Alice Gailey, 37 South Hill Park, London NW3 2ST.

23rd April 2014

Neil Quinn
Planning and Development Management
London Borough of Camden
Town Hall Extension Argyle Street
London WC1H 8ND

Dear Mr Quinn,

Re: Planning Application for 35 South Hill Park, Application Ref. 2014/1938/P

There are THREE reasons for OBJECTING this application and they are as follows;

1.The proposed works are incompletely described and can give a misleading impression of the proposal to the Planning Committee.

2. The proposals as submitted have been reviewed by a Chartered Geologist and a Chartered Structural Engineer who both report serious shortcomings in the proposal and the dangers these presently create for the stability, safety and wetness of my property.

3. The proposals flout so many of the conditions for the South Hill Park Conservation Area that were written to guide both the developer and Camden, that automatic rejection of the proposals should be considered.

I submit below my evidence for these statements; the evidence for item 1 being mine and that for item 2 being that of the professional reports obtained on technical matters of stability and groundwater flow.

The proposed works are not fully described in your letter and should read; **Excavation of front garden and to createa basement level self contained flat under existing house; erection of two storey rear extension, following demolition of existing extension and excavation over the whole of the rear garden and erection of garden retaining walls and brick walls up to 3.3m high; replacement of front and rear dormers. Formation of front lightwell with cycle storage and new front boundary treatment.**

My main objections in detail to the planning application are as follows:

Camden Development Policies – Section 3 DP27, Basement and Lightwells.
1a).The scheme does not demonstrate that it will maintain the structural stability of the neighbouring building at 37 SHP, as required by Camden Development policy DP27a. This is clearly stated in the summary to his report by Dr M. de Freitas. This is not a matter that can be covered by conditions in a planning permission, but will need to be properly evaluated before one is given.(Para 2.5 Dr M de Freitas report Appendix 1a). See photos 1 and 2.

If the distressed flank wall with 5 wall ties, is damaged it could endanger lives in the 5 households at No.37 SHP.

The maintenance of the structural stability of adjoining properties has not been proved.
In the summary of his 7 page report 'Objection to Planning Application for development at 35 SHP', Dr Michael de Freitas, a Chartered Geologist and UK Registered Ground Engineering Adviser says:
'The BIA does not provide Camden Council with the advice it requires to come to an informed conclusion on the risks associated with the proposal seeking planning permission'.
A copy of the his objections, summary and conculsion are attached as appendix 1a.
If only for this reason alone, which concerns the structural stability of no. 37, I would strongly urge the Council to refuse the application.
At no. 37 the stability of 5 types of walls are affected by the proposal. Appendix 2. Describes these walls in detail.

1b).**The scheme adversely affects drainage run-off**, as the impermeable area is largely increased by removal of the front garden and covering it with impermeable concrete slab and cover part of the rear garden with concrete restraining base to the retaining walls. The BIA agreed an area of 30msq would be involved, however to this must now be added 15msq for one wall on the side of No. 37 and possibly another 15msq for the side of No.33, making a total of 60msq, which will create more drainage runoff.
1c.)The ground floor flat at 37 experienced flooding in the 70's and 2002, the area shown is prone to flooding in a map and the sewers could surcharge. Please see Dr M de Freitas report appendix 1a and Mr Eldred report's appendix 1b.
1.d).**The proposal will harm the amenity of neighbours**. The excavation will be around 600cubic metres and this will increase to an extra 300cubic metres for No.33. The volume will increase by 50% when removed and will require HGV's, which turn outside No. 37, in this cul-de-sac and vibrate the house and create noise pollution, destroy the roads. Photos No. 3 and 4.
1e).**The loss of the existing garden front and rear is a loss of open space, townscape and amenity value**.
1f).The provision of sedum planting over part of the front area and two more brick piers in the front wall replacing a currently attractive well landscaped area and the provision of a large sunken terrace with topsoil over the concrete base of up to a 3m high retaining wall **will not provide a satisfactory landscape at the rear.**
1g).**The appearance and setting of the property will be harmed** by the proposed changes at the front, by the addition of 2 new entrances and stairways, hard landscaping and lightwells. The extension at the rear is bulky and dominates the rear elevation, rather than being subservient to it.
1j).The character and appearance of the South Hill Park conservation area is described in detail in the Statement and Conservation issues are explained in Camden's core strategy 2010, section 3,

CS14. Promoting high quality places and conserving our heritage. . ' *The Council will ensure that Camden's places and buildings are attractive, safe and easy to use by: b) preserving and enhancing Camden's rich and diverse heritage assets and their settings, including conservation areas....'. 14.4. 'Development schemes should improve the quality of buildings, landscaping and the street environment...' We will not accept design that is considered inappropriate to its context'.*
Camden's heritage.14.9. South Hill Park is designated as a conservation area recognising its special architectural or historic interest and its character and appearance. A conservation area statement has been prepared and management strategies *' that provide further guidance on the character of the area'.* This document will be taken into account as material consideration when assessment is made for planning permission.
1k). The development results in the loss of more than 100% of the front and rear garden and is not considered to preserve or enhance the appearance of this conservation area.
This is all contrary to policy DP27.

My other objections are explained as follows:

2. Conservation Issues.
Camden's' Core Strategy 2010, section 3, CS14. Promoting high quality places and conserving our heritage.

2.1. South Hill Park conservation area statement guidelines.
New Development SHP1 ' *New development should be seen as an opportunity to enhance the conservation area. All development should respect existing features, such as building lines, rooflines, ...'*

2.1.0. The proposed addition of about 65% to the volume of No.35 is out of scale with the original house and has no respect for the character of the original building . It does not preserve or enhance the character or appearance of the South Hill Park Conservation Area.

2.1.1. Rear Extensions/Conservatories. SHP18.
'Extensions and conservatories can alter the balance and harmony of a property or of a group of properties by insensitive scale, design or inappropriate materials. Within the last twenty years some extensions have harmed the appearance of the Conservation Area and would no longer be considered acceptable. Some rear extensions although not widely visible, so adversely affect the architectural integrity of the building to which they are attached, that the character of the CA is prejudiced. Rear extensions should be as unobtrusive as possible and should not adversely affect the character of the building or the conservation area. In most cases such extensions should be no more than one storey in height, but its general affect on neighbouring properties and conservation area will be the bases of its suitability'.

2.1.1.2. The proposed extension on the rear of the existing building does not comply with guidelines for rear extensions/conservatories SHP18. It is 2 stories high, (7m) and varies. It is across the whole width of the house,(6.8m). It protrudes from the rear of the house by 6.8m. This will make it the deepest proposed rear extension at garden level in South Hill Park. It is now less obtrusive, but still adversely affects the character of the building and the conservation area.

2.1.1.3. SHP 19. 'Extensions should be in harmony with the original form and character of the house and the historic pattern of extensions within the terrace or group of buildings'. The existing group of buildings ,nos.27 to 43 have no, or modest rear extensions extending only 4.5m from the main rear wall of the building, across less than half the width of the building. The proposal is not in harmony with the original form and character of this modest " middle class" house.

2.1.1.4. SHP 20. 'Rear extensions will not be acceptable where they would spoil a uniformed rear elevation of an unspoilt terrace or group of buildings'. The proposal would spoil the nearly uniform rear.

2.1.1.5. The proposal is to construct a subterranean room 5m below the existing garden level, with another room varying in height over it, across the whole area at the rear. It is one and a half basements below the existing ground level at the rear. The subterranean room now projects 6.8m, and the room above 6.8m from the rear main building line. The elevation facing the rear will be totally in glass. **This is considered to alter the balance and harmony of a property by insensitive scale, design and use of glass and therefore harm the appearance of the CA and so adversely affect the architectural integrity of the building to which it is attached, so that the character of the CA is prejudiced.**
It does not comply with SHP 18 and 19 above and should not be accepted.

2.1.2. Roof extensions SHP 15. *'Some alterations at roof level have had a harmful impact on the CA, some extensions at the rear and side of properties have also been detrimental, any further extension in the roof space should respect the integrity of the existing roof form'. 'New dormers should respect the building proportions and window pattern as well as the symmetry of each pair',* (of houses). The existing front dormer was not constructed in compliance, with the permission granted

1969. There is no reason why the unauthorised dormer window on the front of No. 35 should not be reduced in width and placed centrally above the bay.

2.1.3. Trees and Landscaping SHP 23, 24 and 25.
The proposal is for complete removal of all existing landscaping to the rear by excavating by about upto 3m and replacing garden area with a glass top light for a subterranean room; removing all existing shrubbery and grass across the complete width and depth of the existing garden. This could put our Magnolia tree and trees on adjoining gardens at risk.
2.1.3.1. The current drawing have been amended to show the garden level at No. 37 is slightly higher than No. 35 and not 1m lower, as shown in the last proposal.
2.1.3.2. It is not possible to retain the existing garden wall between 35 and 37 as shown on the architect drawings, because of its poor condition, (though it is suitable for its current purpose) it is shown on the engineers drawing as being rebuilt, this is inconsistent with the architects drawing. If it is not rebuilt there would be a 2m drop between our garden and part of the new patio for no. 35. **This is dangerous and unacceptable**.

2.1.3.3. The resultant garden at No37 would be dammed and weep holes have been provided in the retaining garden wall for drainage. The garden at No.37 would get saturated if the weep holes were not maintained by No.35. This would be detrimental to the amenities of no.37.
2.1.3.4. The proposed artificial changes to the topography of the area by excavating the garden is unnatural, artificial and would result in loss of amenity for adjoining owners if the walls are not built or collapse. The adjoining gardens would become unsafe. **The character or appearance of this part of the SHP conservation area is neither enhanced or improved by the natural contours of the ridge in the rear gardens having a pit dug in the middle of it.**

2.1.4 Front Gardens and Boundaries. SHP 26.*'Proposals should respect the original style of boundary and these should generally be retained'. 'Particular care should be taken to preserve the green character of the area by keeping hedges'. 'Alterations to the front boundary between the pavement and houses can dramatically affect and harm the character of the CA'*, see photo 5. The proposals are for complete removal of front gardens and replacement with a concrete base, a shed, paving and steps. The roof of the shed is proposed for planting, but not deep enough to sustain planting for long and it will soon become unsightly.**Existing front boundaries to the semi detached villas in SHP virtually without exception contain one entrance and not two as proposed and this will result in a proliferation of brick piers in the front wall and loss of front garden.** Contrary to SHP 26.

