

A drainage CCTV survey has been completed which shows that the existing drainage is a combined drain which runs out to the street and is approximately 600mm below proposed basement FFL.

3.0 Ground Conditions

Geological maps show that the site is situated in an area of London Clay Formation. The maps available from the British Geological Survey indicate that the site is clay, silt and sand.



Excerpt of Geology of Britain Viewer (British Geological Survey, 2/12/2020)

A review of the nearby historic borehole records available online from the British Geological Survey provide more detail. Borehole reference TQ28NE306 encounters approximately 5m of Firm mottled brown and grey sandy clay with London Clay continuing onwards.

The property is located on sloped ground and the proposed basement is under part of the footprint of the main house. The proposed formation level is at approximately 3.2 m below ground level at the rear of the property, which means the proposed slab and foundations should bear directly onto Firm mottled brown and grey sandy clay.

A site specific soil investigation has been carried out by Site Analytical Services (SAS) which included 2 boreholes and 4 trial pits. The boreholes and trial pits revealed ground conditions that were generally consistent with the geological records and comprised made ground up to 0.7m in thickness resting on London Clay formation at depth.

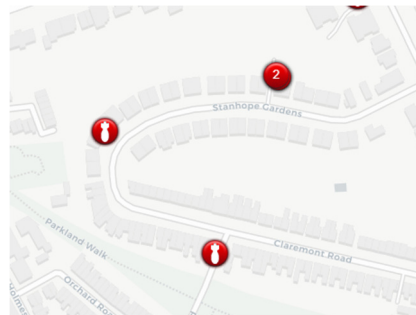
Groundwater was encountered at respective depths of 1.64m and 2.04m below ground level in boreholes 1 and 2 after a period of 8 weeks. However, given the presence of a non-aquifer below the site it is likely that the water recorded within these soils relates to perched surface water within the main ground rather than large scale subterranean groundwater flow.

The site investigation has concluded that an allowable net bearing pressure of approximately 180KN/m² at 1.0m below ground level increasing to 260KN/m² at 3m depth below ground level could be taken for the design of conventional strip foundations.

4.0 Desk Study Summary and Observations

The results of our desk study are as summarised below;

- The site is located within a Flood zone 1. This means it has a low probability of flooding from rivers and the sea. The site appears to be at 'very low risk' of flooding due to surface water, as shown on the latest Environment Agency Flood Maps (reference; www.environmentagency.gov.uk), as such a flood risk assessment should not be required.
- Public Sewer records are to be obtained from Thames Water to determine whether there are any Thames Water assets located within the proposed site.
- The site doesn't lie near to any London Underground infrastructure, as such any works at No.43 Stanhope gardens will not affect the railway lines.
- There are records of bombs dropping on Stanhope gardens very near to No. 43. However, it is unclear how much damage was caused to No.43 or other buildings on the street. Reference (bomb.sight.org).



Map of bombs dropped in the surrounding area (Bomb sight.org)

5.0 Proposed Alterations

The proposed works involve the lowering of the existing cellar and extending it under part of the footprint of the ground floor. It is also proposed to construct a new single storey side extension at ground floor level as approved in planning application HGY/2019/2427. The proposed basement will have a head height of approximately 2.9m and due to the slope of the site the basement will be at a similar level to Stanhope Gardens to the front. There is also some re-configuration of the internal partition walls at ground and upper floor levels.

A set of proposed structural scheme drawings can be seen in Appendix A.

L-shaped reinforced concrete underpins will be used to form all perimeter walls to the proposed basement box.

Vertical loads from the superstructure perimeter will be transferred to the ground by the RC edge thickenings to the basement slab. Vertical loads from the superstructure's internal load-bearing walls will be transferred to the ground via the proposed ground floor steelwork.

The reinforced concrete underpins will be designed to cantilever, supporting the surcharge from the soil and neighbouring buildings.

A suspended reinforced concrete slab will be constructed at basement level to provide permanent propping to the bases of the underpins and will deal with any heave from the London Clay.

The groundwater level will be monitored as part of the works but given the site is within a non-aquifer and the fact that the basement is going to be positioned at existing road level it is unlikely that inflows of groundwater will be experienced during excavation. As such, any potential inflows that may occur should not be significant.

If groundwater is experienced during excavation, suitable control of any inflows would be achieved using sump pumping. If required, a detailed method statement for this process will need to be prepared by the Contractor for comment by all relevant parties including party wall surveyors and their engineers.

