100 Avenue Road

Contaminated Land Assessment

February 2025

REGAL

Design Note

S73 – Planning Application

Robert Bird Group
Member of the Surbana Jurong Group

Note Title

Client Name: Regal Avenue Road Ltd
Project Name: 100 Avenue Road
Project No: 5416
Document No: 5416-RBG-XX-XX-DN-GE-00001

Issue	Description	Author	Approved (Sign)	Date
01	For Information	Jasper Yu	Tim Hartlib	17/01/2025
02	For Stage Approval	James Black	Tim Hartlib	11/02/2025

1.0 Introduction & Purpose

The purpose of this design note is to provide details for the proposals for the 100 Avenue Road project and confirm any risks and associated mitigation measures required with regard to the presence of contamination across the site.

The Implemented Permission (ref. 2014/2617/P) was granted via Appeal (ref. APP/X5210/W/14/3001616) on 18 February 2016. It has been subject to further scheme amendments facilitated under Section 96a of the Town & Country Planning Act (1990) (As Amended) and has been lawfully implemented, which was confirmed with a certificate of lawfulness issued on 8 February 2018 (ref: 2017/6884/P).

This implemented permission is to be a s.73 amendment application, and this note takes into account the previous details approved in respect of Condition 14 and the remediation / ground works undertaken on-site as part of the Implemented Permission and to consider the Site's continued suitability for residential, commercial, and community uses.

This note has had due regard to the requirements of Condition 14 (Land Contamination) attached to the Implemented Permission, as shown below and included in Appendix A:

> *Condition 14:*
> *Development shall not commence below ground level until a scheme for the following has been submitted to and approved in writing by the council:*
>
> 1. *An intrusive land contamination survey and the written results. Laboratory results must be provided as numeric values in a formatted electronic spread sheet.*
> 2. *A remediation scheme, if necessary, shall be agreed in writing with the Local Planning Authority.*
>
> *The scheme as approved shall be implemented before any part of the development hereby permitted is occupied.*
>
> *Reason: To protect future occupiers of the development from the possible presence of ground contamination arising in connection with the previous industrial/storage use of the site in accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 of the London Borough of Camden Local Development Framework Development Policies.*

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in accordance with the agreement between the Client and Robert Bird & Partners Ltd. Robert Bird & Partners Ltd accepts no liability or responsibility whatsoever for any use of or reliance upon this report by any third party. Any copying of this report to external parties requires the permission of the Client and Robert Bird & Partners Ltd. © ROBERT BIRD & PARTNERS LIMITED. UK Company No. 4472743. Level 1, 47-51 Great Suffolk Street, London SE1 0BS.

2.0 Relevant National, Regional and Local Planning Context

Reference to the National Planning Policy Framework issued in December 2024 (NPPF 2024) (Ministry of Housing Communities & Local Government, 2024), Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.

Planning conditions should be kept to a minimum and only imposed where they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects. Agreeing conditions early is beneficial to all parties involved in the process and can speed up decision making. Conditions that are required to be discharged before development commences should be avoided, unless there is a clear justification

Planning obligations must only be sought where they meet all of the following tests:
a) necessary to make the development acceptable in planning terms;
b) directly related to the development; and
c) fairly and reasonably related in scale and kind to the development.

Paragraph 196 and 197 of the NPPF 2024 are applicable to the Site. These paragraphs are outlined:

Paragraph 196 *- Planning policies and decisions should ensure that:*

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

Paragraph 197 - *Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.*

The Camden Local Plan Policy A1 outlines the way in which Council will manage the impact of development. Council will *grant permission for development unless this causes unacceptable harm to amenity.* In this, Camden will:

a) Seek to ensure that the amenity of communities, occupiers and neighbours is protected.
b) Seek to ensure development contributes towards strong and successful communities by balancing the needs of development with the needs and characteristics of local areas and communities.
c) Resist development that fails to adequately assess and address transport impacts affecting communities, occupiers, neighbours and the existing transport network; and
d) Require mitigation measures where necessary.

Policy A1 is applicable to the Site as the factors to be considered by Council include section m) contaminated land.

Further, Paragraph 6.25 of the Camden Local Plan states:

> *Development on contaminated land can expose people to a wide range of potential health risks. Examples of sites that may have contaminated land include those that have been used for vehicle repair, industrial processes and petrol stations. The Council will expect proposals for the redevelopment of sites that are known to be contaminated, have the potential to be contaminated, or are located in close proximity to such sites to submit relevant assessments and take appropriate remedial action to the Council's satisfaction if required. Remedial action is particularly important in developments where people will have access to the ground for gardening, play or planting food for consumption.*

The Site was previously used in the manner described above. The previous landowner, Essential Living (Swiss Cottage) Limited subsequently investigated the Site for contaminated land risks. A summary of the contamination risk based on the Geo-environmental report for the site is included in Section 5.0 of this report.

3.0 Previous Development

The implemented permission of this project is the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (Class C3) and up to 1,041sqm of flexible retail/financial or professional or café/restaurant floorspace (Classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements.

Whilst demolition works and basement construction works have undertaken by the previous owner (Essential Living (Swiss Cottage) Limited), above ground construction works in respect of the Implemented Permission have stalled.

Regal Avenue Road Limited acquired the Site in 2024 and intend to bring forward the scheme as soon as practicable, subject to securing some amendments to the Implemented Permission to ensure its deliverability and compliance with the latest standards / Building Regulations.

The Geoenvironmental Interpretative Report included at Appendix B was submitted to discharge Part 1 of Condition 14 and this was approved on 12/12/2017. Part 2 of Condition 14 is yet to be discharged, and remains outstanding until the associated Verification Report is submitted.

A copy of the formal decision notice pursuant to Condition 14 part 1) is included in Appendix C.

4.0 Proposed Works

The site ownership has since been transferred to Regal Avenue Road Limited . The proposed development by Regal Avenue Road Limited includes demolition of the existing building and redevelopment comprising residential units (Class C3) and flexible commercial, business and service use (Class E) and community use (Class F2(b)) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements. Refer to Figure 1 for a site location plan.

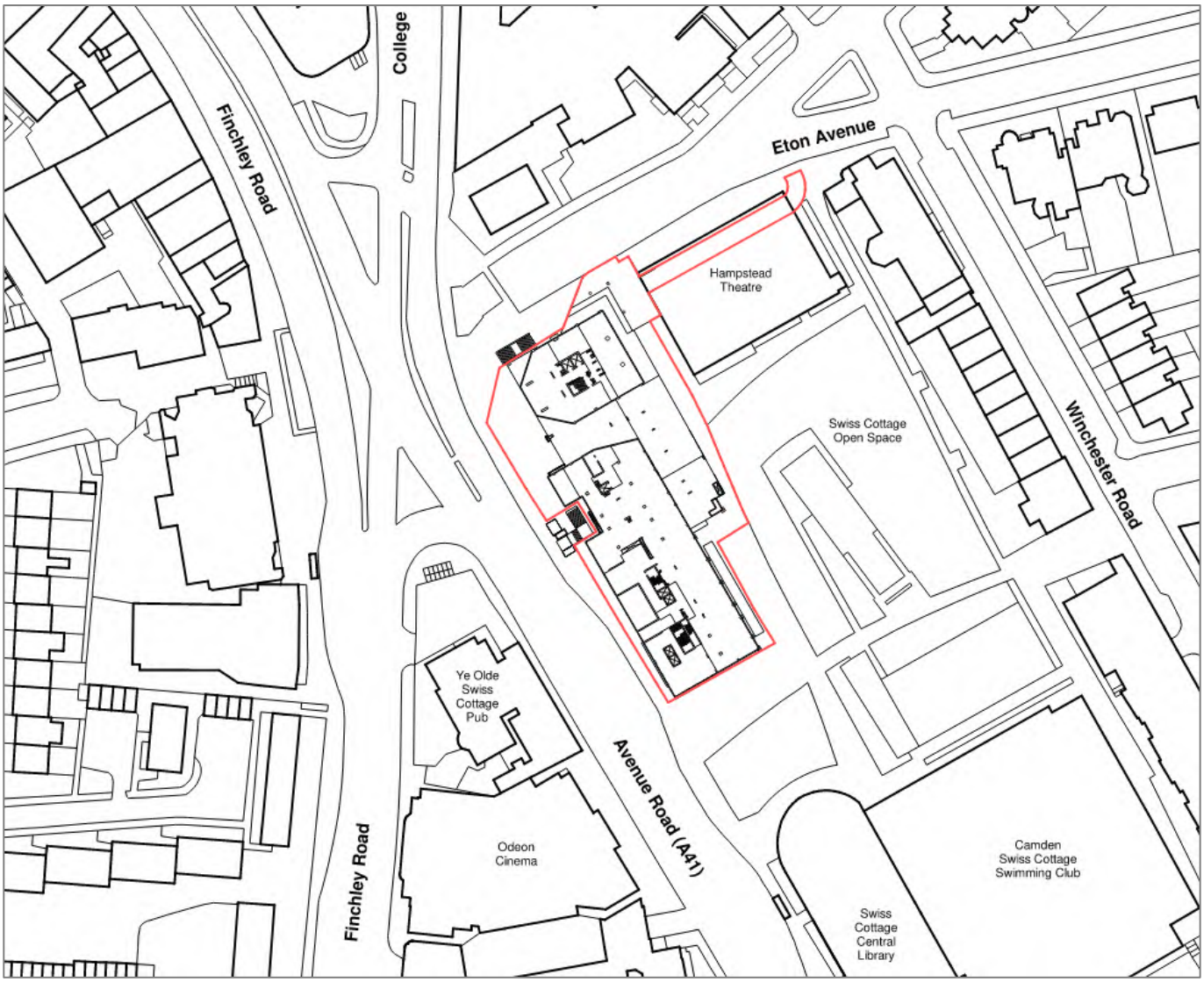


Figure 1: Site Layout

5.0 Summary of Contamination Risk

The findings of the Geo-environmental interpretative report completed for the development (Appendix B) indicate that measured concentrations of contaminants within the Made Ground and natural deposits are below the relevant screening criteria, this was approved in respect of part 1 of Planning Condition 14.

Asbestos was not encountered in the soils. Based on the one ground gas monitoring round undertaken, one elevated concentration of carbon dioxide was recorded in the shallow Made Ground above the basement box. However, based on the proposed development plans, it is considered that organic rich Made Ground to the east of the current building, which is currently on top of the existing basement, will be removed during the basement widening and deepening works and therefore the concentration of carbon dioxide recorded at that location is not considered to be a typical representative maximum concentration.

The gas risk assessment concluded that the site is characteristic situation 1 (CS1) classification on the basis that the concentrations recorded in this borehole are not representative of typical maximum concentrations beneath the site. Characteristic situation 1 (CS1) indicates that gas protection measures were not required within the proposed development.

Based on the Geo-environmental interpretative report, it is considered that remediation / mitigation measures from the previous development had included removal of existing tanks and substation (including visual inspection of soils beneath the tanks and substation during deepening of the basement to confirm no visual evidence of contamination), asbestos survey and appropriate mitigation works by a specialist contractor, the correct design of concrete, provision of a growth medium in tree planters, and a watching brief and discovery strategy. As the previous work on the site included the removal of existing tanks, the substation and all of the above actions it can be confirmed that the source of contamination is no longer present.

As such, the remediation measures noted above will have satisfied Part 2 of Planning Condition 14, and a future application to discharge this part of Condition 14 will be submitted in due course.

As a result, there are no further risks associated with contaminated in the ground on the Site and the Site is therefore suitable to accommodate residential, commercial and community uses in accordance with the revised scheme which is the subject of this s.73 Application.

6.0 Conclusion

Given the above, it is concluded that the risk to site receptors including site workers and end users coming into contact with ground borne contamination a result of undertaking the proposed works is negligible given that all required mitigation measures were undertaken in the previous phase of works.

7.0 References

Ministry of Housing Communities & Local Government. (2024, December). *National Planning Policy Framework*. Retrieved from GOV.UK: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Appendix A

Department for Communities and Local Government

Ms Lorna Henderson
Turley
17 Gresse Street
London
W1T 1QL

Our Ref: APP/X5210/W/14/3001616

18 February 2016

Dear Madam,

TOWN AND COUNTRY PLANNING ACT 1990 – SECTION 78
APPEAL ESSENTIAL LIVING (SWISS COTTAGE) LTD
100 AVENUE ROAD, LONDON, NW3 3HF

1. I am directed by the Secretary of State to say that consideration has been given to the report of the Inspector, Graham Dudley BA (Hons) Arch Dip Cons AA RIBA FRICS, who carried out an Inquiry which was held on 14 – 17 July, 20 – 24 July and 10 August 2015 into your client's appeal against a decision of the London Borough of Camden ('the Council') to refuse planning permission for the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (class C3) and up to 1,041sqm of flexible retail/financial or professional or café/restaurant floorspace (classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements in accordance with application reference 2014/1617/P, dated 28 February 2014.

2. The appeal was recovered for the Secretary of State's determination on 11 March 2015, in pursuance of section 79 of, and paragraph 3 of Schedule 6 to, the Town and Country Planning Act 1990, because the appeal involves a proposals for residential development of over 150 units or on sites of over 5 hectares, which would significantly impact on the Government's objective to secure a better balance between housing demand and supply and create high quality, sustainable, mixed and inclusive communities.

Inspector's recommendation and summary of the decision

3. The Inspector recommended that the appeal be allowed subject to conditions. For the reasons given below, the Secretary of State agrees with the Inspector's conclusions, except where stated, and agrees with his recommendation. A copy of the Inspector's report (IR) is enclosed. All references to paragraph numbers, unless otherwise stated, are to that report.

Department for Communities and Local Government
Planning Central Casework Division,
3rd Floor, South East Quarter
Fry Building
2 Marsham Street
London, SW1P 4DP

Tel: 0303 444 2853
Email: PCC@communities.gsi.gov.uk

Procedural matters

4. On 3 November 2015 the Secretary of State wrote to the Council to clarify that the proposed planning obligations conform with the Community Infrastructure Levy (CIL) Regulations 2010, Regulation 123(3) as amended, concerning limitations on the use of planning obligations in the determination of planning applications and appeals. The Council responded on 16 November 2015.

5. The Secretary of State has had regard to correspondence submitted too late to be considered by the Inspector, as set out in Annex A to this letter. He has carefully considered and taken into account these representations but he does not consider that they raise new issues that would affect his decision or require him to refer back to parties. Copies of the representations received can be made available on written request to the address at the foot of the first page of this letter.

Policy and Statutory considerations

6. In deciding the appeal, the Secretary of State has had regard to section 38(6) of the Planning and Compulsory Purchase Act 2004 which requires that proposals be determined in accordance with the development plan unless material considerations indicate otherwise. In this case, the adopted development plan for the area comprises The London Plan (adopted July 2011), the Revised Early Minor Alterations to the London Plan (2013), Further Alterations to the London Plan (2015), Camden Core Strategy (CS) and Development Policies (DP) (both adopted November 2010) and the Camden Site Allocations Development Plan Document. Relevant Supplementary Planning Guidance includes the Mayor's Housing Standards SPG and Camden's Planning Guidance document.

7. In accordance with section 66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 (the LBCA Act), the Secretary of State has paid special regard to the desirability of preserving listed structures or their settings or any features of special architectural or historic interest which they may possess. In accordance with Section 72 of the LBCA Act the Secretary of State has paid special attention to the desirability of preserving or enhancing the character or appearance of a conservation area.

8. The Secretary of State considers that the development plan policies most relevant to the appeal are those set out by the Inspector at IR11-43.

9. Other material considerations which the Secretary of State has taken into account include: the National Planning Policy Framework ('the Framework'), and the planning guidance published in March 2014. The Secretary of State has also had careful regard to the Tall Buildings: Historic England Advice Note 4 published 10 December 2015 which replaces and cancels the 2007 joint English Heritage/CABE guidance and considers, in the light of the facts of this case, that changes to the guidance do not alter his conclusions or decision.

Main issues

10. The Secretary of State agrees that the main disputed issues in this case are those outlined by the Inspector at IR232-233.

Heritage Assets

11. The Secretary of State has carefully considered the Inspector's analysis at IR234-241 and agrees for the reasons given that while there is no specific duty under Section 72(1) of the LBCA Act to consider the setting of conservation areas, it is established practice that views into and out of a conservation area and any effect on character and/or appearance are

relevant (IR234) and the correct assessment of harm to Conservation Areas, as designated heritage assets in the Framework, is the effect on the character and/or appearance of the conservation area as a whole while acknowledging that this does not mean that any harm identified has to be over the whole area, and harm in one part of the conservation area (or outside) could have an effect on the conservation area as a whole. He further finds, in agreement with the Inspector that great weight should be given to the assets' conservation (IR235).

12. The Secretary of State agrees with the Inspector that no listed building is physically affected by the proposal apart from the Hampstead Figure Sculpture and generally it is the setting of various listed buildings that needs to be considered (IR236).

13. The Secretary of State agrees with the Inspector's interpretation of policies CS5, CS14 and DP25 for the reasons given (IR237-238). He agrees with the Inspector that the aim of policies CS5, CS14 and DP25 is to seek development which both preserves and enhances heritage assets, but that development that only preserves the assets or would not cause harm to them would also effectively satisfy the Framework policy tests (IR238). The Secretary of State considers that the heritage aims of policies CS5, CS14 and DP25 are closely aligned with paragraph 126 of the Framework, which, amongst other things, refers to the desirability of sustaining and enhancing the significance of heritage assets and the desirability of new development making a positive contribution to local character and distinctiveness. As such, and applying paragraph 215 of the Framework he gives full weight to policies CS5, CS14 and DP25.

14. The Secretary of State notes that the effects on heritage assets were considered by Historic England who indicated that they did not consider that there would be effects on the historic environment of such significance that they needed to continue to be involved. He agrees with the Inspector that if Historic England had considered that there was a notable unacceptable impact that he would have expected them to have commented (IR241). However, he also agrees with the Inspector that just because Historic England did not comment does not mean that there was no harm to be identified as they considered that was to be left to the Council (IR241).

15. The Secretary of State has carefully considered the Inspector's analysis of the effects on the significance, character and appearance of the various nearby conservation areas at IR242-275. Likewise, he has carefully considered the Inspector's analysis of the effects on the significance and special architectural and historic interest of listed buildings, as well as evidence put to the Inquiry by the parties in these respects, and national policy in Section 12 of the Framework.

Conservation Areas

16. The Secretary of State agrees with the Inspector that the development would cause 'less than substantial' harm, in Framework terms, to the Belsize Conservation Area associated with the view from Belsize Park (IR245-260). He also agrees with the Inspector, for the reasons given, that the character and appearance and significance of the Fitzjohn's and Netherhall Conservation Area would be preserved (IR261-265), as would the significance and special architectural and historic interest of the Alexandra Road Conservation Area (IR272-275). Further, the Secretary of State agrees with the Inspector for the reasons given that with regard to the Elsworthy Road, St John's Wood and South Hampstead Conservation Areas their character and appearance and significance would be preserved and the Conservation Areas unaffected (IR266-271).

17. Overall, the Secretary of State attaches considerable weight to the 'less than substantial' harm he finds to the Belsize Conservation Area. Applying paragraph 134 of the Framework, the Secretary of State weighs this harm against the public benefits of the proposal, including securing its optimum use.

Listed Buildings

18. In deciding this appeal, the Secretary of State has had special regard to the desirability of preserving any listed building or its setting or any features of special architectural or historic interest which it possesses, as required by section 66 of the LBCA Act.

19. The Secretary of State has carefully considered the assessment of the impact of the scheme on the listed buildings identified at IR276-295 and IR296-303 of the Inspector's Report.

20. As to the Hampstead Figure Sculpture, the Secretary of State notes it would be necessary to remove the listed sculpture and reposition it after the works are complete (IR283). He agrees with the Inspector that there is likely to be a significant enhancement to the setting of the sculpture and therefore the special architectural and historic interest would be likely to be enhanced (IR286). As to the Swiss Cottage Library, the Secretary of State agrees with the Inspector that the proposal would enhance the town centre setting and therefore also the significance of the listed building and its special architectural and historic interest would be enhanced (IR279).

21. Considering the Regency Lodge and the Fire Station at Lancaster Grove and Eton Grove (IR287-292), the Secretary of State agrees with the Inspector for the reasons given that the impact of their significance would be neutral and their significance, special architectural and historic interest would be preserved (IR288 & 292). Turning to the Alexandra Road Estate and Primrose Hill Tunnels (Entrance), the Secretary of State concludes for the reasons given that the proposal would not cause any impact on the setting or affect the significance or special architectural and historic interest of the listed buildings (IR295).

22. With regard to the effect on the significance and special architectural and historic interest of the other listed buildings in the surrounding area identified by other parties, the Secretary of State agrees with the Inspector's analysis for the reasons given at IR296-303 that the introduction of the appeal proposal would not have any impact on the special architectural and historic interest or significance of these listed buildings.

Undesignated heritage assets

23. The Secretary of State has carefully considered the Inspector's analysis of the effects on the setting and therefore significance of certain locally-listed buildings, namely the Swiss Cottage Open Space (IR304), the Hampstead Theatre (IR305), the Swiss Cottage Leisure Centre (IR306), the Royal Central School of Speech and Drama (IR307-308) and the Swiss Cottage Inn (IR309). He has also had regard to the evidence put to the inquiry by the parties in this respect, and national policy in paragraph 135 of the Framework. For the reasons given at IR304-309 the Secretary of State agrees with the Inspector that the significance of the non-designated heritage assets would not be harmed by the proposal.

Conclusion on Heritage Assets

24. Overall, the Secretary of State agrees with the Inspector for the reasons given that the proposal generally accords with the aims and objectives of CS Policies CS5 & CS14, DP Policy DP25 and LP Policy 7.8. However, he also agrees with the Inspector for the reasons given that there is some harm in terms of CS Policies CS5, CS14 and DP25 to be carried

through into the planning balance, due to the 'less than substantial' harm the development would cause to the Belsize Conservation Area in respect of the view from Belsize Park.

Character and Appearance

25. The Secretary of State has carefully considered the Inspector's analysis of the effect on the character and appearance of the surrounding area at IR311-320 and the evidence put to the inquiry by the parties in this respect. He agrees that the existing building is attractively designed and generally well thought out in relation to its surroundings, while acknowledging that the ground floor poorly relates to the surrounding area and the provision of active frontages around the building would considerably improve the urban environment (IR311). Comparing the existing building with the proposed building, the Secretary of State agrees with the Inspector that there is no doubt there would be a considerable change in the size of the buildings, which will have a greater presence and that the extent of the change for the area is not the main consideration, but whether what is proposed would be acceptable in the context of its surroundings (IR312).

26. The Secretary of State agrees with the Inspector for the reasons given that the proposed development would not have any direct impact on the setting, amenity value or significance of the park at Primrose Hill (IR314) and that the principle of development for residential and commercial uses is appropriate, the site being in the town centre and not far from many other residential developments (IR316).

27. As to whether the buildings are appropriately scaled, in terms of height and massing, in their surrounds and the other design consequences of the scheme, the Secretary of State notes that there are a number of tall buildings near to the appeal site and that the Camden Site Allocations Local Development Document identifies the appeal site as being appropriate for the type of development proposed, noting the potential for taller buildings (IR316).

28. Overall, and for the reasons given in IR311-320, the Secretary of State agrees with the Inspector that the proposal meets the criteria of the Camden Site Allocations Policy and concludes, in agreement with the GLA and the Design Council, that it would be a well designed, attractive building that sits well within its town centre context. However, he agrees with the Inspector that this must be an expectation of new development and therefore adds minimal weight to the planning balance (IR391). He further agrees with the Inspector that the proposal accords with policies CS3, CS5, CS7 & CS15, DP24 & DP31 and LP policies 2.15, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 4.7, 4.8 and 7.7.

Sunlight and Daylight

29. The Secretary of State has carefully considered the Inspector's assessment of sunlight and daylight issues at IR321-332 and the BRE Site Layout Planning for Daylight and Sunlight Guide 2011 ('BRE guidance'). He has also had regard to the views of the Design Council who considered the impact on sunlight/daylight in considerable detail and concluded, following changes after their initial comments, that it was acceptable (IR332).

30. The Secretary of State agrees with the Inspector that the additional shading would not have an unacceptable impact on the amenity provided by the Swiss Cottage Open Space and generally would comply with the BRE guidance (IR327). As to the additional shading of the pedestrianised end of Eton Avenue, where markets are held, he agrees with the Inspector for the reasons given that the markets would not be unacceptably affected and their amenity, social and economic value would remain (IR328). Furthermore, he agrees with the Inspector for the reasons given that the impact on the residences at Cresta House in terms

of daylight and sunlight would be minimal and would accord with BRE recommendations (IR329-330).

31. Overall, the Secretary of State agrees with the Inspector for the reasons given that the increase in shading is a harm that weighs against the proposal, and he affords moderate weight to this.

Other Amenity Issues

32. The Secretary of State has carefully considered the Inspector's analysis of other amenity issues at IR333-342. Like the Inspector he does not consider the additional overlooking would have any significant impact on the use of the Swiss Cottage Open Space or harm its amenity for users (IR334). He agrees that the significant increase in residential use at the appeal site would result in a greater use of the Swiss Cottage Open Space and considers, in agreement with the Inspector, that this would be an enhancement in terms of increased vitality of the area (IR335). He also agrees with the Inspector for the reasons given that in view of the distance from the properties and control of opening hours, that there is unlikely to be unacceptable noise and disturbance generated by the properties (IR336-337).

33. The Secretary of State agrees with the Inspector for the reasons given that while the appearance of the setting would change, the civic/town centre character would not (IR339). Overall, he agrees with the Inspector and does not consider there would be an unacceptable impact on the Swiss Cottage Open Space (IR338-339). He agrees with the Inspector's assessment as to the impact of the proposed development as experienced from the swimming pool (IR340) and from the various residential properties around the proposed development for the reasons given at IR340-341.

34. Overall, the Secretary of State agrees with the Inspector for the reasons given that the proposal accords with CS Policy CS5, DP Policy DP26 and LP Policy 7.7 (IR342).

Other Matters

35. The Secretary of State has carefully considered the Inspector's analysis at IR343-350 in regard to air quality, along with evidence put to the inquiry by the parties in this respect and overall agrees that, with the recommended mitigation measures in place, air quality is not considered to be a significant consideration for the proposed development (IR350).

36. Turning to the impact from any increase in wind speed, the Secretary of State considers that suitable micro climate mitigation measures are incorporated within the design to mitigate potential adverse wind environments arising from the development which are secured by condition 15. He considers that condition 15 is appropriate and necessary and would meet the tests of paragraph 206 of the Framework. For the reasons given by the Inspector at IR351-357 the Secretary of State concludes that, with these suitable mitigation methods, no harm to the users of the area would be caused and the proposal would accord with CS Policies CS5 & CS15, DP Policies 26 and DP31 and LP Policies 5.1 and 5.2 (IR357).

37. The Secretary of State has considered the Inspector's comments at IR358 and like him does not consider that the new entrance to the Avenue would result in any significant impact on the safety of the users of the Swiss Cottage Open Space. He further agrees with the Inspector for the reasons given that while the gas reduction valve adjacent to the appeal site is reasonably close to the building, he does not consider that this is a safety issue (IR359).

38. As to road access issues, the Secretary of State has carefully considered the Inspector's analysis (IR360-364) and the evidence put to the inquiry by the parties in this respect. He

notes that the appeal site is in a town centre location directly adjacent to the Swiss Cottage underground station with the highest achievable PTAL Level on routes ideally located for a car free development as proposed (IR360). The Secretary of State agrees with the Inspector for the reasons given that there is no reason why with good management service access to the property cannot be controlled (IR362). Overall, the Secretary of State agrees with the Inspector that the traffic impacts of the development would not be substantial and certainly not severe as indicated at paragraph 32 of the Framework (IR363) and that the proposal would accord with CS Policies CS5 & CS15, DP Policy 26 and LP Policy 3.6.

39. As to tree issues, the Secretary of State has carefully considered the Inspector's analysis (IR365-368) and the evidence put to the inquiry by the parties in this respect. Overall, the Secretary of State agrees with the Inspector for the reasons given that the loss of trees to the south of the appeal site would cause some harm to amenity which weighs against the scheme, to which he attaches moderate weight.

40. As to the community facility, the Secretary of State agrees with the Inspector for the reasons given (IR369-370) that the allocation of the community space, whether taken up by the Winchester Project or others, is a significant benefit to go into the planning balance.

5 Year Housing Land Supply

41. The Secretary of State agrees with the Inspector for the reasons given that the Council has a 5 year housing land supply (IR371).

Housing Issues

42. The Secretary of State has carefully considered the Inspector's analysis of housing issues at IR371-373 and agrees (IR372) that great weight should be attached to the housing provision proposed.

43. The Secretary of State has carefully considered the concerns raised by interested parties about the number of affordable units proposed. He has also had regard to the viability appraisal and the Inspector's analysis of the issue (IR373). He notes the Council and the Appellant agree (IQ30): that the provision of 36 affordable units and 18 discounted market housing units for 15 years comprises a policy compliant affordable housing provision having regard to the viability of the proposed scheme with the provision secured by way of a section 106 obligation; that the s106 agreement includes a review mechanism requiring the viability of providing affordable housing to be re-assessed at the end of the project (within one year after the date of practical completion of the development) and if it is found that there should have been more affordable units a mechanism is set out for adjustment by a deferred payment; that a provision permitting the use of the community space for additional affordable units is necessary if the community space within the scheme is no longer required; and that as such the proposals would satisfy the provisions of Policies CS6 and CS19 and Policies DP3 and DP4. Overall, the Secretary of State agrees with the Inspector for the reasons given that the viability study and method of ensuring that adequate affordable housing is provided is fairly and reasonably related in scale and kind to the proposed development and necessary having regard to the policy framework and the housing needs of the Borough (IR373).

Environmental Impact Assessment

44. The Secretary of State notes the Save Swiss Cottage Group queried why the proposals were negatively screened for EIA purposes (IR374) although it is noted that they do not state that the proposal is EIA development or formally request that the screening decision be reviewed. Like the Inspector, in reaching his decision on the appeal, the Secretary of

State has taken into consideration the extensive environmental information submitted and evidence from consultation bodies and other organisations (IR374).

Planning Obligations and Conditions

45. The Secretary of State has carefully considered the s106 agreement, the Inspector's analysis at IR375-383, national policy set out at paragraphs 203-205 of the Framework, the relevant planning guidance, and the CIL Regulations 2010 as amended.

46. The Secretary of State agrees with the Inspector for the reasons given that the requirements for affordable housing (IR376); parking (IR377); public realm (IR378) the Construction Management Plan, Service Management Plan and the Travel Plan (IR379); local procurement/local employment, Energy Efficiency, Community Facility and potential New Station Access (IR380) and waste disposal and recycling (IR381) are all necessary, fair and reasonably related to the development. However, he also agrees with the Inspector, for the reasons given at IR382, that the clause in the obligation relating to the project architects is not compliant with the CIL Regulations or paragraph 204 of the Framework, as it is not necessary to make the development acceptable in planning terms. Overall, the Secretary of State agrees with the Inspector for the reasons given that the s106 requirements, save for the project architects clause, complies with Regulation 122 of the CIL Regulations and the tests at paragraph 204 of the Framework.

47. Having carefully considered the s106 agreement and the Council's response letter referred to in DL4, above, the Secretary of State concludes: That the contributions relating to affordable housing are excluded from Regulation 123; that the external public open space maintenance contribution is an obligation specific to this particular area of open space being provided and does not form part of any wider project or infrastructure provision; that the landscape and public realm contributions relate solely towards the proposal and do not form part of any wider project or infrastructure provision; that the travel plan monitoring contribution is a contribution towards the cost to the Council of monitoring the travel plan that will be agreed in respect of the development and is site specific and not part of any wider project; and that with respect to the carbon reduction contribution, the Council confirmed that 5 or more separate obligations have not already been entered into since April 2010 within the relevant area which provide for the funding of that infrastructure project or type. The Secretary of State agrees with the Council that aside from these financial contributions that the s106 agreement contains site specific obligations relating to the carrying out, management and operation of this particular development and that none of the obligations provide for the funding or provision of an infrastructure project which has been part funded or provided by any other obligation.

48. The Secretary of State has considered the Inspector's comments at IR384 on planning conditions and the schedule of agreed conditions he recommends at Annex A of his report together with the reasons for them and is satisfied that the proposed conditions are reasonable and necessary and would meet the tests of paragraph 206 of the Framework and the planning guidance.

Planning balance and conclusion

49. In deciding this appeal, the Secretary of State has had regard to section 38(6) of the Planning and Compulsory Purchase Act 2004 which requires that proposals be determined in accordance with the development plan unless material considerations indicate otherwise. In accordance with section 66(1) of the LBCA Act, the Secretary of State has paid special regard to the desirability of preserving listed structures or their settings or any features of special architectural or historic interest which they may possess. In accordance with

Section 72 of the LBCA Act the Secretary of State has paid special attention to the desirability of preserving or enhancing the character or appearance of a conservation area.

50. For the reasons given above, the Secretary of State considers that the proposal is in accordance with the development plan as a whole. He has gone on to consider whether there are material considerations in this case that indicate the appeal should be determined other than in accordance with the development plan.

51. Weighing against the proposal, for the reasons given above is the 'less than substantial harm' in Framework terms to the Belsize Conservation Area, to which the Secretary of State attaches considerable weight. Other factors that the Secretary of State finds weigh against the scheme are: the impact on trees, to which he attaches moderate weight; disruption during construction, to which he attaches little weight for the reasons in IR392; the impacts on views from around the area and the increase in shading in respect of the Swiss Cottage Open Space, both of which he gives moderate weight.

52. Weighing in favour of the appeal the Secretary of State finds, for the reasons given above: considerable social benefit in the provision of the proposed housing and affordable housing, and by the provision of space for community use; the potential for the underground station to be improved would also be a significant benefit; there would be an enhancement to the frontages of the buildings at ground level compared with the existing arrangement that could improve the vitality of the area (IR390); and that the proposed development is an attractive design and will fit in with the area, although he agrees with the Inspector for the reasons given that this adds minimal weight to the planning balance (IR391).

53. Applying paragraph 134 of the Framework, the Secretary of State considers that the public benefits of the proposal outweigh the less than substantial harm, in Framework terms, to the Belsize Conservation Area.

54. The Secretary of State considers, for the reasons above, and in agreement with the Inspector (IR395) that the social, economic and environmental benefits of the proposal make it sustainable development in terms of the Framework and that the substantial benefits considerably outweigh the harms that have been identified. He therefore concludes that there are no material considerations that indicate that the proposal should be determined other than in accordance with the development plan.

Formal Decision

55. Accordingly, for the reasons given above, the Secretary of State agrees with the Inspector's recommendation. He hereby allows your client's appeal and grants planning permission for the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (class C3) and up to 1,041sqm of flexible retail/financial or professional or café/restaurant floorspace (classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements in accordance with application reference 2014/1617/P, dated 28 February 2014 subject to the conditions listed in Annex B to this letter.

56. An applicant for any consent, agreement or approval required by a condition of this permission for agreement of reserved matters has a statutory right of appeal to the Secretary of State if consent, agreement or approval is refused or granted conditionally or if the Local Planning Authority fail to give notice of their decision within the prescribed period.

57. This letter does not convey any approval or consent which may be required under any enactment, bye-law, order or regulation other than section 57 of the Town and Country Planning Act 1990.

Right to challenge the decision

58. A separate note is attached setting out the circumstances in which the validity of the Secretary of State's decision may be challenged. This must be done by making an application to the High Court within six weeks from the date of this letter for leave to bring a statutory review under section 288 of the Town and Country Planning Act 1990.

59. A copy of this letter has been sent to the London Borough of Camden as well as representatives of the Rule 6 parties: Mr Reed, Belsize Residents' Association, Winchester Road Residents' Association, Cresta House Residents' Association, Eton Avenue Housing Association and Save Swiss Cottage Action Group. A notification letter has been sent to all other parties who asked to be informed of the decision.