2.1.5. Demolition SHP13. *'All applications should show clearly the extent of demolition works proposed (including partial demolition)'.*
There is little indication of the extent of the demolition works on the drawings. This now appears to be:-the dormer windows; the existing third (attic) floor; the whole existing staircase; parts of the existing load bearing central wall; the central load bearing wall and wall **across** the bay window (if it exists) under the ground floor; the concrete underpinning walls under the bay window; parts of the back wall; the whole of the two storey rear extension; the front garden wall and most likely all the rear garden wall (which is in such poor condition it cannot be underpinned).
The architect assumes that "much of the required structure of brickwork for the basement is already in place". This is not necessarily the case and even so would require the footings removed and possibly the whole ground floor to gain access underneath.
All in all a substantial amount of demolition and excavation is proposed. This is not made clear in the application. See drawing 1.
I am concerned about the amount of demolition proposed as it could destabilize the building already reinforced with a corner tie and concrete front underpinning.

I also object to the amount of excavation connected to the demolition as it could destabilize No.37. Excavation is covered in para. 1d. Drawings 1 and 2.

3.0 Page 5 para. 33, PPG 14. The guidance states *'It is important to recognise that development itself or the intensification of development may be the triggering factor which initiates instability problems'.*

3.1. The flank wall at No.37 is connected to a wall shared by No.35 which will need to be underpinned for both proposed basement levels.Therefore ,according to para 3.4.6. of the previous BIA, **there will be concern over stability here as there will not be "balanced Loading" to both properties.**

3.2. Para.3.4.8 of theprevious BIA says *"there should still be a route for the ground water (if any) to flow round the new basement beneath No37(and in the gap between the properties)."* However there is no new basement to No.37 or a gap between the properties.

3.3. **There are no details shown for the proposed drainage or ventilation works.**

3.4 Previously Appendix 4 shows there is a 15 degree angle from the pavement to the back garden which contradicts the BIA which says there is no angle more than 7 degrees. This has implications again for stability.

4.0. Contrary to DP 27 and the basement guidelines not a single drawing has been submitted by an engineer to show how the proposal is going to be constructed below ground level to maintain the stability of the neighbouring property, of which no details are available.

My objections in principle to the above planning application are as follows:

1.The National Planning Policy Framework '**Achieving sustainable development'** has three dimensions to sustainable development one which gives rise to the need for the planning system to perform *'**an environmental role** – contributing to protecting and enhancing our natural, built and historic environment; and as part of this, helping to improve biodiversity...'* The current planning application proposes to excavate the whole site from back of pavement to back of the rear garden, removing everything natural. **The proposal does not protect or enhance the natural, built or historic environmentit in any way and therefore does not comply with with this national policy framework.**

2.NPPF section 7.66 *'Applicants will be expected to work closely with those directly affected by the proposals to evolve designs.etc'.* The developer has not worked with us at all, the first application last year was incomplete with a BIA with no site specific information and inaccurate drawings. The developer still seems to be under the illusion that the garden at No. 35 'is one of the highest'.

3. Annexe 2. National Policy PPS5 HE9.1. Conservation areas are designated heritage sites and as such there is a national presumption in favour of their conservation'.
PPS5 para HE9.2 is long it mentions *'respecting values established through the assessment of the significance of the area. This will include overall mass or volume of the development, its scale (the expression of size indicated by the windows, doors, floor to sealing heights and other identifiable units), landscaping and its relationship to context – whether it sits comfortably on its site, ,,,'.* **This proposal has a bulk and volume that is excessive for the house it is attached to and is detrimental to the character and appearance of the SHP conservation area.**

The removal of the existing front garden (photo 5) and existing rear garden and the creation of an abyss for the rear garden is detrimental to the existing landscape at the front and rear, which forms a smooth ridge of gardens dropping down like a finger from Hampstead Heath between the

houses. Importance is attached to the gardens at the rear of the properties in the SHP conservation area statement.

NPPF. Achieving Sustainable Development para. 7 says under environmental role – *'contributing to protecting and enhancing our natural built and historic environment'; and, as part of this helping to improve biodiversity, use natural resources prudently, minimise waste and pollution'*....etc. **This proposal does not do any of the above.**

NPPF12. Conserving and Enhancing the Historic Environment. Para 126 local planning authorities...*'they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance'*. Camden adopted the Conservation area statement for South Hill Park in 2001 which sets specific guidelines. These have unfortunately been eroded by unapproved changes in the area or unfortunate authorised ones.
DP24.13. says' ***Past alterations or extension to surrounding properties should not necessarily be regarded as a precedent for subsequent proposals for alterations and extensions'.***

Traffic and amenity. Noise and Vibration. DP26. We are advised by reports by Camden planners on similar previous applicatitons that *'the basement is constructed without causing any harm to the local highway network and local residential amenity'*. This is not true, see photo 3. South Hill Park is a cul de sac, see map 1, and all traffic has to pass the lower end twice and all GHV's reverse up the Gardens or get stuck trying to go around the gardens, as the road narrows. There is noise and vibration caused by the HGV's, which shake the old Victorian buildings, there is also noise from construction on site i.e. pneumatic drills etc. This has greatly increased over the years from numerous developments and is stressful and a loss of amenity.
An average development with a basement takes 3 years to complete, see schedule 1, map 1. Currently starting construction are 5 sites in SHP. No's 15, 66, 85, 95, 97 and ongoing No. 71. The lives of people who came to live in SHP for its past tranquillity have become a nightmare.

This the largest application ever made in the SHP CA as it includes excavation over the whole site and has both a basement extension under the foot print of the house and a one and a half basmenent, 2 storey extension at the rear with a depth of 7m from the back of the house.
If the application is granted it will put the safety and lives of the people at no.37 at risk as it has failed to show how it will maintain the stability of No.37 SHP. It will also be detrimental to the South Hill Park Conservation Area neither preserving or enhancing its special character or appearance .

I strongly oppose the application and urge the council to refuse it.

Enclosures: Appendix 1a Objections from Dr M de Freitas dated 23rd April 2014
1b Report from Michael Eldred.
2. Types of party wall involved between No. 35 and No. 37 SHP
3. Drawings 1 and 2.
photos 1 damage caused by basement development at No. 94 SHP
Photo 2 damage caused by basement development in SHP.
Photo 3 Traffic congestion on SHP.
Photo 4 Blocked gully and concrete mixing on pavement in SHP.
Photo 5, 33 and 35 front garden and 25 new basement lightwell.
Schedule 1 and map 1.

Appendix 4

The other rear extensions in the locality mentioned on page 14 of the report by David Mikhail, within the local area are not relevant for the following reasons:
None include subterranean rooms with the whole back gardens excavated up to 3m in depth and planted front areas totally removed.
No. 57 SHP PWX0102169 the planning permission is for 'replacement of two storey rear extension at ground and first floor level'. It was not full width.
No. 59 SHP 2012/3977/P. Various planning permissions granted since 1978 – 2011. The last one granted in 2012 was for a small 'single storey rear infill extension' at ground level'. 3.3m deep matching depth of existing rear extension and 2.8m wide.
No. 53 SHP – 2009/3830/P. Planning permission for a single storey rear extension at upper ground floor level to a flat. It is stated that it was 5.7m wide and 2.9m deep and 3.4m-3.1m high. 'Would match the height and be similar in depth to the recently approved extension at No. 55 SHP.
No.39 Parliament Hill – 2004/3616/P. PWX0102015: planning permission granted for 'erection of two storey rear extension, plans show it was 4.100 wide, 3,440 deep.

The above vary from 2.8 to 3.400 in width, 2.9 to 3,4 in depth.
The proposal is 6.8 width and 6.8.m in depth.
The basement extensions mentioned on page 26 and 29 at No. 66 SHP 2013/6038/P granted planning permission on 17.02.2014.

FIRST STEPS LTD

Ms A. Gailey
37 South Hill Park
London NW3 2ST

23rd April 2014

Dear Ms Gailey,

Objection to Planning Application for development at 35 South Hill Park
Planning Application 2014/1938/P

Summary

1.1 Having visited the site with you, the owner of No. 37, on 14th May 2013 and having read the BIA submitted with this application (Ecologia Ref 13.032.3 March 2014) I am of the opinion that the BIA does not properly address the risk excavations at No.35 pose for your property at No.37. These excavations will go down over 5m below the garden at the Party Wall and pose a threat to not only the Party Wall with No.37 and the relationship of that wall to others it joins, but also to the flank wall of No.37 which is 60ft high. Further, the BIA fails to address the wetness that could arise in your basement from the diversion of groundwater around the construction proposed, nor does its record that the increase in paved area (30.1m^2) should include the additional 15.62m^2 of concrete forming the base slabs to the underpinning for the garden wall and existing just below topsoil, bringing increase the total paved area to nearer 46m^2 than the 30m^2 mentioned. As such the BIA does not provide Camden Council with the advice it requires to come to an informed conclusion on the risks associated with the proposal seeking planning permission.

1.2 The primary technical objection is that although the properties on site and adjacent to it (including your property at No.37) display evidence of structural distress and are clearly in some form of structural equilibrium with the ground on which they are founded, and although this equilibrium will be disturbed by the excavations proposed, the character of the ground immediately adjacent and beneath your 60ft flank wall and the Party Wall remains unknown.

1.3 Site specific investigations have been undertaken but no calculations based on this site specific data have been made to confirm the stability of this flank wall. Further, the data obtained to date by these investigations is insufficient for such a calculation to be meaningfully made.

1.4 The excavations proposed go down over 5m below the garden at the Party Wall with No.37 and the relationship of that wall to others it joins, and the 60ft flank wall of No.37, is geometrically complex; the ground response to be predicted here and counteracted by design and construction will not be simple. The structures on this ground have moved and are possibly still moving, and that history of movement means the strength of the ground is in a very delicate state; to engineer in such ground requires expert geotechnical advice of a quality not present in this application.

1.5 In addition, the hazards associated with ground movement resulting from excavation are likely to be exacerbated by variations in ground conditions that the site specific ground investigation has revealed to exist within the top few metres of the ground. These variations have been ignored. Further there is a presumption in the Construction Method that groundwater is not present even though ground water levels have been measured on site.