Trial underpins will be dug when the contractor first starts on site to confirm the stability of the soil and to further investigate the presence of any groundwater inflows.

6.0 Basement Waterproofing

The basement waterproofing will be the responsibility of the Contractor.

We assume that the reinforced concrete retaining walls and basement slabs will be cast using water resistant concrete to form an initial barrier with an internal drained cavity system as a primary barrier against possible water ingress. As part of the system, any water that seeps through will be collected and drained out into the main drainage system.

7.0 Party Wall Matters

The proposed works development falls within the scope of the Party Walls Act 1996. Procedures under the act will be dealt with in full by the Building Owner's Party Wall Surveyor. The Party Wall Surveyor will prepare and serve necessary notices under the provisions of the Act and agree Party Wall awards. The Contractor will be required to provide the Party Wall Surveyor with appropriate drawings, method statements and other relevant information covering the works that are notifiable under the Act. The resolution of matters under the Act and provisions of the Party Wall Awards will protect the interests of the owners.

The proposed works on the site of No.43 Stanhope Gardens will be developed so as not to inhibit any works on the adjoining properties. This will be verified by the Surveyors as part of the process under the Act.

8.0 Hydrological Statement Summary

The site investigation indicates that ground water is not likely to be encountered during the excavation. Arup's Subterranean Development Scoping Study (para 5.1), June 2008, notes that the impact of subterranean development on groundwater flows is negligible as groundwater flows will find an alternative route if blocked by a subterranean structure.

The extent of the proposed reduced level is confined to under the original footprint of the house, therefore there will be no increase in impermeable surfacing. Therefore, there should be no increase in surface water run-off or adverse impact on the local or surrounding hydrology.

9.0 Impacts on Proposed Below Ground Drainage

A drainage CCTV survey has been completed which shows that the existing drainage is a combined drain which runs out to the street and is approximately 600mm below proposed basement FFL. It is proposed to maintain gravity connections at ground floor level and above, where possible. The new drainage at basement level will be routed to a submersible pumping station which will pump waste directly to the outfalls. A non-return valve will be installed to protect against sewer surcharging.

A cavity drain system will be incorporated into the design to provide the second means of defence against water ingress. The waterproofing will be to a specialist design.

Thames Water Public Sewer Records will also be procured to ensure there are no Thames Water assets within the boundary of the property.

10.0 Ground Movement

Due to the construction of the new basement structure being formed with underpins completed in a maximum of 1 metre sections it is unlikely to have any significant adverse effect on the neighbouring buildings. Should the works be completed by a competent contractor, the proposed basement should be constructed without any significant adverse effect on the property, neighbouring properties, or on the stability of the adjoining ground.

Based on our current knowledge of the building, if the works are carried out in accordance with our proposed design, then the likelihood of damage to the property should be limited to being no greater than Category 2 'Slight' (as defined on the Burland Scale), as set out in CIRIA report C580. As the property is detached the likelihood

of damage to the neighbouring property to the cellar extension (45 Stanhope Gardens) should be limited to Category 1 as set out in CIRIA report C580. No. 41 Stanhope Gardens is remote from the proposed cellar extension works therefore we would suggest that the likelihood of damage to this property would be negligible.

In order to mitigate the risk of Category 2 'Slight' damage to the surrounding properties, the temporary works installed during the works will be designed to support the surcharge from the soil and surrounding buildings.

If deemed necessary and in agreement through the Party Wall process ground movement monitoring system may also be installed to the neighbouring properties No.41 and No.45, with trigger values set to allow the works to be controlled appropriately in the event of ground movement occurring (as outlined in section 16.0).

With the implementation of these mitigation measures, any damage caused to the surrounding properties should be limited to Category 1 at worst.

11.0 Screening

As part of this basement impact assessment a screening process has been undertaken and the findings are described below.

11.1 Subterranean (Groundwater) Screening Assessment

Question	Response	Details
1a. Is the site located directly above an aquifer?	No	According to geological map the site is situated within London Clay which is considered impermeable
1b. Will the proposed basement extend beneath the water table surface?	No	No Groundwater is expected as the basement will be constructed within the impermeable London Clay.
2. Is the site within 100m of a watercourse, well (used / disused) or potential spring line?	No	There appear to be no known watercourses within 100m of the site.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No	The site is approximately 2miles away from Hampstead Heath Ponds
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No	The proposed basement is beneath the footprint of the existing building.
5. As part of site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No	The proposed basement is beneath the footprint of the existing house. No increase in run-off is proposed from the basement
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 (not just the pond chains on Hampstead Heath) or spring line?	No	There are no local ponds or spring lines within the vicinity of the site.