Yours faithfully

Philip Barber

Authorised by Secretary of State to sign in that behalf

Annex A: correspondence submitted too late to be considered by the Inspector

From	Date
B Alter	17/03/2015
N Piercy	30/06/2015
A H Kay	06/07/2015, 10/07/2015
C Athanasius	08/07/2015
C Athanassious	08/07/2015
D Mackersey	08/07/2015
N Coleman	08/07/2015
P Rankin	09/07/2015
V & C Renton	09/07/2015
K Lawlor	10/07/2015
D Heinen	11/07/2015
J Marinkovic	11/07/2015, 10/07/2015
Rumenka	11/07/2015
I Smithers & D Angelova	13/07/2015
J Higgins	16/07/2015
M Barron	16/07/2015, 17/07/2015, 16/12/2015
R Grimm	15,16&17/07/2015 11/08/2015, 12/08/2015, 03/09/2015
G Chen	20/07/2015
No Name	20/07/2015
G Turner	23/07/2015
M Kirk	24/07/2015
T Ewing	24/07/2015
M Slade	04/08/2015
J Hovington	06/08/2015, 29/10/2015
D Reed	25/08/2015, 25/09/2015, 20/10/2015, 15/11/2015, 15/11/2015, 18/11/2015, 05/01/2016, 07/01/2015
T Siddiq MP	04/09/2015

From	Date
E Chambers	05/09/2015, 08/10/2015, 16/11/2015
J Sachs	29/09/2015, 09/11/2015, 10/11/2015, 16/11/2016, 15/01/2016, 08/02/2016
A Christiansen	04/10/2015
A Foden	04/10/2015
A Kramer	04/10/2015
A Laden	04/10/2015
C Green	04/10/2015
C Tobelem	04/10/2015
D Bethlehem	04/10/2015
D Greene	04/10/2015
DT Hsiung	04/10/2015
E Strange	04/10/2015
G Lee	04/10/2015, 19/10/2015
H Nowell-Smith	04/10/2015
HP Bogard	04/10/2015
J Manthorpe	04/10/2015
J Nasatyr	04/10/2015
J Snyder	04/10/2015
J Tims	04/10/2015
J Walker	04/10/2015
K Barron	04/10/2015
K Fernald	04/10/2015
K Levina	04/10/2015
K Morris	04/10/2015
M Jameson	04/10/2015
O Pavlova	04/10/2015
P Royston	04/10/2015
Q Lloyd-Harris	04/10/2015
R Brandon	04/10/2015
R Rosen	04/10/2015
RL Bunker	04/10/2015
S & D Montague	04/10/2015
S Gaudenzi	04/10/2015
S Perth	04/10/2015

From	Date
Y Klemperer	04/10/2015
A Charvet	05/10/2015
A&G Raingold	06/10/2015
B Alter	06/10/2015
B Bullock & K Dahlstrom	06/10/2015
B Tankel	06/10/2015
C Askar	06/10/2015
C Jackman	06/10/2015
D Schumacher	06/10/2015
Dr K von Abrams	06/10/2015
Dr S Collins	06/10/2015
E Broomberg	06/10/2015
E Raff	06/10/2015 16/11/2015
E Solnick	06/10/2015
FT Unkan	06/10/2015
G Denniss	06/10/2015
G Maclean	06/10/2015
G Young	06/10/2015
GP Adams	06/10/2015
H Djurkovik	06/10/2015
J Ezekiel	06/10/2015
J Israelsohn	06/10/2015
J Johnson	06/10/2015
J Mishon	06/10/2015
J Stephenson	06/10/2015
J Veale	06/10/2015, 04/12/2015
K & G Balint-Kurti	06/10/2015
L Veale	06/10/2015
M Dreyfus-Terrett	06/10/2015
M Monjardino	06/10/2015
R & R Vanderkar	06/10/2015
S Abraham	06/10/2015
S Khanna	06/10/2015
S Malin	06/10/2015
T Haiman	06/10/2015
T Salmon	06/10/2015
T Tugnutt	06/10/2015

From	Date
O Kooij	07/10/2015
S Cheifetz	07/10/2015
V Solti	07/10/2015
A Eastman	08/10/2015
C Cowdray	08/10/2015
C Eschenbach	08/10/2015
J Ooi	09/10/2015
A Richards	12/10/2015
J & H Heitz Jackson	12/10/2015
M Crossick	12/10/2015
R Sutton	12/10/2015
T Tugnutt	12/10/2015
B Barnett	13/10/2015
G Deane	13/10/2015
J Huntington	13/10/2015
L van der Pump	13/10/2015
E Brooks	14/10/2015
H Hallam	14/10/2015
R Fletcher	14/10/2015
R Mallard	14/10/2015
A Plattner	15/10/2015
D Cheifetz	15/10/2015
P Symonds	15/10/2015
C & C Rozes	16/10/2015
E Beinart	16/10/2015
V Stern	16/10/2015
A Brownjohn	17/10/2015
J Clarke	17/10/2015
A Stevens	18/10/2015, 01/12/2015
A Stocker	18/10/2015
A Thompson	18/10/2015
B Alden	18/10/2015
M Gretton	18/10/2015
M Herbst	18/10/2015
R Fletcher	18/10/2015
TL Wingrove	18/10/2015
A Nottage	19/10/2015
G Fitzgerald	19/10/2015
G Riley	19/10/2015
H Gregory	19/10/2015
J Lasik	19/10/2015
N Pearce	19/10/2015
P Cocks	19/10/2015
R Hopkirk	19/10/2015
G Avshalom	19/10/2015

From	Date
S Parry-Wingfield	19/10/2015
V Renton	19/10/2015
C Castelino	20/10/2015
L Stern	20/10/2015
M Bottcher	20/10/2015
R Morris	20/10/2015
S Bagherzade	20/10/2015
S Courtin & C Despins	20/10/2015
Yee	20/10/2015
D Court	21/10/2015
M Hall	21/10/2015
M McKinnon	21/10/2015
P Magnus	21/10/2015
C Michaelides	22/10/2015
L Darlington	22/10/2015
O Buhus	22/10/2015
H Stevens	23/10/2015
J eEarl	23/10/2015
M Shakeshaft	23/10/2015
P Peacock	23/10/2015
M Mackie	25/10/2015
R & E Kernick	25/10/2015
D Bernasconi	26/10/2015
D Gluckman	27/10/2015
B Smith	28/10/2015
J Webster	28/10/2015
L Klein	28/10/2015
S Stahl	28/10/2015
S Tylerman	28/10/2015
C Conaré	29/10/2015
E Evans	29/10/2015
M Lange	29/10/2015
E Evans	30/10/2015
L Corbin	30/10/2015
E Peel	02/11/2015, 03/11/2015, 04/11/2015, 04/11/2015
F de Freitas	02/11/2015
S Hadida	02/11/2015
L Tyndall	03/11/2015
C Heinsen	04/11/2015
K Parish	04/11/2015
M Vaswani	04/11/2015
J Richardson	05/11/2015
R Mistry	05/11/2015
D Strelitz	06/11/2015

From	Date
F Radford	06/11/2015, 02/12/2015
M Pharey	06/11/2015
D Preston	07/11/2015
K Bligh	08/11/2015, 15/12/2015
A Brightrell	09/11/2015
B Feder	09/11/2015
H Patel	09/11/2015
M Tornero	09/11/2015
R Oliner	10/11/2015
A Ziv	11/11/2015
M Högel	11/11/2015
R Olins	11/11/2015
V Phillips	11/11/2015
L McNeir	12/11/2015
L Michael	12/11/2015
H Braunsberg	14/11/2015
E Bonzanigo	16/11/2015
F Papageorgiou	17/11/2015
E Battaglia Trovato	19/11/2015
L Duggan	20/11/2015, 05/12/2015
S Miles	21/11/2015
D Ury	24/11/2015
S Hunter	24/11/2015
D Farrell	25/11/2015
C Esmond	30/11/2015
S Schlemmer	01/12/2015
M Woper	04/12/2015
M Hillman	19/12/2015
M Chordia	20/12/2015
C Woodcock	22/12/2015
E Moylan	17/01/2016
S Step	18/01/2016
Cllr CL Leyland	21/01/2016
W Bartlett, LB Camden	16/11/2015
S Morand	undated

Annex B: Conditions

1. The works hereby permitted shall be begun not later than the end of three years from the date of this consent.
2. The development hereby permitted shall be carried out in accordance with the approved plans listed below.

   PL_099 P3, PL_100 P2, PL_101 P1, PL_102 P1, PL_105 P3, PL_106 P1, PL_107 P2, PL_108 P1, PL_113 P2, PL_119 P1, PL_121 P1, PL_123 P1, PL_124 P1, PL_161 P1, PL_162 P1, PL_163 P1, PL_164 P1, PL_170 P1, PL_171 P1, PL_172 P1, PL_173 P1, PL_200 P1, PL_201 P2, PL_202 P1, PL_203 P1, PL_204 P1, PL_205 P1, PL_206 P1, PL_207 P1, PL_210 P1, PL_211 P1, PL_401 P1, PL_402 P1, PL_403 P1, PL_404 P1, PL_405 Pt, PL_406 P1, LL443-100-001 P1, LL443-100-002 P2, LL443-100-003 P1, LL443-100-001 P1, LL443-100-004 P1, LL443-100-005 P2, LL443-100-006 P1, LL443-100-007 P1, LL443-100-100, LL443-200-101.
3. No part of the development hereby permitted shall be occupied until the following have been submitted to and approved in writing by the Local Planning Authority

   a) full details of hard and soft landscaping and means of enclosure of all un-built, open areas [such details/shall include details of any proposed earthworks including grading, mounding and other changes in ground levels as well as the delivery of a feature of public art.]
   b) a scheme for replacement trees, including details of tree pit locations, viability and a planting programme.
   c) a planting programme and landscape aftercare plan.

   The development shall be undertaken in accordance with the approved details including the planting program.
4. Development works (other than demolition) shall not take place until plans showing the levels at the interface of the relevant phase of development with the boundary of the property and the public highway have been submitted to and approved in writing by the council. Thereafter the development shall be carried out in accordance with the details approved.
5. No plant or machinery shall be installed on the external parts of the building other than in the areas indicated as plant areas on the plans hereby approved.
6. Prior to the installation of any mechanical plant, an acoustic report demonstrating how any mechanical plant to be installed will accord with the noise and vibration standards as set out in the Local Development Framework and Camden Planning Guidance shall be submitted to and approved in writing by the Local Planning Authority. The report shall include such manufacturer's specifications and details of noise and vibration mitigation measures as necessary. The plant shall not be operated other than in complete accordance with such measures approved.
7. At 1 metre outside the windows of any neighbouring habitable room the level of noise from all plant and machinery shall be at all times at least 5 decibels below the existing background noise levels, expressed in dB(A) at such locations. Where the noise from the plant and machinery is tonal in character the differences in these levels shall be at least 10 dB(A).
8. No more than 1100sqm gross external area of floorspace shall be provided within use classes A1-A3.

9. Before any ducting and ventilation is installed associated with the proposed Class A uses details of extract ventilating systems shall be submitted to and approved in writing by the Local Planning Authority. Such details to include routing of ducts and discharge points and associated acoustic isolation and sound and vibration attenuation measures and an Acoustic Impact report prepared by a suitably qualified and experienced acoustic engineer which sets out how the equipment would meet the council's published noise and vibration standards.

10. The acoustic isolation shall thereafter be maintained in effective order. In the event of no satisfactory ventilation being provided, no primary cooking shall take place on the premises.

11. Any Class A use hereby permitted shall not be carried out outside the following times: 08:00hrs to 23:00hrs Sunday to Thursday and Bank Holidays and 08:00hrs to 00:00hrs on Friday and Saturday.

12. Outdoor seating areas associated with the Class A uses shall be cleared of customers between 22:00 and 08:00 hours, 7 days a week.

13. The shop front windows to the retail and food drink units shall be used for display purposes and the window glass must not be painted or obscured.

14. Development shall not commence below ground level until a scheme for the following has been submitted to and approved in writing by the council:

    a) an intrusive land contamination survey and the written results. Laboratory results must be provided as numeric values in a formatted electronic spread sheet.
    b) a remediation scheme, if necessary, shall be agreed in writing with the Local Planning Authority.

    The scheme as approved shall be implemented before any part of the development hereby permitted is occupied.

15. Development works (other than Demolition) shall not take place until details of the following micro climate mitigation measures have been submitted to and approved in writing by the council.

    - the raising of the proposed balustrade on the west-facing penthouse to 1.8m in height and mitigation in the area of the eastern site boundary adjacent to the Hampstead Theatre

    Development shall not be carried out other than in accordance with the approved measures.

16. Prior to the occupation of the first residential unit three of the proposed basement car parking spaces shall include access to an electrical charging point.

17. (i) Works below ground level shall not start until detailed design and construction method statements for all of the ground floor structures, foundations and basements and for any structures below ground level, including piling (temporary and permanent) have been submitted to and approved in writing by the Local Planning Authority. These shall:

    - Accommodate the proposed location of the HS2 structures and tunnels.
    - Accommodate ground movement and associated effects arising from the construction thereof, and;
    - Mitigate the effects of noise and vibration arising from the operation of the HS2 railway within the tunnels, ventilation shaft and associated below and above ground structures.

(ii) The design and construction method statements to be submitted under part (i) shall include arrangements to secure that, during any period when concurrent construction is taking place of both the development hereby permitted and of the HS2 structures and tunnels in or adjacent to the site of that development, the construction of the HS2 structures and tunnels is not impeded. The development shall be carried out in all respects in accordance with the approved design and method statement and all structures and works comprised within the development hereby permitted which are required by the approved design statements in order to procure the matters mentioned in part (i) shall be completed, in their entirety, before any part of the building(s) hereby permitted is/are occupied.

(iii) No works below ground level comprised within the development hereby permitted shall be carried out at any time when a tunnel boring machine used for the purposes of boring tunnels for the HS2 Ltd railway is within 100 metres of the land on which the development hereby permitted is situated.

18. Development works (other than demolition) shall not take place until details of the following have been submitted to, and approved in writing by, the Local Planning Authority:

    a) Facing materials of all buildings
    b) Details including typical sections at 1:10 of external windows and door frames.
    c) Details including materials typical of balconies and roof terraces.

    The relevant part of the works shall not be carried out otherwise than in accordance with the details approved.

19. Prior to first occupation details of the following shall be submitted to, and approved in writing by, the Local Planning Authority:

    - Shopfronts; including sections, elevations and materials

    The relevant part of the works shall not be carried out otherwise than in accordance with the details thus approved.

20. Replacement trees that do not survive for five years after they are planted shall be replaced within the first available planting season.

21. Before any development commences details demonstrating how trees to be retained shall be protected during demolition and construction work shall be submitted to and approved in writing by the council. Such details shall be implemented as approved before any development commences and retained during the demolition and construction works, unless otherwise agreed in writing by the Local Planning Authority. The approved works shall follow guidelines and standards set out in BS5837:2012 "Trees in Relation to Construction". All trees on the site, or parts of trees growing from adjoining sites, unless shown on the permitted drawings as being removed, shall be retained and protected from damage in accordance with the approved protection details.

22. None of the residential units shall be occupied until details of external lighting have been submitted to and approved by the Local Planning Authority. The external lighting details shall be implemented and retained in accordance with the approved details before any residential unit is occupied.

23. Before the occupation of any part of the development full details of cycle parking shall be submitted to and approved in writing by the Local Planning Authority and thereafter provided in accordance with the approved details. The approved cycle parking facilities shall be permanently retained thereafter.

24. Before any works or construction commences details of at least two real time particulate air quality monitors shall be submitted to and agreed in writing by the Local Planning Authority. Such details shall include the location, number and specification of the monitors, including evidence of the fact that they have been installed in line with guidance outlined in the GLA's Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance. The monitors shall be installed 1 month prior to the development taking place and must be retained and maintained on site for the duration of the development in accordance with the details thus approved. Real time data from the monitors should be available online, and council officers provided access to this data. In addition, quarterly reports should be sent to the Air Quality officer for the duration of the works. These should detail any exceedences of the trigger action level (which is 250 ug/m3), and the action that was taken to remedy this.

25. Before any plant is installed details of the proposed CHP (combined heat and power) engine and any required mitigation measures to demonstrate that the Mayor's 'Band B' NOx emissions standards will be adhered to must be submitted to the Local Authority and approved in writing. The measures shall be installed in accordance with the approved details.

26. Prior to occupation, details (installation contracts, photographs) of the approved CHP engine and required mitigation measures to demonstrate that the Mayors 'Band B' NOx emissions standards will be adhered to must be submitted to and approved in writing by the Local Planning Authority. Thereafter, these measures shall be retained in accordance with the approved details.

27. Before any development commences details of proposed u-values and the approach to thermal bridging shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details.

28. The development shall achieve 60% BREEAM score for the retail (A Class), retail/LUL and community floorspace within the buildings.

29. Before first occupation details of the brown roof in the area indicated on the approved roof plan of the tower element shall be submitted to and approved in writing by the local planning authority. No part of the buildings shall be occupied until the approved details have been implemented and these works shall be permanently retained and maintained thereafter.

30. Before the first residential unit is occupied details of mechanical ventilation shall be submitted to and approved in writing by the council. Prior to occupation of any residential unit the mechanical ventilation shall be installed and be in full working in the residential units, as the approved details. All such measures shall thereafter be retained and maintained.

31. Before development commences detailed design and assessment reports and outline method statements (in consultation with London Underground) for all of the foundations, basement and ground floor structures, or for any other structures below ground level, including piling (temporary and permanent), shall be submitted to and approved in writing by the Local Planning authority, such reports shall:

    - provide details on all structures over and adjacent to LU assets
    - accommodate the location of the existing London Underground structures and tunnels
    - accommodate ground movement arising from the construction thereof
    - mitigate the effects of noise and vibration arising from the adjoining

operations within the structures and tunnels and mitigate against any EMC (Electromagnetic Compatibility) issues arising from the construction of the new plant.

The development shall thereafter be carried out in all respects in accordance with the approved design and assessment report, method statements and subject to an agreed monitoring strategy, and all structures and works comprised within the development which are required by the approved design statements in order to procure the matters mentioned in paragraphs of this condition shall be completed, in their entirety, before any part of the building hereby permitted is occupied.

32. The proposed Class A uses will operate within use classes A1, A2, and A3 only.

33. Before any residential unit is occupied a scheme to demonstrate that each dwelling hereby approved achieves a maximum internal water use of 105 litres/person/day, allowing 5 litres/person/day for external water use, shall be submitted to and approved in writing by the Local Planning Authority. The development shall be constructed in accordance with the approved scheme and retained thereafter.

The Planning Inspectorate

Report to the Secretary of State for Communities and Local Government

by Graham Dudley BA (Hons) Arch Dip Cons AA RIBA FRICS

an Inspector appointed by the Secretary of State for Communities and Local Government

Date 23 September 2015

Town and Country Planning Act 1990

Essential Living (Swiss Cottage) Ltd

The London Borough of Camden

Inquiry commenced on 14 July 2015

100 Avenue Road, London NW3 3HF

File Ref: APP/X5210/W/14/3001616

File Ref: APP/X5210/W/14/3001616
100 Avenue Road, London NW3 3HF

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Essential Living (Swiss Cottage) Ltd against the decision of the Council of the London Borough of Camden.
- The application Ref 2014/1617/P, dated 28 February 2014, was refused by notice dated 3 October 2014.
- The development proposed is the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (class C3) and up to 1,041sqm of flexible retail/financial or professional or café/restaurant floorspace (classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements.

Summary of Recommendation: The appeal be allowed subject to conditions

Procedural Matters

1. The inquiry was held on 14 – 17 July, 20 – 24 July and 10 August 2015. The site visit was made on Wednesday 22 July 2015.

2. This report includes a description of the application site and surrounding area, the gist of the cases made at the inquiry and my conclusions and recommendation. I have attached all documents, including proofs of evidence/statements and plans submitted to the inquiry. These are as originally submitted and do not take account of how the evidence may have been affected during the inquiry.

The Site and Surroundings[1]

3. The statement of common ground[2] agreed between the London Borough of Camden and Essential Living (Swiss Cottage) Ltd and the design and access statement provide detailed information on the site and context. Also useful in terms of looking at the wider area is the plan submitted by Save Swiss Cottage Action Group[3] although locally listed buildings should be identified in the Camden Local List[4].

4. The appeal site is in the designated Town Centre that was extended to include the appeal site in the recent past[5]. It is a linear centre following the Finchley Road, with the appeal site at the southern end and with the library/leisure centre beyond[6]. There was some question as to whether the appeal site was in Central

[1] It is useful to look at CD 1.6 the Design and Access Statement. Aerial photographs of the area are shown on pages 4, 5 and 6. A location plan showing the context and location of nearby buildings is at page 9. Nearby conservation areas/listed buildings are shown on page 10 and these are further identified in the Heritage statement at CD1.9. Existing building heights can be seen on pages 16 and 17 in CD 1.6
[2] Document CD 1.66, CD1.9, CD2.0 and CD2.1
[3] Document IQ41
[4] Document CD 5.4
[5] Document 1.66 page 8 paragraph 3.24
[6] Document CD 1.6 page 9 – blue outline

London. The London Plan[7] shows Camden as being within the Central London Sub Region.

5. There are some representations suggesting loss of open space[8]. However, the open space is shown in document C2 page 14 fig 2. It can be seen that the open space does not extend up to the existing building and does not include the nearby north south walkway. Although the proposed development would be wider than the existing building, it would not encroach on to the public open space.

6. The appeal site is not in a conservation area, but there are several conservation areas nearby, the closest being the Belsize Park Conservation Area and the Fitzjohn and Netherhall Conservation Area. South Hampstead Conservation Area is to the west, Elsworthy Road Conservation Area to the south east, St John's Wood Conservation Areas to the south and Alexandra Road Conservation Area to the south west[9].

7. The site fronts Avenue Road near to College Crescent and the Swiss Cottage/Finchley Road Gyratory and is adjacent to the Swiss Cottage London Underground Station. To the north of the site is Eton Avenue, which is pedestrianised near to the appeal site and is used on a regular basis for street markets. To the east is the designated Swiss Cottage Open Space. Also to the east side fronting Eton Avenue is the Hampstead Theatre and beyond the open space are properties fronting Winchester Road, some of which are within the Belsize Conservation Area. These are mainly residential, but with some commercial uses at street level and the Winchester Project towards the southern end and the Mora Burnet House elderly persons home on the corner with Eton Avenue. Across Eton Avenue from the appeal site is the Central School of Speech and Drama.

8. To the south of the appeal site is the grade II listed Swiss Cottage Library and between it and the existing building at the appeal site, and directly adjacent to it, is the grade II listed Hampstead Figure Sculpture. To the east of this is the Swiss Cottage Leisure Centre and beyond to the east the Visage building.

9. On the opposite side of Avenue Road is the grade II listed Regency Lodge, a large block of mid 20th century flats. Also across the main road from the appeal site are Ye Olde Swiss Cottage public house, Overland House and Cresta House flats[10].

10. Currently the office building at the appeal site is unused. The height of this building reduces from 6 to 3 storeys as it approaches the Swiss Cottage library and it had some restaurant uses at ground level. The building dates from the 1980s and the project architect for that scheme, who opposes the current proposal, provides information about its design[11].

[7] Document CD 4.0 page 61 Map 2.1 Sub-regions
[8] See paragraph [144]
[9] Document IQ41
[10] Document IQ8
[11] Document R7

Planning Policy

11. The planning policies relevant to the development as a whole are set out in the Statement of Common Ground[12]. The policies that are relevant to the main two reasons for refusal as set out in the Reasons for Refusal are Camden Local Development Framework Core Strategy [CS] Policies CS5, CS14 and CS15 and Camden Local Development Framework Development Policies [DP] DP24, DP25, DP26 and DP31. The relevant London Plan (2015) Policies [LP] are 2.15, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 4.1, 4.7, 4.8, 5.1 and 5.2.

12. CS Policy CS3[13] indicates that the council will promote appropriate development in highly accessible areas and the town centre of Finchley Road/Swiss Cottage is identified. They are considered to be suitable for homes, shops, food and drink, offices, community facilities and uses that are likely to increase demand for travel. Development is to take account of amenity and community safety.

13. CS Policy CS5[14] reiterates that the overall approach of the CS is to manage Camden's growth to make sure that its opportunities and benefits are delivered and sustainable development achieved, while continuing to preserve and enhance the features that make Camden an attractive place to live, work and visit. Particular consideration is to be given to providing sustainable buildings and spaces of the highest quality, protecting and enhancing the environment and heritage and the amenity and quality of life of local communities. It seeks to protect the amenities of Camden residents and those working and visiting the area, making sure that the impact of development on occupiers and neighbours is fully considered. It also seeks to ensure development contributes towards strong and successful communities by balancing the needs of development with the needs and characteristics of local areas and communities.

14. CS Policy CS6 relates to providing new homes seeking to maximise the supply of additional housing to meet or exceed Camden's targets. This includes affordable housing where the target is for 50% of homes to be affordable.

15. CS Policy CS7[15] promotes Camden's centres and shops.

16. CS Policy CS14[16] promotes high quality places and the conservation of the heritage assets. It requires development of the highest standard of design that respects local context and character, preservation and enhancement of Camden's rich and diverse heritage assets and their settings, including conservation areas, listed buildings and historic parks and gardens, promoting high quality landscaping and works to streets and public spaces. While the need to preserve and enhance is written into the policy, supporting text indicates the responsibility to preserve and, where possible, to enhance heritage of important buildings. Reference is made to DP Policy DP25.

17. CS Policy CS15[17] seeks to protect and improve parks and open spaces, encouraging biodiversity. It indicates that the council will protect and improve

[12] Document CD 1.66 page 10 Section 5
[13] Document CE 4.5 page 26
[14] Document CD 4.5 page 31
[15] Document CD4.5 page 46
[16] Document CD 4.5 page 89
[17] Document CD 4.5 page 96

Camden's parks and open spaces. Open spaces will be protected. The policy recognises the shortage of open space in Camden. Text to the policy notes development on sites adjacent to open space will only be allowed if it respects the size, form and use of that open space and does not cause harm to its wholeness, appearance or setting, or harm public enjoyment of the space[18].

18. DP Policy DP24[19] aims to secure buildings of the highest standard of design and will expect developments to consider character, setting, context and the form and scale of neighbouring buildings.

19. DP Policy DP25[20] seeks to conserve Camden's heritage. The council will take account of conservation area statements, appraisals and management plans when assessing applications within conservation areas. Only development within conservation areas that preserves and enhances the character and appearance of the conservation area should be permitted. Development outside of a conservation area that causes harm to the character and appearance of that conservation area will not be permitted. In relation to listed buildings development will not be permitted if it would cause harm to the setting of a listed building. Accompanying text to the policy indicates the character and appearance of conservation areas can also be affected by development which is outside of conservation areas, but visible from within them. This includes high, bulky buildings, which can have an impact on areas some distance away, as well as adjacent premises. The council will therefore not permit development in locations outside conservation areas that it considers would cause harm to the character, appearance or setting of the area.

20. DP Policy DP26[21] seeks to protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity and factors to be considered are visual privacy and overlooking, overshadowing and outlook, sunlight, daylight and artificial light levels, microclimate, fumes and dust and the inclusion of appropriate attenuation measures. Explanatory text to the policy notes that it is expected that the potential negative impacts of the development on neighbours will be considered at the design stage to prevent negative impacts. It notes that to assess whether acceptable levels of daylight and sunlight are available the British Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice[22] will be used.

21. DP Policy DP31[23] relates to the provision of, and improvements to, open space and outdoor sports and recreation facilities. The policy strongly promotes provision of open space on the development site, but recognises that this is not always going to be the case. Where this is the case developments should provide an appropriate financial contribution towards improving existing open space.

[18] Document CD4.5 page 98 paragraph 15.6
[19] Document CD4.6 page 93
[20] Document CD4.6 page 97
[21] Document CD4.6 page 101
[22] Document CD4.6 page 102
[23] Document CD4.6 page 113

22. LP Policy 2.15[24] relates to town centres. It notes that the Mayor, boroughs and other stake holders should co-ordinate the development of London's network of town centres in the context of Map 2.6 and Annex 2 so they provide the main focus beyond the Central Activities Zone for commercial development and intensification, including residential development.

23. LP Policy 3.3 relates to increasing Housing Supply. The Mayor recognises the pressing need for more homes in London in order to promote opportunity and provide a real choice for all Londoners in ways that meet their needs at a price they can afford. It notes that boroughs should identify and seek to enable additional development capacity to be brought forward to supplement these targets having regard to other policies in the plan.

24. LP Policy 3.4 indicates that planning decisions should take account of local context and character, the design principles in chapter 7 and public transport capacity. Density guidance is given in Table 3.2, but it is noted that this should not be applied mechanistically.

25. LP Policy 3.5 relates to the quality of housing, requiring the highest quality internally and externally in relation to their wider context and environment. Development should enhance the quality of local spaces, taking account of physical context, local character, density, tenure and land use mix, and relationships with and provision of public, communal and open spaces, taking particular account of the needs of children and older people.

26. LP Policy 3.6 relates to the provision of children's and young people's play and informal recreation facilities.

27. LP Policy 3.7 encourages large residential developments including complementary non-residential uses in areas of high public transport accessibility. It is common ground that in terms of accessibility and the Public Transport Accessibility Level (PTAL) the site is at the highest level, being located near to bus routes and the underground.

28. LP Policy 3.8 aims to provide housing choice, including affordable housing, accessible housing and units of varying sizes and types.

29. LP Policy 3.9 aims to achieve mixed and balanced communities by tenure and household income through small and large scale developments, which foster social diversity, redress social exclusion and strengthen communities' sense of responsibility for and identity with their neighbourhoods.

30. LP Policy 3.10 defines affordable housing and LP Policy 3.11 defines affordable housing targets. LP Policy 3.12 notes the maximum amount of affordable housing should be sought and that this can be the subject of negotiation, taking account of individual circumstances, and allows for reappraising of viability studies.

31. LP Policy 4.1 is a strategic policy promoting developing London's economy.

32. LP Policy 4.7 relates to retail and town centre development. In principle retail, commercial, cultural and leisure development should be focused on sites within

[24] Document CD4.0 page 82

town centres and those at the edge of town should be the subject of an assessment of impact.

33. LP Policy 4.8 supports a successful and diverse retail sector and related facilities and services.

34. LP Policy 5.1 seeks to mitigate the effects of development on climate change and LP Policy 5.2 to minimising carbon dioxide emissions.

35. LP Policy 7.7 relates to the location and design of tall and large buildings. Text to the policy[25] indicates that tall and large buildings are those that are substantially taller than their surroundings, cause a significant change to the skyline or are larger than the threshold sizes set for the referral of planning applications to the Mayor. There is no dispute between the parties that this proposal includes a tall building.

36. Strategically these are to be part of a plan led approach to changing or developing an area by identification of appropriate, sensitive and inappropriate locations. Tall and large buildings should not have an unacceptable impact on their surroundings.

37. Tall buildings should meet various criteria, including only being considered in areas whose character would not be affected adversely by the scale, mass or bulk of a tall or large building. They should relate well to the form, proportion, composition, scale and character of surrounding buildings, urban grain and public realm (including landscape features), particularly at street level. Individually or as a group, they should improve the legibility of an area, by emphasising a point of civic or visual significance where appropriate, and enhance the skyline and image of London. The highest standards of architecture and materials, including sustainable design and construction practices should be incorporated. Ground floor activities should provide a positive relationship to the surrounding streets and permeability of the site and wider area should be improved.

38. Tall buildings should not affect their surroundings adversely in terms of microclimate, wind turbulence and overshadowing and should not impact on local or strategic views adversely.

39. The impact of tall buildings in sensitive locations should be given particular consideration. Such areas might include conservation areas, listed buildings and their settings or other areas designated as being sensitive locations.

40. LP Policy 7.8 relates to heritage assets and in relation to settings notes that development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.

41. Camden's Site Allocations Local Development Document identifies 100 Avenue Road, Swiss Cottage[26]. Allocation guidance indicates a mixed use redevelopment including permanent residential, and other appropriate town centre uses, such as retail and employment. Development is expected to optimise the site to provide housing, including affordable housing, include retail use or food and drink

[25] Document CD4.0 page 285 paragraph 7.25
[26] Document CD 4.7 page 130 – Site 30

particularly to create active frontages at ground level. It is to respect the Swiss Cottage Open Space and contribute to the public realm with respect to public safety and improvements and contribute to local town centre improvements.

42. Accompanying text to the guidance indicates that in terms of acceptable scale and massing, there may be potential for an increase in height, especially at the northern end of the site, which does not abut directly on to the open space. While there is some potential for taller buildings, the acceptability will ultimately depend on the quality of the design and the relationship with the existing buildings in the area and the open space. It is noted that the development should not detrimentally impact on Swiss Cottage open space. It is also noted that the context to the nearby Belsize Conservation Area, and townscape issues with assessment of impact on sunlight, daylight and microclimate would need to be addressed.

43. Draft Interim Housing SPG[27] indicates that Town Centres are noted as being some of the most accessible locations in London and consequently higher density housing provision in these locations will play a key role in addressing London's requirement for additional housing. While the weight to this should be limited it does support the aims and objectives of LP Policy 3.7. The Mayor of London's Housing supplementary Planning Guidance of 2012 has similar aims identifying 1200 town centres of different sizes in London, and in line with the National Planning Policy Framework (the Framework) the London Plan anticipates that they will be the primary geographical focus for most new Londoners.

44. Conservation Area Statements are provided for all the conservation areas[28].

Planning History

45. There have been no recent relevant planning applications at the appeal site[29].

The Proposals

46. The proposal is for a total of 184 new homes, which will include private rented units as well as affordable housing units. It would include a mix of uses comprising flexible retail space at ground level and a smaller flexible commercial unit in the southern building with potential to provide a new access to Swiss Cottage underground station and floorspace for community use. It would be in two buildings. The taller would be 24 storeys and about 81m high, located at the northern end of the site. This would hold the majority of the residential units, but with a 'A' class unit at ground level. The second block is part 5 and part 7 storeys, with the 5 storey part on the Swiss Cottage open space side. This varies between about 19m and 27m. There would be a pedestrian link formed between the buildings from Avenue Road to the theatre/open space. There would be a basement area providing 12 parking spaces for use by those with disabilities, secure parking for 240 cycles and space for other ancillary service use.

47. The current anticipation is that the community space will be taken by the Winchester Project, currently located across the open space in Winchester Road.

[27] Document CD 4.4 Section 7.4
[28] Document G5
[29] Document R11 appendix 5 at page 44 provides some historic evidence to past history around the site

Evidence related to this use is provided by the Winchester Project[30]. Space will also be set aside for Transport for London to improve the access to the Swiss Cottage Underground Station, if taken up by them.

Other Agreed Facts

48. For other agreed facts see the statement of common ground and addendum[31]. Generally the other parties opposing the appeal do not agree with the statement of common ground, particularly that all the reasons for refusal can be overcome through conditions/obligation.

The Case for Essential Living (Swiss Cottage) Ltd

49. The case for the appellant is set out in Docs A1 to A10, with closing submissions at IQ38. The material points are as follows.

Daylight and Sunlight[32]

50. Reference is made to DP Policy 26 and that the council will take into account standards recommended in BRE Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (1991) [now updated to 2011]. In section 3.3 it deals with gardens and open spaces, noting that good site layout planning for daylight and sunlight should not limit itself to providing good natural lighting inside buildings. Sunlight in the spaces between buildings has an important impact on the overall appearance and ambience of a development[33]. The guide gives advice on site layout planning to achieve good sunlight and daylight both within buildings and in the open spaces between them.

51. The BRE guidance indicates that at least half of the amenity areas listed (including parks) should receive at least two hours of sunlight on 21 March[34]. The BRE research established that if the area of a space receives greater than 2 hours of sun on March 21st to greater than 50% of that area of that space, then the space would overall be a well sunlit one. This is on the basis that during the months when the sun is higher in the sky a greater percentage of the space would see sun at some point of the day.

52. The detailed analysis undertaken indicates that the BRE 'test' was met at March 21st. Planning Officers agreed that the proposal was in compliance with the BRE and recommended the scheme for approval. It is acknowledged that during the design process a different proposal was put to CABE (Design Council) that also complied with the guidance, but was not found acceptable by CABE. The scheme was subsequently redesigned and found acceptable by CABE.

53. Sunlight on the ground plots indicates that there is negligible alteration to the area that would experience less than 2 hours of sunlight. There would be no area that would receive less than 2 hours of sunlight to the main amenity space. The drawing of 2 hour sunlight shows very small patches that receive less than 2 hours sunlight. These are in the circulation spaces and are only less than 5% of

[30] Document IQ16
[31] Documents CD1.66 and IQ30
[32] Document A1 and appendices, CD1.10 and CD1.57
[33] Document CD1.57 page 18 paragraph 3.3.1
[34] Document CD1.57 page 18 paragraph 3.3.7

the area of circulation, with no impact on the main amenity space. This would comply with the BRE guidance. There is a suggestion that shadows on the Swiss Cottage Open Space have been underestimated because changes in levels are not accounted for, but that is not correct; the software used is in a standard form and takes account of levels.

54. The BRE guidance suggests that where a large building is proposed that may affect a number of gardens or open spaces it is often illustrative to plot a shadow plan showing the location of shadows at different times of the day and year[35], advising that where there are existing buildings looking at the before and after is useful. It also notes that it must be borne in mind that nearly all structures will create areas of new shadow, and some degree of transient overshadowing of a space is to be expected. It recommends the 21st March for the assessment, but that other dates such as 21st June may also be looked at, representing the best case of minimum shadow.

55. Shadow diagrams for 21st March, 21st June, 25th August and 21st December have been produced[36]. These demonstrate that for the great majority of daylight hours throughout the year, the appeal scheme has no impact whatsoever in terms of sunlight and overshadowing. It is only in the summer months at later times of the day from mid afternoon onwards, the exact time varying slightly with each month, that there would be any additional impact on sunlit areas of the space.

56. There is no policy in relation to having views of the sun. In assessing the impact from local streets there would be an effect of the amount of time that the sun would be directly visible at different times of the year. The duration would be very limited and the hours of sunlight remaining visible would be significant in terms of amenity and comparable with other streets in London where there are tall buildings.

57. The technical study was extended to consider overshadowing of nearby gardens/amenity spaces located to the north east and east of the site[37]. These show that the gardens receive at least 2 hours of sunlight on the ground on 21st March and no greater than 20% loss of sunlight between the existing and proposed situation. Tree canopies were excluded from the study. In terms of transient overshadowing, the diagrams show that many of the gardens do not get any overshadowing and where it does the additional overshadowing is fleeting, with no additional area of shadow lasting for greater than one hour in any one particular area. The drawings also indicate that either existing neighbouring properties or associated garden boundaries would have a far greater overshadowing effect, such that by the time the resultant overshadowing from the development falls upon the garden, any additional overshadowing from the development would be negligible. The additional overshadowing as a result of the proposal would also be negligible.

58. In respect of the Hampstead Theatre terrace, it is reasonable to assume that the main use would be in the summer months. The transient overshadowing plots demonstrate that the proposal will have no effect on the theatre terrace from sunrise to 4pm so would receive at least 10 hours of sunlight, well within the BRE

[35] Document CD1.57 page 19 paragraph 3.3.13
[36] Document A1 Appendices and CD 1.10.
[37] Document A1 appendices drawing 204, 205, 208 and 219

guidelines[38]. The transient overshadowing would occur about 16:00 and be limited to no longer than 1hr as the Hampstead Theatre overshadows its own terrace from about 17:00. The additional overshadowing is minor.

59. Daylight to Cresta House has been considered, although it is acknowledged there was a mistake in identification of the building, referring to Overground House. Applying the BRE methodology it has been shown that the balconies restrict daylight availability to these properties and therefore burden neighbouring development. In the absence of balconies, all windows will satisfy the BRE guidance and in terms of daylight distribution will retain excellent daylight levels and it was noted at the inquiry that the difference in the length of the room compared with that identified would not alter the overall conclusion. Similarly daylight and sunlight have been assessed for Mora Burnet House and found to be acceptable.

60. There would also be some transient overshadowing of the street market during the course of the day, but this is for a relatively short period and there is already some shading by the large trees and the canopies provided for the stalls.

61. The reports have been assessed and verified by an independent daylight and sunlight expert on behalf of the council[39].

Architecture[40]

62. The brief was for a high quality mixed-use, mixed tenure building. While the council probed whether there was a specific requirement, particularly in terms of space and height, the architect explained that the process was iterative and that there was significant consultation, not least with the council officers, with the design evolving with comments received.

63. The key principles were for a sustainable and efficient building meeting operational needs. It should be accessible, permeable with good connectivity, adaptable and resilient. There should be successful public spaces and active frontages with high quality architecture that integrates into the surroundings, specifically by reference to its form, proportions, composition, scale, mass and height, to reinforce a sense of place. The tall building was to reinforce the town centre, without detrimentally affecting the character of the surrounding area and to protect the residential amenity of surrounding occupiers.