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1.6 Ground water is present and the design submitted for approval will divert it beneath No.37 which has a basement whose dampness varies with the weather. A ground water by-pass of some sort is suggested but no details are given.

1.7 The BIA has highlighted through its Screening, Scoping and Ground Investigation pertinent issues of stability and ground water flow, but these have not been properly addressed in the Assessment of impact. That is not what a BIA is supposed to do and falls seriously short of what Camden require for decision making in these matters.

The details supporting the views outlined in the Summary are explained below as these are matters that should be resolved before approval is requested.

Stability – general setting

2.1 The BIA reports that Nos.33 and 35 both display evidence of former movement and the presence of a vertical crack which may still be moving. Adjacent to them and less than 1m away is the 60ft high, 5 storey flank wall of No.37; this too contains ties. The brick wall in the back garden has tilted and is cracked and a recent survey of the drains at No.37 reports offset joints, gaps between sections and pipework collapsing in the general vicinity of the road. All this is the hallmark of creep in the ground and although the immediate area may not be within the zone designated as being at a slope of 7° or more, this part of South Hill Park is virtually at 7° and thus at the limit for long term slope stability; down-hill creep of the ground would be expected and the telltale signs of structural distress just described are exactly what could be expected.

2.2 Reference is made in the BIA to bomb damage and this may be so, however a walk along the southern end of South Hill Park reveals that many properties have been affected by differential movement whereas bomb damage tends to be quite restricted. Perhaps some properties were more affected than others by bombing but the modern reader should be aware that it was a common scam amongst landlords after the war to claim *"war damage"* for the repair of structures that were already in need of repair; I speak from personal knowledge having seen this more than once, as a child.

2.3 Further – if the strap support seen in No.35 is bomb damage then what damage might have also been done to the 60ft wall at No.37 next door? If the bomb damage argument is to be used to suggest the present foundations are stable and the superstructure simply reflects transient damage, then it must imply that adjacent properties should be considered the same way – especially a 60ft high flank wall of considerable length that would have sustained a substantial transient force from local explosions.

2.4 It is into this ground and against such delicate structures that excavations are now proposed; work which will upset the balance of forces which are obviously present. It should be appreciated that neither the elevation nor the character of the foundations for No.37 are known, that the excavations required could well be below their founding level, that the trench for a drain for No.35 runs parallel to the foot of the wall and that the drain from the cellar of No.37 passes close by.

2.5 To design and undertake such work requires an advanced knowledge of how to deal with ground in this condition – a knowledge considerably more advanced than would be expected from such statements as appear in the BIA's Conclusions as *"the sequence and support arrangements for the basement dig should utilise best practice underpinning and temporary support methods, to minimise any horizontal & vertical*

ground movements". This case is one where the calculations needed to ensure stability should be made before planning approval is given so that a firm design with clear instructions to a contractor is presented to Council.

Stability – particulars

2.6 An indication of the scale of the problems to be faced in assessing stability can be obtained from considering the evidence that the BIA presents in support of knowledge of the ground. Three sites in the same street are referred to and at each the depth to which very stiff clay was encountered is recorded. The boreholes at each of these addresses are going to be fairly close to each other yet the difference in elevation at any one address at which this very stiff clay was encountered varies considerably;

> At No. 72-74 it was found at 3.3m below ground level (bgl), and 3.4m at the back and 7.3m bgl at the front.
> At No. 85 it was found at 3.9m bgl and 4.8m bgl
> At No. 71 it was found at 2.8m bgl to 3.3m bgl

An excellent explanation of how this can come about is provided in the groundwater section of the BIA but the point to note here is that such variations in something as basic as this probably exist on site at Nos.35 and 33, and also beneath No.37 that will be affected by excavation at No.35. In fact the intrusive ground investigation at these properties shows exactly that, with very stiff clay being found at between 3.5m bgl and 3.8m bgl. The ground is not uniform and the design and construction at one point might not be applicable to another point nearby.

2.7 It should be noted that auger drilling was used for creating boreholes and recovering samples; this is the lowest quality of sampling and quiet unsatisfactory for any reliable calculation of mechanical properties for ground engineering. Further, the values of strength presented in the BIA have been obtained from a hand vane testing samples that have been screwed out of the ground. The whole investigation does little more than confirm that London Clay lies at depth and that its strength generally increases with depth. The values of strength obtained are indicative of what might be present. Little is known of the fabric of the ground or the accurate level of its boundaries, because augering destroys this evidence; vital information for assessing stiffness and permeability has been lost even though this is necessary for good design.

2.8 Although the absolute values for shear strength obtained are only indicative the trend of these measurements, when plotted with depth, appears to break at depths of between 2m and 3m bgl at the back of the property and between 1m and 3m bgl at the front of the property. Something has happened to the ground at these depths and it is pertinent to know what it is that has happened, because these are the levels at which the underpinning proposed will founded.

2.9 The questions this vertical profile of strength raises are relevant to not only the shear strength of the ground adjacent to No.37 but also to its stiffness and to its permeability, all of which have a bearing on the stability of the 60ft wall nearby.

2.10 When the data obtained from the ground investigation is plotted as a cross section showing the topography of the sloping ground cut by Nos. 33 and 35, the data suggests a 2m to 3m zone of disturbed ground roughly parallel to ground surface overlying the depth at which very stiff clay in encountered. This zone has not

been recognised by the BIA and consequently its possible implications for support of the excavation which will penetrate it are unassessed.

2.11 The implications that need to be considered for this excavation are for strength, stiffness and permeability; the former governs the loads that can be carried during excavation as lateral support is removed, the next governs deformation of the ground as those loads are carried and the last governs the vulnerability of the ground to erosion during periods of ground water flow.

2.12 Thus the BIA and Construction Method Statement, which talk of *underpinning*, do so with almost no knowledge of the ground on site and most particularly of the foundations of No.37, which could be founded above the proposed level of excavation.

2.13 The explanation forwarded for underpinning relies on the ground to be supported having a strength capable of making a reasonable contribution to supporting itself, however if the ground in the upper 2m to 3m bgl is weaker than anticipated, greater than expected loads will be placed on the retaining faces of the underpinning and greater than expected loads exerted on the props to support them, with consequent lateral movement of the ground being retained extending beyond the limits of the excavation; i.e. extending towards No.37 and its 60ft wall.

2.14 When considering groundwater the BIA says that provided piles are not used on site there should be no build up of ground water in response to the works, however the Construction Method expects the excavations to remain dry even though it includes groundwater within the forces operating when calculating stability; this is unrealistic and flaws the Method Statement.

Groundwater

3.1 No groundwater was encountered whilst drilling but as mentioned in the BIA, such an observation in clays does not mean there is no groundwater. Indeed standpipes were installed in the holes and water levels were later measured in them – although no dates are given for these readings. Water has been measured standing at 4.79m bgl at the rear of No.33 and at 1.67m bgl at the front of No.35. This would agree with the dampness in the lower levels of No.37, it has a cellar and the cellar is damp, and agrees with the hydrological circumstances of the site, which the BIA describes well.

3.2 Inserting these water levels on the cross section described (2.10 above) shows they intersect the zone of disturbed strength making it even more important to know what is happening in this zone. Further, the response of these water levels to rainfall is unknown and should have been observed.

3.3 Auger drilling, as used in this investigation, destroys evidence of fine fabric of the sort that can transmit water quite readily. If such zones exist and are susceptible to erosion by local flows during periods of heavy rain, then the ground could be undermined; when sand and silt are eroded from the ground the ground tends to move as a result of losing some of its solid content. Note that the solution to this problem is not the abstraction of water by sump pumping – that makes the problem worse - but the exclusion of groundwater.

3.4 However, if exclusion is used then the water excluded will have to be diverted below No.37. Note, nothing is known either about the foundations of No.37 or the dampness of its lower levels (it has a cellar and the cellar is damp). Allowing diverted groundwater to flow beneath No.37 is not a solution; it is an unresolved outcome. In

addition to that it must be noted that increasing the water content of ground can be expected to reduce the strength and stiffness of the ground and thus the founding layers for No.37 and of its 60ft high flank wall. The BIA says nothing about this.

3.5 The survey of the drains at No.37 raises the issue of leakage from services especially during periods of storm; pulses of groundwater can be expected and so reference to groundwater levels measures on other sites, now and then, provides no factual basis for designing appropriate works down-hill that can cope with sudden discharges via leaky pipes and their communicating trenches. Anecdotal evidence from Camden's Highway Drainage Engineer's Department (*pers. com Alice Gailey*) describes increasing incidents of water appearing at ground level in the west Hampstead and Dartmouth Park Hill areas where basements have been made. Water also appears at pavement level in South Hill Park; this has been attributed to leaks from Thames Water facilities but Thames Water has repaired these 4 times and still the water appears. There is water in this ground and its origins are probably a mix of natural infiltration and leaking utilities.

Details

For the record it should be noted that the answers to the following Questions in the BIA are challenged.

Stage One Screening
Subterranean (groundwater flow)

Q1a Answer No;
This is not correct if there exists a mantle of transported material from the Claygate and Bagshot horizons which acts as a shallow aquifer – as mentioned later in the BIA.

Q1b Answer No;
The further information is erroneous; the water table is a phreatic surface. This answer is also incorrect if there exists a mantle of transported material from the Claygate and Bagshot horizons which acts as a shallow aquifer – as mentioned later in the BIA and commented on with regard to flow beneath No. 37.

Q4 Answer Yes;
However this answer seems not to include the concrete base slab of the underpinning for the garden walls; this slab varies in width form 1050mm to1850mm and extends the length of the garden. It is covered by 400mm of soil (~1½ft). In other words the paved area will increase by 30.1m^2 PLUS the sub-paved area of approximately 15.62m^2. It is not known whether this could be replicated on the other side of the garden with its boundary to No.33.

Q5 Answer No
This does not agree with the answer to the previous Q4 which says there will be a net decrease in impermeable surfacing yet the answer to Q5 says the London Clay cannot be expected to act as a soak away – so what is expected to happen? Will there be more water or less water trying to get into the ground?

Slope/ground stability

Q1 Answer No
Technically correct but the slopes are at 7° and there is much topography in the gardens which is definitely greater than 7° and could be affected by excavation of the proposed basement. In fact the slope from back to front through No.37 is close to 18°

Existing garden walls are cracked and that at the end of the back garden is leaning severely.