The above assessment has identified there are no potential issues that need to be assessed with regards to the subterranean groundwater flow.

11.2 Slope Stability Screening Assessment

Question	Response	Details
1. Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8)?	Yes	The site has a general slope of approximately 8 degrees with the low point to the front and rising up to the back of the rear garden
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7 degrees (approximately 1 in 8)?	No	The site already has a slope of 8 degrees and the proposed landscaping does not propose to make this any steeper.
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8)?	Yes	The neighbouring properties have a similar slope of 8 degrees with a low point to the front and rising up to the back of the rear garden.
4. Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)?	Yes	The wider hillside setting has a slope greater than 7 degrees.
5. Is the London Clay the shallowest strata at the site?	Yes	Borehole maps and site investigation indicate that London Clay is likely to be the shallowest strata.
6. Will any trees be felled as part of the development and/or are any works proposed within any tree protection zones where trees are to be retained?	Yes	T3: A category C mature multi-stem hazel is proposed to be felled as part of the works for the side extension. Part of the basement will fall within the root protection area of T2 (a category B mature birch)
7. Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site?	No	A site walkover has been completed and there are no signs of any subsidence to the property or neighbouring properties.
8. Is the site within 100m of a watercourse or a potential spring line?	No	There appear to be no known watercourses within 100m of the site.
9. Is the site within an area of previously worked ground?	No	Geological and historical maps indicate that the site is within London Clay.
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 construction?	No	The site is within the impermeable London Clay. The basement will not extend below the water table.
11. Is the site within 50m of the Hampstead Heath Ponds?	No	The site is approximately 2 miles from Hampstead Heath Ponds
12. Is the site within 5m of a highway or pedestrian right of way?	No	The proposed basement is 7.5m away from the highway
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No	Due to the slope of the site, the new foundations will not be significantly deeper than the existing and the new basement will extend into a similar strata as the existing foundations.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No	There are no known tunnels beneath the site

The above assessment has identified the following potential issues that need to be assessed.

- Q1 Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8)?
- Q3 Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8)?

- Q4 *Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)*
- Q5 *Is the London Clay the shallowest strata at the site?*
- Q6 *Will any trees be felled as part of the development and/or are any works proposed within any tree protection zones where trees are to be retained?*

11.3 Surface Flow and Flooding Screening Assessment

Question	Response	Details
1. Is the site within the catchment of the ponds chains on Hampstead Heath?	No	The site is over 2 miles away from Hampstead Heath Ponds
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	There is no increase in run-off proposed due to the basement and the on-site surface water flows will not be materially changed from the existing route.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No	The proposed basement is beneath the footprint of the existing house. No increase in impermeable area is proposed as part of the basement development
4. 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?	No	The proposed basement will be entirely beneath the footprint of the existing house
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No	The proposed development is unlikely to result in any changes to the quality of surface water being received by adjacent properties or downstream watercourses
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 from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	No	No. The Environment Agency online flood maps 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 above assessment has identified there are no potential issues that need to be assessed with regards to the subterranean groundwater flow.

11.4 Non-Technical Summary of Screening Process

The screening process identifies the following issues to be carried forward to scoping for further assessment:

Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8)?

Does the development neighbour land, including railway cuttings and the like, with a slope greater than degrees (approximately 1 in 8)?

Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)

Is the London Clay the shallowest strata at the site?

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

The other potential concerns considered within the screening process have been demonstrated to be not applicable or not significant when applied to the proposed development.

12.0 Scoping

The following issues have been brought forward from the Screening process for further assessment:

Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8)?

Potential Impact: Basement excavation could destabilise the localised slope

Discussion: The basement will be designed to support the loads from the sloped site behind the retaining structure. A shear key will be installed to the front of the basement to resist any global sliding. Best practices must be adopted for the construction of the basement and the temporary works should account for the additional forces from the wider slope.

Does the development neighbour land, including railway cuttings and the like, with a slope greater than degrees (approximately 1 in 8)?

Potential Impact: Basement excavation could destabilise the localised slope

Discussion: The basement will be designed to support the loads from the sloped site behind the retaining structure. A shear key will be installed to the front of the basement to resist any global sliding. Best practices must be adopted for the construction of the basement and the temporary works should account for the additional forces from the wider slope.

Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)

Potential Impact: Basement excavation could destabilise the wider slope

Discussion: The basement will be designed to support the loads from the sloped site behind the retaining structure. A shear key will be installed to the front of the basement to resist any global sliding. Best practices must be adopted for the construction of the basement and the temporary works should account for the additional forces from the wider slope.

Is the London Clay the shallowest strata at the site?

Potential Impact: Damage to foundation due to volume change potential.

Discussion: A ground investigation will be completed which will establish the soil conditions and heave potential of the ground. Heave protection will be specified under slabs and foundations will be designed in accordance with NHBC guidance to ensure that the foundations are suitably deep to avoid damage due to volume change potential.

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

Potential Impact: Damage to the health of the tree.

Discussion: An arboriculturalist report has been prepared by SJ Stephens to look at the potential impact of the works on the trees in question. Air spade investigations have been carried out to confirm that the proposal will not harm the roots of the T2 Birch tree. The contractor should follow the advice within this report to ensure that the tree is protected. The arboriculturalist has also confirmed that the existing roots do not extend under the existing foundations and as the extended basement is proposed beneath the existing footprint then these works should not damage the health of the tree.

13.0 Conclusions

It is intended that the above measures and sequence of works are adopted for the eventual design and construction of the proposed works.

Detailed method statements and calculations for the enabling and temporary works will need to be prepared by the Contractor for comment by all relevant parties including Party Wall surveyors and their engineers. The Contractor will need to ensure that adequate supervision and monitoring is provided throughout the works particularly during the excavation and demolition stages. A specification and indication of monitoring requirements is given in section 16.0.

To this end, SDS Ltd. will have an on-going role during the works on site to monitor that the works are being carried out generally in accordance with our design and specification. This role will typically involve fortnightly site visits during the main structural works. A written site report will be provided to the design team, Contractor and Party Wall Surveyor.

It is assumed that the above measures and sequence of works are taken into account in the eventual design and construction of the proposed works. If the works noted above are properly undertaken by suitably qualified contractors, these works should pose no significant threat to the structural stability of the house or the adjoining properties. Based on our current knowledge of the building, if the works are carried out in this manner then the likelihood of damage to the adjacent properties should be limited to Category 2 as set out in CIRIA report C580.

14.0 Construction Method Statement (to be read in conjunction with drawings in Appendix A)

Some of the issues that affect the sequence of works on this project are:

- The stability of the existing cellar and main house structures;
- The stability of adjoining and adjacent buildings;
- Forming sensible access onto the site to minimise disruption to the neighbouring residents; and
- Providing a safe working environment.
- Providing protection to the nearby trees (T1, T2 and T22)

The proposed works involve the lowering of the existing cellar and extending the basement under part of the ground floor of the existing main house. It is expected that these works will be completed in a “bottom up” construction sequence.

The undertaking of such projects to existing buildings is specialist work and SDS Ltd. will be involved in the selection of an appropriate Contractor with the relevant expertise and experience for this type of project.

The Contractor is entirely responsible for maintaining the stability of all existing buildings and structures, within and adjacent to the works, and of all the works from the date of possession of the site until practical completion of the works.

A full set of temporary works drawings and calculations will be provided by the Contractor and will be reviewed by SDS Ltd. prior to works starting on site.

Please refer to section 15.0 for noise, vibration and dust assessment with proposed associated mitigation methodologies.

Stage 1 – Site Setup and Enabling Works

- All incoming services to the property are to be located and marked. Their location and depths should be communicated to the design team.
- Schedules of conditions for the adjoining properties to be completed.
- If movement monitoring has been agreed as part of the Party Wall awards this should be installed and base readings taken.
- Soft Strip of the existing building.
- Install temporary hoarding and protection to the neighbouring properties.
- Install tree protection measures in accordance with arboriculturalist report

Stage 2 – Demolish Existing Ground Floor Slab

- The existing slab should be carefully cut back to allow access for the new underpinning works. Remove the existing drainage where necessary.

Stage 3 – Install Underpins to Perimeter

- Dig trial underpins for inspection by SDS Ltd. to check how well the existing soil is cemented, ground water levels and flows, and in particular the ability of the ground to “stand up” whilst the individual underpin is completed.
- The underpins to the perimeter of the basement are to be formed in reinforced concrete. All underpins are to be taken down to proposed basement formation level.
- Dig the underpins in maximum 1 metre sections in the agreed sequence, installing localised trench sheeting and props around the perimeter of the shaft.
- The reinforcement in the toe of the underpin can be tied and the toe cast.