64. The site's immediate setting is the busy town centre, which is unfortunately dominated by the multi-lane main roads and busy traffic, with Swiss Cottage an important focus for the local area, but the site and its context lack a sense of place. There are significant civic facilities at the site, including the library, leisure centre and the adjacent Swiss Cottage underground station, which is one of the least legible in London. The scale of the large post-war buildings on the other side of Finchley Road is more appropriate to the area than the existing building on the appeal site.

65. There are substantial buildings on the north and south sides of Finchley Road in the town centre. To the south east of the appeal site is the post war Chalcots

[38] Document A1 appendices drawings 216 and 217
[39] Document CD1.42 and 1.43
[40] Document A9 also see Design and Access Statement CD1.6

Estate high rise and low rise housing, which has four towers. To the north, south and west of the town centre are areas of nineteenth century housing of good quality, much of it in conservation areas. There are views from these areas of nearby residential towers. There is an opportunity to provide a building to act as a marker for the town centre, offer enhanced legibility, improve the sense of place and provide active edges to the street.

66. The existing building at the site, which steps down from 6 to 3 storeys was a product of its time of construction in the 1980s, and has poor access and frontages, being designed before the creation of the Swiss Cottage Open Space. Its effect on the public realm and open space is negative.

67. The buildings to the west of Finchley Road are substantial: some between 10 and 12 storeys. The Swiss Cottage Open Space, Library and Leisure Centre have a different character and appearance. The grade II listed library is three storeys and was designed by Sir Basil Spence.

68. A stepped scheme was considered for the appeal site, but in consultation with the council officers it was agreed to proceed with the two block solution, with the taller element to the north, providing access from Avenue Road to the Swiss Cottage Open Space.

69. The height of the tower was not seen by the designers or council officers and consultees as a target or a limit, but there had been previous iteration to that height and other tall buildings nearby. The tower was seen by the council, Design Council and GLA to offer opportunities for enhancement and to act as a marker building and focal point. The impact of the designs produced was tested against the context and in particular agreed views, sunlight and daylight and microclimate.

70. The conclusion was reached that it would have little additional impact in terms of daylight and sunlight over and above the existing building or in terms of a building half its height. The design was endorsed by key stakeholders, including the Design Council, CABE, the GLA and council officers[41].

71. The two blocks are treated architecturally in a similar way, albeit in different forms and are effectively tenure blind. The tower has a massing and form with the silhouette slender and well proportioned and acknowledgement of the surroundings. The tower has a clear appearance of bottom, middle and top, with implied vertical break to the centre bays so that the façade has two main elements joined together.

72. The framed façade has a clear rhythm and proportion. The frames are removed from the lower and top levels and horizontal strings collect one, two and three floors together. There are retail uses on the low levels and amenity space on the top level. Between the frames are either glass openings or faience/terracotta panels of a contrasting colour.

73. On the top floors there is a change of expressions. These contain large family units with quick access to the amenity space above. Colours are yet to be decided, but the context suggests red panels in a white frame. At the ground floor the pilaster or frame above turns unmistakeably to columns. The bottom of

[41] Documents CD 1.37, CD1.39 – CD1.41 and CD1.45-1.48

the northern block, covering two storeys, is glazed to the double height area of the concierge.

74. The southern block's south façade, facing the library, mediates in scale between the new building and the library, and acknowledges some of the library's simple fin expression. The east façade to the Swiss Cottage Open Space has a rhythm which reflects the greater number of balcony openings. The park side is based on a repetitive column and beam arrangement with recessed infill windows and panels.

75. The architecture of the proposed scheme is of high quality. The height, scale and massing of the appeal scheme have been carefully considered and respond to the site context. The tower would provide a well designed marker for the local area, including in views along main routes and from the wider residential neighbourhoods, as well as providing a strong frontage to Avenue Road and the Swiss Cottage Open Space.

76. The height of the tower is appropriate, with its greatest visual presence within the town centre and when seen along main roads. It is not generally visible from the residential hinterland. Residential towers are already an aspect of the residential hinterland, and of the setting of conservation areas, as is typical of the mixed character of London's townscape.

77. There will be townscape enhancements around the building and the connectivity between the building and its surroundings by the proposed ground floor uses will be a considerable benefit to the streets and Swiss Cottage Open Space. It will humanise and enliven the streetscape.

78. Concern was expressed about the view of the development from Primrose Hill[42]. But as can be seen in the photographs there are already views of tall buildings, and with the distance this development would have no unacceptable impact on the users of this park.

Heritage Assets

79. The decision maker is required to pay special attention to the desirability of preserving or enhancing the character or appearance of a conservation area. Considerable importance and weight is to be accorded to this duty and is to be focused on the conservation area as a whole. The appeal is outside of any conservation area and the statutory duty does not extend to the setting[43].

80. Setting is defined as the surroundings in which a heritage asset is experienced and may be positive, negative or neutral in their contribution to significance of the asset. In this case it is assessed that the existing building and site do not make a positive contribution to the character and appearance of the adjacent and nearby conservation areas.

81. Development outside can have an effect on character and/or appearance, but such impact needs to have a nature and magnitude to be adverse to the character and appearance of the conservation area as a whole. In relation to this appeal the character and appearance of the conservation areas and the qualities

[42] Document CD1.4 pages 50 – 52 also see Document R11 appendix 2 View 26
[43] Document A6 at Section 4 analyses the various conservation areas.

which give them their significance are a product of the buildings and spaces in the areas themselves, which largely sets them apart from their surroundings.

82. Because of the tall and large scale buildings close to the Belsize Conservation Area it is inevitable that where there are views out, such buildings are a common and well established part of the setting and its character and appearance[44]. The appeal proposal, where visible, is predominantly seen in the existing context of 20th century residential and town centre development and it is concluded that there would be no adverse impact on the character and appearance of the conservation areas.

83. Where there are views in the conservation area where modern buildings play a lesser role in the existing character and appearance, the visual impact has the potential to be adverse, but nevertheless would be so limited in nature that it would not detrimentally affect the conservation area as a whole.

84. Account is also taken of the opportunity to provide improvement to the street scene on the western edge of the Belsize Conservation Area. Overall, the proposal would not have an adverse impact on the conservation area as a whole and would not result in harm to its significance. With regard to other conservation areas, given those dominated by larger-scaled buildings (Elsworthy Conservation Area), the distance from the appeal site and the nature of interposed development (Fitzjohn's & Netherhall and West Hampstead Conservation Areas) the appeal proposals will have no adverse impact on their character or appearance.

85. Even if it were found that there was some harm to character and appearance, while this would need to be accorded considerable importance and weight (or great weight) it would be less that substantial in terms of the Framework.

Listed Buildings

86. With respect to the Swiss Cottage Library, the appeal proposal would enhance its setting and thereby significance, through complementary architectural design and improved, shared public realm and related activity.

87. The Hampstead Figure Sculpture has been repositioned in the past nearer to the existing building on the appeal site and is not easily viewed from all around because it is close to the building. The proposal would enable the statue to be relocated more in keeping with the original location and allow all around viewing and so the proposed enhancements would be an improvement to the listed building, enhancing its special architectural and historic interest.

88. Regency Lodge is a large scale modern building in the town centre. While the setting would be affected it would not impact on the significance of the listed building.

89. The Belsize Fire Station is a notable building at the Junction of Eton Avenue and Lancaster Grove[45] and is grade II* listed. This was built around 1912/15 and designed by Charles Windmill to fit in with the other houses in the area.

[44] Document A6 page 7 Fig RM2 and page 11 RM4 show taller buildings near the appeal site
[45] Documents A6 page 28 photo RM10

Conservation Areas

Belsize Conservation Area

90. The Belsize Conservation Area is large and occupies land rising to the north, towards Hampstead village and is characterised by streets of mostly large detached and semi-detached villas dating from the late 19th century to the early 20th century of varied architectural styles, but with consistencies in detailing and materials[46]. The conservation area statement notes that the character of the areas is largely derived from the mid 19th century Italianate villas, whist noting 6 distinct character areas, reflecting different densities, scales and styles of building, within the overall whole. These are Belsize Park, Belsize Village, Eton Avenue, Glenloch, Primrose Gardens/Antrim Road and England's Lane. Belsize Park and Eton Avenue are the closest parts to the appeal site. The buildings in the Belsize Park have strong consistency in height, with mostly 3 storey buildings with lower ground and sometimes an attic level, with front gardens to the street. The consistency between buildings and their rhythm to the streets provides a strong sense of identity and unity.

91. Later buildings, including Manor Mansions, have contrasting brickwork with stucco banding. The grade II listed St Peter's church is a landmark feature and is visible more widely within the area.

92. To the south west of the area is College Crescent which is near to the town centre of Swiss Cottage. The buildings here are stucco with slate roofs, but with some variation of detailing. These are seen in the context of the modern Royal Central School of Speech and Drama and town centre buildings on the west side of the road.

93. Belsize Avenue's character is derived mainly from the large scale houses set back from the road with an avenue of trees along its length. It is wide, with grass verges, and the buildings comprise two main types: 3 storey paired villas and 2/3 storey terraced properties. There is some variation to the detailing and arrangement of the villas. There are some later buildings, including a terrace of late 1960s houses and Hillfield Court and Tudor Close from the 1930s.

94. Crossfield and Adamson Roads form part of the Eton College Estate and were developed speculatively by different developers in the 1870/1880s. The houses tend to be a bit plainer and of greater variety in both type and architectural style, but with general consistency to the building line and short front gardens defined by boundary walls. Adamson Road has cherry trees in the pavement and paired London Stock villas at the western end and red brick houses with brick detailing at the northern end with full height bays giving strong vertical emphasis.

95. Adamson Road meets Eton Avenue on the west edge of the conservation area, with a small triangular open space and mature trees providing the entrance into the area from Swiss Cottage Town Centre. The boundary includes part of the Royal School of Speech and Drama and goes up to the town centre[47]. Eton Avenue is a consistent area of predominantly late Victorian housing with some

[46] Document CD2.6 The conservation area statement describes character and significance
[47] Document A6 page 24 photograph

pockets of Edwardian housing mainly, in the ownership of Eton College. The area includes Eton Avenue, Strathway Gardens, Fellow Road, and Winchester Road.

96. Eton Avenue and Strathway Gardens have mainly large detached red-brick houses built from about 1885-1900 with a considerable number listed grade II. There are extensive mature trees in the pavement. The buildings' style has domestic revival architectural influences and, although detailing and treatment of elevations varies, they provide a consistent character and appearance. From this area there are many views of the towers of the Chalcots Estate from within the conservation area[48]. The west end of Eton Avenue, where it joins Adamson Road, is strongly influenced by the buildings in the adjacent town centre.

97. A section of Winchester Road and part of Fellows Road are within the conservation area and were laid out earlier than Eton Avenue and have a variety of building types, mainly of 3 storeys. Fellows Road is adjacent to the Chalcots Estate and has mainly 3 storey villas with brick walls and detailing, and further along there is a modern building, Godolphin House, and a mix of Victorian house with Arts and Crafts and Italianate detailing and many brick boundary walls to front gardens.

98. This part of the conservation area is readily seen in the context of modern development including to the Chalcots Estate, Visage building, Leisure Centre and Theatre[49].

99. Other parts of the conservation area are further away but again with character and appearance dominated by the styles of residential architecture. England's Lane sub area was an old lane that became a shopping street in the later 19th century. This is mainly formed of 3/4 storey terraces with shops at ground level.

100. The conservation area is large with some variety to identified sub-areas but with its overall character and appearance defined by 19th century residential development laid out in street form with much mature planting. The larger and taller modern buildings surrounding the area, including in the town centre and at the Chalcots Estate are commonly seen from within the conservation area.

Fitzjohn's and Netherhall Conservation Area

101. This is also a large conservation area with the street layout dominated by Fitzjohn's Avenue that runs through the centre with other streets running parallel, with the overall character set by the large houses and gardens. Because of the slope of the land there are some long views. While the houses are very similar in overall character there is a variety of architectural styles including neo-Gothic, classical Italianate, Queen Anne, Domestic Revival and Arts and Crafts with some properties individually designed by architects. The verdant planting adds considerably to its character, which is mainly that of a relatively quiet suburb. In summary the character and appearance of the area is derived from later 19th century residential development in a variety of architectural styles, combined with verdant planting. The general sloping nature of the land allows some distant views over the conservation area, in some instances to the Swiss Cottage town centre beyond.

[48] Document A6 page 27 photographs RM8 and RM9
[49] Document A6 page 30 photograph RM12

Elsworthy Conservation Area

102. This conservation area is located to the south east of the appeal site, beyond the library and leisure centre, road, large UCL Academy buildings and London Marriot Hotel. It extends from Primrose Hill Road to Avenue Road. The northern edge runs along King Henry's Road south of the Chalcots Estate and the southern edge abuts Primrose Hill. The Willett Development in sub area 3 is the most distinct part of the conservation area at Harley Road, Wadham Gardens and Elsworthy Road. It was developed in the late 1890s by William Willett. The houses are detached, but closely spaced, and are a mix of Arts and Crafts movement styling, with very mixed use of materials that include stucco and tile hanging and interesting detailing. The character of the area is derived from the style and layout of houses and views out that influence that character are towards Primrose Hill and to the north towards the Chalcots Estate.

South Hampstead Conservation Area

103. This area was originally named the Swiss Cottage Conservation Area, but was renamed to reflect the historical development of the area and its spatial and historic relationship with Hampstead as opposed to Swiss Cottage, which is on the east side of Finchley Road. It is a well preserved, leafy Victorian suburb, almost exclusively residential and largely homogenous in scale and character. There are mainly semi-detached and terraced late Victorian properties, usually constructed in red or gault brick with varied roofscapes and gables and interesting details and features in terracotta, brick and ironwork. Front gardens contribute to the character and appearance of the area, with ornate walls and vegetation.

104. There are some views out of the conservation area towards the Swiss Cottage Town Centre and its buildings. There are also views of the 20 storey tower blocks of Casterbridge and Snowman House.

Alexandra Road Conservation Area

105. This is to the south west of the appeal site and was built in the late 1960s. The development was a dramatically modern solution to housing and forms a long concrete terrace[50], with the principle buildings grade II* listed. The main buildings area constructed of shuttered concrete with flat roofs arranged in parallel blocks with a distinctive stepped form. The character and appearance of the conservation area is directly linked to the character and appearance of the buildings and their layout. These buildings are seen in views that include nearby towers[51]

St John's Wood Conservation Area

106. This has two separate conservation areas. The west area is just to the south of the Alexandra Road Conservation Area and the east part located to the west of Avenue Road comprising large detached villas dating from the mid 19th century. Because of the topography and intervening built form, inter-visibility with Swiss Cottage town centre is limited.

[50] Document A6 page 47 Figure RM10 and Photo RM27 and RM28
[51] Document A6 page 48 Photo RM28

Other Matters

107. The appellant questions the council's five year supply arrangements[52]. It is argued that the council has masked the availability of general housing supply by including the provision of student accommodation in figures. It says there is a serious risk that the main needs of general housing will not be met. In any case, whether it is met or not, the 5 year supply figure is a minimum and there is agreement with the council that significant weight should be attached to the provision of the housing proposed.

108. The appellant acknowledges that the wind environment would be greater when compared with the baseline figure[53], which is to be expected if a tall building is constructed. The increase would be considered significant if conditions became unsuitable for the intended activities. Therefore, while some areas might become unsuitable for sitting during the windiest season it would not mean the area as a whole would not be usable; overall other areas would be suitable for use in the majority of locations.

109. The transport assessment shows that the development accords with relevant transport related policy guidance, is highly accessible being adjacent to Swiss Cottage underground station and on bus routes and while this is the anticipated use by residents etc. the numbers would not have a significant effect in relation to the overall numbers using the services. It would have a basement for servicing and disabled parking and provide an opportunity to improve the access to the underground. The impact would be mitigated by the travel plan, service plan, construction logistics plan and car park management plan. Paragraph 32 of the Framework indicates that development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

110. The appellant identifies the public benefits of the proposal. Socially it would provide about 54 genuinely affordable homes and 130 private rented homes, meeting residential space standards. The mixed use and tenures provide a socially inclusive community.

111. In environmental terms, there would be innovative, attractive and distinctive architecture of high quality, replacing a poor and unattractive building. It would make a positive contribution to local distinctiveness, enhancing the townscape and legibility of the area, with the tower providing a focal point for the town centre and civic buildings. It would have a positive contribution to the library and nearby conservation areas. There would be improved permeability and connectivity and improved landscaping. It would be a very sustainable development in terms of transport and the building itself would have a high energy performance.

112. In economic terms the scheme would optimise the potential of the site with an appropriate mix of uses, putting the town centre at the heart of the community and providing vitality from the shops, restaurants, homes and social project and retaining the existing Eton Avenue Street Markets. It would generate jobs in

[52] Document A3 page 21 paragraphs 2.95 onwards
[53] Document CD 1.11 page 9 (Also see Document IQ31)

construction and use, employing local people. It would directly and indirectly generate economic activity.

113. It meets the aspirations of the Framework and would be sustainable development.

The Case for the London Borough of Camden

114. The case for the London Borough of Camden is set out in Docs C1 to C5 with closing submissions at IQ37. The material points are:-

115. A key issue in the English Heritage-CABE Design Council : Guidance on Tall Buildings is the architectural quality of a tall building. Not only is the tower too tall, it is also too bulky and has an incongruous form which makes no reference to local distinctiveness derived from the character of the local environment. The brutalist and monolithic appearance is overbearing on all sides. There are no notable set backs on the higher floors and no attempt has been made to soften the tower's impact on the skyline. The design does not mitigate the visual impact of the incongruous form by the articulation of modelling of the façades. The elevations are over complicated, with a profusion of horizontal and vertical elements creating a jagged effect of a threatening nature on the surrounding area. This is also the case for the lower block. The building is out of scale and fails to integrate with the surroundings. The increased size and bulk of the building will impact on the Swiss Cottage Open Space, adjacent listed buildings and conservation areas. The suggestion that there is a need to improve legibility is not a benefit as the site is not illegible at the moment.

116. The Swiss Cottage Library (grade II) is a small distance from the end of the development, with an open space between, where the Hampstead Figure Sculpture is located. The existing building steps down to the library, respecting its curved façade. The new building would be between 5 and 7 storeys and would be dominant and overbearing. The spacing of the vertical elements of the design does not reflect those of the library, which are much finer and closely spaced.

117. The change in height of the western elevation would also unacceptably jar with the simple form of the library. The tower would be an unwelcome feature and not harmonise with the library that has a strong horizontal emphasis. It would be an unwelcome intrusion because of its threatening, overbearing and heavy appearance. It would be an unacceptable backdrop on the skyline. The materials would also not complement the high quality materials used on the library. The stone or reconstituted stone of the new development would unacceptably contrast with the Portland stone of the library, as would the proposed red panels. The contrast in scale, textures and colour would be unwelcome.

118. The sculpture is a nationally important post war example, portraying a reclining abstract bronze figure. It is an integral part of the civic centre, that includes the library. The sculpture is only a few metres from the end elevation of the proposed building, which would compete with the sculpture. However, because the sculpture is a robust, abstract design it will hold its own in the changed setting and would still be appreciated for its three dimensional qualities and textural qualities from other angles. There would be less than substantial harm.

119. Regency Lodge is on the west side of Avenue Road and to the south of the appeal site. It is of 6 storeys and was designed between the wars by Robert Atkinson. It is a flat roofed building, again with horizontal emphasis, so will suffer limited harm as a result of the proposed development. The excessive height, bulk, mass, form and scale of the proposal, as portrayed in terms of impact on the setting of the library, will be similar on Regency Lodge. However, because of its solid character, the larger scale of its façades and its location on an island site the impact would be less, but would still be less than substantial harm.

120. The proposal would also cause some harm to non-designated heritage assets, including the Royal Central School of Speech and Drama, Hampstead Theatre, Swiss Cottage Leisure Centre and Swiss Cottage Open Space. It would also affect the setting of Ye Olde Swiss Cottage public house, a well known local landmark.

121. The 24 storey tower would loom over the adjacent Royal Central School of Speech and Drama and have an overbearing and oppressive effect. It would also unbalance the gateway that this building forms with the existing building at the appeal site. It would also impact on the external space in front of the building. The Hampstead Theatre will also be totally dominated by the tower and adjacent blocks, because of their height, scale, bulk and mass, as will be the adjacent Swiss Cottage Open Space that is used as an area of congregation. The Swiss Cottage Leisure Centre is a 'light weight' design and relatively low building with a low key appearance, complementing the setting of the adjacent listed library. The proposed development, because of its size and height, would dominate and encroach on the leisure centre.

122. The development, particularly the tower, would loom over Ye Olde Swiss Cottage public house.

123. Low rise 19th and 20th century domestic buildings prevail in the streets adjacent to the appeal site. The large majority of these buildings are in conservation areas because of their high architectural value and the contribution they make to the townscape, and this includes listed buildings. The setting of these properties will be affected by the construction of the proposed 24 storey tower and adjacent 5/7 storey block. It will cause harm to the visual aspect of many of the tree-lined streets, severely compromising numerous views out of the six surrounding conservation areas. The conservation areas affected would be Belsize Conservation Area, Elsworthy Conservation Area, Fitzjohn's and Netherhall Conservation Area, South Hampstead Conservation Area, Alexandra Road Estate Conservation Area and St John's Wood Conservation Area[54]. It was confirmed at the inquiry and in the rebuttal evidence that when considering harm to conservation areas, it is in consideration of the whole of the conservation area. At the inquiry the council confirmed that the harm to Belsize Conservation Area, Fitzhohn's and Netherhall Conservation area and South Hampstead Conservation Areal would, in terms of the Framework be 'substantial harm' and for the others, 'less that substantial' harm.

124. The Swiss Cottage Open Space is identified in the Local Development Document Proposals Map[55]. The space includes the rectangular area between the

[54] Document C1 page 54 to 84 considers the views of the appeal site from the various conservation areas
[55] Document C2 page 13 Fig 1 shows extract

appeal site and Winchester Road and between the Hampstead Theatre and Leisure Centre. It includes the Multi Use Games Area and playground that abuts the leisure centre and the land between the Swiss Cottage Library and appeal site. It is an important open space with the next nearest being Primrose Hill.

125. The space is adjacent to many civic buildings, theatre, library and leisure centre and underground entrance, so attracting people from a wider area than just locals. The existing buildings around it exert a low level of influence on the space and their heights and juxtaposition complement it. Although the proposed building would not intrude into the Swiss Cottage Open Space [56] it is wider than the existing building, so is closer to the Open Space. The height of the building is considerably greater[57]. The increased height by the library will make the building appear significantly larger than existing and would be far more dominant than the existing building. The impact of the building on the amenity of existing users of the space, because of the increased size, bulk and scale, would be much greater. It would loom over and dominate the open space.

126. The space has been visited on a number of occasions, particularly in the afternoon when the effect of shading would be at its most, and it was generally seen to be well used, including the playground and this is at a time when the appeal site is currently empty. However, it was also noted that the playground and games area use does not appear to be weather dependent. In clement weather the open space is generally used for recreational purposes, with generally greater use at the weekends. The general impression is that the shadow areas when present are little used.

127. It is estimated that about 18% more shadow would occur at 14.00 on 21 March. 6 out of the 27 people would be affected. People using the walkway by Eton Avenue would also be affected. It would place a greater proportion of the main part of the Swiss Cottage Open Space in shadow from 13.00 - 16.00. The combination of the increased shading and the visual impact of the buildings would adversely affect all users of the open space.

128. It is estimated that about 30% more shadow would occur at 17.00 on 21 June than existing. On the 3 June at 16.30 there were about 95 people using the space of which about 50 would be in area that would be shaded by the proposed development. The area around the theatre and its patio area would be shaded, making it less desirable to sit out.

129. It is estimated that about 40% more shadow would occur at 18.00 on 21 June than existing. About 55 of the 92 people seen using the space on 3 June at 17.30 would be affected by the increased shading.

130. It is estimated that about 29% more shadow would occur at 17.00 on 25 August than existing. About 60 of the 95 people using the space would be affected by the increased shading on the 3 June at 16.30. From about June to August about 3 hours of each day would have increased shading. Overall, between March and September it is concluded that the impact of the buildings proposed would be to cast materially greater areas of shadow over the Swiss Cottage Open Space at times when the space is used extensively by the public. It

[56] Document C2 page 15 fig 3
[57] Document C2 pages 16 – 18 figs 4 and 5

will make it a less desirable place and have an impact on the amenity of users in terms of shading and visual impact. The landscaping proposed, while a benefit, would not be sufficient to mitigate that harm.

131. Much of the area used for the Eton Avenue market[58] would be in shadow cast by the new tower. This would add to the current shading by the theatre and result in a glum and unappealing environment around the street market, reducing its appeal. The shadow diagrams show considerably more shading of the market area in June and August between 12.00 and 14.00. The tower would also loom over the market place. It would detract considerably from the amenity of the area.

132. At 17.00 on 25 August the shadow diagrams show that 67, 69 and 71 Eton Avenue would have gardens in shade, which would not be the case currently. It would appear to shorten the day when not in shadow by about 1 hour changing from 18.00 to 17.00. There would also be an effect on dwellings in Fellows Road. While it is only a relatively short period, it is during the summer months and at times when users might be expected to try to make use of the gardens.

133. There will be some limited but adverse impact on these neighbouring occupiers which would conflict with the CS Policies CS5 and DP Policy DP26.

134. Properties fronting Winchester Road have rear amenity areas. While this does have a wall at the rear, there would still be increased shading of about 1hr around 16:00 onwards on 21 March. This will have an adverse effect on the amenity of the occupiers of those properties.

135. The council acknowledges that the BRE guidance[59] is important in the assessment of daylight and sunlight and is referred to in its own guidance. However, the council says that it is still necessary to consider the impact that any additional buildings have on the particular use of a space. In this case it says that the effect in the afternoon and evening is such that it would cause unacceptable harm to users at this important time of the day.

136. In relation to affordable housing there is a target in CS Policy CS6 for 50% self contained affordable housing, with similar aims in DP Policy DP3. However the appellant provided viability information that indicates that what has been offered is the maximum viable and therefore acceptable.

137. The site is allocated for development in the Site Allocations DPD[60] but this, amongst other things, indicates that it should respect the setting of Swiss Cottage Open Space. It is not considered that the proposal does.

138. It is accepted that there will be positive benefits from the proposal in terms of housing, affordable housing and space for the Winchester project. This is tempered a little by the fact the council does have an up to date 5 year housing supply, but this is still a matter of significant weight. The appellant questioned how the council dealt with student housing. This is done in accordance with the current government advice, but even if these were not considered out as suggested by the appellant, the council would still have a 5 year housing supply.

[58] Document C2 page 28/29
[59] Document CD 1.57
[60] Document CD 4.7 page 130

While the benefit of providing further housing is acknowledged, overall the harm is not outweighed by the benefits of the development.

The Case for Belsize Residents' Association[61]

139. The case for Belsize Residents' Association is set out in Docs R3 to R9 with closing submissions at IQ36. The material points are:-

Landscape

140. The residential population surrounding the Swiss Cottage Open Space is diverse and includes some vulnerable people, including elderly residents at Mora Burnet House and special needs residents at Winchester Mews. It is a well used and popular resource used actively and passively[62]. A local resident explains the importance of the open space[63]. The developer talks of town centre location, but the Swiss Cottage Open Space is not in the town centre, it is a residential area. The functions of the Swiss Cottage Open Space should not be associated with the town centre. The developer says that its aim is to generate more activity and vitality, which is a considerable concern of residents.

141. The history of development of the area around the Swiss Cottage Open Space demonstrates sensitivity to the local heritage and scale of existing buildings. The existing building at 100 Avenue Road respected the Library, as did the redevelopment at the theatre. In the original design for the buildings on the site the presence of the busy road was important, with the design screening the open space from it, providing protection from noise, pollution and traffic and making the open space a tranquil, safe and intimate space for users of the park. Closure to traffic of the Eton Avenue junction with Finchley Road reinforces the protection[64].

142. The development with two buildings would mean that this 'barrier' and protection would be breached and compromise the qualities of the space, particularly in terms of tranquillity and amenity. The use by parents with children is considerable and this is possible because of the inherent safety of the area. There would be no baffling of noise or wind through the new gap, which would result in further deterioration in the qualities of the space. The noise breach would also cause disturbance to residents surrounding the outside space, including at the sheltered housing complex.

143. The wider building means that a lot of the planting on the east side of the building would be lost and further hard areas for seating would further reduce the soft landscaping[65]. Losses would include a mown grass verge and shrub beds with a small number of mature trees. At the southern end of the proposed development soft landscape areas would also be lost and some grass areas would be converted to a self binding gravel surface. While there would be some planting, mainly in the form of planters, there would be a net loss of about 9% of the area's soft landscaping.

[61] Documents R3 to R9 and IQ36
[62] Document R3 pg 2 para 1.7
[63] Document R5
[64] Document R3 pg 4/5 para 2.6
[65] Document R3 page 5 para 2.10

144. The shrub beds are an important buffer and green edge between the park and existing buildings and contribute to the bio-diversity of the area[66]. The trees and shrubs are also important in terms of improving air quality and help with cooling and reducing pollutants. Swiss Cottage is short of open space, with no opportunity to replace it locally. The proposal would contravene Camden's Open Space Policy N4 which requires open space deficiency not to be made worse by development. It should only be permitted where the application is supported by an appropriate contribution to the supply of public open space.

145. The study done of daylight and sunlight demonstrates that there would be an increase in shading and visual enclosure of the Swiss Cottage Open Space. This would reduce the amenity value of the area, heavily used by the public. Summer evenings would be particularly affected by the proposal, which is a time late sunshine would be enjoyed. The effect would extend into the surrounding private gardens. The consistency of the skyscape would also be affected, with even the lower blocks being considerably higher than the other buildings surrounding the Swiss Cottage Open Space. The consistency of horizon is important. It would change the proportions and character of the open space.

146. The presence of the hard seating areas for the café / restaurants, even with planter structures, would introduce commercial activity into the open space. In the past such a use was allowed and resulted in repeated night time disturbance for residents with the potential for cooking odours, music, noise and disturbance[67].

147. The tranquillity of the park is a very important feature of the Swiss Cottage Open Space and should be preserved.

148. Local people take pride in their properties and care in maintenance and alterations, so it seems strange that a proposal that is out of character and scale with the area should be proposed[68]. Eton Avenue is a lively, suburban residential road lined by trees and special properties and views up and down are part of the heritage. The area is geared up to residential living and providing a good quality of life. It would be dwarfed by a disproportionately high tower block out of keeping with the surrounding area and would cause harm.

149. Currently development around the Swiss Cottage Open Space defers to the height of the Swiss Cottage Library, with flats of Adelaide Road the only exception, built in a different era. The various developments are harmonious and a product of many years' successive developments balancing public and private spaces as well as civic buildings. With the proposal the balance that currently works in favour of the community would be lost.

150. The tower would overshadow Flat 4 at 73 Eton Avenue, the balcony of which provides a haven and its enjoyment would be affected. Many of the residents in the area do not have gardens, so the Swiss Cottage Open Space provides a way of getting outside and enjoying greenery.

[66] Document R5 page 3 para 14
[67] Document 5 page 3 para 12
[68] Document R4

151. The height of the tower would mean that construction will take proportionately longer, with associated increased noise and disturbance to local residents. Currently the house moves when lorries go past and this is likely to increase with the proposed development. There has been some anti-social behaviour in the past requiring a dispersal order[69]. It is no longer a problem and residents do not want it to return.

152. The increase in residents at the appeal site would also put a strain on local services, particularly the Swiss Cottage Tube Station, which is already very busy.

153. A representative of the group was the project architect of the current building on the site. He is not 'broken hearted' at the thought of it being demolished. However, the current building respected various design principles. The listed building needed to be connected to, without being overpowered, so it stepped down towards it, with surrounding activities on a human scale.

154. A second principle was sharing space between the commercial occupiers and others, especially the residents around the open space, particularly not to overshadow the space. It was also necessary to separate the open space from the busy road. Other considerations related to fire access and underground access.

155. Thirdly, there was some funding for improvements, with nursery, squash court, and six a side football pitch. Allowance was also made for the popular market space, including allowing cars and vans to access it.

156. There is also concern over vehicular access, particularly during construction. There could be no access from the gyratory, so vehicles would be using the residential roads. When the building is in use, there would be no parking proposed, so again residential roads would be used for parking.

157. The flats are proposed to be let on 3/5 year tenancies, so residents would be transient, likely to be single people and couples, not likely to well integrate into the community or contribute to its activities. A main need is for affordable social housing, but little is proposed. There would be overshadowing of the open space, greatly increased by comparison with the existing building, reducing the times that the space can be enjoyed. There would be high winds generated around the base of the building and around-the-clock noise from traffic through the gap created to the main road. Flat owners would be likely to need to keep their windows closed.

158. There is also concern over air quality and the sense of siting 184 flats adjacent to the heavily polluted Finchley Road, a focus area for pollution monitoring. This could contribute to the likelihood of an increase in the incidence of asthma.

159. Aesthetically the proposal would break the skyline for a considerable distance around in a highly prominent way and especially be damaging to the adjacent conservation areas as its upper floors would create an unfortunate and visually upsetting backcloth to the mainly 19th century housing.

[69] Document R5 page 4 para 16

Historic Environment

160. The Belsize Residents Association relies on the evidence of Mr Davies[70] (formerly of English Heritage), who was unable to attend the inquiry. The Association disagrees with the council's approach to assessing the effect on heritage assets[71].

161. The two closest listed buildings are the Swiss Cottage Library (Grade II) by Sir Basil Spence and the Hampstead Figure Sculpture (Grade II) by F E McWilliam. A little further away is Regency Lodge (Grade II) residential block by Robert Atkinson.

162. The library is only 50m from the appeal site and separated by soft landscaping. The 3 storey block now adjacent was designed to respond to the scale of the library and surrounding environment. The part 5 and part 7 storey height of the proposed building in this location would be dominant and overbearing and have a negative impact on the curved wall of the library. It is not accepted that the vertical structure of the proposal would pick up on the finely spaced concrete fins of the library, as the vertical elements of the proposed design are much more widely spaced and do not read with the library. The double height at ground level also contrasts with the single height entrance of the library.

163. The flank walls of the proposal would dominate views of the flat roofed long, low library and the different heights of the building would jar with the simple form of the library. It would 'hang' over the distinct form of the curved north elevation of the library, interrupting views of this important post-war listed building.

164. The Hampstead Figure is a nationally important post war sculpture, portraying a reclining abstract bronze figure and is an integral part of the 1960 civic centre scheme, which includes the library. The sculpture was placed centrally to the entrance of the library and remains a focal point in the recent re-landscaping of this area. It is only a few metres from the appeal site and would be overwhelmed by the end elevation of the new building.

165. Regency Lodge is 6 storeys high and is a robust and streamlined building of interwar period. It has a strong horizontal emphasis. This would suffer limited harm as the result of the proposed development, but views to it will be affected by the building.

166. There are a number of grade II listed buildings in Eton Avenue and one grade II* building whose setting would be affected. No 73 is within 200m of the tower.

167. The proposal would also have a significant adverse effect on the townscape character of Swiss Cottage town centre[72] and cause harm to its visual amenity. The development because it is mainly residential development, would not bring anything to the centre, beyond the offer of some limited ground floor uses.

[70] Document CD1.34
[71] Document R9
[72] Document R9 page 35/36

Belsize Conservation Area

168. The Belsize Conservation Area is the closest and most significant in respect of the appeal proposal. It includes part of the Winchester Road terrace near the civic centre. It has 6 discrete sub-areas, described in the conservation area statement[73]. The earlier parts are formed of semi-detached Victorian villas faced in stucco with elevated ground floors above basements. The later buildings, such as at Eton Avenue developed by W Willet for Eton College estate, have imposing detached houses faced in red brick and terracotta many in variation of the Queen Anne revival style. There are broad, straight tree-lined streets with open ended vistas that add to the spacious feel of the area and little development outside the area intrudes on this. There are occasional views of the Chalcots Estate tower between Fellows Road and Adelaide Road that do detract from its character and are indicative of the impact that outside development can have. It is well preserved but vulnerable to inappropriate development. A measure of its importance is the number of paintings within it by the Camden Town Group in collections in the Tate and Museum of London.

169. The conservation area statement notes that where development does not preserve or enhance the setting of the conservation area it is generally because of inappropriate scale, bulk, height, and massing. Policy BE20 also notes modern development has not always taken account of existing context, but notes that modern development will not be resisted if it respects the layout, height and scale of existing development. The tower would not accord with this aim and is contrary to Policy BE20[74].

170. Particular views of concern are Eton Avenue from outside the fire station, Adamson Road from Crossfield Road, Belsize Park looking south west on to Buckland Crescent, Daleham Gardens looking down to Belsize Lane, Swiss Cottage open space and Belsize Square from south of St Peter's Church, all with high value and high sensitivity[75].

Design

171. It is the Association's view that the Environmental Impact Assessment was not adequate[76]. This does not address the design considerations in the English Heritage-CABE Guidance on Tall Buildings[77].

172. The main issue is the height and mass, particularly the increase of this development over that existing. The existing building was carefully designed to suit the site. It is acknowledged that the Camden Site Allocations Plan (2013) notes the potential for development of the appeal site and that it might be suitable for a taller building, especially at the northern end of the site. However, this is not justification for the increase in height now proposed or mean that it is suitable for high rise development.

173. The appeal site is not in a highly urbanised setting as noted in the heritage statement, but is an edge of town centre location. While there are a number of

[73] Document G5
[74] Document R9 considers townscape characteristics and views between pages 37-43
[75] Document R9 Views 4, 5, 6/24, 7/22 and 27 pages 42 - 29
[76] Document R9 page 23 para 6.40
[77] Document R9 Conclusion page 1 CABE ref paras B.1.1, 4.1.4, 4.1.5, 4.1.9 and 4.4

civic buildings, these are in a residential setting, where much of that is in conservation areas. The quality of the building is not sufficient for its prominence, as it would be the tallest residential building in Camden, visible from Westminster and Brent. The tower is too tall and, because of the floor area, too bulky. It does not attempt to relate to local distinctiveness or the character and context of the local area and historic environment. The tower takes the form of a flat roofed vertical slab, with its broader sides facing north and south.