Q2 Answer Nc
This does not reflect the substantial difference in ground elevation proposed across the Party Wall between Nos.35 and 37

Q5 Answer No
This will not be the case if a mantle of transported material from the Claygate and Bagshot horizcns exists. The ground investigation suggests this mantle is present as does the dampness of the cellar under No.37.

Q10 Answer No
This is not correct if there exists a mantle of transported material from the Claygate and Bagshot horizons which acts as a shallow aquifer (see **Q5** above) – as mentioned later in the BIA and commented on with regard to flow beneath No.37.

Surface flow and flooding

Q2 Answer Yes
What is not mentioned is that local anecdotal evidence of surface water flooding and local basement flooding suggests this is already a problem. The back rooms at No.37 were flooded in the 1970's and much more recently in 2002. So this "Yes" aggravates an existing unsatisfactory condition.

Q4 Answer No
Local anecdotal evidence of surface water flooding and local basement flooding disagrees (see **Q2** above)

Stage Two Scoping
Subterranean (groundwater flow)

Issue 1b (from Screening) Excavation will not extend below the water table
The ground investigation provides no information on the variation of water levels with time on site nor on the possibility of there being flow in the mantle of courser sediment overlying the London Clay.

Slope/ground stability

Issue 13 Best practice
The complex nature of the boundary between Nos.35 and 37 requires the ground engineering at this location to be specified; it is inappropriate to leave this to "best practice".

Conclusions

1. The most sensitive part of this application is the effect excavation at No.35 can have on the 60ft flank wall of your property at No.37, and that has not been calculated; indeed the ground adjacent to and beneath the foundations for that wall remains unknown.

2. This lack of information must be seen within the context of the hill of which South Hill Park is part. The structures founded along this stretch of South Hill Park exhibit the signs of structural distress and are in a delicate state of mechanical equilibrium with the ground on which they sit. Changes to the natural environment of the ground, as would be promoted by excavation, require more than usual care in this part of Camden.

3. The BIA as submitted fails to provide Camden with the evidence it requires at this stage in the planning process. The geology of the site is only partially determined; the ground water on site is unknown, the mechanical properties of the ground are known in a form that is inadequate for the calculations needed to confirm design are stable, and the change to ground levels around the boundary of the site with No.37 will produce local "slopes" greater than 7°.

4. The BIA as submitted is also incomplete in that it lacks details of the surface flooding to No.37 in the 1970's and in 2002.

5. The Application is confusing over the issue of managing groundwater.

The area of paved ground will increase by 30.1m^2 but what is not mentioned is that beneath the rear garden there is a concrete base slab to the garden wall with No.37 that accounts for a further 15.62m^2 of concrete covered by 400mm of topsoil.

It is said that an hydraulic by-pass of some sort will be provided if groundwater is encountered so that the flow of water is not impeded by the basement, but no details are given.

The construction method presumes ground water will not to be encountered during construction, yet water levels have been measured within the proposed depth of construction and fractured drains are known to be present.

6. It is quite clear that the mechanical properties of the ground on site are not straightforward and that to understand them sufficiently for the proposed work to be completed without causing damage to neighbouring property, especially No.37, a greater investment in ground engineering is going to be required than had been made so far.

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Director of First Steps Ltd

35 SOUTH HILL PARK NW3 2ST

Review of planning application 2014/1938/P to Camden Council with respect to Camden development Policy DP27.

Report reference G1406-RP-01-E1

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E1	23/04/14	Edition 1

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Summary

Report summary

1. Planning application 2014/1938/P proposes to extend 35 South Hill Park NW3 2ST by constructing a basement and sunken rear garden. Concerned to understand the potential impact of the proposed construction upon their property the owners of 37 South Hill Park, represented by Ms A Gailey instructed me to consider the application and provide relevant advice.

2. In assessing the application currently posted on the London Borough of Camden website I have accounted for the requirements of relevant planning and other statutory controls and have, in particular, set the content of the application against the stated requirements of the first three parts of Camden Development Policy DP27 for basements and lightwells. I have also considered the guidance on these requirements published by Camden.

3. The application for the subterranean part of the redevelopment proposed for 35 South Hill Park depends largely upon two sets of documents: a partial Basement Impact Assessment by Ecologia and a construction method statement by engineers BTA Structural Design. A BIA is supposed to incorporate an assesment and justifacation of all aspects, geological, geotechnical and structural, of a basement project which are develcped interactively and consistently to satisfy the requirements of Camden planning policy DP27.

4. In this case Ecologia have produced the geological and geotechnical components and issuec the "BIA" as though it were an advisory ground report. In the absence of structural method statement and design information the report makes assumptions and recommendations for a designer. The structural design and method statement has used some of the Eclogia recommendations but ignored others. In consequence there is a lack of continuity and some conflict between the two documents.

5. The Ecologia report contains the results of a ground investigation. The methods used for both excavation and testing the ground were unsuited to this class of project and consequently the strength of the ground has been significantly overstated by comparison to better classes of investigation made in the same geological deposit. The discrepancy is important in that it seems that if soil strengths have been overestimated design adequacy of foundations and retaining walls could be affected.

6. Ecologia have recommended that certain groundwater conditions should be used for the design of retaining wallls and the basement floor. It is apparent that the recommendations have not been followed for the design of garden retaining walls, possibly because they are provided with drainage weep holes at ground level in front of the walls. The proposed landscaping prevents a high risk that the weep holes will become blocked, though, allowing groundwater levels to rise behind the walls, possibly to ground level in storm conditions. The situation with respect to the

basement walls and floor is uncertain since no design information is available for those elements.

7. The basement construction method statement proposes an enabling excavation sequence that appears to have doubtful merit in a 5m wide basement and which could cause perimeter walls to become unstable if the groundwork contractor is not very carefully controlled.

8. An adequate engineering design for a basement comprises both temporary and permanent works of support. If one is provided without the other, the design is inadequate. The Ecologia part of the BIA makes several statements that assume that adequate temporary works will be provided. Nowhere, though, is there any clear indication of precisely how the engineer proposes to support the sides of the excavation and basement walls temporarily during construction or of how the temporary supports will themselves be supported and sequenced to resist movement.

9. The Ecologia report assumes a high standard of construction and temporary works control but the construction method statement contains no strategy for managing the works and controlling the technical aspects to that end. The design engineers are expected to monitor the works in progress but that will not constitute management and control. An adequate and project specific strategic statement which is sufficiently detailed to account for all procedures and for actions to counter events that are unexpected but possible is an important part of a BIA.

10. Ecologia make several statements concerning the amount of ground movement and consequent damage to be expected; all without any form of justification. It is suggested either that Ecologia should provide good case histories that identify workmanship criteria as well as movement to support their assertions or deal with the issue of potential damage in another way. It is probable that some redesign will be required to avoid significant damage in one area where 35 and 37 join.

11. Externally, there is conflict between the work intended at the boundary wall by the engineers' and Architects' drawings. The Architects' provision seems to be the more likely of the two, in which case the engineers' scheme for supporting the ground in No.37 when gardens in No.35 are excavated could not be built. As in the basement, the application offers no information about the way the ground in No 35 would be supported during construction of a boundary retaining wall.

12. In summary therefore, the application fails to demonstrate that it meets the requirements of the Camden planning policy for basements and lightwells because:-

    (i) There is conflict between the Ecologia report, the BTA Structural Design construction method statement and the Architects' information, which affects the adequacy of the proposals and, externally, the feasibility of constructing what is proposed.

(ii) The ground investigation was unsuited to this class of work, and provides misleading results which are likely to have misinformed the engineering design.

(iii) Groundwater conditions reported by Ecologia and their recommendations for design groundwater levels have been ignored within the limited calculations provided.

(iv) The engineering design of the basement is incomplete, even for the purposes of planning controls because it fails to demonstrate in sufficient detail that the excavations and works in progress would be supported so as to avoid damage to the development and other property.

(v) Ecologia draw several conclusions based on the assumption of a high standard of construction and temporary works control but the application offers no strategy for achieving that.

(vi) Ecologia judge, without apparent reference to the engineering method statement and without providing supporting information that the damage risk category for No.37 will not exceed category 1. The judgement appears intuitive and made without accounting for all of the circumstance described. As such, the level of risk is not demonstrated.

(vii) In one area where Nos 35 and 37 join it seems probable that some redesign will be required to avoid the risk of excessive damage.

1 Introduction and purpose of report

13. This report is concerned with planning application 2014/1938/P to the London Borough of Camden (Camden), which proposes the extension of 35 South Hill Park NW3 2ST by constructing a basement and sunken rear garden. Other alterations are proposed but the subject of this report is the subterranean element of the proposal. The owners of 37 South Hill Park, represented by Mr Alice Gailey have instructed me to advise them of the potential impact of the basement development proposed by the application upon their property.

14. I am Michael Eldred MSc. CEng. FIStructE MICE, Director of Eldred Geotechnics Ltd and a Consultant in the disciplines of Geotechnical, Geoenvironmental, Civil and Structural engineering. The assessment which follows is exclusively of matters falling within these disciplines. They have been considered in the context of Camden's Local Development Framework (LDF) and other relevant statutory requirements.

15. I have referred to a number of documents while preparing this report. Technical publications are listed at the end of the report and are cited in the text according to their listed numbers thus [No]. References to "the application" mean the relevant planning application documents published on the Camden website. I have also referred to the following documents published by Camden. *Development Policy 27, Basements and Lightwells* (DP27), *Camden Planning Guidance 4, Basements and Lightwells.* (CPG4), which provides guidance on the implementation of DP27, and Ove Arup & Partners Ltd report to Camden entitled *Camden geological, hydrogeological and hydrological study – Guidance for subterranean development.* I have referred to this as the Arup report. It forms the basis for preparing the basement impact assessments (BIA) that Camden require as part of planning applications for basement development.

2 Statutory requirements

2.1 Planning legislation

16. Development policies form one tier of the Camden LDF. DP27 deals with basements and lightwells and sets out stringent requirements that have to be satisfied during the planning process. The guidance to DP27, CPG4, explains what is meant by harm to the built environment and failure to maintain the structural stability of neighbouring properties and introduces the concept of the BIA as required methodology.

17. DP27 places the onus on developers to demonstrate (give proof or evidence) that a scheme meets Camden's stated requirements before any planning consent can be entertained. Nothing less will do.