- The reinforcement in the stem of the underpin can be tied, lapping with the reinforcement from the toe and the stem cast.
- Leave the underpin to cure for 3 days and then dry-pack to the underside of the wall above with 3:1 sharp sand to cement dry-pack well rammed in.
- Install temporary lateral props between the face of the underpinning and the central bund of soil. These will be removed as part of the bulk excavation. This method of construction will be used to limit any horizontal ground movement associated with the construction of the underpins and limits the risk of the underpinning works on the neighbouring buildings.
- The Contractor should wait a minimum of 24 hours after dry-packing before digging an adjacent underpin. Adjacent underpins should be dowelled together. An assumed sequence of underpinning is shown on the attached drawing however, the exact sequence of underpinning will be advised by the Contractor as it will relate to their sequence of construction.

Stage 4 – Install Needle propping to internal walls and install steel beams

- Install needle propping to internal load bearing wall over new basement and install new steel beams. Once steel beams have been installed the needle propping can be removed.

Stage 5 – Install Horizontal Temporary Props and Reduced Level Dig

- Reduce level dig to allow the high level horizontal temporary props to be installed to the tops of the underpins cast in Stage 3.
- Temporary propping across the basement to be provided to the underpinning to prevent sliding and overturning.
- Reduce level dig down to new basement level installing low level propping as required

Stage 6 – Cast the New Basement Slab and Remove Low Level Horizontal Props

- Install the new drainage including the surface water runs and pump sumps. The drainage should be tested prior to casting the slab.
- The basement slab can be cast with reinforcement continuous with the underpin bases.
- Once the slab has cured, the bases of the RC underpins are propped by the slab, avoiding sliding and overturning in the permanent case. Hence, the basement structure is now complete and the low level horizontal temporary propping to the underpins can be removed.

Stage 7 – Install Ground Floor RC Slab

- Cast the new ground floor slab
- Remove temporary horizontal props.

Stage 8 – Superstructure Works

- Construct new side extension from ground to first floor level and complete superstructure works
- Install the new cavity drain system
- Complete the fit out

15.0 Noise, Vibration and Dust Mitigation

The Haringey Planning advice states that during the undertaking of any basement works it is necessary to “mitigate or maintain the amenity of neighbouring residents during construction, as well as guide the use of the highway and minimise noise and air pollution.”

The proposed works at No.43 Stanhope Gardens involve lowering the existing cellar and extension under part of the ground floor footprint and construction of the proposed side extension (as approved in planning application HGY/2019/2427).

The construction works involve the demolition of existing concrete floor slabs, underpinning beneath existing walls, as well as excavation and construction of the basement shell. A more detailed sequence of the works has been given in section 14.0. Those most likely to be affected by noise, dust and vibration will be the immediate neighbours at No.45 and No.41 Stanhope Gardens. The properties opposite and behind No.43 Stanhope Gardens are remote from the proposed development and are therefore less likely to be affected, however need to be considered. There may be some impact on other residents on Stanhope Gardens due to the related construction traffic, but this should be minimal.

Below we have described the mitigation measures that are proposed to keep noise, dust and vibration to acceptable levels.

Mitigation Measures for Demolition of Existing Ground Floor Slab

The breaking out of existing structures shall be carried out by diamond saw cutting and hydraulic bursting where possible to minimise noise and vibration to the adjacent properties. All demolition and excavation work will be undertaken in a carefully controlled sequence, taking into account the requirement to minimise vibration and noise. The contractor will need to utilise non-percussive breaking techniques where practicable.

As the property is part of a terrace, careful consideration needs to be given to minimise noise and vibration transfer to the adjoining properties. The contractor should ensure that where any slab is adjacent to the boundary the concrete slab should be diamond saw cut first along the boundary to isolate the slab from any adjoining structures.

Dust suppression equipment should be used during the demolition process to ensure that any airborne dust is kept to a minimum. Where practical, concrete should also be wetted down prior to and during breakout to further inhibit airborne dust.

Mitigation Measures for Underpinning works to the Perimeter

The underpin shafts will be excavated using hand tools where possible. At the base of the underpin shaft it may be found that compressed air tools are required due to the compaction of the ground. Care should be taken in selecting a suitable air compressor that keeps noise to a minimum. The air compressor should be located within the site and behind a hoarding to minimise noise transfer to the adjoining properties.