174. It would have a domineering appearance, with an unchanging floor area on each floor. Seen from the corners, as would be the case from some conservation areas, its bulk would appear even greater. It does not reduce in size as it rises, nor does it have a pleasing skyline. There is no relief articulation or modelling of the elevations. Similar comments apply to the lower block, which would have a far greater impact on the surrounding area than the existing building, because of its increased width and height, and consequently mass and bulk. The current building is only 3 storeys near the library, whereas the proposal is 5/7 storeys. It would be imposing and out of scale with the adjacent buildings and spaces, including the grade II library and sculpture and buildings in the conservation area.

Residential Amenities

175. The development contravenes LP Policy 7.7C as its scale, mass and bulk would adversely affect the character of the surrounding area and would fail to relate well to the form, proportion, composition, scale and character of surrounding buildings, urban grain and public realm, particularly at street level. It is contrary to LP Policy 7.7D as it would adversely affect local views and be contrary to LP Policy 7.7E relating to tall buildings and impact on sensitive locations, including conservation areas, listed buildings and their settings. It would have an unacceptable impact.

176. It would fail to comply with CS5 and CS14 of the London Borough of Camden Local Development Framework Core Strategy and the London Borough of Camden Local Development Framework Development Policies DP24 and DP25.

177. There would be some benefit in the form of step free access to the underground, but Transport for London have not yet committed to this. The building would have an impact in terms of shading and the environment adjacent to the theatre. Over 900 people have objected to the proposal.

The Case for Cresta House Residents' Association[78]

178. The case for Cresta House Residents' Association is set out in Doc R13 with closing submissions at IQ36. The material points are:-

179. Camden's Development Policy 26 notes the council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity.

180. The officer's report indicated that there are no residential properties directly adjacent to the appeal site, but did go on to refer to some nearby properties. It noted that only properties at Overground House would experience a loss of

[78] Document R13

vertical sky component greater than the guideline 20%. Cresta House is 38 fully occupied residential properties above Overground House, 75m away from the site[79]. Therefore, if Overground House would have a loss of greater than the 20% guideline, so would Cresta House residents. There has therefore been an error in considering daylight and sunlight issues with regard to the omission of Cresta House.

181. There is no mention by the council in its consideration of the proposal about the effect on daylight and sunlight at Cresta House, although it is noted by Mr Hughes of the Council that the vertical skylight component and average daylight factors for Cresta House will incur losses but such a degree of loss would not be noticeable[80]. The suggestion by the appellant is that residents of Cresta House already suffer as a result of neighbouring buildings restricting daylight availability to their own windows and rooms, so that further harm does not matter. That is not reasonable and in any case there are 7 apartments where this does not occur. The depth of the rooms is also incorrect in the report.

182. The impact of the tower in terms of its impact on outlook would be at its greatest as seen from the terraces of Cresta House. There would also be a severe impact on privacy. The residents of Cresta House will suffer a substantial loss of amenity.

The Case for Eton Avenue Housing Association[81]

183. The case for Eton Avenue Housing Association is set out in Docs R12 and IQ29 with closing submissions at IQ36. The material points are:-

184. The case made by Belsize Residents' Association is supported.

185. The representative has lived in the area for a considerable time, with connections with it for some 45 years. The last development in the area was about 2006 and it is considered that what has been provided to date works very well. There is a tranquil open space where people can relax and children play. There is a thriving cultural centre and market place. It is an oasis in the heart of Swiss Cottage with a special community sprit that would be destroyed if the scheme goes ahead.

186. Nearby residents would be affected by noise and disturbance, initially from construction and then from the many shops and cafés that would span the perimeter. Noise and air pollution from the gyratory would permeate the open space through the new gap between buildings. There would be a significant increase in wind and overshadowing, particularly in the evening, a time when the open space is most frequented.

187. There would also be a considerable increased risk to pedestrians with increased traffic at the Eton Avenue end of the area, from commercial vehicles servicing the many flats.

[79] Document 13 page 3 para 5
[80] Document R13 page 4 para 10
[81] Document R12 and IQ29

188. The tower would loom over some housing and gardens in the area, harming the outlook for residents[82]. The fact that there is Chalcots Estates Towers in Fellows Road does not justify another view of a tall building that is higher.

189. The appellant's report on micro climate makes significant errors and remains uncorrected, despite being identified to the appellants. It uses pre-development baseline figures and this is evident in figures 3 and 5 of RWDIs Assessment[83]. A reduction of about 51 'sitting' is substantial. The area already suffers high winds. The entrance of the tube station is often windy. The report is correct in noting Eton Avenue and pathway adjacent to the theatre as being one of the windiest areas, to the extent of impeding walking on the windiest days of the year. We are concerned the errors will have affected the predictions of the impact of the development.

190. J Sachs submitted a note to the inquiry relating to the microclimate around the building. Concern is expressed about the wind environment, particularly that associated with the tall building[84]. They note that the report indicates conditions around and within the site would be windier when the development is complete compared to baseline conditions, which is largely because of the height of the development compared with the surrounding buildings creating down-draughts and channelling. Using the Lawson Comfort Criteria, the wind blight would increase from pre-development baseline figures, particularly from 67 sitting to 16.

191. It is not acceptable that there is no social rented sector housing as they are most needed. Only 19.9% of the units are affordable houses[85]. The development does not satisfy the affordable housing need in the area. It falls well below the Camden Strategy Policy CS6 (f) which seeks to secure 50% of the borough wide target for new homes as affordable housing.

The Case for Mr Reed[86]

192. The case for Mr Reed is set out in Docs R1 and R2 with closing submissions at IQ35. The material points are:-

193. The objections in terms of character and appearance and impacts on living conditions as put by other interested parties are supported and this is because of the over-development of the site. However, the main focus relates to the lack of direct vehicular access to the building and the lack of attempt to identify the extent of the occupation that would occur, particularly as this is located on a busy Red Route with no stopping allowed.

194. This means that access will have to be through the pedestrianised street market area, with much of it coming along Winchester Road from the main A41, via the B509 Adelaide Road.

195. The use of taxis appears to be promoted, but these cannot stop on the Red Route, so will also contribute to additional traffic in the pedestrianised area, as

[82] Document R12 page 3
[83] Document R12 page 3
[84] CD11.1 Microclimate Assessment
[85] Document R12 page 4
[86] Document R1 and IQ35

would home delivered shopping etc. Mr Reed questions whether the residents of a high quality block would walk or cycle, particularly as the main road adjacent is a Red Route. The transport report notes that deliveries would also be via the pedestrianised area.

196. He considers residents would not contribute to the local economy, would be a burden on leisure facilities and, with more active use of the adjacent open space, would spoil the tranquillity of the area.

197. The open space is the only traffic free open space in the area and backs onto a hundred flats who do not want people pouring out of restaurants and bars at all hours, or the noise, pollution and winds through gaps between buildings that would occurred. It is a widely used space by thousands of local people, with many passing through to the library, leisure centre, theatre and community centre as well as users of the Central School for Speech and Drama. If pedestrian flows are considered there is a peak flow area directly adjacent to the tower, which would be the same place that vehicles would have to pass through. In addition, because traffic access is limited to the north east corner, it means, because of the way the main roads are, that this traffic would have to use local roads, that are residential and already intensively used.

198. A survey[87] was undertaken that shows the area to be already very busy with vehicles and pedestrians and the proposed use could generate a further 200 deliveries a day. This could be a rate of about 30 movements an hour, crossing the busy pedestrian route (counted 1376 pedestrians and 34 bikes in 1 hour at lunch time).

199. It is suggested that bollards can control traffic flows. This was done before, but the bollards were not successful and have been removed.

200. Finally there is a gas pressure reduction station beneath the tower block, so is it sensible to locate a tower block in close proximity to it?

The Case for Save Swiss Cottage Action Group[88]

201. The case for Save Swiss Cottage Action Group is set out in Docs R10 and R11 with closing submissions at IQ34. The material points are:-

202. A key concern is the scale, massing and lack of relationship with the other buildings round the site. To the east is the Victorian Winchester Terrace, simple and unpretentious, but with a sense of scale and rhythm. To the north is the small-scale Hampstead Theatre, again unpretentious but relating well to the open space that falls away to the south. The library building is a strong statement, but the elevation treatment is simple and precise and relates well to the adjacent leisure centre, which itself relates well to the Visage building at the corner.

203. While there are large buildings at Adelaide Road, it is quite wrong to use those as a precedent for here as times have moved on and to match the size and crudity of those would be totally inappropriate. It is hard to see how the slab like elevation adjacent to the listed library can be considered acceptable. The Belsize Park Conservation Area is important, which is well explained in the conservation

[87] See Document R10 and appendices at R11
[88] Document R7 and IQ34

area statement[89]. An unusual contribution to the area is the grade II listed fire station with an impressive design. The great thing about the area is the completeness and lack of incongruous or unsympathetic elements in such an extensive area.

204. Fitzjohn's and Netherhall Conservation Area is directly adjacent to Belsize Park Conservation Area. This has a parade of impressive detached and semi-detached houses, mostly in red brick and dating from the latter part of the nineteenth century in a style that combines Queen Anne with Arts and Crafts influences based on the work of Norman Shaw. Parallel roads are all in a similar style, with a mix of detached and semi-detached buildings with large gardens.

205. South Hampstead Conservation Area is to the west of Finchley Road and was developed from the 1870s in a consistent red brick style, mainly closely placed semi-detached housing but with a small number of villa style buildings along gently curving roads. To the east there are some taller buildings and flat blocks. All have large rear gardens, some of which are communal. There is a considerable consistency of style, which is important.

206. Alexandra Road Conservation Area is unusual as it consists mainly of two extensive grade II* listed residential buildings built along the railway tracks. These were built in the 1970s and epitomise the style of that period and are a better example of architecture of this period[90].

207. Elsworthy Road Conservation Area to the south of Swiss Cottage comprises a mix of individual and semi-detached private houses in what could be described as the Arts and Crafts style or in a small number of cases, Art Nouveau style, and are good examples of this. It is a more urban version of the Hampstead Garden Suburbs. To the north are Victorian buildings, mainly in gault bricks.

208. St John's Hampstead has substantial semi-detached stuccoed houses interspersed with more rustic cottages in a style that might have been associated with Nash.

209. The Swiss Cottage inn is a significant local feature, as well as giving its name to the area. Although it is not listed it merits some consideration in development proposals[91].

210. A listed building that needs to be taken into consideration is the below ground pair of listed railway portals at the western end of the Primrose Hill tunnels below Hilgrove and Alexandra Road. These are seen in a view from the west which would incorporate the tower.

211. While the proposal was put before the Design Council[92] [CABE] they did not consider the impact on heritage assets; it left that to Historic England who left the decision to the council[93]. The historic environment is a crucial aspect of the overall environment and the fact this aspect was not considered by the Design Council undermines the credibility of its comments.

[89] Document G5
[90] Documents R11 appendix 2 view 22 shows Alexandra Road flat with tower behind
[91] Document R10 and R11. Analysis of views in apx 2 and pages 9 -
[92] Documents CD1.45 – 1.48
[93] Document CD1.37 paragraph 4.4

Amenity.

212. The park generally has an open aspect, with generally two to five storey buildings around it. The Visage building is higher to the south, but you are not aware of this in the park. The existing building steps down from 6 to 3 storeys and is not overbearing. The combination of planting, including some small and large trees, combined with the gentle slope and water feature makes a very attractive space. There is currently little overshadowing. It also provides space for local markets. The theatres are an added attraction.

213. The design resulting from the design process[94] is unacceptable. The tower is too high, thus causing public and technical objection, particularly in such a relatively sensitive neighbourhood and secondly the lower block is also too high because of the impact that it would have on the Swiss Cottage Open Space. The lower block is completely disrespectful of the listed library and the lower block would also appear to be out of all proportion in relation to the Winchester Terrace on the other side of the open space.

214. In relation to trees[95] it is considered that 7 of the Cherry Trees should be grade B and not C and that 3 other trees (Beech and Tulip) should be Grade A and not Grade C. 33 of the 54 trees would be directly affected by the development. 4 high grade plane trees along Eton Avenue have been omitted. 11 other mature Tulip trees should also have been assessed, because of their size. It is therefore considered that more trees will be lost than identified. There is no real assessment of how the construction phase would be undertaken and the way that protection would be undertaken. The conclusion is that there is insufficient detail to guarantee the safe and healthy retention of the trees which it is stated can be retained. Of particular concern are the large plane trees at the construction entrances.

215. In terms of overshadowing and light[96], the appellant's assessment appears to interpret the BRE guidance in an unusual way. There is particular concern that the extent of overshadowing would be far greater than it demonstrates, particularly in relation to Cresta House residents on the top of Overground House. It is criticised that some trees have not been taken into consideration when working out the daylight factors and that using adjacent building calculations is not reasonable. The impact of the obstruction of the proposed development on daylight as well as sunlight needs to be considered. The appellant has not taken account of changing ground levels which would affect the shadows produced[97]. However, the expert that produced the report did not attend the inquiry and the evidence was not cross-examined. The report also does not conclude that the proposal would not comply with the BRE guidance but complains about the 'flexible' interpretation[98].

216. Similar concerns are raised in relation to access as Belsize Residents' Association and particularly that large lorries parked to supply materials within the site could mean Eton Avenue is unusable for much of the construction period.

[94] Document R10 page 22
[95] Document R11 appendix 6
[96] Document R11 appendix 7
[97] Document R11 appendix 7 page 9
[98] Document R11 appendix 7 page10

217. The articulation of the façades lacks delicacy and widening the blocks would not help the open space or public realm generally. Isolating the tower will also result in a windy gap and loses protection for the park in terms of privacy and noise from the main road. Provision of restaurants is to be applauded, but it is questioned whether it makes sense in this location.

The case for Winchester Road Residents' Association

218. The case for Winchester Road Residents' Association is set out in the case for Belsize Residents' Association with closing submissions at IQ36. The material points are:-

219. At one end of Winchester Road is Mora Burnet House containing 35 flats for frail older tenants who have 24 hour care and support[99]. There is then a small row of shops and restaurants entered from Winchester Road with flats above. The restaurants do not use garden space at the rear and cause no disturbance. The Winchester Project is a charity for children and beyond the walkway is a community centre with residential accommodation for people with mental and physical disabilities.

220. On the second side of the open space is the Swiss Cottage Leisure Centre, providing a wide range of community facilities and a café carefully run at hours following consultation with residents. There are flats above the leisure centre again for people with mental and physical disabilities. The Swiss Cottage Library is adjacent.

221. The appeal site runs along the third side of the Swiss Cottage Open Space. The fourth side has the Hampstead Theatre, with an artistic and cultural function and ancillary restaurant and bars. This does not create unacceptable noise. The theatre withdrew proposals to extend outside terraces after consulting residents.

222. The new walkway between the two buildings would create a new access into the open space and people using the walkway may create noise and simply use the walkway and open space as a cut through increasing noise and disturbance.

223. The proposals will turn the open space into a noisy area by day and night. The commercial space, where occupiers will seek licences to serve alcohol, is too close to the residential areas. Those using it will be likely to linger on the open space after closing time, creating noise close to residences, especially in summer months, causing sleep problems for those using the many bedrooms facing the open space.

224. The current space is very harmonious through progressive developments and will be spoilt by the proposed development. There is a balance of public and private space, architecture and greenery. The space provides a location for those without gardens to go and see the wildlife which has now returned following previous developments. The balance would be broken.

225. There have been past problems with anti-social behaviour caused by people lingering in the open space. The police and council had to take action, issuing dispersal notices[100], and the sports pitch had to have night security and then

[99] Document R5 See attachments for description of Mora Burnett House
[100] Document R5 See attachments for copy of notice

fencing. It is no longer a significant problem and it is essential it should not return.

226. The space is not town centre but a residential area, with many properties with bedrooms overlooking the open space. It cannot be compared to a town centre or square which might have non residential buildings surrounding it and Winchester Road is not part of the town centre. There is real concern that the developer's aim to create activity on all sides to engage the public realm will occur, causing change and disturbance to residents. The town centre does not surround the development as the open space is not part of the town centre. There is also concern about the noise and disturbance from construction traffic.

227. **Mr Grimm** is concerned about the impact of the development on the swimming pool in terms of privacy and outlook[101].

228. **Mr T Ewing** appeared on behalf of the Camden Association of Street Properties[102]. Mr Ewing looks in detail at the law behind planning decisions, with particular emphasis on that surrounding listed buildings and conservation areas.

Written Representations[103]

Letters related to the application are contained in Document 3. Where appropriate it includes letters written before and during the inquiry.

229. I do not need to set out the cases expressed in the written representations as essentially these follow that of the council and rule 6 parties. In summary, there is massive local opposition to the proposal, with many letters and a petition.

230. Mr T Tugnutt[104] submitted photographs taken on the day of the site visit with the 'blimp' in position. The height of the rope tethering it was agreed between the parties, although the securing position was a little to the east of the tower position. In addition, I would note that it was a windy day and the 'blimp' rarely flew vertically above its position, so its location would be to one side and vertical height not as measured. Therefore, it is my view that the photographs should be considered for general illustration only and not as a totally accurate representation of height or position.

Conditions and Obligations

The conditions agreed between the parties are contained in IQ30 and my recommended conditions are attached as annex A to this report. The signed planning obligation is at IQ40. This was replaced after the inquiry as a page had been omitted. My comments are in the conclusions.

[101] Document IQ20
[102] Original comments are in Red Folder 1 and closing submissions in Document IQ33
[103] Red Folders 1 and 2 and Blue folder
[104] Document IQ32

CONCLUSIONS

In this section the numbers in parentheses [n] refer to the preceding paragraphs.

231. I have covered the main considerations identified as well as a number of other matters raised by interested parties.

232. Main issues are:

1. Heritage Assets

    i. The effect on the significance, character and appearance of various nearby conservation areas, in particular Belsize Park, Fitzjohns and Netheral, Elsworthy, South Hampstead, Alexandra Road Estate and St John's Wood Conservation Areas.

    ii. The effect on the significance and special architectural and historic interest of heritage assets, including listed buildings. (There are a number of heritage assets/listed buildings, including the Swiss Cottage Library and the Hampstead Figure Sculpture. The Save Swiss Cottage Action Group will identify a further 37 listed buildings.)

2. The effect on the character and appearance of the surrounding area.

3. The effect on the amenity of the surrounding area, particularly in relation to daylight and sunlight on the Swiss Cottage open space and the effect on outlook of people using the space, including during construction and taking account of new walkways and routes.

4. The effect in relation to outlook and privacy on adjoining premises, including residents at Cresta House and users of the Central School for Speech and Drama.

233. There was some concern raised by interested parties about the town centre designation, [4] in particular the extension to include the appeal site, and whether there had been consultation. However, the statement of common ground makes it clear that the extension of the town centre to include the appeal site, library and leisure centre was part of the core strategy consultation changes to the proposals map.

Heritage Assets

234. Section 72 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires special attention to be paid to the desirability of preserving or enhancing the character or appearance of a conservation area. There is no specific duty under the Act to consider the setting of conservation areas, but it is established practice that views into and out of a conservation area and any effect on character and/or appearance are relevant. There was also some confusion in the council's case relating to the assessment of harm in a conservation area. However, at the inquiry changes were made to confirm that the correct assessment is the effect on the character and/or appearance of the conservation area as a whole, which is well established case law. However, I acknowledge that this does not mean that any harm identified has to be over the whole area, and that harm in one part of a conservation area (or outside) could have an effect on the conservation area as a whole.

235. In addition, the Framework identifies conservation areas as designated heritage assets, where when considering the impact of proposed development on the significance of the asset, great weight should be given to the asset's conservation. It notes that significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. It notes that proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably. The effect of the proposal on the setting of the conservation area is relevant and there is no disagreement that the proposal would be in the setting of the assets identified.

236. No listed building is physically affected by the proposal, apart from the Hampstead Figure Sculpture. It would be necessary to remove the listed sculpture and reposition it after the works are complete. It has been relocated in the past from its original position nearer the library. Generally it is the setting of various listed buildings that needs to be considered. When considering applications that may affect a listed building or its setting, section 66 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires special regard to be paid to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

237. The council argues that their policies require development to protect and enhance heritage. Policy CS5 [13] does not require that, but for ***consideration*** to be given to protecting and enhancing the heritage environment. CS Policy CS14 [16] is a bit stronger, noting the council will ensure that Camden's places and buildings are attractive, safe and easy to use by, amongst other things, preserving and enhancing Camden's rich and diverse heritage assets and their settings. Text to the policy notes '*we have a responsibility to preserve, and* ***where possible****, enhance our heritage of important areas and buildings'*, which seems to indicates to me that the two components are not essential.' Reference is made to DP Policy DP25 [19] which also notes more strongly that the council '*will only permit development* ***within*** *a conservation area that preserves and enhances the character and appearance of the area'*. However, for development **outside** of the area it also notes that it *will not permit development outside of a conservation area that causes harm to the character and appearance of the conservation area'.* And for listed buildings it notes 'To *preserve or enhance the borough's listed buildings the council will not permit development that it considers would cause harm to the setting of a listed building'. [my emphasis]*

238. My interpretation of these policies is that the aim is to seek development that both preserves and enhances heritage assets, but that development that preserves the assets or would not cause harm to them would also effectively satisfy the policy tests.

239. The Framework describes the setting of a heritage asset as the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

240. In enacting section 66(1), Parliament intended that the desirability of preserving the setting of listed buildings should not simply be given careful consideration by the decision-maker for the purpose of deciding whether there

would be some harm, but that it should be given 'considerable importance and weight' when the decision-maker carries out the balancing exercise. Even where 'less than substantial' harm is identified, Section 66(1) requires considerable importance and weight to be given to the desirability of preserving the setting of a listed building and for Section 72(1) the desirability of preserving or enhancing the character or appearance of a conservation area, when carrying out the balancing exercise.

241. The proposal was considered by Historic England and the Design Council, but it is suggested that the weight to this should be limited because the Design Council did not consider heritage matters, but left that to Historic England [211]. The committee report[105] notes the response of Historic England (English Heritage) indicating it considered the impact of the proposal on the historic environment is not so significant as to warrant English Heritage's involvement. English Heritage is therefore content for the council to determine the appeal. If Historic England had considered there was a notable unacceptable impact I would have expected them to have commented, but I also accept that just because it did not comment, does not mean that there is no harm to be identified; that was left to the council. The fact that the Design Council left the heritage assessment to Historic England does not undermine its support for the scheme.

Conservation Areas

242. There is no real dispute between the main parties or Rule 6 parties related to the character, appearance or significance of the conservation areas. All acknowledge the high quality and importance of these. There is also little dispute about what is within the setting/visible from the conservation area and that from parts of the conservation area there will be views of, in particular, the new tower.

243. In this respect, various views have been provided by the parties with montages of the building shown for comparison purposes. Those provided by the appellant were representative views agreed with the council and some further views provided in relation to arguments raised. Save Swiss Cottage Action Group has also provided its own evidence on views. A good place to see some of the evidence for the assessment of impact on views is CD1.4, CD1.5 and Document R11 Appendix 2. The main dispute is the impact that the development has on the significance/special interest and character and appearance of the surrounding heritage assets.

244. When considering the views illustrated, I have taken into consideration that these are representative views, and that, as seen at the site visit, there will be views of the proposed development from other parts of the conservation areas. There is a very comprehensive set of photographs illustrating many of the buildings in the various conservation areas at Document R11 appendix 4 parts 1, 2 and 3. I have taken into consideration views into, out of and within the conservation areas and effect on other heritage assets.

Belsize Conservation Area

245. This is a large conservation area and, while there is variation in the designs of the buildings in the different parts, the significance, architectural and historic

[105] Document CD1.37 paragraph 4.4

interest relates, to a greater part, to the overall residential character of the area, the layout of the streets, their verdant character, and the era of the housing expressed by their designs and relative small scale of the buildings. These provide a distinctive character and appearance [90, 203].

246. The setting of the conservation area is the surrounding urban areas, including the Swiss Cottage town centre (and appeal site), Swiss Cottage Open Space, the Fitzjohn's and Netherhall Conservation Area and the Chalcots Estate. Tall buildings, such as at the Chalcots Estate and the relatively large scale buildings in the town centre are all part of that setting. The urban setting of the conservation area is important as a general setting, but I find there is nothing specific in the setting that adds to the significance or architectural and historic interest of the conservation area.

247. Views in and out are important, but they are of the surrounding urban area that has changed considerably since this housing was constructed and conservation area designated. The fact that there is a change in the surrounding urban area does not in principle diminish the significance of the conservation area and continues to provide an urban setting for the conservation area. I do not consider that the appeal site itself makes any particular contribution to the significance of the Belsize Conservation Area. Currently the site is more open, but I do not consider that it being more open in itself adds to the significance of the conservation area.

248. There are views into and out of the conservation area to the surrounding urban area that will be affected by the proposal. Views 5, 24 and 26 are closest. View 5 from Crossfield Road[106] is along Adamson Road towards the appeal site. Currently there is a clear indication of the change in character at the end of the road, where the town centre is. Here there are buildings of a substantially different size and scale to those in the conservation area, including at the appeal site and across the road from the appeal site. These large scale existing buildings do not add to, or take away from, the significance of the conservation area, but indicate the position where the conservation area ends, helping define its limits.

249. The tower would become a prominent, modern feature in this view. However, because of its modern design and size it is clearly seen as part of the town centre beyond and in the conservation areas urban setting. The view clearly is changed, but character of the setting is not and nor is there an effect on significance of the heritage asset, in this part or as a whole. The character of the conservation area and buildings within it is also unchanged. So while the view would be changed, I consider the effect on the character and/or appearance would be neutral.

250. The view along Buckland Crescent[107] (view 24) is of a row of detached stucco villas with, in the distance, the large scale buildings of the town centre partly rising up behind the further away buildings. This is an attractive view, where the proposed tower would be visible behind the properties when walking along the street. While it would be a new feature in the view, it would be seen as a modern feature, not part of the conservation area, and seen in the distance. I do not consider that it would harm the views out, or within the conservation area and the impact on its significance would be neutral.

[106] Document CD1.4 view 5 page 14.
[107] Document CD1.4 page 71 view 24 and Document R11 Appendix 2 View 13

251. The view from Belsize Park (view 6) towards the junction of Buckland Avenue is an attractive view within the conservation area[108] and is referred to in the conservation area statement[109]. This view is also shown in a painting. At present the view is an 'internal' view, with buildings from the setting outside the conservation area not intruding into the view. The building at the junction of the roads is attractive and forms a visual stop to the view at the junction. The tower of the proposed development would be prominent in this view and affect the character of the area as seen in this general location. However, the tower would be seen as being in the distance behind the house. While there would be some negative impact here, I do not consider that would have an effect on the conservation area when considered as a whole and I conclude that the effect would be neutral and the conservation area as a whole preserved. Nevertheless, there would be some harm, which in terms of the Framework would be 'less that substantial' and this should be carried through into the balance.

252. Save Swiss Cottage Action Group shows the new development from the front of 5 Adamson Road[110] (appellant's view 26). This is close to the appeal site, being a little up from the Theatre and Royal Central School of Speech and Drama. This is close to the town centre and existing large scale modern buildings are part of the setting of the conservation area and part of the views in and out of it. In this location the tower would be very prominent, but would also be seen as part of the 'civic' complex of buildings around the Swiss Cottage Open Space, and particularly in this general location the theatre and Royal Central School of Speech and Drama.

253. I do not consider that it would cause harm to this part of the conservation area or affect the significance of the conservation area as a whole as there are already large modern buildings at this edge. This is a well designed building that enhances the town centre and would not be unacceptable in this position.

254. There are further away views from other parts of the conservation area, some illustrated at CD1.4 views 4, 6, 11, 21 and 25. Also see views 6 and 25 in Document R11 appendix 2.

255. As shown by view 11, this part of the conservation area is clearly seen as being at the edge of the conservation area, with modern development forming a distinct part of the setting. The buildings within the conservation area are seen with large buildings in the background, including the tower at the Chalcots Estate. While the new tower is seen in a different position, behind the houses on the opposite side of the street, because of its design and location it is clearly seen as not being part of the conservation area. The views of it would not affect the significance of the conservation area or its character and appearance.

256. Views 4 and 25 from Eton Avenue are from similar positions, with that in the middle of the road giving the clearest view of the appeal proposal[111]. Again, the modern, large scale buildings can be seen in the distance, identifying the town centre and existing setting of the building. The tower would be prominent in the distance, but is clearly in the distance and seen as part of the town centre. I do

[108] Document CD1.4 page view 6 and View 12 in Document R11 Appendix 2
[109] Document G5 page 16 of the conservation area statement
[110] Document R11 Appendix 2 Views 8/9, this is also the appellant's view 26 Document 1.4
[111] Document 1.4 View 4 page 11 and View 25 page 74 and Document R11 View 5

not consider the view of the tower affects the character or appearance of the conservation area or its significance. Similar comments relate to other views in the conservation area.

257. I have also taken into consideration other views, such as Views 9 and 23, where the building would be visible with the conservation area in sight, and views 31 to 34 of Save Swiss Cottage Action Group.

258. The towers in the Chalcots Estate were considered by the council and other parties to be a negative feature in the area and that these should not effectively form a precedent for further towers in the area. In my view, while prominent features, they are neutral, modern features forming part of the surrounding to the conservation area. I accept that these do not create a precedent for further development, but the towers clearly are an important part of the setting and cannot be ignored as there was no evidence to suggest they might be removed in the foreseeable future. It is therefore reasonable to consider them as part of the urban context of the conservation areas setting.

259. The council considered that the harm to the Belsize Conservation Area would, in terms of the Framework, be 'substantial harm'. To my mind, that clearly is not the case; the overall significance of the conservation area that derives from the buildings and their layout would be fully retained. The impact on views within the conservation area as a whole are limited, so even when considered individually or together any potential any harm would still be limited to 'less than substantial harm'.

260. In conclusion, taking account of all the views that would occur of the new development and the effect on other heritage assets, I consider that the impact on the conservation area as a whole would generally be neutral and the character and appearance would be preserved, but with some limited 'less than substantial' harm associated with the view from Belsize Park (View 6).

Fitzjohn's and Netherhall Conservation Area[112]

261. This is also a large conservation area and while there is some variation in the designs of the buildings in the different parts, the significance, architectural and historic interest relates, to a greater part, to the overall residential character of the area, the layout of the streets, their generally verdant character, and the era of the housing, expressed by their designs and relative small scale of the buildings. These provide a distinctive character and appearance.

262. The setting of the conservation area is the urban area surrounding it, including the Belsize Conservation Area and Swiss Cottage town centre. The appeal proposal would be visible from some parts of the conservation area and is therefore within its setting. However, I do not consider that any part of the setting of the conservation area is important to its significance, character or appearance, apart from being a 'surrounding' urban environment. This is important, as the conservation area is an enclave within the urban environment, with its own particular character and appearance. I therefore do not consider that the appeal site makes any contribution to the significance of the conservation

[112] Document G5 – conservation area statement Document 1.4 Views 7, 8, 9, 20 and 22 and Document R11 Appendix 2 Views 10, 11, 28 and 29

area apart from being part of the urban surroundings. The lack of seeing the appeal site currently from views is also not important in terms of the significance of the conservation area.

263. The appellant's view 9 and Save Swiss Cottage Action Group views 10 and 11 are in similar locations looking down College Crescent towards the appeal site. This position is clearly at the edge of the conservation area. The distant view of the Royal Central School of Speech and Drama is of a large scale, modern, relatively bulky building contrasting with the houses and character of the conservation area as a whole and the large blocks of flats on the left also provide a strong contrast between the setting of the conservation area and the area itself. This is also a position very close to the town centre, the character of which is very different from the conservation area itself.

264. The appeal building would be another distinctly modern building that would be prominent in views. However, it would be seen as part of the modern urban environment of the town centre, adjacent to the conservation area and not seen to be an intrusion into the conservation area and would not unacceptably affect the setting, its significance or its character and appearance either here or as a whole.

265. There are also views from further into the conservation area, with examples shown from Fitzjohn's Avenue, Daleham Gardens and Belsize Lane[113]. In the appellant's view 22 the town centre can be seen in the distance and the appeal building would be clearly seen as part of the town centre. While it would be visible as a new feature it would not impact on the significance, character or appearance of the conservation area. Lower down Daleham Gardens, as seen in Save Swiss Cottage Action Group views 29 and 34, the views without the new building are contained within the conservation area, so the introduction of the tower into these views would be a new feature, identifying the location of the town centre beyond. While it would change the view, the character and appearance of the conservation area would be unchanged and the fact that part of the wider setting of the town centre would now be seen would have little effect on the significance of the asset. I conclude taking into consideration all the views of the proposed building that would occur that the character and appearance and significance of the Fitzjohn's and Netherhall Conservation Area would be preserved.

Elsworthy Road Conservation Area, St John's Wood Conservation Areas and South Hampstead Conservation Area

266. These are large conservation areas and I have dealt with them together. While there is some variation in the designs of the buildings in the different parts, the significance, architectural and historic interest relates, to a greater part, to the overall residential character of these areas, the layout of the streets, their generally verdant character and the era of the housing, expressed by their designs and relative small scale of the buildings. These provide a distinctive character and appearance.

267. There is no direct connection of these conservation areas with the appeal site. The appeal site is simply an area of land within the surrounding area, which is

[113] Document CD1.4 view 22, and R11 Appendix 2 views 29 and 34

currently not generally visible from these areas. The lack of visibility, in my view, does not add to the significance of the conservation areas. The contribution the surroundings make is providing an urban setting for the conservation areas which have a distinctly different and historically interesting character that contrasts with the town centre character and buildings.

268. These conservation areas are further away from the appeal building, with Elsworthy Road Conservation Area being closest.

269. Views of the proposal[114] from these areas are provided by the appellant and Save Swiss Cottage Action Group. In the appellant's views 1 and 2 (same as views 3 and 4 of Save Swiss Cottage Action Group), the existing modern buildings near to the appeal site can clearly be seen, including a tall tower from the Chalcots Estate and the large, modern Visage building (seen particularly in the appellant's View 2). While the appeal building would be an additional modern building in this view, it would not change the town centre setting and would have little impact on appearance and no impact on the character and or significance of the conservation area.

270. There are illustrative views from the South Hampstead Conservation Area[115]. These are a reasonable distance from the appeal site and downhill from it. Appellant's view 19 is the closest. This is at the edge of the South Hampstead Conservation Area and there are a number of modern buildings close by, particularly in views towards the appeal site. The proposed tower would be visible above some of those modern buildings and would be seen to be a considerable distance from the conservation area. The character or appearance of the conservation area when considered in relation to views from here would be preserved and the significance of the conservation area unaffected.

271. View 10 of the appellant and views 2 and 23 of Save Swiss Cottage Action Group are from similar locations in Goldhurst Terrace. From Views 10 and 2 the town centre buildings are a feature onthe horizon. A little around the corner in view 23 the views are more contained within the conservation area. From this location the new building would be an additional feature of the town centre visible within the views[116]. However, the new building would be at a considerable distance and clearly be seen as part of the distant town centre and the views of it would not affect the character and appearance of the conservation area or its significance, the new building being clearly not part of it, but of the distant urban setting.

Alexandra Road Conservation Area[117]

272. The Alexandra Road conservation area's special interest and significance also relates to the age and design of the dwellings within it and the layout. This is a dramatic and bold form of innovative modern development representative of its age. It is different from the other conservation areas in that the development is very 'modern' in its form and I consider it to be very compatible with the modern design approach used in the appeal proposal.

[114] Document CD1.4 Views 1 and 2 and Document R11 Appendix 2 views 3 and 4
[115] Document CD 1.4 views 10 and 19 and Document R11 Appendix 2 views 2, 23 and 38
[116] Document IQ34 page 3
[117] Document G5 for conservation area statement and CD 2.5 list description

273. The appeal building will be visible from some parts of the conservation area and listed building and is therefore within the setting of these assets. The character of the area generally is that of suburban London, with mainly residential development nearby, but with other urban centres, such as Swiss Cottage town centre at a distance. I do not consider that the design of the Alexandra Road properties has responded directly to the designs within the surrounding development, much of which would have been present when constructed, other than through restrictions of the land area itself and the proximity and alignment of the railway. There will have been some influence on the scale of the proposal with it responding to some extent to the height of the nearby buildings. The appeal site being at considerable distance has no direct influence on the significance of the conservation area.

274. I also do not consider that the lack of anything visible on the appeal site from these assets makes a specific contribution to the heritage assets, but can better be thought of as being a neutral factor.

275. I consider that the urban setting is in principle important to the conservation area and listed building, but the actual form of that setting has little impact on significance. The appeal site, being a considerable way from these assets does not have any direct impact or make any contribution to the significance of the asset, apart from forming the urban area around it. Specifically in respect of towers, the site is already seen in the context of towers [105] and the addition of a further tower [206], some distance away, would not affect the significance, character or appearance, or architectural and historic significance of these assets either in part or as a whole. The significance and special architectural and historic interest would be preserved.

Listed Buildings

Swiss Cottage Library[118]

276. The list description identifies that the library was built around 1963/4, designed by Sir Basil Spence, Bonnington and Collins with a reinforced concrete frame, clad in pre-cast black basalt concrete spandrel panels between projecting and finely-finished concrete fins with Portland stone aggregate set over a smooth centred basement and ground floor. The plan form is described as a cigar shape. The library was intended to be part of a designed complex but this was not completed because of local government reorganisation. The list description describes it as one of Spence's most accomplished civic buildings, and amongst the most ambitious architectural designs for a library.

277. I consider that the special interest and significance relates to the design and designer of the building, its materials and location. The design results in a very attractive civic building. The arrangement of fins on the upper elevations shield the windows from view when seen at an angle. This means that the windows that give some scale to the building cannot be seen in some views and it gives the impression of a large scale building and this is very apparent when looking along Avenue Road.

[118] Document CD 2.2

278. The scale of the building is appropriate to the town centre location and is a robust modern piece of architecture appropriate to having large buildings around it. These currently include the civic centre, Visage Building and Regency Lodge opposite. The swimming pool/leisure centre is also a large building and this has been built very close to the library, and is acceptable because this is a civic and town centre area.