2.2 Building Regulations

18. The jurisdiction of the Building Regulations is limited; they do not require anything to be done except for the purpose of securing reasonable standards of health and safety for persons in or about buildings. Consequently they cannot be invoked to control anything but potentially very severe impact on neighbouring buildings and have no bearing upon retaining walls that are not part of a building.

2.3 The Party Wall etc Act

19. The 1996 Party Wall etc Act (PWA) does bear upon the potential and actual impact of construction work on neighbouring property but the purposes of this and the Town & Country Planning Acts are entirely different. The PWA is sometimes seen as a convenient means of picking up the pieces left by a planning determination; a kind of fail-safe measure. Such interpretations are wrong and misleading.

20. While the National Planning Policy Framework, its predecessors and the Camden LDF do require planning decisions to limit damage to other property, the PWA imposes no limit on the degree of damage that may be considered acceptable. It is rather an instrument intended to give the parties rights, which sometimes usurp common law rights and to allow both settlement of disputes and award of compensation without resort to the Courts.

2.4 Importance of development control at the planning stage

21. The importance becomes evident when it is realised that it is solely planning controls (DP27 in the case of Camden) that are able to impose a statutory requirement for designs to limit the risk of damage to neighbouring property to a severity deemed to be acceptable. Since DP27 is a planning control, permitted schemes could be deemed to have satisfied the DP27 requirement whether or not they really do. Thereafter, limitation of damage by design would be a matter largely controlled by the judgement and consideration of the developer's design and construction team.

22. Compliance with the stated requirements of DP27 before planning consent is granted is thus essential. Once permission is granted the opportunity to exert control is lost; permitting a development subject to a condition that implies it should be changed to comply with DP27 would seem to be an untenable contradiction in terms. Careful consideration of the amount of detail actually required at planning stage is necessary.

3 Compliance requirements for DP27

23. Camden give the first three requirements of DP27 as follows. "We will require developers to demonstrate by methodologies appropriate to the site that schemes (a) maintain the structural stability of the building and neighbouring properties, (b) avoid adversely affecting drainage and run-off or causing other damage to the water

environment and (c) avoid cumulative impact on structural stability or the water environment in the local area".

24. CPG4 provides a set of screening questions that are intended to assist applicants and planners. Unfortunately they can become akin to tick charts and the problem is compounded by the need for geologists, geotechnical engineers and structural engineers to provide the answers. The first two, geologists, geotechnical engineers, usually understand each other but rarely understand structural engineering, and structural engineers do not usually understand the others. Lack of coordination has caused numerous inadequate BIAs.

25. The BIA methodology follows normal engineering precepts:

1) gather existing relevant information
2) decide what more is needed
3) obtain that additional information
4) use it to produce a satisfactory and justified engineered design
5) submit the design for assessment and possibly for peer revue.

26. Relating these essential steps to each of the three DP27 requirements (a) to (c) above in turn, it is possible to state fairly simply a number of matters about which information is needed to make decisions and for which the information must be reported to permit peer review. The list is not exhaustive.

27. Structural stability of the building and neighbouring property depends upon:

(viii) The condition and construction of the buildings and their sensitivity to movement

(ix) How much ground movement will occur in consequence of the basement construction

(x) How much the basement walls will move

(xi) How much the buildings will move

(xii) How much building damage these movements will cause.

28. These effects depend in turn upon:

(xiii) The fabric, structure and engineering properties of the ground

(xiv) Ground water levels and behaviour

(xv) Method and sequence of construction

(xvi) Method and sequence of supporting the sides of the excavation and basement walls temporarily during construction

(xvii) Resistance of the temporary supports to movement

(xxvii). Quality of site management and technical supervision.

29. Avoiding adversely affecting drainage and run-off or causing other damage to the water environment depends on:

(xxix). The fabric, structure and engineering properties of the ground

(xxx). Ground water levels and behaviour

(xxxi). Balancing the characteristics of existing and proposed surface water disposal regimes

30. Avoiding cumulative impact on structural stability or the water environment in the local area depends on:

(xxxii) Accounting for the presence of any existing nearby subterranean development

(xxxiii). The potential effect of basement excavation on larger scale slopes and other topographical features in the area

(xxxiv). The fabric, structure and engineering properties of the ground

(xxxv). Ground water levels and behaviour.

4 Response of the application

4.1 Overview

31. The first point is that the Ecologia "BIA" in the application is not a BIA at all. It has been prepared by a geologist and geotechnical engineer and stops somewhere between items 3) and 4) of the above list, petering out with suppositions and provisos about what designers and contractors might do.

32. What should be the part of the BIA that draws all of the information together and provides a consolidated engineering assessment and preliminary justified design is in a separate construction method statement prepared by the design engineers. This is not only physically separate but separated also from several of the important points made in the "BIA".

4.2 Ground Information

33. The need for good information about the fabric, structure and engineering properties of the ground, and about ground water levels and behaviour features in every part of the DP27 requirement list above.

34. What is provided is a "factual" report of ground properties based on excavations made by hand augers and a small diameter powered auger, and strength tests made on heavily disturbed samples using a hand vane. The results are supposedly substantiated by reference to other investigations made in the area either by the same methods or using window sampling equipment. I can understand that the

excavation methods used might have been all that was possible given the site restrictions but these results have been offered for engineering design without comment or interpretation and have been used in that way. It is not evident from the application that any thought was given to the possibility that they might be dangerously unrealistic.

35. Dr Michael deFreitas [1] also draws attention to these matters.

36. A vane test is conducted by pushing a stem with four blades projecting as a cruciform into soil and rotating it to shear the soil. Hand vanes give results that are largely unreliable for design even in the soft soil the instrument was designed for, unless carefully interpreted. In firm or stiff soil, use of the vane is pointless; attempting to use a vane to test the type of samples obtained by the augers used in this case borders on the irresponsible. This particularly when the results are offered without comment to a structural engineer responsible for the safety of buildings. Setting aside sample disturbance, the problem arises from the fact that that a test vane is supposed to be rotated at a speed not exceeding 12 degrees per minute (30 minutes for full circle) to give realistic results. That is not practicable for hand operation; 20 or 30 seconds at most for 360 degrees is more usual, and this inevitably gives excessively high test values. The cut off referred to by Dr de Freitas occurs because shearing torque is provided by a spring and the maximum measured strength possible is 140KPa before a stop on the scale protects the spring by preventing further torque.

37. These comments are based upon more than 20years experience of conducting ground investigations and operating a soil testing laboratory. They are substantiated by authoritative texts [2]. Figure 1 in Appendix A compares the test results offered by the application with the very consistent results obtained in sites spaced widely over the Hampstead area by different investigators using more reliable methods. The investigation reports concerned are in the public domain. They included investigations of both Unit D of the London Clay and the Claygate Member and demonstrate the well known and expected consistency of the formation.

38. The engineers' method statement relies upon the site tests made and reported by Ecologia. A safe foundation bearing pressure of 150KPa has been assumed for design. In consequence of this comparison on Figure 1 and of experience of other local sites, I believe that the engineers' assumption seriously overestimates the ground strength to a degree that affects the preliminary design adequacy.

39. Issues related to groundwater are considered by Dr de Freitas [1] and receive further comment later in this report.

4.3 Information points (viii) to (xxv)

Item	Information required	Response
(viii)	The condition and construction of the buildings and their sensitivity to movement	A general description of age and accommodation is given, together with noted presence of wall ties and possibility of these being associated with WW2 bomb damage. The sensitivity of the situation at the junction of the party wall with No 37 (see Figure 2 provided by Ms Gailey) has not been considered.
(ix)	How much ground movement will occur in consequence of the basement construction	No information provided other than an assertion by Ecologia initially that subject to best working practices being followed, it will be "minimal" and then a further assertion, again without case history justification, that it should not exceed 5mm horizontally or vertically, subject to the same proviso.
(x)	How much the basement walls will move	No information provided.
(xi)	How much the buildings will move	No information provided.
(xii)	How much building damage these movements will cause	Category 1 [3] is suggested on the basis of assumptions at (ii) above
(xiii)	The fabric, structure and engineering properties of the ground	See above
(xiv)	Ground water levels and behaviour	Refer to Dr de Freitas [1]. Also note that the basement is to have a ground bearing floor slab, which will have to resist heave and flotation forces. Neither this nor the means by which groundwater might bypass the basement are considered within the engineering submission. Ecologia recommendations concerning design groundwater levels make accumulation of groundwater in the soil cover to retaining wall bases possible.
(xv)	Method and sequence of construction	An outline description is given of the way the basement will be formed by underpinning. I refer to this again in a later part of this report.
(xvi)	Method and sequence of supporting the sides of the excavation and basement walls temporarily during construction	
(xvii)	Resistance of the temporary supports to movement.	No information is provided.

Item	Information required	Response
(xviii)	Quality of site management and technical supervision	Various statements are made with the intention of providing reassurance on these matters, and I do not doubt their sincerity. Examined closely, though, they have less practical substance and commitment than might at first be supposed. More detail is needed. In particular, the monitoring role and authority of the design engineers and full time availability of suitable staff at their London address needs clarification
(xix)	As (xiii)	As (xiii)
(xx)	As (xiv)	As (xiv)
(xxi)	Balancing the characteristics of existing and proposed surface water disposal regimes	The BIA contains a number of statements about surface water drainage and appears to assume that these satisfy the requirement for surface water run off to be no more after development than before. Provisos are made concerning the true permeability of pavings, the attenuation provided by the green roof construction. Considering the condition and elevation of the sewer drainage system a formal SUDS assessment is required with materials specified.
(xxii)	Accounting for the presence of any existing nearby subterranean development	No information is provided
(xxiii)	The potential effect of basement excavation on larger scale slopes and other topographical features in the area	The BIA demonstrates that there are no larger scale slopes and other topographical features in the area.
(xxiv)	As (xiii)	As (xiii)
(xxv)	As (xiv)	As (xiv)

4.3 Further comment on item (xv); method and sequence of construction

40 No design information is provided for the basement retaining walls to be formed by underpinning. Points requiring clarification are the effect of the lower than assumed ground strength in the site and the ability of the walls to withstand the pressure from the height of groundwater behind the wall recommended by Ecologia. The second results from the failure of the external retaining wall design to allow for the recommended groundwater conditions.