The spoil will be removed from the excavation using an electrically powered conveyor. The contractor will need to ensure that this is regularly serviced and inspected to ensure any noise from this is kept to a minimum. In order to minimise dust, skips and conveyors should be covered or completely enclosed to ensure that dust cannot escape.

Mitigation Measures for Bulk Excavation

It is likely that the bulk excavation will be completed by hand. The contractor should ensure that any mechanical plant is switched off when not in use and is subject to regular maintenance checks and servicing. An electrically powered conveyor will be used as detailed above for large volumes of spoil removed.

Mitigation Measures for the Construction of the Concrete Basement Shell

The contractor should ensure that any concrete pours are completed within the permitted hours for noise generating works. The contractor should allow for a contingency period to ensure that concrete pours can be completed within these hours regardless of unforeseen circumstances such as batching plant delays and traffic congestion.

The fabrication and cutting of steelwork for the reinforced concrete underpins and slabs shall take place off site. If any rebar needs to be trimmed on site this should be completed using hydraulic or pneumatic tools instead of angle grinders.

Dust Control

In order to reduce the amount of dust generated from the site, the contractor should ensure that any cutting, grinding and sawing should be completed off site where practicable. If cutting, grinding and sawing is being carried out on site, surfaces are to be wetted down prior to and during these types of work whenever possible. Any equipment used on site should be fitted with dust suppression or a dust collection facility.

The contractor will be responsible for ensuring good practice with regards to dust and should adopt regular sweeping, cleaning and washing down of the hoardings and scaffolding to ensure that the site is kept within good order. The Contractor selected will be a member of the Considerate Constructors Scheme. Contact details of the contractor who will be responsible for containing dust and emissions within the site will be displayed on the site boundary so that the local residents can contact the contractor to raise any concerns regarding noise and dust.

The building will be enclosed within suitable scaffold sheeting and any stockpiles of sand or dust-generating materials will be covered. Cement, fine aggregates, sand and other fine powders should be sealed after use.

16.0 Structural Monitoring Proposals

Monitoring and limits on ground movements during excavation and construction

The Contractor shall provide monitoring in line with the agreements made in the Party Wall agreements.

Monitoring shall be completed as follows:

- 1) One month prior to any works being started to provide a base reading.
- 2) Weekly readings during the excavation and until the basement slab and lining wall has been cast.
- 3) On a monthly basis thereafter for a three-month period following completion of the notifiable works.

Cumulative movement of survey points must not exceed:

a). Settlement

Code amber trigger values: $\pm 6\text{mm}$

Code red trigger values: $\pm 10\text{mm}$

b). Lateral displacement

Code amber trigger values: $\pm 4\text{mm}$

Code red trigger values: $\pm 8\text{mm}$

Movement approaching critical values:

Code amber trigger value:

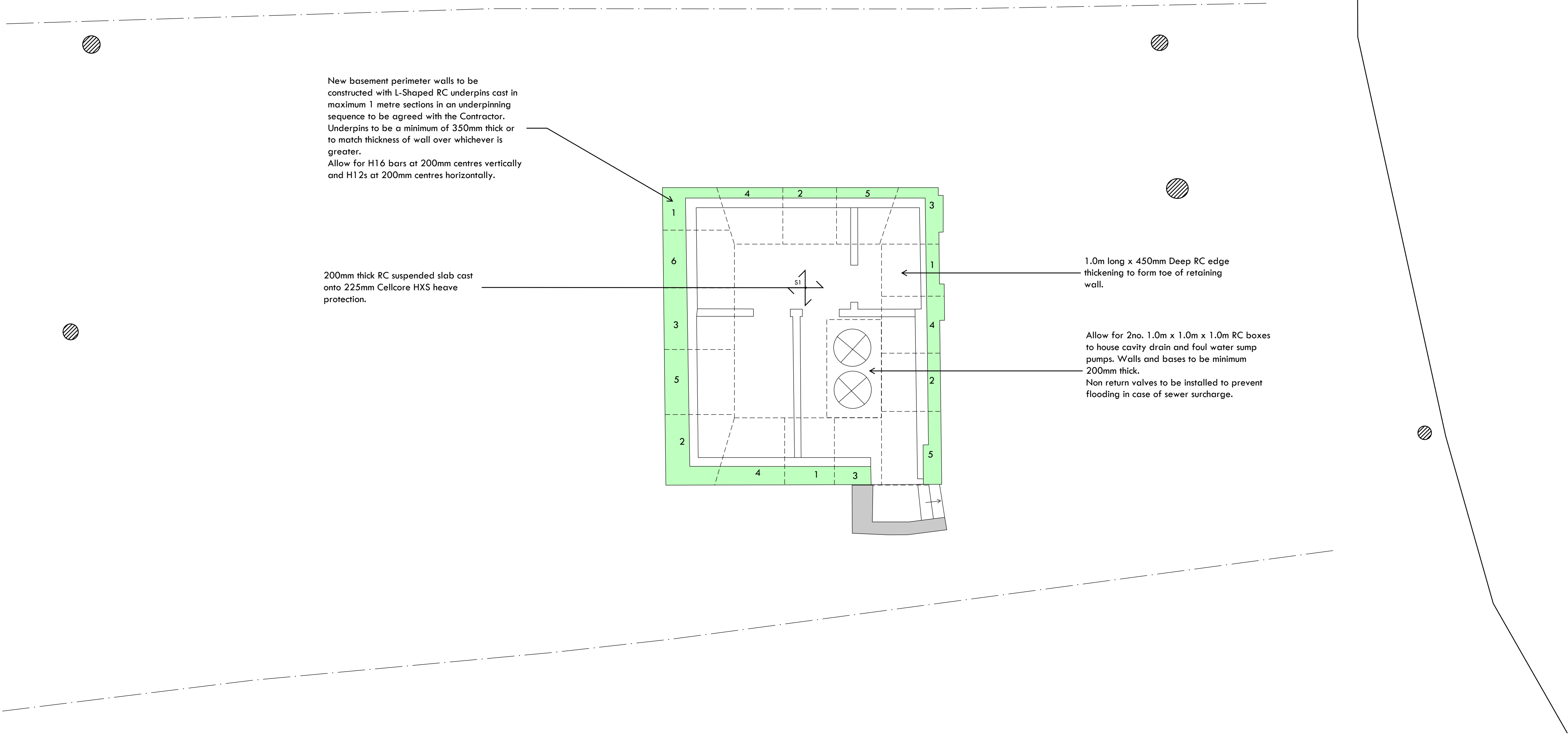
All interested parties, including the Adjoining Owner's Surveyor and their Engineer should be informed and further actions immediately agreed between two of the three Surveyors and implemented by the Building Owner. The Contractor is to ensure that he has 24 hour/7 days a week access to emergency support provision including but not limited to additional temporary props, needles, waling beams and concrete supply at the start of the excavation and prior to any likelihood of this trigger value being reached. If this value is reached the Contractor must without delay provide all interested parties with their plan to implement any emergency remedial and supporting works deemed necessary. The Contractor must be ready to carry out these works without delay if the movement continues and approaches the trigger value above.

Code red trigger value:

All interested parties including Adjoining Owner's Surveyor and Engineer will be informed immediately. Works will stop and be made safe using methods and equipment agreed at the above stage. The Contractor is to ensure that the movement has stopped as a result of the implemented remedial works designed and installed at this stage. The requirements of the Party Wall Act will also ensure that two of the three Surveyors and their advising Engineers shall then enter into an addendum Award, setting out whether or not the Building Owner's works can re-commence and when, and if so agree additional precautions or modifications to the proposals prior to re-commencement.

APPENDIX A – Proposed Structural Scheme Drawings

BASEMENT NOTES:
1. Due to the presence of sulphates the concrete mix design for all reinforced concrete below ground will need to be designed for Class DS-2 conditions
2. Waterproof concrete to be used for the basement construction. Allow for using Caltite or similar approved.
3. Waterproofing of the basement is the responsibility of a waterproofing specialist appointed by the Contractor. SDS take no responsibility for the waterproofing of the basement.
4. Temporary propping is the sole responsibility of the Contractor. Contractor to allow for fully designed and detailed temporary support to the floors, walls, retaining walls and roof during demolition and basement excavation. Temporary works design, calculations and sequence to be submitted prior to commencement of works. Contractor to request splices if required for handling purposes.