279. The proposed building would be the same distance away from the library as the existing building. The illustration in View 13[119] shows the juxtaposition of the library with the new building. I consider that this demonstrates a very complementary relationship between the two buildings, particularly the horizontal emphasis of the library with the tall tower structure and appropriate spacing between. The panel and frame arrangement of the new building, while not copying the library, is reflective of it and would work well together. The fact that the low element of the proposal is taller than the old building and steps from front to back works well and is not out of scale with the library. It can be seen in the photograph that there is Regency Lodge, a large scale building, on the opposite side of the road. I consider the proposal would enhance the town centre setting and therefore also the significance of the listed building. The special architectural and historic interest would be enhanced.

280. The architect for the existing building at the appeal site explained the way the existing building was designed to step down towards the library. The stepping down is clearly visible in the design of the current building on the site and I consider that is a valid approach to the design of a building at the appeal site. However, because the existing building steps down towards the listed building, does not mean that other designs for the site should also step down, but the designs should be considered on their merits. So, while the proposed building does not step down in the same way, it also is a valid design solution and I consider that it works well with the listed building.

The Hampstead Figure Sculpture

281. This is grade II listed, with the list description noting it as a bronze reclining abstracted female figure on a plinth produced in 1964 by F E McWilliam. It is inscribed 'The Hampstead Figure, 1964' and signed. It was commissioned as part of the group of civic buildings for the borough of Hampstead by Sir Basil Spence, and forms a close and complimentary grouping. F E McWilliam (1909-92) was a noted and prolific British sculpture, whose public works have not survived well.

282. I consider that the special architectural and historic interest and significance of the figure sculpture relates to its form and example of the sculptor's work and that it is an attractive form in itself. This interest and significance is reinforced by the fact that the designer of the civic buildings arranged it to be complementary to the Swiss Cottage library. When the sculpture was first positioned it was closer to the library than currently as it has been repositioned in the past[120].

283. The sculpture would be directly affected by the proposal as it would need to be removed to allow construction work to proceed. It would also be directly affected by the changed setting, through repositioning.

[119] Document CD1.4 page 40
[120] Document IQ20

284. In terms of the setting's contribution to significance this is clearly strong in terms of its relationship with the library and historic intention. However, currently the sculpture is very cut off from the library. This is not only because of the distance away, but a quantity of very prominent and utilitarian sports equipment[121] has been placed between. In my view these spoil the relationship of the library and sculpture, so repositioning with careful thought is likely to substantially enhance the setting of the sculpture and its relationship with the library. In addition, in its current position the sculpture can only be seen on three sides. The height of the existing building to which the statue is adjacent neither adds to nor takes away from the significance of the sculpture.

285. As to the remainder of the setting in terms of the current building at the appeal site, Swiss Cottage Open Space and Avenue Road, these form a civic/town centre environment appropriate to the sculpture. The proposed building is within the setting of the sculpture and would form a backdrop to the sculpture. However, the current building also forms a strong backdrop, and when close to the sculpture the height of the building makes little impression. I do not consider the increased height of the proposed building would have any additional impact on the sculpture. The area of the open space itself would not be physically changed by the proposal.

286. The opportunity to reposition the sculpture to provide all around viewing would be a major benefit, as would re-establishing a more positive relationship with the library. Even if the sculpture is repositioned in the same location, the impact on its significance would be neutral. Overall I consider there is likely to be a significant enhancement to the setting of the statue and consequently the special architectural and historic interest of the listed building would be likely to be enhanced.

Regency Lodge

287. According to the list description, Regency Lodge consists of flats and a parade of shops with underground garaging built around 1937/8 by Robert Atkinson and A F B Anderson. It is built in brickwork with artificial stone bands and dressings on a steel frame with flat roofs and metal windows and is described as a modern style development. The setting is the surrounding urban area and includes the library, the appeal site building and other large scale buildings in the town centre. The list history sets its context as the inter-war transport developments and residential preferences for quality, stylish, flatted accommodation close to the centre of the metropolis. I consider the urban setting is important to the flats in principle, but no particular form or development is an important aspect of the setting, contributing to significance.

288. The change of built form on the appeal site will maintain the urban setting in a manner appropriate to the town centre and complements the setting and therefore the significance of the listed building. While the proposal would be much taller than what is currently at the appeal site, Regency Lodge is a large building formed around a central courtyard and its scale and mass would not be dominated by the proposal, but they would balance well with each other. I conclude that the significance, special architectural and historic interest of the listed building would be preserved.

[121] Document R11 appendix 5 photograph 27

Fire Station at Lancaster Grove and Eton Avenue

289. The grade II* fire station was built in 1912-15, by Charles Canning Windmill of the Fire Brigade Branch of the London County Council Architects Department. It is an impressive Arts and Crafts building with steep hipped and pitched roofs and intricate brick detailing. The fire station has other arts and crafts houses nearby and forms an attractive group in the conservation area.

290. The list description indicates that the architects brought an avant-garde approach to fire station design, which had evolved for new social housing to the Fire Brigade Division. While some stations were built to standardised plans, others were highly experimental, sensitive to local context, and designed to a bespoke plan, as was this one. It is distinctive architecture, with attention to detail and sensitivity to its setting. The station occupies a prominent site, on the apex of two roads lined with high-quality Edwardian houses and the sensitivity of the design to this context is marked. The generous plot size accommodates the fireman's flats in a separate two storey range and the view from the junction is strikingly picturesque.

291. I consider the significance and special architectural and historic interest relates to its history, past use, design and integration within the conservation area. It is difficult to see the appeal proposal from the listed building, but from the road outside the fire station it would be visible in the distance. I do not consider there is any direct relationship with the area around the appeal site or with the appeal site itself.

292. The appellant's view 4[122] shows the view with the brick fire station to the right. While the proposed tower would be seen in the distance, it does not directly affect the listed building or impact on its significance. While it would change the distant view, the near setting of the other arts and crafts buildings remains unchanged. The general location is not isolated from the modern surroundings outside of the conservation area, with the towers at Chalcots Estate visible a little further down Eton Avenue, so further modern development in the surrounding area in the distance would not be unacceptable in terms of its setting. The impact on its significance would be neutral and the significance, special architectural and historic interest would be preserved.

Alexandra Road Estate and Primrose Hill Tunnels (Entrance)

293. This is grade II* listed and includes the Alexandra Road Estate, walls, ramps, steps, community centre and boiler house. This was built around 1968 by Neave Brown of the Camden Architects' Department. It is strikingly modern in its form, emphasised by the bold and imaginative use of shuttered reinforced concrete. There are three parallel blocks, with that nearest the railway forming an acoustic shield. The northern pair of blocks face the 'internal' Rowley Way and are organised with stepped elevations facing Rowley Way, with each level providing outdoor areas for everyone. I consider that the significance and special architectural and historic interest of these buildings relates to their striking modern design, use of materials and they are historically important in relation to architecture of that period.

[122] Document CD1.4 page 11 View 4

294. Also nearby is the pair of railway portals at the western end of the Primrose Hill Tunnels, listed grade II and built in stock brick and stone with stone dressings. The tunnel was considered to be a triumph of engineering, being London's first railway tunnel. Their significance and special architectural and historic interest relates to their form and materials and they are historically important as the first railway tunnels in London.

295. The setting of these listed buildings is that of the surrounding urban environment and this has been described above in relation to the conservation area. There is nothing specific about the surroundings that adds to the significance or special architectural and historic interest of these buildings. While the proposal is technically within the setting of these listed buildings and could be seen in the context of them, the appeal site makes no particular contribution to their significance. In my view, while the new building would be seen in the context of the listed buildings, the view of it would be at a considerable distance and would be seen as a modern part of the surrounding urban environment. It would not cause any material impact on the setting or affect the significance or special architectural and historic interest of the listed buildings.

Other listed buildings.

296. The council has not identified other listed building settings as being affected by the proposal. Other parties have identified some other listed buildings in the surrounding area, including many in the conservation areas. The evidence submitted does not form any direct/designed link between them and the appeal site in terms of their setting that makes a contribution to their significance. The harm identified is the relationship of those buildings with the appeal site, particularly where they can be seen in the context of the new building and its tower.

297. The next nearest listed houses are in Eton Avenue. The list description of 73 includes the front boundary wall and piers. It is a detached house built around 1890 by Harry Measures. It is in red brick with tile-hung and relief plasterwork and tile gabled roofs with tall brick chimney stacks and dormers. The next house is 69 Eton Avenue, was also built around 1890 by Fredrick Waller for the painter the Hon John Collier. It is constructed with red brick and terracotta dressings and slated hipped roofs and has a studio. The special architectural and historic interest and significance of these relates to their age, architects and, for 69, the past owner. The setting of the conservation area is important to the significance of these listed buildings as for others in the street. However, I see no direct link between the appeal site and the setting of the listed buildings or their significance.

298. I acknowledge that there will be some views of the listed buildings, where the appeal building would also be seen. However, the setting of these buildings not only includes the surrounding conservation area, but also the town beyond. While the setting is changed it remains an urban environment and with the proposed building at a considerable distance the setting and significance of the listed buildings would be preserved.

299. The Church of St Peter's is grade II listed and constructed about 1858-9 by W Mumford with tower and chancel by JP St Aubyn. It is built using Kentish ragstone, squared rubble with fine stone dressing with a tiled roof. It has angled buttresses, pointed belfry openings, clock faces and a crenellated parapet and

traceried windows with at the east and west windows stained glass by O'Connor. It was restored 1927.

300. I consider that its special architectural and historic interest and significance relate to the design of the church, its materials and its relationship with the surrounding conservation area and its people.

301. The setting of the church is principally the surrounding conservation area, but the appeal site is within its setting as the proposed tower would be visible from near to the church[123] as are other buildings outside of the conservation area. The conservation area setting adds to the significance of the parish church and it will be the location for a significant part of its congregation. The appeal site and surrounding town have a neutral impact in relation to the appeal site. The fact that the new tower would become visible in the distance from the church would not affect its significance or special architectural and historic interest. The tower would be seen as a distant feature of the urban landscape surrounding the conservation area. The significance, special architectural and historic interest would be preserved.

302. There are also listed buildings at 40 College Crescent (also identified as the nurses' home), the Palmer Memorial Drinking Fountain in College Crescent and South Hampstead High School in Maresfield Gardens. All listed grade II. The special architectural and historic interest of No 40 relates to the building's design and materials. It was constructed about 1880 and is an asymmetrical building in Queen Anne style in red brick with terra cotta detailing. The house was built for S Palmer of Huntley and Palmer biscuits of Reading, in a style that was popular in Reading at the time. Palmer's family presented the Palmer Memorial drinking fountain in his memory in 1904. The special architectural and historic interest of this relates to its design and materials and historical links with No 40 and the Palmer family.

303. While the fountain and 40 College Crescent are related there is no direct link between these listed buildings and the surrounding setting other than the setting providing an urban environment, so the setting makes little contribution to the special architectural and historic interest or significance of the listed buildings. The tower in particular would be visible from the streets with the listed building in view. However, the view would still be of the town centre where other modern and large buildings are located. The introduction of the appeal proposal would not have any impact on the special architectural and historic interest or significance of these listed buildings.

Local Lists[124]

Swiss Cottage Open Space

304. This is described as a very innovative example of contemporary park design, with Gustafson Porter's water feature providing play opportunities and a visual drama with 7 streams of arching water and a performance space when dry. There is sculptured landscaping around, creating seating in a natural amphitheatre, which is extremely well used and appreciated by the community and unites the

[123] Document R11 appendix 2 page 33
[124] Document CD 5.4

surrounding area, which is mixed in character and appearance. The setting is the surrounding buildings that include the large scale Visage building, Leisure Centre, Library, Theatre and existing building at the appeal site. This is not a 'parkland' setting, but a small park next to a town centre with large scale civic buildings. I do not consider that the size of the buildings is a particular factor in the setting or significance of the park and the fact that the design of the proposal would be changed in relation to what is currently on site, particularly that there is a much taller building proposed would not alter the civic/town centre character of the setting, so the significance of the asset would not be harmed by the proposed change.

Hampstead Theatre

305. This is the first free-standing theatre in London for over 25 years designed by Architects Bennett Associates and it won an RIBA Award in 2003. It was designed for contemporary plays. The auditorium is a dramatic tilting zinc drum accessed across bridges over a void. The glazed foyer provides views of the park and makes a significant contribution to the setting of both the market and the park as well as the cultural life of the area.

Swiss Cottage Leisure Centre

306. This is described as a metal and glass leisure centre dating to 2006 by Architect Sir Terry Farrell. It is light and spacious, with views of the open space from almost every part of the centre. The glazed north face brings the activity of the building into the park. To the south, the colourful illuminated climbing wall offers "a striking night display" to Adelaide Road with dramatic glass atrium on the western face and upper-level links to library. It has a similar roof line to the listed Basil Spence library and is a complementary design, creating a distinctive landmark.

Royal Central School of Speech and Drama

307. This is described as a late 19th century stucco fronted building by Roland Plumbe. It was originally Eton Avenue Hall, which was reconstructed 1888 for the Hampstead Conservatoire of Music and School of Art, and converted to the Embassy Theatre in 1928. It became the Central School in 1956. Its façade of vertical windows set in brickwork gives a residential scale and character, linking it to the Victorian terraces to the east. This is reinforced by stone facing at ground floor level reflecting the usual stuccoed ground storey. The simplicity of the extension avoids conflict with the stucco fronted theatre or the adjacent houses. The school has produced many distinguished alumni and staff including Laurence Olivier, Vanessa Redgrave, Judi Dench, Harold Pinter and Cameron Mackintosh. There is no other single faculty worldwide that offers such a diverse range of specialist masters programmes in theatre and performance practices.

308. With all three buildings located around the Swiss Cottage Open Space, the setting is the open space itself and the other buildings, which include those in the Belsize Conservation Area and the civic buildings and town centre. In my view, the town centre is an important aspect because of the civic function of the buildings and to my mind there is an expectation of town centre type and scale buildings. I therefore consider that it is the character of the town centre that is particularly important in terms of the contribution the setting makes to the significance of these buildings and I consider that this character would not be

altered by the change proposed. There would be a neutral impact on the setting and significance of these buildings.

309. Another building identified as being important by local people is the Swiss Cottage Inn[125]. This is directly across Avenue Road from the appeal site and close to the appeal proposal. It has a distinct character of its own and it is identified as providing the name for the area and is important in that respect. It is also an important community building. The context of this building is the town centre with many existing large buildings nearby. The proposed development would not alter the town centre context of the inn, but reinforce it and provide additional activity in the vicinity of the building providing a focus for the area. I consider if anything the town centre setting of the inn would be improved with the new development through improved pavement frontage and increased activity/vitality on the ground floor of the development.

310. I conclude that the proposal generally accords with the aims and objectives CS Policies CS5 & CS14, DP Policy DP25 and LP Policy 7.8. However, there is some harm in terms of CS Policies CS5, CS14 and DP25 related to the impact on the two views identified above to be carried through into the planning balance.

Character and Appearance

311. The existing building at the appeal site is not well thought of by the appellant or council officers, but interested parties consider it to be well designed, particularly in terms of its bulk and scale adjacent to the Swiss Cottage Open Space and the way that it steps down towards the listed library. I consider it to be an attractively designed building and generally well thought out in relation to its surroundings, including the listed library. However, I do acknowledge that the ground floor poorly relates to the surrounding area, with a lack of interaction with the streets or Swiss Cottage Open Space. The provision of active frontages around the buildings would considerably improve the urban environment. However, the question here is not how the existing building relates to its surroundings, but how the proposed building would relate.

312. In this respect many of the witnesses have compared the existing building with the proposed building and significant change in size. There is no doubt that there would be a considerable change in the size of the buildings, which will have a greater presence. The extent of the change for the area is not the main consideration, but whether what is proposed would be acceptable in the context of its surroundings.

313. The council at the inquiry was suggesting that the design principles were formed after the scheme had formed. From my own experience, while you may start with a brief, the design will always evolve as issues emerge through the expert studies undertaken and consultations. I therefore consider that the process would be that explained by the appellant's architect, and if it had not evolved and responded to emerging evidence and consultation, there would be something wrong. That does not make the design principles 'artificial', but an explanation of what emerged from the design process.

[125] Document R11 appendix 5 page 39 shows views of this.

314. Concern has also been raised about the impact of the development as seen from Primrose Hill, from which it would be seen in distant views[126]. The park is a good distance from the appeal site and there are already views of other tall buildings from the park. The addition of this building would not have any direct impact on the setting, amenity value or significance of the park at Primrose Hill.

315. The building can best be appreciated in the illustrations in Document CD1.5 and the Finchley Road area can be seen in Documents R11 photos 60 onwards, with the context analysis in Document CD1.6. Assessment of the impact on the character and appearance of the area necessarily includes that on nearby heritage assets and they have been considered above.

316. The principle of development for residential and commercial uses is appropriate, the site being in the town centre and not far from many other residential developments. In terms of the scale of the building there are a number of tall buildings near to the site, including the Cresta House opposite, and the Visage Building next to the Leisure Centre. One of the Chalcots Estate towers is nearby and is of 24 storeys[127]. The Camden's Site Allocations Local Development Document identifies the site as being appropriate for the type of development proposed [41]. It noted the potential for taller buildings, although there is no particular height indicated. However, while I accept that adjacent to the site there are no buildings that are nearly as high as the tower, and buildings such as the library, theatre and leisure centre have a more horizontal emphasis, the illustrations provided show that the tall tower is complementary to the nearby buildings.

317. There are objections to the elevations of the building and plan form. It is suggested that these have not be articulated enough and the plan form has remained the same for the height of the tower, leading to a 'boring' shape, which is not considered to result in a slender form. The materials are also not liked and surprise is expressed that materials are matters for conditions.

318. The appellant describes how the design has been carefully considered [62-77]. While I acknowledge the consistent plan form of the tower through its height, the elevations have been carefully articulated through different manipulation of the framework, materials and arrangement of the panels between the frames. The result is an attractively designed building that responds to its context. The top of the tower would be articulated by opening the upper storey frames and providing glazing. The tower through its height would, on two elevations, be divided into thirds with different elevation treatment at the sides. So even if the tower were not to be considered to be slender, which tends to be relative and subjective, the design provides a distinct, elegant, vertical emphasis. The other two elevations are also split, with a glazed central section with the two sides being principally identified by slim panels and glazing. The lower building has been similarly carefully considered and articulated.

319. The proposal has suggested materials and colours which would provide an attractive building. However, I accept that there should be an opportunity for materials to be considered prior to construction, which is appropriate to be

[126] Document IQ7 and R11 appendix 2 photograph 26
[127] Documents CD1.6 pages 16 and 17 show context in terms of tall buildings

controlled through condition and in my experience occurs on the majority of planning applications.

320. I consider that the proposed building meets the criteria of the Camden Site Allocations Policy. It is a well designed, attractive building that sits well within its town centre context and is supported by the Design Council and the GLA. The proposal would accord with CS Policies CS3, CS5, CS7 & CS15, DP Policies DP24 & DP31 and LP Policies 2.15, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 4.7, 4.8 and 7.7.

Sunlight and Daylight

321. There is no dispute that the impact of the development on shadowing of the open space is relevant [50] and included in the BRE guidance. The BRE guidance indicates that the sunlit nature of a site can be enhanced by various techniques including placing low rise, low density housing to the south with taller, higher density buildings to the north, which has occurred here with the taller element. While there was some question about whether the guide was intended to consider the quality of the use of open space, the guide makes it clear that it gives advice on site layout planning to achieve good sunlight and daylight both within buildings and in the open spaces between them [50].

322. However, I accept that the BRE is only guidance and that while the detailed assessment carried out by the appellant identifies the impact of the proposal on the open space, it is also necessary to consider the impact on the way that the particular open space is used. The appellant also accepts that this is the case, as a previous scheme that also complied with the BRE guidance was redesigned to allow for the comments relating to shadows by the Design Council. However, as noted by the BRE guidance, it must be borne in mind that nearly all structures will create areas of new shadow, and some degree of transient overshadowing of a space is to be expected [54].

323. The diagrams show that the proposed development will result in increased shading of the open space, generally causing the various areas to be in shade for about 60 - 90 minutes or so earlier than would be the case without the development. The shading from the building of the open space would generally occur from about 13:00 in March, 14:00 in August and about 16:00 in June.

324. However, the council has undertaken a survey of the area, identifying use of the Swiss Cottage Open Space. The space was found to be well used, including the playground and water feature and this is with the current building empty. It was noted that that the playground and games area use did not appear to be weather dependent [126]. In clement weather the open space was found to be used for recreational purposes, with generally greater use at the weekends. The general impression is that the shadow areas when present are little used.

325. My two site visits were on a cloudy day and on a day with mainly sunshine in the morning. On the shady day, at around 17:00 the site was seen to be well used with people sitting on the benches by the theatre and around the park area. The lack of sunshine did not appear to inhibit use of the space, although it might well have had greater use had there been sun and there is a difference between the shade produced by clouds and that of a nearby building. On the sunny day the park was again seen to be well used, with most people in the sunny areas,

but still reasonable numbers sitting in shaded areas. The fact that there is shade does not prevent use of the open space.

326. It is suggested that the Swiss Cottage Open Space is used more in the afternoon. There is no detailed survey evidence for that, but I expect that is likely to be the case with people perhaps passing through from school and work and lingering on the way. However, the evidence does not indicate that the space could not be used if, on the sunny days, the sunny parts were shaded earlier in the day. Evidence from interested parties also indicates substantial use of the park year round.

327. I do not consider that there are particular uses of the park that are highly sensitive to shading. The only area where I would consider sun to be more suited to the use is the water feature in the centre of the park, which was well used by children. However, I also noted the use did continue even in shade and it seems probable that it is to some extent dependent on ambient temperature. The use of this area may be affected to some extent by the new building, but as noted above the impact is mainly for about 60-90 minutes a day. In my opinion, the additional shading will not have an unacceptable impact on the amenity provided by the park and generally would comply with the guidance provided by the BRE.

328. The building will also cause shading of the pedestrianised end of Eton Avenue, where markets are held. This is a naturally shady area, because of the large avenue of trees, particularly in the summer. However, I appreciate that the usual dappled shade provided by trees is different from, and more pleasant, than that produced by a building, but the market use is not a use that relies on sunshine. The stalls themselves provide canopies to shield the users from rain and sunshine. As an example, the shading in August can be seen in Document A1 appendices drawings 99 to 105. While I acknowledge that sunshine can enhance any use, the additional length of shading, while having an impact for 2/3 hours of the day, would, overall not unacceptably impact on the amenity of the space and would accord with guidance in the BRE Site Layout Planning for Daylight and Sunlight Guide 2011. I do not consider that the markets would be unacceptably affected and their amenity, social and economic value would remain.

329. While some concerns are raised by interested parties in relation to the study undertaken, I consider that it has been very comprehensive and considers the site and particularly the Swiss Cottage Open Space in great detail. The report has been considered by other experts[128]. Cresta House Residents' Association identify the lack of mention of Cresta House in the report [181]. However, I acknowledge that it was included, as can be seen in the report, and there was simply an error in labelling that part of the building being considered as being Cresta House. Clearly, particularly through the winter months there could be some more distant shading from the tower than shown on the diagrams, beyond the Swiss Cottage Open Space and surrounding the appeal site are many other buildings that themselves would cause shading with low angle sun. In my view the study undertaken provides sufficient information for a robust assessment to be made.

330. The report clearly considers the impact of the development on the surrounding residences and concludes any impact would be acceptable [59]. While it is acknowledged that some of the flats at Cresta House do not have balconies and

[128] Documents CD1.42 and CD1.43

that the rooms are longer than identified, I am satisfied that the impact on these flats in terms of daylight and sunlight would be minimal and accept and that it would accord with BRE recommendations. The distance across the roads from these flats to the development is substantial and the residences would not be affected by the lower block because of its height, and the tall element is relatively slender and would not have an unacceptable impact on much of the sky component providing daylight to these residences.

331. The question was also raised as to whether the level of the Swiss Cottage Open Space had been accounted for [215], but the appellant indicates that the software used for the assessment is a standard form used in the industry and does account for levels [53]. It is also argued that the BRE guidance has been used flexibly and not in a way that an expert would do. However, the introduction to the BRE guidance indicates, amongst other things, that the guide is intended for building designers and their clients, consultants and planning officials. The advice given is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain designers. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout.

332. It is also argued that trees should be included in the assessment. However, the BRE leaves that as a judgment for the assessor[129]. It seems to me that had trees, even evergreens, been included these would have indicated a greater extent of shading of the existing areas, and the further impact from the proposed building would not have been so great. Either way I consider the assessment is a reasonable interpretation of the BRE guidance. The Design Council considered the impact on sunlight /daylight in considerable detail and concluded, following changes after its initial comments that it was acceptable.

Other Amenity Issues

Swiss Cottage Open Space

333. Save Swiss Cottage provide a good photographic description of the use of the park and market area[130]. It is a popular and well used area, with children particularly liking the large water feature[131]. The proposed development does not encroach on the park, but is separated from it by the main north/south path. I have considered the effect of daylight and sunlight above. The use of the park would not be physically impeded by the completed proposed development. I consider that the significance of this relates to its design, layout, surroundings and extensive use.

334. The proposal would considerably increase the extent of overlooking of the park from residential properties. However, the park is not a private space, with many residential windows directly overlooking it from the rear of the Winchester Road properties[132] and existing office in the building at the appeal site. There would be no expectation by users of privacy while using the park, so I do not consider that

[129] Document CD1.57 page 19 paragraph 3.3.9 also see closings – Appellant IQ38 page 44 and Council IQ37 page 16 paragraph 83 onwards
[130] Document R11 appendix 5
[131] Document R11 appendix 5 photo 18
[132] Document R11 appendix 5 photograph 18

the additional overlooking would have any significant impact on the use of the space or harm its amenity for users.

335. The significant increase in residential use at the appeal site would result in greater use of the Swiss Cottage Open Space by the residents [196], but it is a large space, very capable of increased use, and I consider that this would be an enhancement in terms of increased vitality of the area.

336. The proposal would provide ground floor uses that would be accessed from the path adjacent to the park. Uses such as cafés and restaurants would, to my mind, be a positive benefit to the open space increasing the vitality of the area and improving the junction between the park and existing building, which is not well connected at the moment. The neighbours to the Swiss Cottage Open Space particularly along Winchester Road, are concerned that people exiting the proposed A3 uses at night would cause noise and disturbance in the area as they leave, spoiling the tranquillity of the Swiss Cottage Open Space and causing excessive noise and disturbance to the occupiers of the houses backing on to the park as they sleep, including the occupiers in Mora Burnett House.

337. However, some also note that there are other restaurant type uses in Winchester Road, but that these are well managed and do not cause difficulties. The restaurant uses that face the Swiss Cottage Open Space are a considerable distance from the rear of the properties on Winchester Road. The opening times would be regulated by condition, with the opening times proposed being the usual required in the area. These include a requirement to vacate any outside spaces by 22:00 hrs. While it cannot be said that there would never be a noise / disturbance incidents, there is no reason to expect that these new premises would be likely prone to problems and could be equally well managed. Any problems that did arise can be dealt with by appropriate means. Given the distance from the properties and control of opening hours, I do not consider that there would be likely to be unacceptable noise and disturbance generated by the properties.

338. The buildings at the appeal site would be taller and the tower would have a significantly greater presence. However, when considering a 360 degree view from the park the tower would be a small element in the outlook of the park and I do not consider that it would cause unacceptable harm to the outlook of users of the park.

339. Overall, while the appearance of the setting would change, the civic/town centre character would not. I do not consider that there would be an unacceptable impact on the Swiss Cottage Open Space.

340. Mr Grimm, an interested party, is concerned about the impact of the development as experienced from the swimming pool. In terms of privacy, there are viewing positions around the pool, including from the café area adjacent, so users of the pool are not expecting this to be a private space. In any case, the proposed development would be a considerable distance away, such that any views from its windows would not cause harm to the amenity of those using the pool. In addition, because of the distance away, the building would not have an overbearing impact on pool users. There are also already windows in a similar position close to the pool in the existing building.

341. I have also considered the various residential properties around the proposed development, including Cresta House, Winchester and Eton Avenue properties and residences above the leisure centre. While the proposed building would be clearly visible from these properties, in each case the tower would be a considerable distance away and its height and bulk would not cause an unacceptable impact on the outlook from these premises. Similarly because of the considerable distance between the proposed buildings and any existing buildings, there would be no unacceptable impacts in terms of overlooking of loss of privacy for neighbouring occupiers. There could be some overlooking of the space outside of the Central School for Speech and Drama, but this space is open to public view already, including from the existing building at the appeal site and there would be no further significant impact from the proposal that would cause unacceptable harm.

342. The proposal would accord with CS Policy CS5, DP Policy DP26 and LP Policy 7.7.

Other Matters

Air Quality

343. Evidence is submitted by Katharine Bligh located in the appendices at Document IQ28 (red folder). Some readings of pollution monitoring are provided and shown in the appendices to IQ28. The appellant has provided reports at CD1.13 and CD1.14.

344. The appellant's report indicates that transport related emissions are one of the main sources of air pollution and the principle pollutants relevant to the assessment are considered to be NO_2 and PM_{10} particulates and the spread of survey results indicates that is the case here, with much higher readings near to the main road. The interested party also provides details of $PM_{2.5}$ particulates. Local authorities are required by law to review and assess air quality for pollutants specified in the Government National Air Quality Strategy. If quality objectives are likely to be exceeded, then a detailed assessment is required and where this is an on-going situation the authority must declare an Air Quality Management Area. The whole of Camden is an Air Quality Management Area for nitrogen dioxide, including the appeal site. It is not designated in relation to particulates. The interested parties note that there are no safe limits, but only objective targets.

345. I accept that in relation to particulates, interested party evidence indicates that the recommended air quality objective levels are exceeded at times, but the estimated annual average pollutant concentrations at the development site, apart from nitrogen dioxide, are below the air quality objective. Clearly there needs to action to reduce the pollution levels in the whole of Camden, as indicated by the Air Quality Management Area.

346. However, London needs more housing and that is likely to bring more associated pollution. The councillor indicated at the inquiry that the housing would be better located in northern towns, but that is not a realistic prospect, at least in the short term. The main source of pollution is generated by traffic, so the impact in relation to this proposal would, in terms of traffic generation, be reduced to minimum levels. It would be a car free development and is located in a town centre close to transport links.

347. The combined heat and power plant will result in some emissions that could increase particulates in the air and could affect some of the nearer residents of the development. This has been considered in the report and mitigation measures are proposed to resolve this matter, so that emissions are acceptable.

348. There will be a risk of increased pollution during construction. This has been taken into consideration in terms of conditions and the obligation, requiring a construction management plan for air quality and carbon reduction. There is a risk of increased pollution from the Combined Heat and Power plant, particularly nitrogen dioxide, and controls of the extent of the output are also proposed.

349. The high levels of pollution generated by the existing traffic could be an issue at low level to residents within the tower. However, sealed units with mechanical ventilation are proposed at the lower levels. In terms of the Swiss Cottage Open Space, this is generally well protected from the main road by buildings and that would generally continue to be the case, with an even taller building between it and the road. The proposal, with the appropriate mitigation, particularly during construction, should not add significantly to pollution within the park. There would be the new opening provided between the two new buildings where pollution from the road could migrate across. However, readings at the other end of the building show that there is considerable drop off of readings further away from the road. The gap is at the top corner of the park and I do not foresee this as being a significant issue.

350. The overall conclusion of the report on this issue is that, with the recommended mitigation measures in place, air quality is not considered to be a significant consideration for the proposed development.

Wind Environment

351. It is acknowledged that there would be some increase in wind speeds, but this is to be expected when a tall building is constructed [108]. The question is whether there would be an unacceptable impact. The proposals have been fully wind tested and assessed in line with the best standards for the industry, including use of the Lawson Criteria to assess suitability for the intended use of surrounding spaces. It is the expert's opinion that the wind conditions seen in the assessment are not particularly severe or unusual in London.

352. Receptor 2 is on the edge of the market area, but receptors 44 and 45 towards the centre of Eton Avenue would, to my mind, be more representative of where the market area is mainly located, although some market stalls are located towards receptor 2[133]. The location of receptor 1 was for the tube entrance, where higher winds can be tolerated and receptor 2 was on the pedestrian thoroughfare. There is no specific criterion for market stalls; the experts have taken standing/entrance use as the target as it is appropriate for this type of activity year around[134]. This, to my mind, is a reasonable approach and there would be acceptable conditions for the market use. In addition, in the summer months it is expected that the trees when in leaf would provide some additional protection.

[133] Document R11 appendix 5 photographs 29 and 34 shows a stall in relation to the existing building
[134] Document IQ31

353. Looking at the report, receptor 1 is near the tube entrance. Receptor 2 is located on the pedestrian route adjacent to the façade. The wind speed in this location is satisfactory for a thoroughfare use being used for access to the building and to the tube station.

354. The report indicates that receptor 7, which is the windiest location, is identified as being on a route used infrequently by pedestrians. This is not correct at the moment. The path is a main thoroughfare north/south and south/north through the park. However, it is likely the extent of use would change with the development, with at least some diversion of current users to the new route between buildings to get to Avenue Road and the tube station. However, I accept that the route by the theatre would continue to be an important pedestrian route.

355. The potential impact was identified in the report and mitigation measures are proposed that would ensure the wind environment is acceptable. Condition 14[135] has been included to ensure that suitable measures are incorporated within the design to mitigate potential adverse wind environments arising from the development. In relation to receptor 7, specific proposals are put forward in the report. Taking into consideration the use of this area as a main walking route and the times of year and the high winds are expected, I consider that this matter can be satisfactorily resolved.

356. There is also some likelihood of high winds in the new route at receptor 12, with occasional winds of Beaufort force 6. This is not expected to cause a nuisance on a thoroughfare such as this and would not be a harmful impact. The study has also considered the Swiss Cottage Open Space for any impact on the amenity of users. This remains suitable for sitting during the summer and suitable for its amenity use.

357. Overall, I conclude that a thorough study of the wind environment has been made and that, with suitable mitigation methods no harm to the users of the area would be caused. The proposal would accord with CS Policies CS5 & CS15, DP Policies 26 and DP31 and LP Policies 5.1 and 5.2

Safety

358. Concern is expressed over the safety of users of the Swiss Cottage Open Space, particularly the formation of a new access route into the area between the new buildings. This would lead directly out of the park to the main road. The provision of another access into the Swiss Cottage Open Space does potentially provide an additional safety risk. However, the Swiss Cottage Open Space already has many entrances, two from Eton Avenue, one from Winchester Road, one from Adelaide Road and one from The Avenue, between the library and existing building. The current access to the Avenue is large and directly towards the park area[136]. The new route would be at the top end of the park and not so directly related to it. In addition, there are internal hedges/boundaries that provide some internal enclosure with the park. The park is currently not an enclosed space where parents could simply leave children to play; children would need to be supervised and I do not consider, given the current situation and

[135] Document IQ30
[136] Document R11 appendix 5 photograph 27

arrangement that the new entrance to the Avenue would result in any significant impact on the safety of users.

359. The presence of a gas reduction valve adjacent to the appeal site is identified by Mr Reed [200]. While this is reasonably close to the building, I do not consider that this is a safety issue. It is located in a pedestrian area, adjacent to the existing offices and near to the Royal Central School of Speech and Drama.

Road Access

360. The site is in a town centre location directly adjacent to Swiss Cottage underground station and on good bus routes. It is at the top of the PTAL rating (6b) and very sustainable in these terms and an ideal location for a car free development as proposed. There would be very little opportunity for occupiers to keep cars in the area. The only parking at basement level is for persons with disabilities. The Section 106 undertaking removes the ability of occupiers to apply for resident parking spaces in the area. However, I accept that there will still be service traffic attending the site.

361. The existing building, while not as large as the proposal, is a big office building with some restaurants and is serviced from Eton Avenue. Servicing and access to the existing basement, which is to continue in the new proposal, is via the basement ramp that passes beneath the theatre. This is expected to continue, but the head room is limited meaning that servicing using this would be restricted to Transit type vans. Access can be achieved without interfering with the existing pedestrian infrastructure or tree line adjacent to the site on Eton Avenue at the rear of the proposed building.

362. It would be necessary to control the times of delivery very strictly to avoid clashes with the market trading that takes place in Eton Avenue, but that is a matter that can be controlled. Mr Reed notes that moving bollards were tried previously but were found not to work and were removed. While I accept that was the case, there is no reason why with good management access to the property cannot be controlled. A taxi drop-off point is proposed in Avenue Road, but Transport for London cannot confirm that this would be acceptable until their plans for the gyratory have been formed and I consider that little weight can be attached to this at the moment.

363. There would be increased use of the underground station adjacent, but it is estimated that if all the additional trips were to and from the south and they were grouped together into one 15 minute segment in the morning, it would add just 12 additional trips on each train during each peak hour, which is a minimal increase. An interim travel plan is provided[137] and would be the subject of the planning obligation[138] and obligations relating to provision of a service and construction management plans are included. The impact of the development would not be substantial and certainly not severe as indicated by the Framework [109].

364. Mr Reed questions whether the occupants of the units would walk or cycle, particularly as there is a Red Route adjacent. I believe the suggestion is that

[137] Document CD 1.12 appendix F
[138] Document IQ40 page 27/28 – construction, service and travel management plans

occupants of expensive flats would not wish to. There is no reason why these occupants should not walk and cycle; after all, the Prime Minster and London Mayor cycle and there is no reason why others should not. In addition, many of the units will be affordable housing and those occupiers may also wish to walk and cycle. The proposal would accord with CS Policies CS5 & CS15, DP Policy 26 and LP Policy 3.6.

Trees

365. Save Swiss Cottage Action Group identify that it is indicated that tree 10 is removed. This is located towards the end of Eton Avenue near its junction with Avenue Road and near to the Royal Central School of Speech and Drama. I accept that this is what is noted in the report. However, there is no need for this tree to be removed and it would appear that instead of noting trees 9 and 11 for removal it was mistakenly noted as trees 9-11. In any case, I agree that this is an attractive tree and not appropriate for removal and this is a matter that can be controlled through the conditions proposed to be attached. The council's tree officer does not object, subject to appropriate conditions being in place[139].

366. Mr Harverson noted that his tree grading was based on an interpretation of the British Standard it had been confirmed to him by the institution was not an approved method. He also confirmed that he did not suggest that planning permission should be refused on the basis of his points and that there would be likely to be technical solutions to issues concerning the weight of construction traffic crossing the root protection zones of retained trees. Mr Tabor also confirmed that if all his points were taken up he was not inviting dismissal of the appeal.