41 The application proposes to form the basement by first reducing the ground level inside No 35 to the level of the underside of the foundations and then creating a

deeper trench with battered sides in the centre of the basement area as a means of providing easier access for underpinning. The basement is to be only 5m wide between walls and I consider this proposal to be potentially dangerous. The trench will be either so narrow as to be pointless or the cut sides will be so close to the footings as to risk instability of the soil and wall it supports.

42. The underpin construction method assumes a low water table and stiff clay but the Ecologia report warns of the need to expect groundwater in excavations and there is a high probability that the clay excavated for underpins will be firm rather than stiff. Supports between the back faces of excavations and the opposite faces of the underpin pits are likely to be required to protect neighbouring buildings and the drainage system for No 35. Those supports would have to be changed to support first the formwork for each underpin and then the reinforced concrete underpin itself while it gained strength to act as a retaining wall. It would then be necessary to prop the underpins and walls in some sequential way that would allow the earth to be excavated from within the basement down to the formation level for the basement floor. Those props would have to be adjusted or moved as work proceeded and it would not be until the basement and ground floors had been constructed that the structure would be secured.

43. Each excavation and change of props would allow some movement to occur. Further slight movement of the walls supported by the underpins would take place as their weight and the loads they carry were transferred to the underpin supports, in a designed sequence.

44. The general system described is the simplest possible for basement construction by underpinning but it is still deceptively complex and takes no account of problems that can occur during construction and cause additional movement.

45. It is clear, however, that the most critical part of the work in terms of DP27(a) is the temporary support afforded to both excavations and partly completed elements of structure.

46. The application fails completely to satisfy the requirements of the planning controls in this respect.

47. There are notes and sketches on drawings indicating that some form of props will be required and the Ecologia part of the BIA makes several statements that assume they will be provided. Nowhere, though, is there any clear indication of precisely how the engineer proposes to support the sides of the excavation and basement walls temporarily during construction or of how the temporary supports will themselves be supported and sequenced to resist movement. Indicative prop locations shown on the drawings are conveniently positioned out of harm's way but in unsuitable positions and without any information about how those positions are to be achieved.

48. The result is that the application fails to demonstrate that the scheme proposed will maintain the structural stability of the building and neighbouring properties.

49. The Ecologia report presumes by stating that the contractor will design temporary works. That may be so; the final design of temporary works is usually made by a specialis: subcontractor. But the contractor is not in evidence and so a contractor's design will be too late for planning. No matter that tradition has it that design engineers have no responsibility for temporary works, the adequacy of any basement scheme and the feasibility of its construction depend entirely upon the system of temporary support employed. Put another way, an adequate engineering design for a basement comprises both temporary and permanent works of support. Either the design engineer has to provide an adequate preliminary temporary works design that justifies the permanent element or, if for whatever reason the engineer cannot do that, the developer has to employ someone else in addition who can.

4.4 Further comment on item (xviii); site management and technical supervision

50. Following from 4.3 it is evident that justification of the Ecologia presumptions that high quality workmanship and best practice methods will be used for the construction will depend upon the contractor employed and the degree and quality of technical supervision provided throughout the subterranean works. These are matters of at equal importance to design issues because they are fundamental elements of the project risk analysis.

51. The engineers' method statement refers to the intention for the work to be monitored by chartered civil and structural engineers. Whilst welcome, this alone does not answer the need, which is for a clear strategy for controlling the works to the extent of justifying the Ecologia assumptions to be demonstrated.

52. It is not enough to say that the contractor will be carefully selected; that should go without saying. Not to do so would be negligent and, considering the CDM Regulations, illegal. By the same token, occasional monitoring visits by a design engineer do not constitute supervisory control of the works. Legal and insurance issues prevent that.

53. The strategy is required to satisfy DP27(a) and to a lesser extent, parts (b) and (c) of the policy. Experience of those concerned should be important background but the strategy should be project specific and sufficiently detailed to account for all procedures and for actions events that are unexpected but possible.

4.5 Further comment on items (viii)-(xii); potential movement and damage to No 37

54. The property at No 37 to be considered extends beyond the building. Comments on the garden boundary are given separately.

55. Ecologia refer first to minimal movement of the ground due to the proposed excavation and then to 5mm of movement. In each case, the statements are made as though they are common knowledge; they are not. Geotechnical engineers acting for other applicants in Camden have repeatedly endeavoured to estimate potential ground and structural movements associated with underpinned basements, both by analysis and judgement. The construction form is not amenable to such analysis and no published case histories have been cited as evidence for judgement based estimates. This is probably because of the difficulty of conducting reliable measurements in the confined conditions that usually exist. It might also be that the variable workmanship standards commonly employed make the use of one set of records to estimate potential movement elsewhere unrealistic. If Ecologia have good case histories that identify workmanship criteria as well as movement they should be offered in support of these stated dimensions.

56. Available records are usually of cases where bad workmanship or control, or unexpected difficulties that have not been planned for, cause unacceptable damage.

57. It thus behoves the applicant to demonstrate precautions necessary to avoid damage due to these causes in accordance with DP27 and then to assess the range of ground movement that could be tolerated by No 37 without significant damage.

58. The extremely simplistic model proposed by Burland [3] might suffice for some parts of No 37 but would not be suitable for the much more complex situation shown by Figure 2 of the appendix. There, it is fairly certain that without a change of design, significant local damage at the junction of Nos 35 and 37 could result.

59. Until these matters have been resolved the application fails to comply with the requirement of DP27(a).

4.6 External garden walls

60. There is an important discrepancy between the Architects' and engineers' drawings for this part of the project; the Architect shows the boundary wall between 35 and 37 repaired, while the engineers' drawing shows it rebuilt. The matter needs to be clarified because if as seems reasonable the Architects' drawing prevails, the land in No37 cannot be supported by the type of retaining wall shown by the engineer. The wall could not be built.

61. Ecologia recommend that the engineers' design allows for certain heights of groundwater behind retaining walls. The engineers' calculations in the method statement make no such provision. I have made an approximate estimate according to BS EN 1997 of the stability of the highest boundary retaining wall as dimensioned on the engineers' drawings. When allowance ids made (a) for water pressure behind the wall as recommended, (b) for the saturation of the soil by groundwater in front of the wall and (c) the lower ground strength expected, the wall stability is in doubt.

62. There are drainage weep holes shown in the walls above ground level in the garden of No 35. The Architect shows flower beds against the wall and there is thus every possibility that the weep hole will block and allow water to rise at the back of the wall to at least the level recommended by Ecologia. Retaining walls deflect slightly no matter what their margin of stability and any gaps forming behind the wall could fill with water in storm conditions causing more water pressure on the wall than supposed by Ecologia.

63. The owners of No. 37 have a right of support for their land and the garden is as much neighbouring property in the context of DP27 as the house. The application drawings show nothing of the way it is intended to provide that support in the temporary condition and thus fail to satisfy the DP27(a) requirement.

5 Conclusion

64. The application for the subterranean part of the redevelopment proposed for 35 South Hill Park depends largely upon two sets of documents: a partial Basement Impact Assessment by Ecologia and a construction method statement by engineers BTA Structural Design. A BIA is supposed to incorporate an assessment and justification of all aspects, geological, geotechnical and structural, of a basement project which are developed interactively and consistently to satisfy the requirements of Camden planning policy DP27.

65. In this case Ecologia have produced the geological and geotechnical components and issued the "BIA" as though it were an advisory ground report. In the absence of structural method statement and design information the report makes assumptions and recommendations for a designer. The structural design and method statement has used some of the Ecologia recommendations but ignored others. In consequence there is a lack of continuity and some conflict between the two documents.

66. The Ecologia report contains the results of a ground investigation. The methods used for both excavation and testing the ground were unsuited to this class of project and consequently the strength of the ground has been significantly overstated by comparison to better classes of investigation made in the same geological deposit. The discrepancy is important in that it seems that if soil strengths have been overestimated design adequacy of foundations and retaining walls could be affected.

67. Ecologia have recommended that certain groundwater conditions should be used for the design of retaining walls and the basement floor. It is apparent that the recommendations have not been followed for the design of garden retaining walls, possibly because they are provided with drainage weep holes at ground level in front of the walls. The proposed landscaping prevents a high risk that the weep holes will become blocked, though, allowing groundwater levels to rise behind the walls,

possibly to ground level in storm conditions. The situation with respect to the basement walls and floor is uncertain since no design information is available for those elements.

68. The basement construction method statement proposes an enabling excavation sequence that appears to have doubtful merit in a 5m wide basement and which could cause perimeter walls to become unstable if the groundwork contractor is not very carefully controlled.

69. An adequate engineering design for a basement comprises both temporary and permanent works of support. If one is provided without the other, the design is inadequate. The Ecologia part of the BIA makes several statements that assume that adequate temporary works will be provided. Nowhere, though, is there any clear indication of precisely how the engineer proposes to support the sides of the excavation and basement walls temporarily during construction or of how the temporary supports will themselves be supported and sequenced to resist movement.

70. The Ecologia report assumes a high standard of construction and temporary works control but the construction method statement contains no strategy for managing the works and controlling the technical aspects to that end. The design engineers are expected to monitor the works in progress but that will not constitute management and control. An adequate and project specific strategic statement which is sufficiently detailed to account for all procedures and for actions to counter events that are unexpected but possible is an important part of a BIA.

71. Ecologia make several statements concerning the amount of ground movement and consequent damage to be expected; all without any form of justification. It is suggested either that Ecologia should provide good case histories that identify workmanship criteria as well as movement to support their assertions or deal with the issue of potential damage in another way. It is probable that some redesign will be required to avoid significant damage in one area where 35 and 37 join.

72. Externally, there is conflict between the work intended at the boundary wall by the engineers' and Architects' drawings. The Architects' provision seems to be the more likely of the two, in which case the engineers' scheme for supporting the ground in No.37 when gardens in No.35 are excavated could not be built. As in the basement, the application offers no information about the way the ground in No 35 would be supported during construction of a boundary retaining wall.

73. In summary therefore, the application fails to demonstrate that it meets the requirements of the Camden planning policy for basements and lightwells because:-

(xxvi) There is conflict between the Ecologia report, the BTA Structural Design construction method statement and the Architects' information, which affects the

adequacy of the proposals and, externally, the feasibility of constructing what is proposed.

(xxvii) The ground investigation was unsuited to this class of work, and provides misleading results which are likely to have misinformed the engineering design.