- General notes:**
1. Do not scale from this drawing
 2. To be read in conjunction with all other structural drawings and the structural specification
 3. To be read in conjunction with all other relevant disciplines drawings and specifications
 4. All levels, setting out, waterproofing and fireproofing to be confirmed with the Architect
 5. The Contractor is responsible for the temporary stability of the existing and proposed structure throughout the works. The sequencing and method of installation should be carefully considered and the temporary works should be designed and detailed by a suitably qualified person (appointed by the Contractor) prior to commencing the works
 6. Contractor to request splices if required for handling purposes



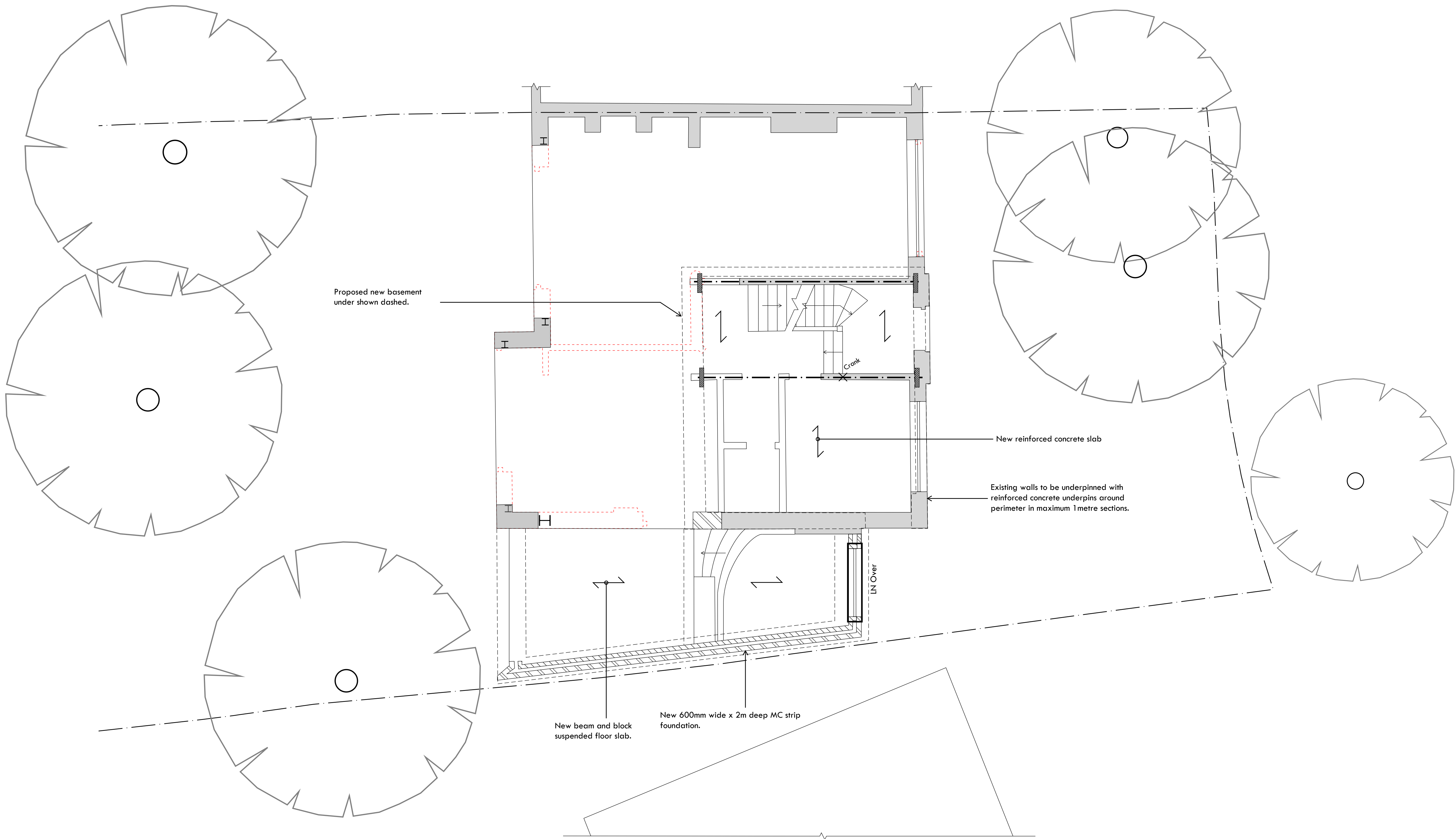
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Project
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Drawing Title:
Proposed Basement Floor Plan

Job. No.	Drawing no.	Revision
222136	S090	Preliminary
Scale	Date	Drawn by
1:50@A1	May 22	SWa
		Rev. no:
		P2



General notes:

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43 Stanhope Gardens, N6 5TT

Drawing Title:

Proposed Ground Floor Plan

Job. No.	Drawing no.	Revision
222136	S100	Preliminary
Scale	Date	Drawn by
1:50@A1	May 22	SWa
		Rev. no:
		P1