367. I accept that there will be considerable additional traffic along Eton Avenue, including in the pedestrian part of the area. However, this was originally a road now pedestrianised and there are very large articulated lorries visiting the theatre. While there is clearly a risk, particularly to the mature trees in Eton Avenue and those near the appeal proposal on Avenue Road, these can be protected and conditions are proposed to ensure that this is the case.

368. I also accept that it was originally proposed that the trees near to the southern end of the new buildings would be retained. The proposal is that these should now be removed and replaced at the end of the construction. While these are attractive trees, they are not large and so well established that their removal and replacement would cause significant harm, but I accept that the tree removal proposed would cause some harm to amenity, which is to be carried forward into the planning balance.

Community Facility

369. The developer has set aside space to allow a community facility to be located in the building and that mixed use would be part of the planning permission. The current intention is that the Winchester Project should be relocated from its current building in Winchester Road. Details of the project can be found at IQ 16, particularly the key benefits are identified in appendix 4. The current building is on many floors and has had to be fitted into the old building. I am satisfied that

[139] Document IQ31 proposed conditions 19 and 20

there would be substantial benefits in providing space for this use in a modern building, which can be arranged to suit the needs of the project and is closely related to the civic centre and library.

370. At the inquiry interested parties were concerned that clauses appeared to allow reversion of the use of the space to housing, if it was not taken up for community facility within a certain time frame. This, they suggested could be manipulated, perhaps through pricing. However, the clause does not allow automatic reversion to housing, but just allows the developer to apply for planning permission for a change of use back to residential use. Clearly if the Winchester Project, or some other community use, indicated to the council in the course of that planning application that it wanted to take up the space, then that would be a major consideration for the planning authority and would be likely to affect the outcome of the planning application. The developer also indicated at the inquiry that discussions with the Winchester Project were at an advanced stage and that the intention was for it to use the space. Overall, I consider that the allocation of the community space, whether taken up by the Winchester Project or others, is a significant benefit to go into the planning balance.

5 year Housing Supply

371. There was some comment about the 5 year housing supply position by the appellant [138], particularly related to the inclusion of housing for students, as this was said to distort the availability of 'general' housing. The council has dealt with it in terms of defining the 5 year supply figure in accordance with government guidance, but even if the non-conventional housing contribution was at 25% and no local authority-owned sites were developed, the council would still have an up-to-date 5 year supply. I conclude that the council does have an up to date 5 year housing supply for the purposes of considering policies in the Framework.

372. In these circumstances the second part of paragraph 49 would not come into play, but it is still necessary that housing applications should be considered in the context of the presumption in favour of sustainable development. I consider that great weight should be attached to the housing provision proposed.

373. There was considerable concern raised by interested parties about the number of affordable houses proposed. The appellant has undertaken a viability appraisal[140] that demonstrates what is proposed is reasonable and this has been accepted by the authority. In addition, as a check, the 106 agreement requires that the viability of providing affordable housing is re-assessed at the end of the project and if it is found that there should have been more affordable housing a mechanism is set out for adjustment by a deferred payment. I consider that this viability study and method of ensuring that adequate affordable housing is provided is reasonable and necessary and related to the proposal.

Environmental Impact Assessment

374. Objectors consider that the Environmental Impact Assessment screening should have identified the need for an Environmental Statement[141]. However, a

[140] Document CD1.31 Viability report
[141] Document IQ34 page 7

screening assessment was made and this demonstrated that an Environmental Statement was not required for the proposal. Some of the main concerns referred to were in relation to amenity and heritage assets. Having considered these matters in great detail in the course of this inquiry, I conclude that the scoping was reasonable and that there was nothing to indicate that an Environmental Statement should have been prepared. In forming my recommendation on this appeal, I have taken into consideration the extensive environmental information submitted and evidence from consultation bodies and other organisations.

Planning Obligation and Conditions

375. The Agreement is made between the London Borough of Camden and Essential Living (Swiss Cottage) Ltd and others with an interest in the land.

376. I consider that the requirements for affordable housing and other associated controlling clauses are reasonable, necessary and related to the development and when viability is taken into consideration as set out above, I consider that it accords with the aims and objectives of policy. The viability study indicates that the extent of supply is reasonable, but I consider that it is reasonable that should the project viability be improved during construction that the affordable housing situation should be reviewed.

377. The streets around the appeal site are currently heavily used for parking cars and it would not be acceptable to increase the load with cars from the new development. It is therefore necessary to prevent residents from parking in the streets, which will require the undertaking for residents not to be able to apply for resident parking permits (unless the applicant is chronically sick or disabled). It is necessary, fair and reasonably related to the development.

378. The residents of the proposal will make considerable use of the surrounding public realm and the proposal will have an impact on its surroundings, so it is reasonable and necessary that contributions should be made to improving the public realm nearby, including providing appropriate landscaping. In addition, it is reasonable that the proposal should 'contribute' additional space to the open space and to allow for its future maintenance. These contributions are necessary, fair and reasonably related to the development.

379. This is a tight site, with busy roads adjacent, an active park, civic buildings and residential properties nearby. It is therefore essential that the construction at the site is actively managed and that subsequent traffic movements are also actively managed. Therefore, the Construction Management Plan, Service Management Plan and the Travel Plan are necessary, fair and reasonably related to the development. It is also reasonable that the project should provide units suitable for wheelchair users and this is a benefit to be carried into the planning balance.

380. A key factor in sustainable development is the public benefits provided by a development. In this case I attach weight to the public benefits provided by local procurement/local employment, Energy Efficiency, Community Facility and potential New Station Access. I consider these are necessary, fair and reasonably related to the development.

381. With a large development it is necessary to actively manage waste disposal and recycling which is generated by the development and control of this is necessary, fair and reasonably related to the development.

382. The only clause in the obligation that I have some issue with is that relating to the project architect. The council is concerned that if another architect is brought into the project to take over from the design architect the quality of the scheme and design intentions could be harmfully affected. I understand the concern of the council and accept that a 'new designer' might not fully appreciate the concept. However, to bind the developer to one architect does not seem reasonable or acceptable, particularly if there were some 'falling out' between them. The general form of the design is set by the application drawings, which conditions require to be followed. The council would, through the conditions, have an opportunity to refuse/approve the details submitted and if the building is not in accordance with the drawings/conditions, can take appropriate action. Overall, I do not consider that this clause is compliant with the CIL Regulations as it is not necessary or fair.

383. I conclude overall, apart from as identified above, that the section 106 requirements are necessary to make the development acceptable in planning terms, directly related to the development, and fairly and reasonably related, in scale and kind, to the development.

Conditions

384. The conditions agreed between the council and appellant are set out in Annexe A together with the reasons for them, which I agree with.

Planning Balance

385. When considering applications that may affect a listed building or its setting, section 66 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires special regard to be paid to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses. Section 72 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires special attention to be paid to the desirability of preserving or enhancing the character or appearance of a conservation area.

386. The Framework notes that when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The Framework describes the setting of a heritage asset as the surroundings in which it is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

387. In enacting section 66(1), Parliament intended that the desirability of preserving the setting of listed buildings should not simply be given careful consideration by the decision-maker for the purpose of deciding whether there would be some harm, but that it should be given 'considerable importance and weight' when the decision-maker carries out the balancing exercise. Even where 'less than substantial' harm is identified, Section 66(1) requires considerable importance and weight to be given to the desirability of preserving the setting of

a listed building when carrying out the balancing exercise. The same applies to conservation areas.

388. In giving considerable importance and weight to the heritage assets, I find, taking the effects individually and cumulatively, that the special architectural and historic interest of these would be preserved and any effect on significance would be neutral. In relation to the Hampstead figure sculpture I consider that there is significant potential for the setting of this to be enhanced and the effect on the library is likely to be more positive than neutral.

389. However, I also found that in relation to conservation areas there would be some harm to appearance through views of the proposal and this should be added into the planning balance.

390. Overall there is considerable social benefit in the provision of the proposed housing and affordable housing, and by the provision of space for community use. The potential for the underground station to be improved would also be a significant benefit. There would also be an enhancement to the frontages of the buildings at ground level compared with the existing arrangement that could improve the vitality of the area.

391. I accept that it is an attractive design and will fit in with the area, but to my mind this must be an expectation of new development and therefore adds minimal weight to the planning balance.

392. I have found that there would be some impact on trees, although much of that would be in the short term of the development, but that weighs against the development. While every effort is made in terms of conditions and obligations to mitigate the impact of the construction of the development, there will inevitably be some disruption because of vehicle movements, and some small local increase in particulate production and this also weighs against the development. However, that is tempered by the fact that more housing is needed and development will need to occur somewhere.

393. While I have found that the heritage assets would not be harmed, there will be an impact on views from around the area which many people have indicated that they would find intrusive. There is also considerable local opposition to the proposal[142], particularly in relation to the impact on the Swiss Cottage Open Space, so I consider that some weight against the proposal should be put into the planning balance for that harm. In respect of the Swiss Cottage Open Space, there will be some loss of sunlight, small changes to the microclimate and additional building surrounding it and again, while I have not found that unacceptable, but the increase in shading is a harm that needs to be weighed against the proposal.

394. In terms of the impact on views identified and if the Secretary of State disagrees with me in relation to the interpretation of policies in relation to the need for development to not only preserve, but also to enhance assets, I would conclude that the public benefits of the development far outweighs the harm.

[142] Document IQ36 page 2 – Over 1,000 with some on behalf of groups of residents

395. Overall, I conclude that the social, economic and environmental benefits of the proposal make it sustainable development in terms of the Framework and that the substantial benefits considerably outweigh the harm that has been identified.

Recommendation

396. I recommend that the appeal be allowed for the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (class C3) and up to 1,041sqm of flexible retail/financial of professional or café/restaurant floorspace (classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements, within the terms of the application, Ref 2014/1617/P, dated 28 February 2014, subject to the conditions set out in Annex A, which I recommend be imposed and which I consider are necessary to achieve a satisfactory standard of development and supported by the planning obligations.

Graham Dudley

Inspector

APPEARANCES

FOR THE APPELLANT:

Mr R Warren QC	Instructed by Brecher, 64 North Row, London W1K 7DA
He called	
Mr Craig Casci MA(Hons) Dip Arch Grad Cons Dip (AA) RIBA	Director GRID Architects
Ian Absolon BSc MRICS	Director GVA Schatunowski Brooks
Peter Stewart MA (Cantab) Dip Arch RIBA	Peter Stewart Consultancy
Roger Mascall BSc(Hons) Dip Bld Cons (RICS) IHBC MRTPI	Turley Heritage
Michael Lowndes BA(Hons) DipTP MSc Dip Cons (AA) MRTPI	Planning Director at Turley

FOR THE LOCAL PLANNING AUTHORITY:

Mr N Cameron QC	Instructed by W Bartlett, Planning Solicitor, London Borough of Camden
He called	
Catherine Bond BA(Hons) BArch(Hons) MTP Grad Dip Cons AA IHBC	Principal Planner (Conservation and Design), London Borough of Camden
Phillip Hughes BA(Hons) MRTPI Dip Man MCMI	Principal, PHD Chartered Town Planners

FOR RULE 6 PARTIES

Ms K Olley	Of Counsel
She called	
Mr Tabor	
Julia Court	
Elaine Chambers	
Peter Rich Architect	
James Weeks	
Edie Raff	

FOR SAVE SWISS COTTAGE ACTION GROUP

Mr Tarpey
He called
Dr P Smith Architect
Mr B Harverson

Mr Reed

Mr Reed

INTERESTED PARTIES:

Cllr R Freeman
Cllr C Leyland
Cllr J Bucknell
Katharine Bligh
Madelaine Slade
Mr G Turner
Ms Carro
Mr Bagherzade
Mr Balint Kurti
Mr Barrie Tankel
Mr P Symonds
Mr Alan Spence
Mr Grimm
Mr T Ewing — Camden Association of Street Properties

DOCUMENTS

General and Application Documents

Document	G1	Appeal File
	G2	Blue folder of letters sent in by interested parties related to the application
	G3	Blue folder of letters sent in by interested parties related to the application
	G4	Black folder of letters sent in by interested parties related to the appeal
	G5	Black folder with relevant conservation area documents
	G6	Planning Statement
	G7	Sustainability Statement
	G8	Statement of Community Involvement
	G9	Transport Assessment
	G10	Townscape and Visual Impact Assessment
	G11	Heritage Statement
	G12	Energy Statement
	G13	Archaeological and Desk-based Assessment
	G14	Drainage Strategy
	G15	Stage 1 and 2 Arboricultural Report
	G16	Structural Design interface with London Underground
	G17	Flood Risk and Drainage Assessment
	G18	Pedestrian and Terrace Level Wind Microclimate Assessment
	G19	Preliminary Construction Information
	G20	Basement Impact Assessment
	G21	Air Quality Assessment
	G22	Noise and Vibration Assessment
	G23	Justification for the Loss of Office Space

	G24	BRE Sunlight and Overshadowing Report
	G25	Phase 1 Environmental Report
	G26	A Blimp over London from J Sachs

Appellant's Documents

Document	A1	Proof of Evidence of Mr Absolon
	A2	Appendices 1 – 5 to Mr Absolon's Proof
	A3	Summary proof of Evidence of Mr Lowndes
	A4	Proof of Evidence and Appendices 1 - 4 of Mr Lowndes
	A5	Summary Proof of Evidence of Mr Mascall
	A6	Proof of Evidence of Mr Mascall
	A7	Summary Proof of Evidence of Mr Stewart
	A8	Proof of Evidence of Mr Stewart
	A9	Proof of Evidence of Mr Casci
	A10	Appendix 1 to Mr Casci's Proof

Council's Documents

Document	C1	Proof of Evidence of Ms Bond
	C2	Proof of Evidence of Mr Hughes
	C3	Appendices 1 – 14 to the Proof of Evidence of Mr Hughes
	C4	Rebuttal proof of Ms Bond
	C5	Rebuttal proof of Mr Hughes

Rule 6 Documents

Doc		
		Mr Reed
	R1	Proof of Evidence of Mr Reed
	R2	Appendices to the Proof of Evidence of Mr Reed
		Belsize Residents Association
	R3	Proof of Evidence of Mr Tabor
	R4	Proof of Evidence of Julia Court
	R5	Summary Proof of Elaine Chambers
	R6	Proof of Evidence of Elaine Chambers
	R7	Proof of Evidence of Peter Rich
	R8	Summary Proof of Evidence of James Weeks
	R9	Proof of Evidence of James Weeks
		Save Swiss Cottage Action Group
	R10	Proof of Evidence of Dr Peter Smith
	R11	Appendices 1 – 9 to the Proof of Evidence of Dr Smith
		Eton Avenue Housing Association
	R12	Proof of evidence of J Sachs
		Cresta House Residents' Association
	R13	Proof of evidence of E Raff

Core Documents

Doc	CD1.0	Application Covering Letter
	CD1.1	Application form
	CD1.2	Site location plan
	CD1.3	Application Plans
	CD1.4	Visualisations Booklet by GRID
	CD1.5	CGI's Booklet by Grid
	CD1.6	Design and Access Statement
	CD1.7	Planning Statement
	CD1.8	Townscape and Visual Impact Assessment
	CD1.9	Heritage Statement
	CD1.10	Daylight and Sunlight Report
	CD1.11	Microclimate Assessment
	CD1.12	Transport Assessment
	CD1.13	Air Quality Assessment February 2014
	CD1.14	Air Quality Assessment August 2014
	CD1.15	Noise and Vibration Assessment
	CD1.16	Energy Strategy
	CD1.17	Sustainability Statement
	CD1.18	Statement of Community Involvement
	CD1.19	Preliminary Construction Information
	CD1.20	Construction Management Plan
	CD1.21	Avenue Road Air Quality Assessment
	CD1.22	Stage 1 and 2 Arboricultural Report
	CD1.23	Archaeological Desk-based Assessment
	CD1.24	Basement Impact Assessment
	CD1.25	Flood Risk Assessment
	CD1.26	Drainage Strategy
	CD1.27	Draft Delivery and Service Plan (Additional Submission)
	CD1.28	Demise Interface Report
	CD1.29	Phase 1 Environmental Report
	CD1.30	Justification for Loss of Office Use Report
	CD1.31	BPS Redacted Report on viability
	CD1.32	Response to Philip Davies Statement of Objections
	CD1.33	Peter Stewart Detailed Response to Philip Davies Objection
	CD1.34	Philip Davies Objection on behalf of Resident Groups
	CD1.35	Decision Notice
	CD1.36	Development Control Committee Minutes Sep 2014
	CD1.37	Officers' Committee Report
	CD1.38	Supplementary Agenda 11 Sep 2014 Development Control Cttee
	CD1.39	GLA Per Application Response
	CD1.40	GLA Stage 1 Report
	CD1.41	GLA Stage 2 Report
	CD1.42	Hoare Lee Daylight Review
	CD1.43	Hoare Lee Shadow Paths
	CD1.44	GVA Rebuttal to Hoare Lee Assessment
	CD1.45	Design Council Formal Response to Application May 2014
	CD1.46	Design Council Overshadowing Workshop Response Dec 2013
	CD1.47	Design Council Pre-Application 2 Response Nov 2013
	CD1.48	Design Council Pre-Application Response Aug 2013

CD1.49 Draft S106 Agreement Aug 2014
CD1.50 Urban Design Compendium
CD1.51 Historic Environment Good Practice Advice in Planning Note 3 The Setting of Heritage Assets – Historic England 2015
CD1.52 Understanding Place-Conservation Area Designation, Appraisal and Management – English Heritage 2011
CD1.53 Principles of Selection for Listing Buildings – DCMS 2010
CD1.54 Culture and Entertainment Designation Listing and Selection Guide – English Heritage 2011
CD1.55 Commemorative Structures Designation Listing Selection Guide – English Heritage 2011
CD1.56 Domestic 4 Modern House and Housing Designation Listing Selection Guide – English Heritage 2011
CD1.57 BRE Site Layout Planning for Daylight and Sunlight Guide 2011
CD1.58 Camden Core Strategy Proposed Submission Proposals Map Changes 2009
CD1.59 Camden Housing Strategy 2011-2016
CD1.60 Camden Annual Monitoring Bulletin 2013/14
CD1.61 London Office Policy Review 2012
CD1.62 London SHMA 2013
CD1.63 London SHLAA 2013
CD1.64 Camden Employment Land Review 2008
CD1.65 Camden Annual Monitoring Report 2013/14
CD1.66 Statement of Common Ground
CD1.67 Tall Buildings Guidance
CD1.68 Laying the Foundations: A Housing Strategy for England

CD2.0 Map showing Location of the Site and Conservation Areas
CD2.1 Map showing Location of the Site and Listed Buildings
CD2.2 List Description for Grade II Listed Swiss Cottage Library
CD2.3 List Description for Grade II Listed adjacent Statue
CD2.4 List Description for Grade II Listed St John's Lodge
CD2.5 List Description for Grade II* Alexandra Road Estate
CD2.6 Conservation Area Statement for Belsize Conservation Area
CD2.7 Conservation Area Statement for Fitzjohn's/Netherhall Conservation Area
CD2.8 Conservation Area Statement for Alexandra Road Estate Conservation Area
CD2.9 Conservation Area Appraisal and Management Strategy for St John's Wood Conservation Area
CD2.10 Conservation Area Appraisal and Management Strategy for Elsworthy Conservation Area
CD2.11 Conservation Area Appraisal and Management Strategy for South Hampstead Conservation Area

CD3.0 National Planning Policy Framework

CD4.0 The London Plan 2011
CD4.1 The Mayor of London Housing SPG 2011
CD4.2 The Mayor of London Town Centres SPG 2014
CD4.3 The Mayor of London Housing Strategy 2014
CD4.4 The Mayor of London Interim Housing SPG 2015
CD4.5 Camden Core Strategy 2010
CD4.6 Camden Development Plan Policies 2010
CD4.7 Camden Site Allocations Local Development Documents 2013
CD4.8 Camden Planning Guidance 8 Planning Obligations 2015

CD5.0 Draft Camden Local Plan 2015
CD5.1 Historic England – Managing Significance in Decision Taking in the Historic Environment
CD5.2 Historic England Conservation Principles, Policies and Guidance
CD5.3 English Heritage Seeing the History in the View
CD5.4 Camden's Local List
CD5.5 Camden Planning Guidance - Amenity

Documents handed in to Inquiry

Document IQ1 Notification documents
IQ2 Council's Appearances
IQ3 Appellant's opening statement
IQ4 Council's opening statement
IQ5 Evidence from Alan Spence
IQ6 Evidence of B Tankel
IQ7 Evidence of Cllr J Bucknell
IQ8 Plan submitted by Save Swiss Cottage showing properties opposite
IQ9 Cutting from local paper (Ham and High) dated July 2 2015
IQ10 Correspondence related to having a blimp at site visit
IQ11 Objection to scheme from Mr Steadman
IQ12 Objection to scheme from K Fernald
IQ13 Objection to scheme from J Sheridan
IQ14 Letter from Z Goldsmith MP
IQ15 Email with photograph from J Sachs
IQ16 Evidence from P Perkins – Winchester Project
IQ17 Objection from M Caro
IQ18 Background information A Spence
IQ19 Emails relating to flying of blimp at site visit
IQ20 Photograph of library with sculpture in original position and view from swimming pool
IQ21 Extract of Planning Practice Guidance
IQ22 Camden's Local List
IQ23 Note relating to appendix one of Dr Smith's proof
IQ24 Tree plans enlarged by Save Swiss Cottage Action Group
IQ25 Press article relating to scrapping of a previous proposal for 16 storey building at the appeal site
IQ26 Housing provision statistics

IQ27	Information provided for the site visit
IQ28	Evidence of K Bligh
IQ29	Additional evidence from Janine Sachs
IQ30	Draft Addendum to Statement of Common Ground
IQ31	Response by RWDI relating to additional evidence from J Sachs
IQ32	Photograph of blimps from various locations – T Tugnutt DipArch RIBA
IQ33	Closing on behalf of Camden Association of Street Properties
IQ34	Closing statement/submissions of Save Swiss Cottage Action Group
IQ35	Closing statement of David Reed
IQ36	Closing submissions of Belsize Residents' Association
IQ37	Closing submissions of the London Borough of Camden
IQ38	Essential Living (Swiss Cottage) Ltd closing submissions
IQ39	Report of S106 Agreement
IQ40	Signed 106 Agreement
IQ41	Plan submitted by Save Swiss Cottage showing heritage assets

PLANS

Plan	**Application Drawings**
1	Location Plan
2	PL 099 P3
3	PL 100 P2
4	PL 101 P1
5	PL 102 P1
6	PL 105 P3
7	PL 106 P1
8	PL 107 P2
9	PL 108 P1
10	PL 113 P1
11	PL 119 P1
12	PL 121 P1
13	PL 123 P1
14	PL 124 P1
15	PL 161 P1
16	PL 162 P1
17	PL 163 P1
18	PL 164 P1
19	PL 170 P1
20	PL 171 P1
21	PL 172 P1
22	PL 173 P1
23	PL 200 P1
24	PL 201 P2
25	PL 202 P1
26	PL 203 P1
27	PL 204 P1
28	PL 205 P1
29	PL 206 P1
30	PL 207 P1

31 PL 210 P1
32 PL 211 P1
33 PL 401 P1
34 PL 402 P1
35 PL 403 P1
36 PL 404 P1
37 PL 405 P1
38 PL 406 P1
39 LL443 100 001 P1
40 LL443 100 002 P2
41 LL443 100 003 P1
42 LL443 100 004 P1
43 LL443 100 005 P2
44 LL443 100 006 P1
45 LL443 100 007 P1
46 LL443 100 100
47 LL443 100 101

Annex A – List of Proposed Conditions

1. The works hereby permitted shall be begun not later than the end of three years from the date of this consent.

2. The development hereby permitted shall be carried out in accordance with the approved plans listed below.

PL_099 P3, PL_100 P2, PL_101 P1, PL_102 P1, PL_105 P3, PL_106 P1, PL_107 P2, PL_108 P1, PL_113 P2, PL_119 P1, PL_121 P1, PL_123 P1, PL_124 P1, PL_161 P1, PL_162 P1, PL_163 P1, PL_164 P1, PL_170 P1, PL_171 P1, PL_172 P1, PL_173 P1, PL_200 P1, PL_201 P2, PL_202 P1, PL_203 P1, PL_204 P1, PL_205 P1, PL_206 P1, PL_207 P1, PL_210 P1, PL_211 P1, PL_401 P1, PL_402 P1, PL_403 P1, PL_404 P1, PL_405 Pt, PL_406 P1, LL443-100-001 P1, LL443-100-002 P2, LL443-100-003 P1, LL443-100-001 P1, LL443-100-004 P1, LL443-100-005 P2, LL443-100-006 P1, LL443-100-007 P1, LL443-100-100, LL443-200-101.

Reason: For the avoidance of doubt and in the interest of proper planning.

3. No part of the development hereby permitted shall be occupied until the following have been submitted to and approved in writing by the Local Planning Authority

1) full details of hard and soft landscaping and means of enclosure of all un-built, open areas [such details/shall include details of any proposed earthworks including grading, mounding and other changes in ground levels as well as the delivery of a feature of public art.]

2) a scheme for replacement trees, including details of tree pit locations, viability and a planting programme.

3) a planting programme and landscape aftercare plan.

The development shall be undertaken in accordance with the approved details including the planting program.

Reason: To ensure that the development achieves a high quality of landscaping which contributes to the visual amenity and character of the area, in accordance with the requirements of policies CS14, CS15 of the London Borough of Camden Local Development Framework Core Strategy and policy DP24 of the London Borough of Camden Local Development Framework Development Policies.

4. Development works (other than demolition) shall not take place until plans showing the levels at the interface of the relevant phase of development with the boundary of the property and the public highway have been submitted to and approved in writing by the council. Thereafter the development shall be carried out in accordance with the details approved.

Reason: To ensure that the scheme promotes the use of sustainable transport means in accordance with policy CS11 of the London Borough of Camden Local Development Framework Core Strategy.

5. No plant or machinery shall be installed on the external parts of the building other than in the areas indicated as plant areas on the plans hereby approved.

Reason: To ensure that the appearance of any external plant is compatible with the appearance of the building and the area and to ensure that residential amenities are protected, in accordance with the requirements of policies CS5 and CS14 of the London Borough of Camden Local Development Framework Core Strategy and policies. DP24, DP25 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

6. Prior to the installation of any mechanical plant, an acoustic report demonstrating how any mechanical plant to be installed will accord with the noise and vibration standards as set out in the Local Development Framework and Camden Planning Guidance shall be submitted to and approved in writing by the Local Planning Authority. The report shall include such manufacturer's specifications and details of noise and vibration mitigation measures as necessary. The plant shall not be operated other than in complete accordance with such measures approved.

   Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

7. At 1 metre outside the windows of any neighbouring habitable room the level of noise from all plant and machinery shall be at all times at least 5 decibels below the existing background noise levels, expressed in dB(A) at such locations. Where the noise from the plant and machinery is tonal in character the differences in these levels shall be at least 10 dB(A).

   Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

8. No more than 1100sqm gross external area of floorspace shall be provided within use classes A1-A3.

   Reason: To ensure that the future occupation of the premises does not undermine the vitality and viability of the Finchley Road/Swiss Cottage Town Centre, in accordance with policy CS7 of the London Borough of Camden Local Development Framework Core Strategy and policy DP10 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

9. Before any ducting and ventilation is installed associated with the proposed Class A uses details of extract ventilating systems shall be submitted to and approved in writing by the Local Planning Authority. Such details to include routing of ducts and discharge points and associated acoustic isolation and sound and vibration attenuation measures and an Acoustic Impact report prepared by a suitably qualified and experienced acoustic engineer which sets out how the equipment would meet the council's published noise and vibration standards.

10. The acoustic isolation shall thereafter be maintained in effective order. In the event of no satisfactory ventilation being provided, no primary cooking shall take place on the premises.

    Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the

London Borough of Camden Local Development Framework Core Strategy and policies DP12 and DP26 of the London Borough of Camden Local Development Framework Development Policies.

11. Any Class A use hereby permitted shall not be carried out outside the following times: 08:00hrs to 23:00hrs Sunday to Thursday and Bank Holidays and 08:00hrs to 00:00hrs on Friday and Saturday.

12. Outdoor seating areas associated with the Class A uses shall be cleared of customers between 22:00 and 08:00 hours, 7 days a week.

    Reason: To safeguard the residential amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

13. The shop front windows to the retail and food drink units shall be used for display purposes and the window glass must not be painted or obscured.

    Reason: To safeguard the appearance of the premises and the character of the immediate area and to prevent the introduction of dead frontages within the development in accordance with the requirements of policy CS14 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24 and DP25 of the London Borough of Camden Local Development Framework Development Policies.

14. Development shall not commence below ground level until a scheme for the following has been submitted to and approved in writing by the council:

    1. an intrusive land contamination survey and the written results. Laboratory results must be provided as numeric values in a formatted electronic spread sheet.

    2. a remediation scheme, if necessary, shall be agreed in writing with the Local Planning Authority.

    The scheme as approved shall be implemented before any part of the development hereby permitted is occupied.

    Reason: To protect future occupiers of the development from the possible presence of ground contamination arising in connection with the previous industrial/storage use of the site in accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 of the London Borough of Camden Local Development Framework Development Policies.

15. Development works (other than Demolition) shall not take place until details of the following micro climate mitigation measures have been submitted to and approved in writing by the council.

    - the raising of the proposed balustrade on the west-facing penthouse to 1.8m in height and mitigation in the area of the eastern site boundary adjacent to the Hampstead Theatre

    Development shall not be carried out other than in accordance with the approved measures.

Reason: To ensure that suitable measures are incorporated within the design to mitigate potential adverse wind environments arising from the development and to safeguard the amenities of the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 of the London Borough of Camden Local Development Framework Development Policies.

16. Prior to the occupation of the first residential unit three of the proposed basement car parking spaces shall include access to an electrical charging point.

    Reason: In the interests of sustainable transport in accordance with policy CS11 of the London Borough of Camden Local Development Framework Core Strategy and policy DP16 of the London Borough of Camden Local Development Framework Development Policies

17. (i) Works below ground level shall not start until detailed design and construction method statements for all of the ground floor structures, foundations and basements and for any structures below ground level, including piling (temporary and permanent) have been submitted to and approved in writing by the Local Planning Authority. These shall:
    - Accommodate the proposed location of the HS2 structures and tunnels.
    - Accommodate ground movement and associated effects arising from the construction thereof, and;
    - Mitigate the effects of noise and vibration arising from the operation of the HS2 railway within the tunnels, ventilation shaft and associated below and above ground structures.

    (ii) The design and construction method statements to be submitted under part (i) shall include arrangements to secure that, during any period when concurrent construction is taking place of both the development hereby permitted and of the HS2 structures and tunnels in or adjacent to the site of that development, the construction of the HS2 structures and tunnels is not impeded. The development shall be carried out in all respects in accordance with the approved design and method statement and all structures and works comprised within the development hereby permitted which are required by the approved design statements in order to procure the matters mentioned in part (i) shall be completed, in their entirety, before any part of the building(s) hereby permitted is/are occupied.

    (iii) No works below ground level comprised within the development hereby permitted shall be carried out at any time when a tunnel boring machine used for the purposes of boring tunnels for the HS2 Ltd railway is within 100 metres of the land on which the development hereby permitted is situated.

    Reason: To manage the structural impact of the development upon the HS2 proposals, in accordance with policies CS5 and CS14 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24, DP26 and DP27 of the London Borough of Camden Local Development Framework Development Policies.

18. Development works (other than demolition) shall not take place until details of the following have been submitted to, and approved in writing by, the Local Planning Authority:

    a) Facing materials of all buildings
    b) Details including typical sections at 1:10 of external windows and door frames.
    c) Details including materials typical of balconies and roof terraces.

The relevant part of the works shall not be carried out otherwise than in accordance with the details approved.

Reason: To safeguard the appearance of the site and the character of the immediate area in accordance with the requirements of Policy CS14 of the London Borough of Camden Local Development Framework Core Strategy and policy DP24 and DP25 of the London Borough of Camden Local Development Framework Development Policies.

19. Prior to first occupation details of the following shall be submitted to, and approved in writing by, the Local Planning Authority:

    - Shopfronts; including sections, elevations and materials

    The relevant part of the works shall not be carried out otherwise than in accordance with the details thus approved.

    Reason: To safeguard the appearance of the site and the character of the immediate area in accordance with the requirements of policy CS14 of the London Borough of Camden Local Development Framework Core Strategy and policy DP24 and DP25 of the London Borough of Camden Local Development Framework Development Policies.

20. Replacement trees that do not survive for five years after they are planted shall be replaced within the first available planting season.

    Reason: To ensure that the development achieves a high quality of landscaping which contributes to the visual amenity and character of the area, in accordance with the requirements of policies CS14, CS15 of the London Borough of Camden Local Development Framework Core Strategy and policy DP24 of the London Borough of Camden Local Development Framework Development Policies.

21. Before any development commences details demonstrating how trees to be retained shall be protected during demolition and construction work shall be submitted to and approved in writing by the council. Such details shall be implemented as approved before any development commences and retained during the demolition and construction works, unless otherwise agreed in writing by the Local Planning Authority. The approved works shall follow guidelines and standards set out in BS5837:2012 "Trees in Relation to Construction". All trees on the site, or parts of trees growing from adjoining sites, unless shown on the permitted drawings as being removed, shall be retained and protected from damage in accordance with the approved protection details.

    Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenity of the area in accordance with the requirements of policy CS15 of the London Borough of Camden Local Development Framework Core Strategy.

22. None of the residential units shall be occupied until details of external lighting have been submitted to and approved by the Local Planning Authority. The external lighting details shall be implemented and retained in accordance with the approved details before any residential unit is occupied.

    Reason: In the interests of amenity and security in accordance with policies CS17 and CPG1 (Design).

23. Before the occupation of any part of the development full details of cycle parking shall be submitted to and approved in writing by the Local Planning Authority and thereafter provided in accordance with the approved details. The approved cycle parking facilities shall be permanently retained thereafter.

    Reason: To ensure the development provides adequate cycle parking facilities in accordance with the requirements of policy CS11 f the London Borough of Camden Local Development Framework Core Strategy and policy DP17 of the London Borough of Camden Local Development Framework Development Policies.

24. Before any works or construction commences details of at least two real time particulate air quality monitors shall be submitted to and agreed in writing by the Local Planning Authority. Such details shall include the location, number and specification of the monitors, including evidence of the fact that they have been installed in line with guidance outlined in the GLA's Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance. The monitors shall be installed 1 month prior to the development taking place and must be retained and maintained on site for the duration of the development in accordance with the details thus approved. Real time data from the monitors should be available online, and council officers provided access to this data. In addition, quarterly reports should be sent to the Air Quality officer for the duration of the works. These should detail any exceedences of the trigger action level (which is 250 ug/m3), and the action that was taken to remedy this.

    Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policies DP12, DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

25. Before any plant is installed details of the proposed CHP (combined heat and power) engine and any required mitigation measures to demonstrate that the Mayor's 'Band B' NOx emissions standards will be adhered to must be submitted to the Local Authority and approved in writing. The measures shall be installed in accordance with the approved details.

26. Prior to occupation, details (installation contracts, photographs) of the approved CHP engine and required mitigation measures to demonstrate that the Mayors 'Band B' NOx emissions standards will be adhered to must be submitted to and approved in writing by the Local Planning Authority. Thereafter, these measures shall be retained in accordance with the approved details.

    Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policies DP12, DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

27. Before any development commences details of proposed u-values and the approach to thermal bridging shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details.

Reason: To ensure a sustainable and resource efficient development in accordance with the requirements of policies CS13 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23 and DP32 of the London Borough of Camden Local Development Framework Development Policies

28. The development shall achieve 60% BREEAM score for the retail (A Class), retail/LUL and community floorspace within the buildings.

Reason: To ensure a sustainable and resource efficient development in accordance with the requirements of policies CS13 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23 and DP32 of the London Borough of Camden Local Development Framework Development Policies.

29. Before first occupation details of the brown roof in the area indicated on the approved roof plan of the tower element shall be submitted to and approved in writing by the local planning authority. No part of the buildings shall be occupied until the approved details have been implemented and these works shall be permanently retained and maintained thereafter.

Reason: In order to ensure the development undertakes reasonable measures to take account of biodiversity and the water environment in accordance with policies CS13, CS15 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23 and DP32 of the London Borough of Camden Local Development Framework Development Policies.

30. Before the first residential unit is occupied details of mechanical ventilation shall be submitted to and approved in writing by the council. Prior to occupation of any residential unit the mechanical ventilation shall be installed and be in full working in the residential units, as the approved details. All such measures shall thereafter be retained and maintained.

Reason: To safeguard the amenities of the premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26, DP28 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

31. Before development commences detailed design and assessment reports and outline method statements (in consultation with London Underground) for all of the foundations, basement and ground floor structures, or for any other structures below ground level, including piling (temporary and permanent), shall be submitted to and approved in writing by the Local Planning authority, such reports shall:

- provide details on all structures over and adjacent to LU assets
- accommodate the location of the existing London Underground structures and tunnels
- accommodate ground movement arising from the construction thereof
- mitigate the effects of noise and vibration arising from the adjoining operations within the structures and tunnels and mitigate against any EMC (Electromagnetic Compatibility) issues arising from the construction of the new plant.

The development shall thereafter be carried out in all respects in accordance with the approved design and assessment report, method statements and subject to an agreed monitoring strategy, and all structures and works comprised within the development which are required by the approved

design statements in order to procure the matters mentioned in paragraphs of this condition shall be completed, in their entirety, before any part of the building hereby permitted is occupied.

Reason: To ensure that the development does not impact on existing London Underground transport infrastructure, in accordance with London Plan 2011 Table 6.1 and 'Land for Industry and Transport' Supplementary Planning Guidance 2012.

32. The proposed Class A uses will operate within use classes A1, A2, and A3 only.

Reason: To ensure that the future occupation of the building does not adversely affect the adjoining premises/immediate area by reason of noise and disturbance in accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies and to protect the viability of Swiss Cottage Town Centre in accordance with policies CS7, DP12 and Camden Planning Guidance No.5.

33. Before any residential unit is occupied a scheme to demonstrate that each dwelling hereby approved achieves a maximum internal water use of 105 litres/person/day, allowing 5 litres/person/day for external water use, shall be submitted to and approved in writing by the Local Planning Authority. The development shall be constructed in accordance with the approved scheme and retained thereafter.