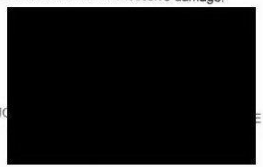
(xxviii) Groundwater conditions reported by Ecologia and their recommendations for design groundwater levels have been ignored within the limited calculations provided.

(xxix) The engineering design of the basement is incomplete, even for the purposes of planning controls because it fails to demonstrate in sufficient detail that the excavations and works in progress would be supported so as to avoid damage to the development and other property.

(xxx) Ecologia draw several conclusions based on the assumption of a high standard of construction and temporary works control but the application offers no strategy for achieving that.

(xxxi) Ecologia judge, without apparent reference to the engineering method statement and without providing supporting information that the damage risk category for No.37 will not exceed category 1. The judgement appears intuitive and made without accounting for all of the circumstance described. As such, the level of risk is not demonstrated.

(xxxii) In one area where Nos 35 and 37 join it seems probable that some redesign will be required to avoid the risk of excessive damage.



MIC E

References:

[1] de FREITAS M. H. Letter dated 22/04/14 to Ms A Gailey

[2]a CLAYTON C.R.I, SIMONS N.E, MATTHEWS M.C. (1982) Site Investigation. Granada Publishing Ltd

[2]b BS1377:1990 methods of test for soils for civil engineering purposes BSI London

[3] CIRIA Special Publication 200 (2001) Building response to tunnelling: Case studies from the Jubilee Line Extension London: Vol 1, Projects and methods.

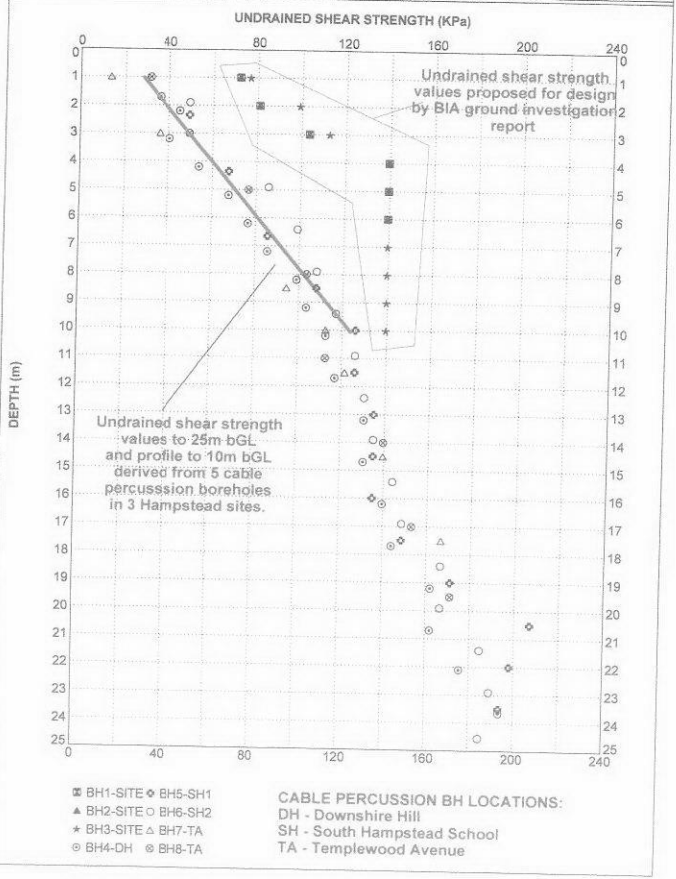
35 SOUTH HILL PARK NW3 2ST

Review of planning application 2014/1938/P to Camden Council with respect to Camden development Policy DP27.

Appendix A

Eldreds

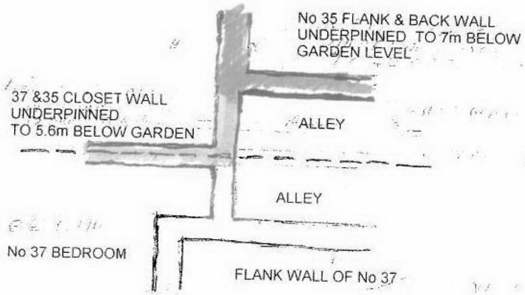
Project Ref.	Project Title.	Sheet Ref.
G1406	35 SOUTH HILL PARK NW3 UNDRAINED SHEAR STRENGTH vs DEPTH BIA RESULT vs HAMPSTEAD DATA	FIGURE 1



Eldred Geotechnics Ltd Telephone: 01689 860406 Email: mail@eldreds-geo.co.uk
2013 EGL CU V6 DEPTH G1406 35 SOUTH HILL PARK.GPJ ELDRED.GDT 22/4/14

Eldreds

Project Ref. G1406	Project Title. 35 SOUTH HILL PARK NW3	Indicative North
Sheet Ref. FIGURE 2	ALLEY WAY JUNCTION OF Nos 35 AND 37	



UNDER PINNING TO 7.1m BELOW GARDEN LEVEL.

UNDERPINNING TO 5.6m BELOW GARDEN LEVEL

PLAN AT JUNCTION
END OF ALLEY WAY
BETWEEN No 35 AND No 37 S.H.P

SCALE 1:50 APPROX

UNDERPINNED WALL JOINS No 37 FLANK WALL

Illustration based on sketch by A Galey and annotated for clarity

Eldred Geotechnics Ltd Telephone: 01689 869406 Email: mail@eldreds-geo.co.uk
2013 EGL MAP G1406 35 SOUTH HILL PARK.GPJ ELDRED-2013.GDT 23/4/14

Appendix 2. The 6 types of wall at no. 37 SHP that are affected by the proposal.

i.**The major 5 storey flank wall (height 18.3m – 60'0", length 9m – 30'0").** The 2013 BIA, for the previous application says under *"Impact of the Proposed Permanent Works (Structural Stability) ---- There is a possible potential to affect the flank wall foundation of No.37 by this basement excavation at No.35, and mitigation/support works would generally be designed as part of any Party Wall Agreement for basement construction (the current foundations to No37 may need to be exposed, levelled and logged, as part of a future ground investigation)".*This invasive work is proposed on land not owned by the developer but I presume the requirement still holds for the proposed work at No. 35.

This substantial wall is **not** a Party Wall.

The ground conditions in South Hill Park are clearly not straightforward and one basement development in particular in South Hill Park has proved to be a technical disgrace to the Planning process and the engineering profession; so there is ample evidence that things can go wrong here. That site and others have further demonstrated that protection afforded by the Party Wall Act is no protection at all. (See Mr Eldred report pg 7 ' The Party Wall etc Act').

The 2013 and 2014 BIA clearly declares the flank wall will be affected by the basement excavation at No35.The structural stability of this wall has not been demonstrated if the basement excavation at No.35 proceeds. The application should be rejected for this reason. The new 2014 BIA barely mentions this wall at all.

ii. The wall separating the 2 storey rear extensions at No 35 and No 37 (height 6m, length 4.5m). On the proposed first floor plan, half this wall is shown as being removed. It is not feasible to remove half a shared wall. No thought has been seriously given to this wall and the fact that there will be differential settlement as the whole wall will need to be underpinned. It is connected to the flank wall of No.37 by a small nib of brickwork and any movement here could affect the flank wall.

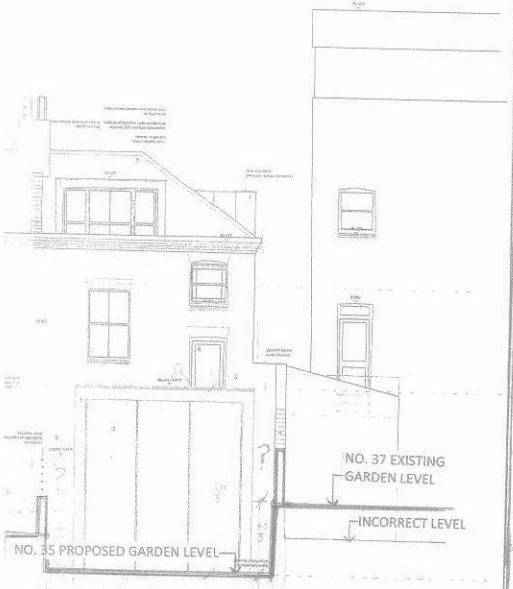
iii. Slopping wall in the garden of No37m,2.6 long, which is not bonded in to the shared wall and forms a side to the conservatory at No.35. This wall is shown as being demolished. The excavation depth for the new wall replacing this wall will be over 5.5m.

iv.The garden wall between no35 & No37. This is a party fence wall, there are conflicting proposals for it. The engineer proposes to rebuild it on top of a concrete retaining wall and the architect shows it as being refurbished, on top of another brick wall. Mr Eldred report considers the former as being impractical and no evidence is available as to how the later can be achieved.

The garden wall between No35 and No37 cannot be retained if it is to be underpinned because it will fall apart.

v. Neither reports mention the 9" brick wall between the front side areas at No 35&No37.It is leaning badly towards No35. Any work on the drain in the area of No35 or vibration could cause this wall to collapse.

vi. There is a small nib of brick work between the flank wall and the party wall.



NO. 35 PROPOSED REAR

DRAWING (1)201

NO. 37 EXISTING REAR

NO. 35 EXISTING REAR

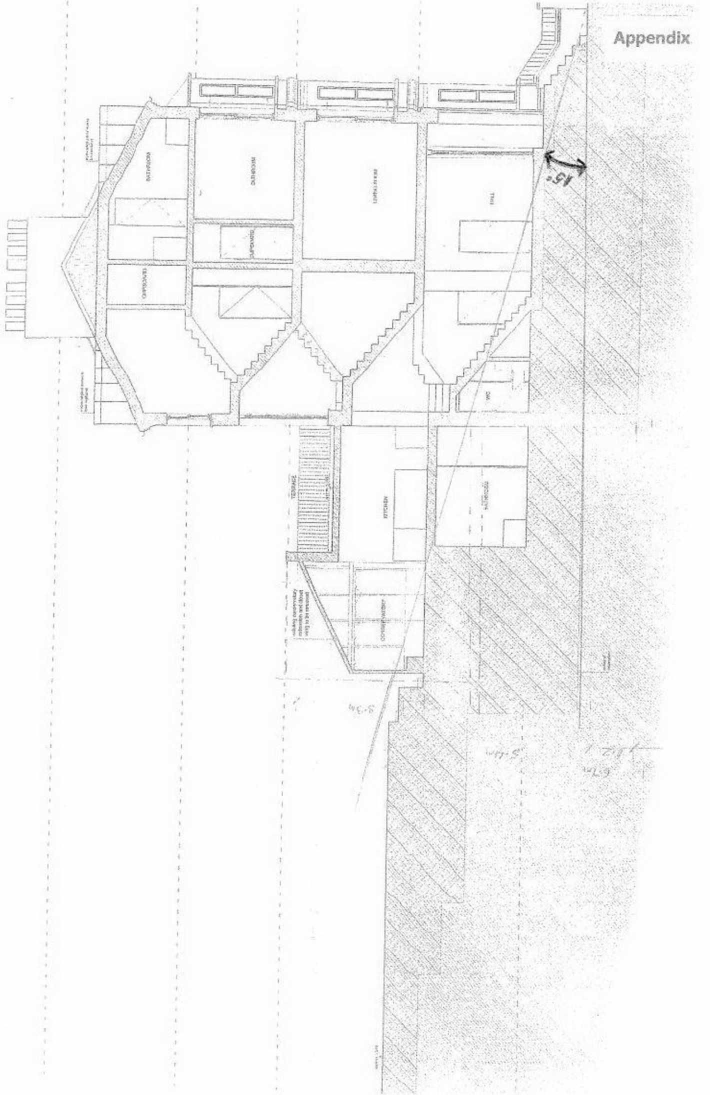
DRAWING (0)201

NO. 37 EXISTING REAR

Previous Application 2013

Appendix 3

Appendix

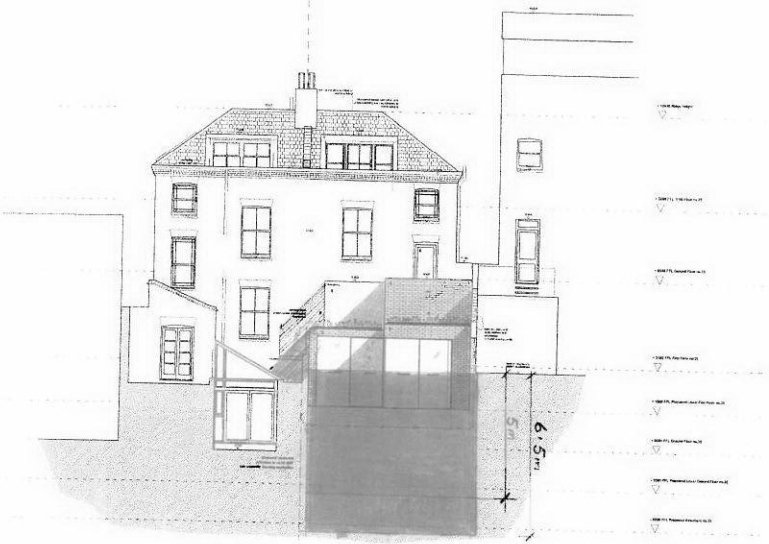


DRAWING 1

EXISTING SECTION C-C

DRAWING 1

DRAWING 2



PROPOSED REAR ELEVATION

Key

1. Two-storey pre-modified rear
2. Obscure glazing above 1.7m above ground level
3. Hip to gable roof extension
4. Rear extension to match existing
5. Obscure glazing to match existing
6. Rear roof slope to match existing
7. Velux roof lights to match existing
8. Obscure glazed sliding doors to match existing

On hard copy
The contractor is to check all dimensions on site before commencing any work or shop drawings. Any discrepancies are to be reported to the architect immediately. Do not scale from this drawing. This drawing is copyright.

David Hilliard Architects
9-11 Bermondsey Street
London SE1 3XB

Project: 35 South Hill Park

Client: Carole & Andrew Morley

PROPOSED REAR ELEVATION

AL(1)203

Scale: 1:50 @ A1 | 1:100 @ A3

Drawing Status: Date:

PLANNING 10/01/2014

DRAWING 2

Photo 1

Shoring up a cracked bay adjoining a property with a recently completed new basement and swimming pool at no94 South Hill Park.

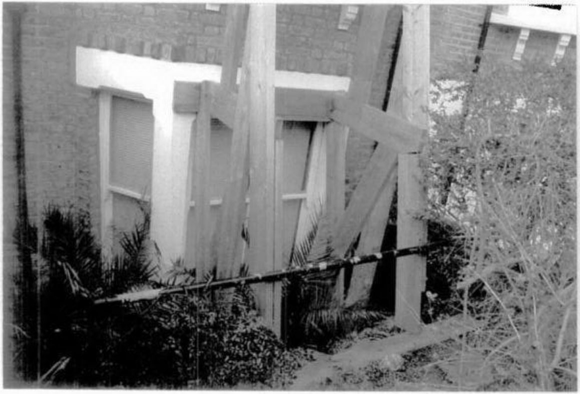


Photo 1

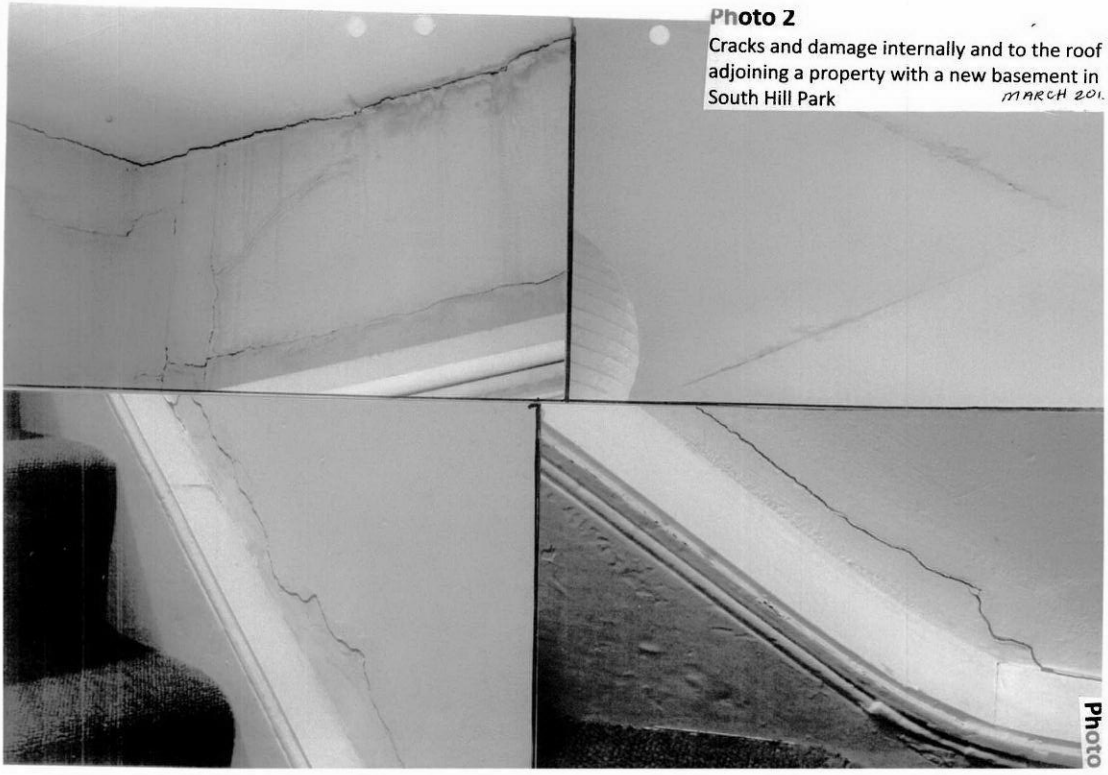


Photo 2

Cracks and damage internally and to the roof adjoining a property with a new basement in South Hill Park

MARCH 201

Photo

Photo 3

View up South Hill Park
towards no1 and 2 SHP Gardens.
An HGV turning to back up to no 47.
As one leaves another arrives.

Photo 3

PHOTO 4

PHOTO 4

Photo 5

Existing forecourts in South Hill Park.
On left unauthorised and out of character with the CA.
Below planted forecourt enhancing character of CA

Schedule 1

A sample list of properties, by no means complete, in South Hill Park that have required underpinning and / or substantial excavation in the recent past, currently and in the future. (The dates when Building Control Applications commenced and were completed is provided if known).

No.	BCA commenced	BCA completed	Underpinned. Basement.	Comment
1	?	?	U	Both had subsidence
3				
25	1991		U	Both declared in a dangerous condition due to subsidence
27				
36	29.10.1996		U	Front steps SUBSIDENCE
40	1999		U	Both "founded on highly shrinkable clay to less than 300mm and that structural movement may be partially due or completely attributable to desiccation shrinkage of founding strata"
42				
16	15.04.2002		U	Subsidence
87	27.04.2007		U & B	Includes basement and lightwell
72	02.06.2008	1.11.2012	U & B	Includes basement and pool
74	02.04.2008	14.07.2011	U & B	Includes basement, DVD of noise is Available.
94	25.08.2009	09.08.2012	U & B	Includes basement & pool
92	?	?	U	Damage caused by 94 not assessed See photo 1 ongoing
54	?	1.4.14 COMPLETE		Front forecourt basement
56	16.12.2011	1.4.14 ongoing COMPLETE	U & B	Front forecourt basement
25	21.03.2011	23.04.2012	U & B	Photo 2 of damage next door, now Polyfilled but not decorated, ongoing
71	27.01.2012	ongoing	U & B	Includes basement & lightwell
87	27.04.2007	complete	U & B	Includes basement & lightwell
85	27.08.2013	ongoing	U & B	Includes basement & lightwell
15	applying for PP		U & B	Basement extended under rear garden Revision submitted
66	applying for PP	GRANTED 17.2.14	U & B	Basement under footprint & forecourt
33	APPLY PP. 3.14 withdrawn PA		U & B	Basement, BIA being negotiated & resubmitted
35	APPLY PP 3.14 withdrawn PA		U & B	Double basement extended under Garden & to be resubmitted

(PA means planning application)

Map 1


Nos. 33 + 35 SHP.
Hampstead Ponds
SOUTH HILL PARK
PARLIAMENT HILL
NASSINGTON ROAD
Allotment Gardens
Hampstead Heath Station
CONSTANTINE ROAD