Reason: To ensure the development contributes to minimising the need for further water infrastructure in an area of water stress in accordance with policies CS13 (Tackling climate change through promoting higher environmental standards), DP22 (Promoting sustainable design and construction) and DP23 (Water).

Department for Communities and Local Government

www.gov.uk

RIGHT TO CHALLENGE THE DECISION IN THE HIGH COURT

These notes are provided for guidance only and apply only to challenges under the legislation specified. If you require further advice on making any High Court challenge, or making an application for Judicial Review, you should consult a solicitor or other advisor or contact the Crown Office at the Royal Courts of Justice, Queens Bench Division, Strand, London, WC2 2LL (0207 947 6000).

The attached decision is final unless it is successfully challenged in the Courts. The Secretary of State cannot amend or interpret the decision. It may be redetermined by the Secretary of State only if the decision is quashed by the Courts. However, if it is redetermined, it does not necessarily follow that the original decision will be reversed.

SECTION 1: PLANNING APPEALS AND CALLED-IN PLANNING APPLICATIONS

The decision may be challenged by making an application for permission to the High Court under section 288 of the Town and Country Planning Act 1990 (the TCP Act). This new requirement for permission to bring a challenge applies to decisions made on or after 26 October 2015.

Challenges under Section 288 of the TCP Act

With the permission of the High Court under section 288 of the TCP Act, decisions on called-in applications under section 77 of the TCP Act (planning), appeals under section 78 (planning) may be challenged. Any person aggrieved by the decision may question the validity of the decision on the grounds that it is not within the powers of the Act or that any of the relevant requirements have not been complied with in relation to the decision. An application for leave under this section must be made within six weeks from the date of the decision.

SECTION 2: ENFORCEMENT APPEALS

Challenges under Section 289 of the TCP Act

Decisions on recovered enforcement appeals under all grounds can be challenged under section 289 of the TCP Act. To challenge the enforcement decision, permission must first be obtained from the Court. If the Court does not consider that there is an arguable case, it may refuse permission. Application for leave to make a challenge must be received by the Administrative Court within 28 days of the decision, unless the Court extends this period.

SECTION 3: AWARDS OF COSTS

A challenge to the decision on an application for an award of costs which is connected with a decision under section 77 or 78 of the TCP Act can be made under section 288 of the TCP Act if permission of the High Court is granted.

SECTION 4: INSPECTION OF DOCUMENTS

Where an inquiry or hearing has been held any person who is entitled to be notified of the decision has a statutory right to view the documents, photographs and plans listed in the appendix to the Inspector's report of the inquiry or hearing within 6 weeks of the date of the decision. If you are such a person and you wish to view the documents you should get in touch with the office at the address from which the decision was issued, as shown on the letterhead on the decision letter, quoting the reference number and stating the day and time you wish to visit. At least 3 days notice should be given, if possible.

Appendix B

Providing Ground Solutions

Essential Living Limited

100 Avenue Road, Swiss Cottage, London, NW3 3HF

Geoenvironmental Interpretative Report – Revision 2

December, 2017

Conject Ref:
SC-Geoenvironmental-R-RBP

rev P03

Card Geotechnics Limited
4 Godalming Business Centre
Woolsack Way, Godalming GU7 1XW
Telephone: 01483 310600
www.cgl-uk.com

Copyright: Card Geotechnics Limited

Card Geotechnics Limited ("CGL") has prepared this report in accordance with the instructions of Robert Bird Group on behalf of Essential Living Limited ("the Client") under the terms of its appointment for consulting engineering services by the Client dated 9th June 2017. The report is for the sole and specific use of the Client, and CGL shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared and provided. Should the Client require to pass copies of the report to other parties for information, the whole of the report should be so copied, but no professional liability or warranty shall be extended to other parties by CGL in this connection without the explicit written agreement thereto by CGL.

Author	*Helen Gardiner, Chartered Senior Engineer* *MSci CEnv FGS MIEnvSc*	
Checked	*Jo Strange, Technical Director* *MEng CEng CEnv FICE FWES MIEnvSc SiLC*	
Approved	*Dan Matthews, Director* *BEng CSci CEnv MIEnvSc MCMI*	

Reference	CG/28215A	Revision	0	Issue Date	September 2017
			1		October 2017
			2		December 2017

Contents

EXECUTIVE SUMMARY

Card Geotechnics Limited (CGL) was commissioned by Robert Bird Group (RBG) on behalf of Essential Living Limited to undertake a supplementary phase of geoenvironmental investigation and assessment of the ground conditions for a proposed mixed use, residential-led development at 100 Avenue Road, Swiss Cottage, London, NW3 3HF. The site currently comprises vacant office buildings with a single storey basement beneath part of the building footprint.

It is proposed to develop the site for a mixed use residential-led end use. The development comprises a 24-storey northern tower and a southern tower between five and seven storeys in height. The existing basement is to be deepened and extended further southeast.

Historically the site was used as a School for the Blind and St Columba's Hospital prior to being used a car park and council offices. Above ground fuel tanks and an electrical substation are located within the basement. The site is located within a groundwater Source Protection Zone – Outer Zone (Zone 2). The abstraction borehole to which the SPZ relates is located approximately 1.5km southeast of the site.

A Phase 2 desk study and preliminary risk assessment was completed for the site by RSK in 2013 and a site investigation was subsequently undertaken by Concept in May 2015. As part of this report, CGL has undertaken a data review and completed a supplementary investigation at the site comprising six window sampler boreholes to a maximum depth of 5m bgl and three hand dug pits to a maximum depth of 1m bgl to target identified potential sources of contamination and to provide additional site coverage.

The ground conditions encountered at the site comprise up to 0.9m of concrete basement slab (otherwise typically 0.5m thickness). The Made Ground was typically a maximum of 1m thick, including soils located above the basement box. The concrete/Made Ground was underlain by up to 7.58m of the weathered London Clay Formation and up to 40.4 m of the London Clay Formation (base not proven) based on Concept data. Visual and olfactory indicators of potential contamination were not noted during either Concept's or CGL's investigation.

The findings of the investigations indicate that measured concentrations of contaminants within the Made Ground and natural deposits are below the relevant screening criteria. Asbestos was not encountered in the soils. Based on the one ground gas monitoring round undertaken, one elevated concentration of carbon dioxide was recorded in the shallow Made Ground above the basement box. However, the gas risk assessment has concluded that the site is characteristic situation 1 on the basis that the concentrations recorded in this borehole are not representative of typical maximum

concentrations beneath the site. Therefore, gas protection measures are not required within the proposed development.

Based on the information obtained to date, it is considered that remediation / mitigation measures will include removal of existing tanks and substation (including visual inspection of soils beneath the tanks and substation during deepening of the basement to confirm no visual evidence of contamination), asbestos survey and appropriate mitigation works by a specialist contractor, the correct design of concrete, provision of a growth medium in tree planters, and a watching brief and discovery strategy.

1. INTRODUCTION

1.1 Introduction

Card Geotechnics Limited (CGL) was commissioned by Robert Bird Group (RBG) on behalf of Essential Living Limited to undertake a supplementary geoenvironmental intrusive investigation, assessment of the ground conditions and an outline remedial strategy for the proposed development at 100 Avenue Road, Swiss Cottage, London, NW3 3HF.

The objectives of CGLs work are to provide a geoenvironmental interpretative report using the findings of the Concept ground investigation and the CGL supplementary ground investigation information. This report includes the following information:

- A summary of historical information on site usage and potential sources of contamination;
- Information on the ground and groundwater conditions from the Concept ground investigation and the current supplementary ground investigation undertaken by CGL;
- An assessment and recommendations relating to potential soil and groundwater contamination and ground gas; and,
- An outline remediation strategy for the development of the site, if required.

The works have been undertaken, in part, to satisfy London Borough of Camden Planning Condition 14 of Planning Application 2014/1617/P, dated 19 February 2016, relating to the proposed re-development of the site, which states:

"Development shall not commence below ground level until a scheme for the following has been submitted to and approved in writing by the council:

a) an intrusive land contamination survey and the written results. Laboratory results must be provided as numeric values in a formatted electronic spread sheet.

b) a remediation scheme, if necessary, shall be agreed in writing with the Local Planning Authority.

The scheme as approved shall be implemented before any part of the development hereby permitted is occupied."

A Phase 1 Environmental Report[1] has been previously undertaken by RSK in 2013, along with an initial phase of intrusive investigation completed by Concept[2] in 2016 (scoped by URS Infrastructure and Environment Ltd dated 23rd May 2014). The URS scope of investigation (or interpretative report, if produced) has not been provided to CGL for review. Pertinent information from the RSK and Concept reports have been included in this report.

The scope of CGL's intrusive investigation has been discussed and agreed with the Contaminated Land Officer at the London Borough of Camden Council. The Local Authority correspondence is presented in Appendix A.

(Note: This investigation and report is not intended to fulfil the requirements of a Basement Impact Assessment).

[1] RSK (2013). *100 Avenue Road, Swiss Cottage, London, NW3 3HF. Phase 1 Environmental Report.* Reference 26427-01(00).
[2] Concept (2016). *100 Avenue Road, Swiss Cottage, London, NW3 3HF. Site Investigation report.* Reference 16/2832-FR 00.

2. SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located along Avenue Road, in the London Borough of Camden, approximately 50m west of Swiss Cottage Underground Station, in a residential and commercial area. The Ordnance Survey Grid Reference for the approximate centre of the site is 543375, 174066 and post code is NW3 3HF.

A site location plan is presented in Figure 1.

2.2 Site Description

The site is approximately 0.4 hectares in size and is roughly rectangular in shape. An 'L' shaped building (between three and six stories in height) is located across the site surrounded by areas of soft landscaping and paved hardstanding to the east and west. A single storey basement is located beneath the entire building footprint and was used for car parking, café, storage and service rooms. A substation and above ground fuel tanks are located in the basement within the southern portion of the site.

The topography of the site slopes gently downwards towards the south of the site from approximately 55 metres (m) to 50m above ordnance datum (mood).

The site is bound to the north by Eton Avenue beyond which is the Royal Central School of Speech and Drama and residential properties. To the east is Hampstead Theatre and an area of public open space (including water feature) and to the south is Winchester Mews with Swiss Cottage Library and Swiss Cottage Surgery beyond. Avenue Road (A41) and the entrance to the Jubilee Line Underground Station are located to the west of the site. A second entrance is located to the northwest of the site. A site layout plan is included as Figure 2.

2.3 Proposed Development

It is understood that the proposed development comprises a 24-storey northern block primarily for residential use with some retail space and a southern block between five and seven storeys for residential, retail and community use with roof terraces. The existing basement is to be deepened (to remain single storey) from approximately 53.7mOD to 52.7mOD and be located across the majority of the site for car parking and storage/plant space. Proposed development plans are presented in Appendix B.

3. DATA REVIEW

3.1 Sources of Information

A summary is provided of key pertinent information from the RSK Phase 1 Environmental Report[1], and available BGS borehole records[3]. Reference should be made to the full RSK report for further information.

The RSK report included a desk study and preliminary risk assessment, including preliminary conceptual site model.

3.2 Site History

The earliest historical maps[1] indicate that prior to 1866, the northern portion of the site comprised a *School for the Blind*, whilst the southern portion of the site is occupied by buildings labelled as *Sunny side* and gardens. By circa 1893, the gardens had disappeared. By 1935, *Sunny side* was relabelled as *St Columba's Hospital* and the *School for the Blind* was labelled as a *School*. By circa 1960, the buildings on site had been demolished with the exception of two buildings, one located in the north-east and one in the central west portions of the site. The northern part of the site was labelled as a *car park*, whilst the southern portion comprised a path along the western boundary which then cut across the site to *Council Offices* in the east. By 1965, the building in the northeast is labelled as *British Legion Club*. The path along the western boundary has moved and the path is now located in the south-eastern corner, running parallel to the eastern site boundary. *Car parks* were located across the site by 1971, and various paths associated with *The Hampstead Theatre Club* are located in the south, along with a new building. *Air shafts* associated with Swiss Cottage underground station are located along the western boundary, along with two new buildings in the central area of the site which are labelled as *Pubic convenience.* Circa 1984, the site was developed into its current day layout.

Potentially contaminative historical land use within 250m of the site identified in the RSK report are limited and include garages, and the underground lines.

Further details on the site history are provided within the RSK report[1].

[3] http://mapapps.bgs.ac.uk

3.3 Anticipated Ground Conditions

3.3.1 Published Geology

According to the British Geological Survey (BGS) Map[4] and the BGS online viewer[5], the site is directly underlain by the London Clay Formation, which is underlain by the Lambeth Group, Thanet Sand Formation and Chalk in succession. Due to the historical development of the site, Made Ground is expected across the site.

3.3.2 Unpublished Geology

From available records, a number of historical boreholes have been identified within close proximity to the eastern and western boundaries of the site. Based on these available BGS records[5], the surrounding area is underlain by up to 1m of Made Ground, which is underlain by approximately 7m of weathered London Clay Formation, which is further underlain by up to 66m of London Clay Formation.

Groundwater was encountered at approximately 90m bgl (in Lambeth Group) in a BGS exploratory hole.

Copies of the BGS borehole records and a borehole location plan are included as Appendix D.

3.4 Hydrogeology and Hydrology

The London Clay Formation has been designated as Unproductive Strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The deeper Lambeth Group and Thanet Sand (Secondary A aquifers), and Chalk (Principal Aquifer) aquifers are confined by the impermeable London Clay Formation. The Thanet Sand Formation and Chalk are anticipated to be hydraulic continuity with each other. The horizontal and vertical movement of groundwater in the Lambeth Group is likely to be limited by the cohesive horizons in the strata. Although the London Clay is impermeable and may limit the vertical migration of potential contaminants, RSK note that its impermeable nature may increase horizontal migration of perched groundwater within the overlying Made Ground, and potential contamination.

The RSK report[1] notes that depth to groundwater in the Lambeth Group is in the order of 90m bgl although localised perched water may be present in the London Clay and overlying Made Ground.

[4] British Geological Survey. (2006). North London. England and Wales Sheet 256. Solid and Drift Geology. 1:50,000.
[5] http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed 10 August 2017.

The site is located within a groundwater Source Protection Zone – Outer Zone (Zone 2), where water is abstracted from the Chalk Principal Aquifer. The abstraction borehole to which the SPZ relates is located approximately 1.5km southeast of the site at Barrow Hill Pumping Station.

There is one current licensed groundwater abstraction within 1km of the site. The abstraction is located 50m northeast of the site and is used for spray irrigation purposes.

RSK[1] note that the nearest surface water feature is a pond located approximately 40m east, although during the CGL walkover, the water body was noted to be more of a water feature (fountain) rather than a pond. The Grand Union Canal is located approximately 1.2km south of the site.

According to RSK[1] and The Lost Rivers of London[6], the River Tyburn once flowed in a southerly direction approximately 150m east of the site. The River Tyburn is now culverted within sewers to the south, near Regents Park.

The site is not at risk from flooding from Rivers or seas.

3.5 Environmental Setting

The following information has been summarised from the RSK report[1].

- There are no current landfills located within 1km of the site. One historical landfill (Canfield Place) is located approximately 800m northwest. No further information on the landfill is presented within the RSK report;
- The nearest part A (2)/Part B activity or enforcement is located 304m northwest and relates to Finchley Road fuel station;
- There are no discharge consents, Integrated Pollution Prevention and Control (IPPC) authorisations, records of radioactive substances, or pollution incident records within 250m of the site; and,
- There are no recorded mines or quarries within 250m of the site.

Information provided by RBG indicates that above ground fuel tanks of an unknown size (potentially associated with the former use of the site as a hospital) are located within the basement along with an electrical substation. The presence of the substation on site was not identified with RSK's[1] report, only noting a substation 110m west.

[6] Barton and Myers. (2016) The Lost Rivers of London: A Study of Their Effects Upon London and Londoners, and the Effects of London and Londoners on Them (London: Historical Publications).

3.6 Unexploded Ordnance

The bombsight website[7] indicates that a high explosive bomb fell between 7th October 1940 and 6th June 1941 approximately 150m south of the site. The RBG Design Report[8] indicates that according to Bomb Damage Maps 1939-1945, the developments to the north of the site suffered total damage or damage beyond repair, and that it is considered by RBG that the presence of unexploded ordnance (UXO) in the upper 2-3m would have been discovered during the construction of the existing basement, or during piling and therefore the potential for UXO beneath the basement is considered to be low, although it cannot be discounted beneath the wider site footprint.

3.7 London Underground Lines

The RBG Design Criteria Report[8] notes that the London Underground Jubilee Line and Swiss Cottage station box lies immediately adjacent to and partially beneath the western edge of the existing development. It is understood that the Jubilee Line tunnels run adjacent to the eastern boundary of the site, approximately 10m west of the existing building.

3.8 Potential for asbestos within buildings

It is understood that an asbestos survey has not been undertaken within the existing building. Due to the age of the building (1980s), CGL consider that the potential for asbestos to be present within the building fabric cannot be discounted.

3.9 Preliminary Risk Assessment

The preliminary conceptual site model completed by RSK[1] identifies the former hospital use to be the main potential source of contamination and that the boiler room or above ground heating fuel tanks are likely to have been present on site during this time. The report considers that hydrocarbons from this land use are possible along with potentially contaminated Made Ground.

Sensitive receptors were identified as the current/future site users and concrete building foundations. RSK noted that construction workers were not been included as a receptor in their assessment as they assumed that the risks will be managed through health and safety procedures including CDM regulations.

The preliminary conceptual site model concludes that the site in its current use (majority of the site covered with hardstanding), encapsulates potential contamination, therefore removing pollutant linkages to sensitive receptors. In addition, it was noted that the presence of the London Clay

[7] www.bombsight.org accessed 18th August 2017.
[8] Robert Bird Group. (2017). *100 Avenue Road, Swiss Cottage, Design Criteria Report.* Reference SC-Design Criteria-R-RBP, Rev P01.

Formation will limit the downward migration of potential contamination into the underlying Secondary A and Principal Aquifers. RSK considered that pathways may be created should the site be redeveloped, such as chemical attack on concrete, permeation through water supply pipes and from placement within impacted ground/groundwater. However, it was noted that the extension of the basement will remove and encapsulate potential contamination present at the site.

3.10 Concept Intrusive Investigation

An intrusive investigation was undertaken by Concept between 5th to 17th May 2017 which is understood to have been scoped by URS Infrastructure and Environment, 2014. The investigation included a total of four cable percussion boreholes (BH101, BH102, BH105 and BH106), which were drilled to maximum depths of 47m below ground level (bgl). Monitoring wells, including vibrating wire piezometers were installed in the boreholes. Four soil samples were submitted for chemical testing for a suite of contaminants including pH, water soluble sulfate, organic matter, heavy metals, total petroleum hydrocarbons criteria working group (TPHCWG) and speciated polycyclic aromatic hydrocarbons (PAH). The contamination results of the Concept investigation (Appendix C) have been included in the current assessment. It is noted that the Concept report comprised factual information only, and did not include interpretative. On this basis that URS scoped in the investigation, it is possible that URS may have produced an interpretative report although this has not been provided to CGL for review.

The Concept geotechnical results have not been included in the current assessment or discussed within this report.

3.10.1 Concept Ground Conditions

The intrusive investigation encountered Made Ground to a depth of 1m bgl and comprised concrete over soft, light brown occasionally mottled light bluish grey micaceous silty CLAY with occasional pockets of orangish yellow fine to medium sand rare fine to coarse flint, brick and concrete fragments and occasional selenite crystals. Made Ground was encountered in BH102 only, the remaining boreholes encountered between 0.42m to 0.55m of concrete directly over natural strata.

The concrete and Made Ground was underlain by the weathered London Clay Formation comprising soft to firm, extremely closely fissured light brown occasionally mottled light bluish grey micaceous clay with occasional selenite crystals. The weathered London Clay Formation varied in thickness between 6.05m and 7.58m thick. The London Clay underlies the upper weathered sections and was encountered between 6.6m and 8m bgl (46.15m and 46.68mOD). The formation comprised stiff to very stiff, extremely closely fissured greyish brown slightly micaceous clay with rare pockets of dark

grey silt, bioturbation, selenite crystals, shell fragments, pyrite nodules and dark grey staining. The base of the London Clay Formation was not proven during the Concept investigation.

Groundwater seepages were encountered during drilling in BH106 only at 0.45m (Made Ground) and 13.10m bgl (London Clay Formation).

Three soil samples (two of Made Ground and one of the London Clay Formation) were obtained by Concept and sent to ELAB (a UKAS and MCERTS accredited laboratory) for analysis, for a suite of testing similar to the above (with the exception of asbestos). Concept chemical results have been included in this assessment.

The Concept factual report is included in Appendix C.

3.10.2 Visual and Olfactory Indicators of Contamination

No visual or olfactory indicators of contamination were noted during the RSK[1] site walkover or during the Concept[2] intrusive investigation, although it should be noted that Concept's exploratory holes were not positioned adjacent to the tanks and electrical substation that have been identified by RBG, and are considered to be potential sources of contamination.

4. CURRENT GROUND INVESTIGATION

4.1 Introduction

Following completion of the RSK desk study[1] and the Concept investigation[2], a review and gap analysis of all existing information (including the proposed development plans) was undertaken by CGL. After liaison and agreement with the Contaminated Land Officer at London Borough of Camden Council, CGL undertook a supplementary phase of intrusive investigation with the objective to targeting the potential sources of contamination identified (the tanks and electrical substation) and to provide additional coverage in the south of the site.

4.2 Fieldwork

CGL undertook a supplementary intrusive investigation at the site between 10 and 11 July 2017 and comprised the drilling of six shallow window sampler boreholes (WS1, WS2, WS3A, WS3B, WS3C and WS4) to a maximum depth of 5m bgl. Due to slow progress (between 0.50m to 0.90m of concrete requiring coring at each exploratory hole location), an additional three hand dug pits (HP1 to HP3) to a maximum depth of 1m bgl to provide additional geoenvironmental coverage across the site.

Monitoring wells were installed within WS3C and HP2 and monitoring of CGL installations was undertaken on 21st July 2017.

All exploratory hole locations were cleared of the presence of live buried services following review of available service plans and on-site clearance by a specialist service location company prior to commencing drilling. Standard Penetration Tests (SPT) were undertaken within the boreholes.

In order to obtain samples for laboratory chemical testing and to characterise the near surface ground conditions across the site, the exploratory holes were logged and sampled by a suitably qualified CGL engineer.

The stages of investigation were undertaken generally in accordance with the requirements of BS 5930:1999[9], BS 10175:2011[10], CLR11[11Error! Bookmark not defined.] and current UK guidance.

[9] British Standards Institution. (1999). Code of Practice for Site Investigations. BS5930:1999+A2:2010.
[10] British Standards Institution. (2011). Investigation of Potentially Contaminated Site – Code of Practice. BS10175:2011.+A1:2013
[11] The Environment Agency (2004). Model Procedures for the Management of Land Contamination, CLR11.

An exploratory hole location plan, which also shows the locations of the boreholes undertaken by Concept, is presented in Figure 3 and a copy of the CGL exploratory hole records is provided in Appendix E. The CGL exploratory hole rationale is provided in Table 3 below.

Table 1. Rationale for Exploratory Hole Locations

Location	Target Depth (mbgl)	Actual Depth (mbgl) [reason for variation]	Rationale for location
WS1	5	5	General site coverage.
WS2	5	5	General site coverage.
WS3A and B	5	0.9* [Thick reinforced concrete]	Within the vicinity of the above ground fuel tanks in the basement.
WS3C	5	5	Within the vicinity of the above ground fuel tanks in the basement. Monitoring well installation in WS3C.
WS4	5	0.9* [Thick reinforced concrete]	Within the vicinity of the electrical substation.
HP1	1.2	0.1 [Concrete obstruction/basement roof]	General site coverage.
HP2	1.2	1 [Concrete obstruction/basement roof]	General site coverage and ground gas installation.
HP3	1.2	0.2 [Concrete obstruction/basement roof]	General site coverage.

*unable to achieve full proposed depth due to not penetrating full thickness of concrete

4.3 Monitoring

Groundwater and ground gas monitoring has been undertaken on one occasion following completion of the CGL instructive investigation. The monitoring results are presented in Appendix F.

4.4 Laboratory Testing

4.4.1 Chemical

A total of seven representative soil samples (four of Made Ground and three of the London Clay Formation) were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical testing. The soil analysis included the following contaminants and the full results are presented in Appendix G.

- Soil Organic Matter (SOM);
- Heavy metals / metalloids including; arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc;
- Benzene, toluene, ethylbenzene, xylenes (BTEX) compounds;
- Total petroleum hydrocarbons (TPH Criteria Working Group banding);
- Polycyclic aromatic hydrocarbons (PAH);
- Total monohydric phenols;
- Total cyanide;

- pH determination; and,
- Asbestos screen and identification (Made Ground only).

It was proposed to analyse soil samples in the vicinity of the electrical substation for polychlorinated biphenyls. However, due to the thickness of the basement slab, it was not possible to sample the underlying soils and therefore testing for PCBs was not undertaken.

A sample testing summary is presented in Appendix G. Concept laboratory results are included in Appendix C.

4.4.2 Geotechnical

No geotechnical laboratory analysis was undertaken during the CGL investigation. Reference should be made to the Concept factual report for the geotechnical data.

5. GROUND AND GROUNDWATER CONDITIONS

5.1 Summary Ground Conditions

The ground conditions encountered during the CGL and Concept investigations are summarised in Table 4 below. All exploratory holes with the exception of HP1 to HP3 have been undertaken from basement level. HP1 to HP3 were undertaken from ground level. The CGL borehole logs are included as Appendix E.

Table 2. Summary of ground conditions

Stratum	*Level at top of stratum (mOD)***	*Depth to top of stratum (m below basement level except HP1-HP3, which are mbgl)*	*Thickness (m)*
CONCRETE/PAVING SLAB [MADE GROUND]	53.32 to 54.15	0.0	0.2 to >0.9 (full thickness not proven in WS3A or WS3B)
Soft, light brown occasionally mottled light bluish grey micaceous silty CLAY with occasional pockets of orangish yellow fine to medium sand, rare fine to coarse flint, brick and concrete fragments and occasional selenite crystals (<7mm). OR Light orange and brown, slightly clayey slightly gravelly fine SAND. Gravel is subangular to subrounded fine to medium of flint. [MADE GROUND – BH102, HA1 to HA3 only]	52.71	0.0 to 0.5	0.2 to 1
Soft to firm, extremely closely fissured light brown occasionally mottled light bluish grey micaceous CLAY with occasional selenite crystals. OR Firm to stiff brown silty CLAY with occasional fine gravel sized tabular selenite crystals. [WEATHERED LONDON CLAY FORMATION – encountered in Concept boreholes and CGL window sample boreholes only)]	52.21 to 53.73	0.4 to 1	4.2* to 7.58
Very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of dark grey silt, bioturbation, selenite crystals, shell fragments, pyrite nodules and dark grey staining. [LONDON CLAY FORMATION – Encountered in Concept boreholes only)	46.15 to 46.68	6.6 to 8	22.4 to 40.4*

*Base not proven

**Levels for Concept boreholes only.

The ground conditions encountered during the CGL investigation were generally consistent with the published geology and with the conditions encountered during the Concept investigation.

5.2 Made Ground

Up to 0.90m (otherwise typically around 0.50m) of concrete (basement slab) was encountered across the site. The concrete was noted to be thicker (up to 0.90m) in WS3A and B, and up to 0.8m in WS4. The full thickness of the concrete could not be proven in WS3A and WS3B in the vicinity of the above ground fuel tanks and in WS4 in the vicinity of the substation.

Made Ground directly underlain the concrete in Concept BH102 with a thickness of 0.5m and comprising soft light brown mottled blueish grey silty clay with occasional pockets of orangish yellow sand, rare fine to coarse flint, brick and concrete fragments and occasional selenite crystals (<7mm).

Granular Made Ground was also encountered in the hand dug pits (HP1 to HP3) to the east of the current building undertaken from ground level. Made Ground comprised light orange and brown, slightly clayey slightly gravelly fine sand. Gravel was subangular to subrounded fine to medium of flint. and was proven to a depth of 1m bgl. The CGL hand dug pits terminated on a concrete obstruction, anticipated to be the basement roof.

5.3 Weathered London Clay Formation

The Weathered London Clay Formation was encountered in exploratory holes BH101, BH102, BH105, BH106, WS1, WS2, WS3C and WS4. . The base of the weathered London Clay Formation was proven by Concept , at depths between 5.6mbgl and 7.58mbgl. The Weathered London Clay Formation was proven in CGL boreholes to a maximum depth of 5m bgl (above the base of the stratum). The Weathered London Clay Formation generally comprised soft to firm, extremely closely fissured light brown occasionally mottled light bluish grey micaceous clay with occasional selenite crystals to firm to stiff brown silty clay with occasional fine gravel sized tabular selenite crystals.

5.4 London Clay Formation

The London Clay Formation was encountered by Concept boreholes only. The London Clay generally comprised very stiff, extremely closely fissured greyish brown slightly micaceous clay with rare pockets of dark grey silt, bioturbation, selenite crystals, shell fragments, pyrite nodules and dark grey staining. The London Clay was encountered between 6.6m to 8m bgl (46.15 to 46.68 mOD) and was proven to a maximum depth to 47m bgl with a maximum thickness of 40.4m.

5.5 Groundwater

Groundwater seepages were recorded during drilling within the Concept investigation in BH106 at 0.45m (Concrete/top of weathered London Clay interface) and 13.10m bgl (London Clay Formation). Groundwater was not recorded during the CGL investigation.

Groundwater was recorded on 21st July 2017 during CGL's subsequent monitoring visit at 3.87m bgl (weathered London Clay Formation) in WS3C. HP2 was installed to 1m bgl in the Made Ground and was recorded to be dry. Concept recorded groundwater levels on four occasions following completion of the investigation. Groundwater seepages were recorded in BH101 between 1.03m and 1.42m bgl in the Weathered London Clay Formation, although was noted to be dry on the first two visits.

It was not possible to monitor the Concept boreholes during the CGL monitoring as BH105 and BH106 had not been installed, BH102 was installed with a vibrating wire piezometer only and was flooded, and BH101 (also previously contained a vibrating wire piezometer) was flooded and did not contain a standpipe at the time of CGL monitoring.

5.6 Ground Gas

One round of ground gas monitoring was undertaken by CGL following completion of the investigation. The monitoring record is presented in Appendix F, and the combined results are summarised in Table 5 below.

Table 3. Ground gas summary

Location	Response zone depth (m bgl)	Response zone stratum	Maximum carbon dioxide (% v/v)	Maximum methane (%v/v)	Peak flow rate (l/hr)	Minimum oxygen (%)
BH101	0.50 – 1.50	Weathered London Clay Formation	Not monitored during Concept investigation and backfilled prior to CGL monitoring round.			
WS3C*	3 - 5	Weathered London Clay Formation	4.7	<0.1	<0.1	17.6
HP2	0.40 – 0.80	Made Ground	5.7	<0.1	<0.1	14.4

*Primarily installed for groundwater monitoring purposes.

Ground gas monitoring was not undertaken during the Concept investigation as the vibrating wire piezometers were installed within the deeper London Clay Formation for groundwater purposes. A shallower groundwater/gas monitoring well was installed in BH101, although installed within the impermeable London Clay Formation.

CGL WS3C was also installed within the London Clay Formation for primarily shallow groundwater monitoring purposes, although ground gas has also been monitored at this location. HP2 was installed within the Made Ground above the existing basement.

5.7 Visual and Olfactory Indicators of Potential Contamination

Visual or olfactory indicators of potential contamination were not identified during either investigation, including in WS3C in the vicinity of the above ground fuel tanks. It was not possible to inspect the condition of the above ground fuel tanks or electrical substation during CGLs investigation.

It was noted during CGLs investigation that the concrete of the basement slab in the vicinity of the electrical substation and above ground fuels tanks was greater than 0.8m and 0.90m thick respectively, and it was not feasible to penetrate the full thickness of concrete in the vicinity of the substation, however, soil samples were obtained in WS3C in proximity to the above ground fuel tanks. It is considered that the thickness of concrete at these locations will significantly limit the potential for downward migration of potential contaminants into the underlying soils. The underlying cohesive London Clay Formation is also considered to further limit the migration of any spill/leaks.

6. CONTAMINATION ASSESSMENT

6.1 Introduction

This Section evaluates risks to potential receptors at the site from identified chemical contamination. Potential receptors have been identified with reference to the Part IIA regime and associated DEFRA guidance[12]. As with the Part IIA regime, under the planning regime all receptors (humans, controlled waters, ecology, crops/livestock and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. CGL's approach and rationale to assessment criteria adoption for this site is presented in Appendix H.

6.2 Risks to human health (long-term chronic risks)

6.2.1 Risks from soil contaminants

A total of ten soil samples have been analysed (during the CGL and Concept investigations), six of which were taken in the Made Ground and four of the weathered London Clay Formation.

The results of the laboratory testing have been compared against Generic Assessment Criteria (GAC) derived in-house by CGL for the *"Residential without homegrown produce"* land-use category based on the proposed land use of the site. The results of the assessment are presented in Tables 2 to 3 of Appendix H for the Made Ground and weathered London Clay, respectively.

The Made Ground soil results indicate that the US_{95} values were below the respective generic assessment criteria (GAC). Asbestos has not been identified in any of the Made Ground samples tested.

Due to the number of samples taken of natural soils (four), it has not been possible to undertake statistical analysis on the results to produce a US_{95}, therefore results have been compared directly to the relevant screening criteria and are noted all be below the relevant criteria. None of the contaminants were noted to exceed the relevant screening criteria.

Based on the results of the laboratory analysis undertaken, it is considered that the Made Ground soils across the site pose a negligible risk to future site users.

Whilst it was not feasible to obtain soil samples from beneath the vicinity of the electrical substation, the potential for contamination to be present within the underlying soils from this sources is considered to be low due to the thickness of the concrete in these areas limiting the potential for

[12] DEFRA (2012) *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*

downward migration should leaks or spillages have occurred. No elevated concentrations of contaminants were recorded in the soil sample obtained from WS3C in vicinity to the above ground fuel tank. In addition, the presence of the impermeable London Clay Formation will also reduce the potential for further downward migration and it is noted that the existing basement it to be deepened as part of the proposed development, which will result in the soils immediately beneath the basement being removed and allowing visual inspection of these soils during development.

Based on the ground conditions encountered, the potential risk to construction workers from potential contamination is also considered to be low. However, this can be further reduced through the appropriate use of Personal Protective Equipment / Respiratory Protective Equipment (PPE/RPE), if required.

6.2.2 Risks from ground gases

Based on the ground gas monitoring undertaken by CGL, elevated concentrations of carbon dioxide were recorded in HP2 (5.7% v/v), with flow below limits of detection.

Gas Screening Values (GSVs) (calculated on maximum flow rate and maximum gas concentration of 0.0057l/hr and <0.001l/hr for carbon dioxide and methane respectively indicating that the site may correspond to Characteristic Situation (CS) 1. Ground gas monitoring undertaken within WS3C installed in the London Clay Formation also recorded carbon dioxide concentrations below 5% indicating that the site is likely to conform to CS1. However, concentrations of carbon dioxide above 5% have been recorded in HP2, and therefore guidance requires considerations to whether the classification should be increased to CS2. Based on the proposed development plans, it is considered that organic rich Made Ground to the east of the current building (where HP2 was installed), which is currently on top of the existing basement, will be removed during the basement widening and deepening works and therefore the concentration of carbon dioxide recorded at this location is not considered to be a typical representative maximum concentration. On this basis, it is considered that the site is representative of CS1 and no ground gas protection measures are required. It is also noted that the basement car park will be ventilated which will provide a level of protection against ground gas.

6.3 Risks to Controlled waters

6.3.1 Risk from dissolved phase contaminants

Due to the variable nature of the Made Ground, perched groundwater is considered to be discontinuous and limited in nature. The thickness of the underlying London Clay Formation (over 40m) is likely to limit the downward migration of potential contaminants into the underlying Secondary

A and Principal aquifers. Groundwater within the London Clay itself is also considered to be limited and discontinuous. Therefore, groundwater has been discounted from this assessment.

6.4 Risks to buildings and structures

There is likely to be a low to medium risk to underground concrete due to the concentrations of pH and sulfate identified during the ground investigation. The risks to buried concrete can be minimised with appropriate concrete design mix.

Based on current information, there is considered to be a negligible risk to water supply pipes due to the absence of organic contaminants being encountered at the site. It is noted that there is limited data around potential sources of hydrocarbons such as the USTs, However, the tanks/substation are located, and hence contained, within the basement structure and are unlikely to have impacted the underlying soils as it is considered that the thickness of the concrete at these locations (>0.90m thick) is likely to have limited the potential for downward migration of contaminants. Should evidence of hydrocarbon contamination be observed during the deepening of the basement, the risks could be mitigated through the use of appropriate water supply pipe materials such as barrier pipes (e.g. Protectaline) or metal pipes (except copper) to prevent permeation of hydrocarbon contaminants into drinking water supplies. Otherwise, there is no requirement for specifying protective water pipes unless required by the local water supply company (which should be confirmed directly with them).

6.5 Revised conceptual site model

A qualitative risk assessment has been undertaken based on the findings of both the CGL and Concept ground investigations and identifies pollutant linkages that may exist at the site in accordance with Contaminated Land Report (CLR) 11[13]. The risks identified are in accordance with the DEFRA and Contaminated Land Report (CLR) 6[14], site prioritisation and categorisation rating system, which is summarised below in Table 4.

The qualitative risk assessment is summarised in Table 5.

Table 4. Risk Rating Terminology

Risk Rating	*Description*
High Risk	Contaminants very likely to represent an unacceptable risk to identified targets Site probably not suitable for proposed use Enforcement action possible, Urgent action required
	Contaminants likely to represent an unacceptable risk to identified targets

[13] The Environment Agency (2004) *Model Procedures for the Management of Land Contamination*. CLR 11.
[14] M.J. Carter Associates (1995) *Prioritisation and Categorisation Procedure for Sites which may be contaminated*. Department of Environment. CLR 6.

Risk Rating	*Description*
Medium Risk	Site probably not suitable for proposed use Action required in the medium term
Low Risk	Contaminants may be present but unlikely to create unacceptable risk to identified targets Site probably suitable for proposed use Action unlikely to be needed whilst site remains in current use
Negligible Risk	If contamination sources are present they are considered to be minor in nature and extent Site suitable for proposed use No further action required

Table 5. Semi quantitative risk assessment

Source/Medium	*Receptor*	*Potential Exposure Route*	*Risk Rating*
Explosive/ asphyxiating gases from underlying soils (Made Ground)	Internal building spaces & future occupiers	Migration of gases through the surface and via permeable soils.	Low
	Internal building spaces & current site users		Low
Potential contaminants in the underlying soils	Construction workers	Direct ingestion of soil & dust, inhalation of fibres, particles & vapours and dermal contact	Negligible
	Future site users	Direct ingestion of soil & dust, inhalation of fibres, particles & vapours and dermal contact	Negligible
	Building & structures	Direct contact with underground structures and services	Low (assuming appropriate concrete mix design).
The above ground fuel tanks and electrical substation within the basement (potential contaminants include TPH, PAH and PCBs).	Construction workers	Direct ingestion of soil & dust, inhalation of fibres, particles & vapours and dermal contact	Low (on the basis that they are contained within the basement and the thickness of the concrete slab in this area. Elevated concentrations of contaminants have not been identified in soil samples obtained in proximity to the above ground fuel tanks).
	Future site users	Direct ingestion of soil & dust, inhalation of fibres, particles & vapours and dermal contact	
	Building & structures	Direct contact with underground structures and services	
Asbestos in building fabric	Future site users	Direct ingestion of soil & dust, inhalation of fibres	Low (on the basis that asbestos will be appropriately managed during the development)
	Construction workers	Direct ingestion of soil & dust, inhalation of fibres	Medium
Unexploded ordnance (UXO)	Building & structures	Direct contact with underground structures and services	Low
	Future site users	Direct contact following development	Low to negligible

Source/Medium	*Receptor*	*Potential Exposure Route*	*Risk Rating*
	Construction workers	Direct contact	Medium

A pictorial revised conceptual site model is presented as Figure 4.

7. PRELIMINARY WASTE CLASSIFICATION

7.1 Waste Assessment

It is understood that the existing basement is to be deepened by 1m and extended further to the southeast.

A preliminary assessment of the soil at the site for waste characterisation purposes has been undertaken on the data obtained from the site investigations undertaken by CGL and Concept. The assessment has been undertaken in accordance with the guidance in Technical Guidance WM3[15] and indicates that the Made Ground samples may be classified as not hazardous.

Natural uncontaminated soils would be deemed to be suitable for disposal to an inert facility as listed inert wastes (EWC-17 05 04).

Table 6. Summary of waste characterisation.

Sample location	*Depth (m bgl)*	*Stratum*	*Characterisation*	*Contaminants*
WS1	2.6	London Clay Formation	Not hazardous* (inert)	-
WS2	1.5	London Clay Formation	Not hazardous*(inert)	-
WS3C	1	London Clay Formation	Not hazardous*(inert)	-
WS4	0.8	London Clay Formation	Not hazardous*(inert)	-
HP1	0.50	Made Ground	Not hazardous	-
HP2	0.10	Made Ground	Not hazardous	-
	0.4	Made Ground	Not hazardous	-
BH101	0.5	London Clay Formation	Not hazardous*(inert)	-
BH102	0.5	Made Ground	Not hazardous	-
BH105	8.5	London Clay Formation	Not hazardous*(inert)	-

*Natural uncontaminated soils may be classified as inert waste.

It may be prudent to undertake further total soil and Waste Acceptance Criteria testing on basement arisings to determine if that material is suitable for disposal as inert waste.

Following removal of the above ground fuel tanks and the electrical substation, visual inspection of the underlying soils should be undertaken to confirm that the above preliminary assessment is still applicable.

[15] Environment Agency. 2015. Technical Guidance WM3. *Waste Classification: Guidance on the classification and assessment of waste.* (1st Edition, May 2015).

8. OUTLINE REMEDIATION STRATEGY

8.1 Overview

The results of the ground investigations have indicated that the site poses a low risk from the presence of the above ground fuel tanks and electrical substation (confined within the basement) and a medium risk from asbestos in the current building fabric and the potential for UXO. There is considered to be a negligible to low risk to future site users and building fabric from concentrations of potential contaminants in soil and from ground gas.

8.2 Outline remediation strategy

On the above basis, certain remediation / mitigation works will be required. The proposed remediation strategy is outlined below:

- Asbestos survey and asbestos management/removal during the development;
- Removal of existing tanks and buried obstructions and borehole decommissioning, if necessary;
- Visual inspection of soils beneath the tanks and substation during deepening of the basement to confirm no visual evidence of contamination;
- Appropriate management/disposal of basement excavation arisings;
- Provision of a clean growth medium for tree planters;
- The use of appropriate water supply pipe material (if required) and correct design of concrete; and,
- Watching brief and discovery strategy should unforeseen contamination be identified.

8.3 Asbestos Survey and Removal

Given the age of the current buildings on site (circa 1980s), the presence of asbestos in the building fabric cannot be discounted. It is understood from the Client that the all asbestos in the building fabris will be removed by a licensed contractor prior to development.

8.4 Obstructions and borehole decommissioning

Given the history of the site, it is likely that buried obstructions will be present on site. Prior to development, all buried obstructions within the footprint of proposed structures should be removed.

This should also include decommissioning and removal of fuel tanks and/or boreholes together with remediation/removal of associated impacted soils and groundwater, where present. Tank removal should be undertaken using the appropriate safety checks and prior to breaking ground in the basement. Disposal records for the tanks and their contents should be kept by the client. Decommissioned tanks should be recycled where possible in line with the waste hierarchy or disposed of to the appropriate facility.

Boreholes and fuel tanks should be decommissioned in line with the Environment Agency's guidance[16,17]. Following tank decommissioning a visual inspection of soils beneath the basement slab should be undertaken. If visual or olfactory indicators of contamination are noted, they should be addressed as part of the Discovery Strategy.

8.5 Material management

Should excess material arise from the proposed development, this should be re-used, treated or recovered in order to minimise the volume of waste requiring off-site disposal. In order to minimise the volume of material for off-site disposal, all waste should be processed prior to disposal in accordance with the waste hierarchy[18], summarised below;

- Prevention - using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials;
- Preparing for re-use: - checking, segregated storage;
- Recycling/recovery - turning waste into a new substance or product, includes composting if it meets quality protocols. Disposal to soil treatment facility; and
- Disposal – landfill.

In the event that material is found that is impacted by hydrocarbons, it is anticipated that this material may be acceptable to a soil treatment facility for treatment and recovery e.g. Biogenie / Celtic site in Redhill, subject to negotiation with the facility. This solution would be more sustainable and cost effective than disposal to landfill, and will not incur landfill tax. Following removal of the above ground fuel tanks and electrical substation, the underlying soils should be inspected to confirm that they have not been impacted and that the preliminary waste assessment is still applicable.

[16] Environment Agency (2012). *Good Practice for Decommissioning Redundant Boreholes and Wells.* Reference GEHO0112BWAW-E-EGEHO0112BWAW-E-E
[17] Environment Agency. *Pollution Prevention Guidelines 27: Installation, Decommissioning And Removal Of Underground Storage Tanks.*
[18] DEFRA 2008. *The Waste Hierarchy: EC Council Decision 2008/98/EC of 19 November 2008.*

Natural uncontaminated gravels and clays would be deemed to be suitable for disposal to an inert facility as listed inert wastes (EWC-17 05 04).

It should be noted that in May/June 2012 HMR&C issued Briefs 15/12 and 18/12 clarifying how construction spoil and excess soils will be assessed for landfill tax purposes. Detailed accurate descriptions of waste are required for all wastes to support the landfill tax assessment. Uncontaminated naturally occurring soils will remain inert by default and eligible for the lower rate of landfill tax. Similarly, 'reworked soils' and demolition 'stone' comprising ONLY materials listed in the Schedule of the Landfill Tax (Qualifying Material) Order 2011 (SI 2011/1017) will also be eligible for the lower rate of landfill tax.

However, Made Ground containing soil and foreign objects such as timber, plastic, rubber, metal, paper, plasterboard, asbestos, etc., regardless of the results of chemical analysis for waste classification purposes, will be eligible for the standard (higher) rate of landfill tax. Therefore, to maximise eligibility for lower rate landfill tax on waste construction spoil/ reworked ground, careful waste segregation and controls are necessary.

All material intended for off-site disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations, 1991 and the Landfill (England and Wales) Regulations, 2002 (as amended). Waste legislation stipulates that hazardous and not hazardous waste should be pre-treated prior to disposal. Pre-treatment can be undertaken either at the site of origin or may be carried out at a licensed off-site facility and can include selective segregation of soils conducted on site.

In order to minimise the volumes of soils being disposed to landfill facilities, it is prudent to consider material management options prior to waste disposal.

8.6 Growth medium

Based on the proposed development drawings, it is proposed to extend the basement further southeast across the site. With the exception of tree planters above the basement, soft landscaping is not proposed within the development.

Clean imported topsoil/subsoil to be used within the proposed tree planters should be from a known and reputable source and meet the specification to be set by the landscape architect. This is anticipated to be in accordance with BS3882[19], including applicable human health assessment criteria, which is to be

[19] British Standards Institution (2015). *Specification for topsoil.* BS 3882.

demonstrated by provision of source data and pre-import laboratory data of imported soil. All imported material should be validated on-site though appropriate chemical testing.

8.7 Water Supply Pipe Material and Concrete

Following removal of the tanks, the underlying soils should be inspected for the presence of visual or olfactory indicators of contamination. Should evidence of hydrocarbon contamination be observed during the deepening of the basement, the risks to water supply pipes could be mitigated through the use of appropriate water supply pipe materials such as barrier pipes (e.g. Protectaline) or metal pipes (except copper) to prevent permeation of hydrocarbon contaminants into drinking water supplies (this would be implemented through the discovery strategy, see Section 8.8). Otherwise, it is considered that protective water pipes was not required, although this should be confirmed with the local water supply company.

Concrete should be designed to the appropriate DS and ACEC class in accordance with BRE SD1[20].

8.8 Watching brief and discovery strategy

It is recommended that a watching brief is maintained by the Main Contractor. Where unexpected gross contamination, such as fibrous material, oily material or material of an unusual colour or odour, is encountered in the ground the following discovery strategy is recommended. It is noted that this strategy would be followed should visual or olfactory evidence of potential contamination be identified within soils beneath the tanks and substation.

1. Work to cease in that area.

2. Notify geoenvironmental engineer, to attend site and sample material for appropriate analysis. Notify Contaminated Land Officers of the Local Authority as appropriate.

3. Geoenvironmental engineer to supervise the excavation of contaminated material, which should be placed in a bunded area and covered to prevent rainwater infiltration/spread by wind.

4. Soil samples should be obtained by the geoenvironmental engineer from both the excavated material, and the soils in the sides and base of the excavation to demonstrate that the full area of contamination has been excavated. In-situ testing should be undertaken, if appropriate, on the sides and base of the excavation to assess the presence of residual contamination in the soils.

[20] Buildings Research Establishment (2005). *Concrete in Aggressive Ground.* BRE Special Digest 1.

5. On receipt of chemical test results, the soils may be appropriately classified for disposal, or treatment if appropriate, and dealt with accordingly.

6. Detailed records of the stockpile sizes, source and location should be kept and regularly updated to allow materials to be easily tracked from excavation until leaving the site.

7. Records of excavated areas and the results of chemical testing should be incorporated within the final verification report for the site.

To facilitate appropriate waste disposal and potential re-use of materials all excavated soils should be segregated and stockpiled depending on their soil classification.

8.9 Health and safety

All site works will be undertaken in accordance with the guidelines provided by Health and Safety Executive (HSE, 1991)[21]. In this context, the risks will be medium and nominal safety precautions should be acceptable (i.e. the adoption of good hygiene practices and the use of overalls, gloves and dust masks if necessary).

During redevelopment precautions should be taken to minimise exposure to construction workers and the general public to potentially harmful substances. Attention should be paid to limit off site nuisance such as dust and odour emissions. Such precautions should include but not be limited to:

- Personal hygiene, washing and changing procedures.
- Adequate Personal Protective Equipment (PPE).
- Dust and vapour suppression methods, including damping down, minimising the working face exposed and covering stockpiles, where required.
- Regular cleaning of all site roads, access roads and the public highway.
- Safe storage of fuel and other potentially polluting liquids and the provision of spill control and clean up facilities.
- Positive collection and disposal of on-site run-off.

[21] HSE (1991). Protection of Workers and the General Public During the Development of Contamination Land. Guidance Note HS(G)66, Health and Safety Executive, HMSO, 1991.

8.10 Remediation verification

A *Verification Plan* has been produced for the site (see Appendix I), which summarises the remedial and verification measures required for the development.

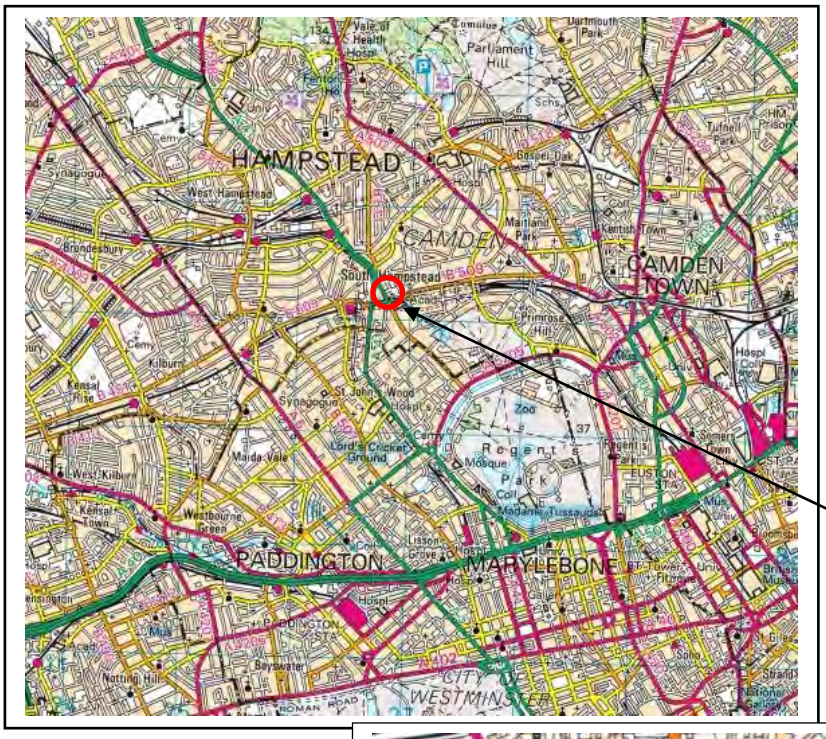
Documentation and evidence will also be required to be provided by the Contractors including:

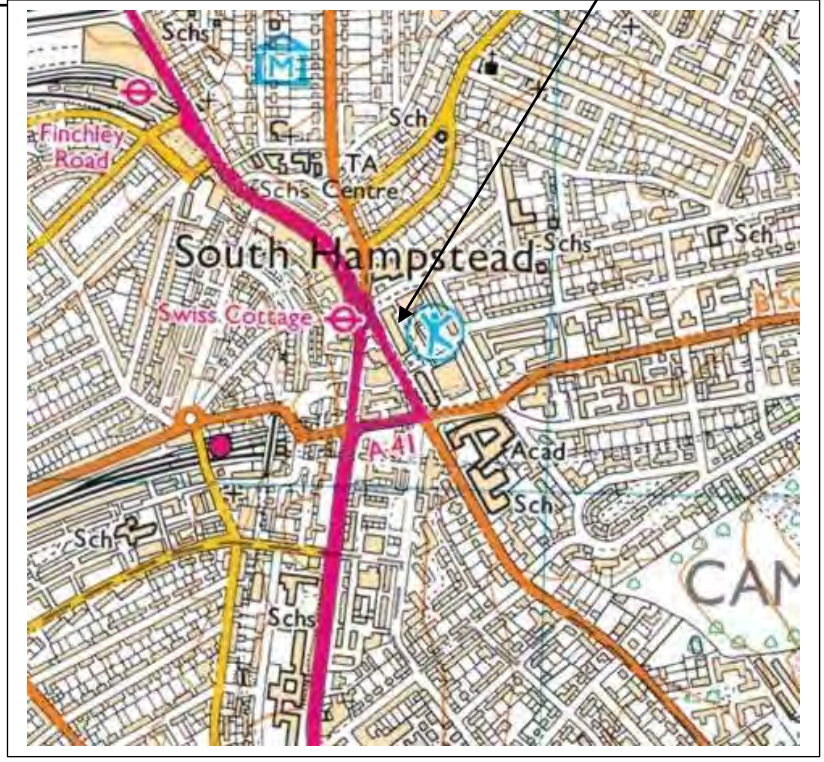
- Photographs of the earthworks undertaken;
- As built drawings;
- Records of tank and substation decommissioning/removal, including visual inspection of underlying soils;
- Source data and pre-import laboratory data of imported soil;
- Material management procedures (i.e. permits, exemption, MMP) as appropriate;
- Duty of care records for soils/groundwater disposed of off-site including: waste tickets, haulier licence and licence of the receiving facility;
- Permits/discharge consent put in place during groundwater control;
- Confirmation of water pipework material as agreed with the water company; and
- Confirmation that the discovery strategy was followed.

On completion of the remediation works, a *Verification Report* will be produced, which will detail the works undertaken and include copies of the relevant information listed above.

This document should be made available to the Local Authority and building warrantor as required for discharge of planning conditions, as evidence of the works carried out, and will eventually form part of the health and safety file for the site.

FIGURES



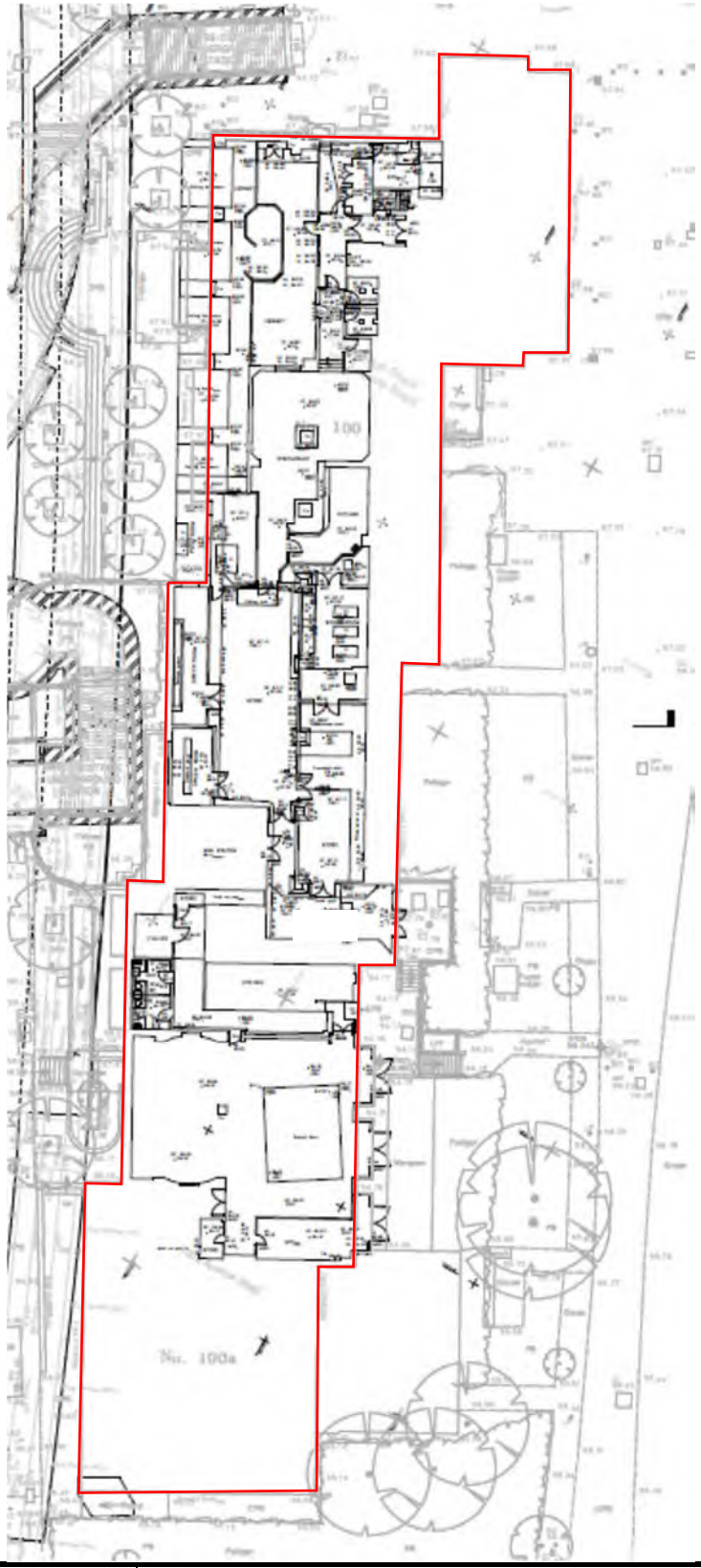


N

Reproduced from the Ordnance Survey with permission of the Controller of Her Majesty's Stationary Office, Crown Copyright.

Licence No. 100012585

Client	Project	Job No
Essential Living Ltd	**100 Avenue Road, Swiss Cottage, London, NW3 3HF**	**CG/28215**
CGL	Title: **Site Location Plan**	**Figure 1**

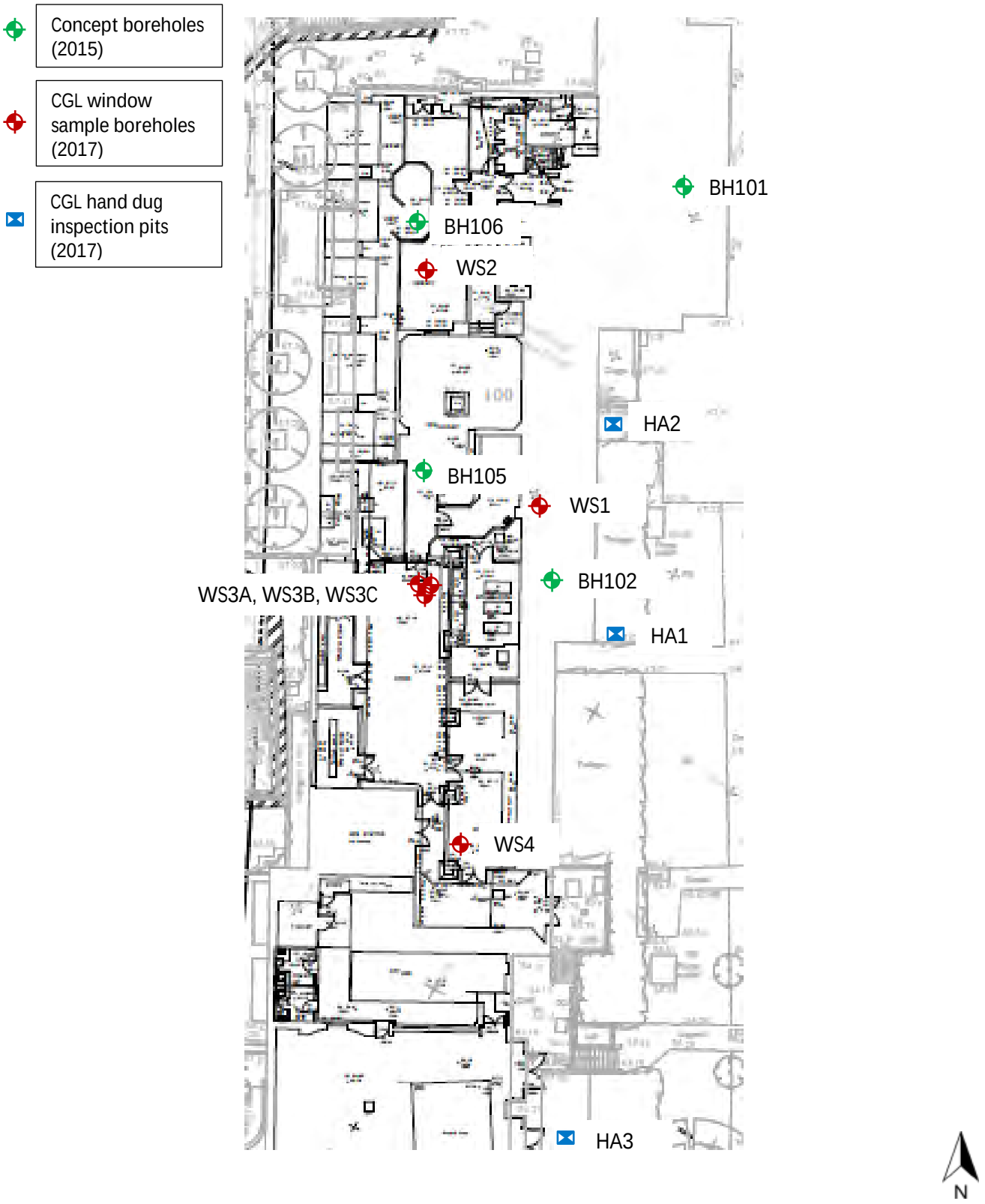


Key

Site boundary

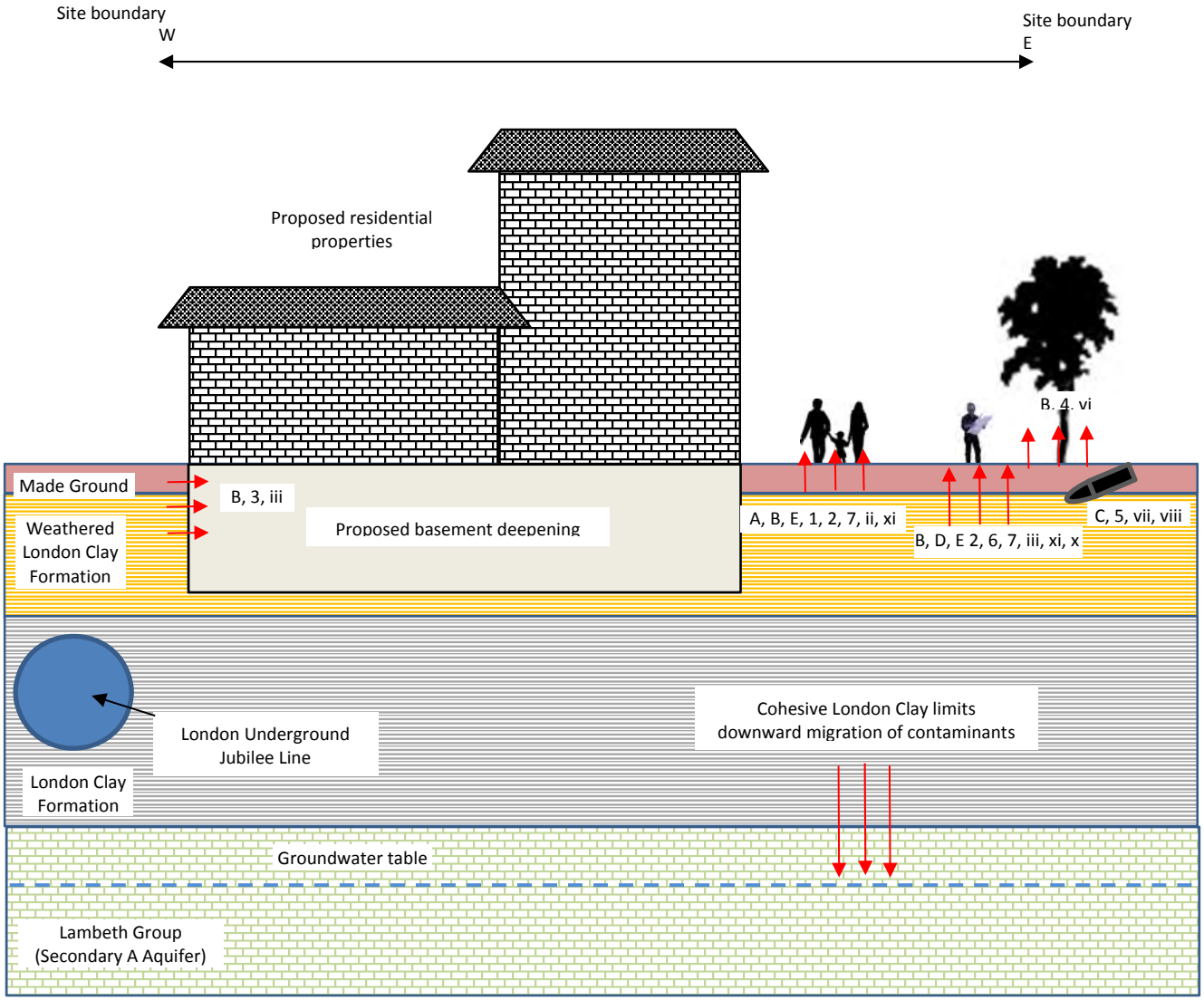
N

Client	Project	Job No
Essential Living Limited	**Swiss Cottage, London**	**CG/28215A**
CGL	Title **Site Layout Plan**	**Figure 2**



Client	Project	Job No
Robert Bird Group	**100 Avenue Road, Swiss Cottage, London, NW3 3HF**	**CG/28215a**
CGL	Title: **Exploratory Hole Location Plan**	**Figure 3**

Potential Sources	Potential Pathways	Potential Receptors	Potential Risk
A. Explosive/asphyxiating gases/vapours from underlying soils and Made Ground	1. Migration through the surface via permeable soils	i. Internal building spaces ii. Future site users	Negligible Negligible
B. Organic/inorganic contaminants within underlying soils	2. Ingestion, inhalation or direct contact 3. Direct contact with underground structures and services 4. Root uptake	iii. Buildings and structures iv. Future site users v. Construction workers vi. Vegetation and plants	Negligible Negligible Negligible Negligible
C. Unexploded ordnance	5. Disturbance of UXO by intrusive investigation or construction causing explosion of ordnance	vii. Current and future site users viii. Construction workers	Low to negligible Medium
D. Asbestos in building fabric	6. Direct ingestion of soil & dust, inhalation of fibres, particles & vapours and dermal contact	ix. Construction workers	Medium
E. Contaminants associated with the above ground fuel tanks and electrical substation (TPH, PAH and PCBs)	7. Direct ingestion of soil & dust, particles & vapours and dermal contact	x. Construction workers xi. Future site users	Low to medium Low



Client	Project	Job No
Essential Living Ltd	**100 Avenue Road, Swiss Cottage, London, NW3 3HF**	**CG/28215A**
CGL	Title: **Conceptual Site Model**	**Figure 4**

GENREAL REPORT ABBREVIATIONS

ACM	Asbestos Containing Material
AOD	Above Ordnance Datum
BaP	Benzo(a)pyrene
bgl	Below ground level
BGS	British Geological Survey
BIA	Basement impact assessment
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
BRE	Building Research Establishment
BSI	British Standards Institute
C4SL	Category 4 Screening Level
CAT	Cable Avoidance Tool
CBR	California Bearing Ratio
CGL	Card Geotechnics Limited
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment
CLR	Contaminated Land Report
CPT	Cone Penetration Test
CS	Characteristic Situation
CSM	Conceptual Site Model
c_u	Undrained Shear Strength
DCP	Dynamic Cone Penetrometer
DEFRA	Department for the Environment, Food and Rural Affairs
DP	Dynamic Probe
DPM	Damp Proof Membrane
DWV	Drinking Water Value
EA	Environment Agency
EHO	Environmental Health Officer
EQS	Environmental Quality Standard
FID	Flame Ionisation Detector
GAC	Generic Assessment Criteria
GSV	Gas Screening Value
GPR	Ground Penetrating Radar
Ha	Hectare
HMRC	HM Revenue & Customs
HSE	Health & Safety Executive
HSV	Hand Shear Vane
kPa	KiloPascals
MMP	Materials Management Plan
NGR	National Grid Reference
OS	Ordnance Survey
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PBET	Physiologically Based Extraction Testing
PCBs	Polychlorinated Biphenyls
PID	Photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PSD	Particle Size Distribution
RIP	Remediation Implementation Plan
RQD	Rock Quality Designation
SGV	Soil Guideline Value
SOM	Soil Organic Matter
SPT	Standard Penetration Test
SSL	Soil Saturation Limit
SSRA	Site Specific Risk Assessment
SPZ	Source Protection Zone
SVOC	Semi-Volatile Organic Compounds
TCR	Total Core Recovery
TPH	Total Petroleum Hydrocarbons
TPHCWG	Total Petroleum Hydrocarbons Criteria Working Group
UKWIR	UK Water Industry Research
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WSV	Water Screening Value

APPENDIX A

Local Authority Correspondence

Selina Adams

From: Tom Fairweather
Sent: 29 June 2017 16:55
To: 'Arthur, Anona'
Cc: Cassidy, Michael; Helen Gardiner
Subject: RE: Planning Application (2014/1617/P) - 100 Avenue Road, Camden - requirements for further ground investigation
Attachments: Proposed EHLP.pdf

Hi Anona,

We are likely to drill up to 6 window sample holes (4 within the basement – likely natural ground, and 2 within the soft standing – likely Made Ground). We may also undertake some hand dug pits in the soft landscaping areas.

External window sample holes will require acoustic fencing.

Thanks

From: Arthur, Anona [mailto:Anona.Arthur@camden.gov.uk]
Sent: 29 June 2017 16:42
To: Tom Fairweather <TomF@cgl-uk.com>
Cc: Cassidy, Michael <Michael.Cassidy@camden.gov.uk>; Helen Gardiner <HelenG@cgl-uk.com>
Subject: RE: Planning Application (2014/1617/P) - 100 Avenue Road, Camden - requirements for further ground investigation

Hello Tom

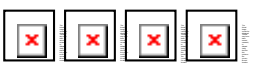
Thank you for your email regarding the above site.

Please can you specify how many window sample locations you are proposing to undertake and provide a location map. Also in order to get a representative sample of the site it is expected that some sampling locations would fall outside of the existing basement particularly to sample areas of proposed soft landscaping. Therefore, in order to keep noise to a minimum any external sampling should be undertaken within working hours and if necessary advise neighbours in advance of the works.

Regards

Anona Arthur
Environmental Health Officer / Contaminated Land Officer

Telephone: 020 7974 2990



From: Tom Fairweather [mailto:TomF@cgl-uk.com]
Sent: 28 June 2017 09:40
To: Arthur, Anona <Anona.Arthur@camden.gov.uk>
Cc: Cassidy, Michael <Michael.Cassidy@camden.gov.uk>; Helen Gardiner <HelenG@cgl-uk.com>

Subject: RE: Planning Application (2014/1617/P) - 100 Avenue Road, Camden - requirements for further ground investigation

Hi Anona,

We are going to undertake a series of window sample holes across the site to better understanding the environmental risk posed by the site.

The client has asked if it would be possible to move the two external window sample locations inside the basement due to noise restrictions. I have attached the proposed basement footprint (grey shading) superimposed on the current basement (orange/green line). In bringing the all window sample boreholes within the basement we lack the ability to assess any Made Ground at ground level beneath the soft standing. The Made Ground appears to be approximately 1.2m in thickness. We propose to undertake a series of hand dug pits in the soft landscaping in order to assess risk posed by Made Ground.

Are you happy with the change to the external test locations still providing suitable information?

Best regards

Tom Fairweather, Senior Engineer

CGL Providing Ground Solutions

Ground Engineering Awards 2016 Consulting Firm of the Year

Constructing Excellence in Yorkshire & Humber SME of the Year Winner 2016

Tel: 01483 310600
www.cgl-uk.com

New Civil Engineer 100 Companies of the Year 2017 Highly Commended

CGL's 'The Female Face of Civil Engineering' has been highly commended at the NCE 100 Awards.

Card Geotechnics Limited registered in England and Wales No. 2993862. Registered Office at 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey, GU7 1XW.

The contents of this email do not give rise to any binding legal obligation upon Card Geotechnics Limited unless subsequently confirmed on headed business paper sent by fax, letter or as an email attachment. Card Geotechnics Limited reserves the right to monitor all e-mail communications through its networks. Any views expressed in this message are those of the individual sender, except where the message states otherwise and the sender is authorised to state them to be the views of any such entity. This email and any attachment are intended for and confidential to the addressee. If you are neither the addressee nor an authorised recipient for the addressee please notify us of receipt, delete the message from your system and do not use, copy or disseminate the information in, or attached to it, in any way. Thank you.

From: Arthur, Anona [mailto:Anona.Arthur@camden.gov.uk]
Sent: 24 May 2017 15:35
To: Helen Gardiner <HelenG@cgl-uk.com>
Cc: Cassidy, Michael <Michael.Cassidy@camden.gov.uk>

Subject: Planning Application (2014/1617/P) - 100 Avenue Road, Camden - requirements for further ground investigation

Hi Helen

I have reviewed the Concept Site Investigation and I have the following comments and queries.

I understand the site was formerly a hospital. Also please note there were historical Motor Garages and Railway Lands located adjacent to the site (see attachments and map below).

Any contaminated land assessment must be undertaken in line with CLR11 which includes the following:

1) Phase 1 Preliminary Risk Assessment (PRA) including conceptual model(CSM) and scope for Site Investigation.
2) Phase 2 Ground Investigation & Risk Assessment - This should target potentially contaminative current or historical features including the tanks and electrical substation that you refer to possibly in the basement. Phase 2 should include a factual and interpretative report.
3) Please advise why limited chemical testing was carried out?
4) Please advise why there was no Gas or Ground water monitoring?
5) The made ground must be screened for Asbestos.
6) Please advise if there is soft landscaping within the proposed development?

Regards

--
Anona Arthur
Environmental Health Officer / Contaminated Land Officer

Telephone: 020 7974 2990

From: Helen Gardiner
Sent: 12 May 2017 10:24
To: 'anona.arthur@camden.gov.uk'
Cc: 'Tim Hartlib'
Subject: 100 Avenue Road, Camden - requirements for further ground investigation

Anona,

Our client has contacted us regarding a site at 100 Avenue Road, London, NW3 3HFL.

A ground investigation has been undertaken at the site (report attached for your reference) and we have been asked to provide a proposal for further intrusive works, if required.

Is it understood that historically, part of the site was used as a school for the blind before being developed into a hospital and then council offices and car park. It is believed that there may be oil storage tanks and an electrical substation located within the basement, although this has not been confirmed.

The existing investigation comprised four cable percussion boreholes to between 30m and 47 m bgl which encountered Made Ground to 1m bgl in one location, otherwise the site is underlain directly by the London Clay Formation. The investigation included limited chemical testing of four samples which indicated low level heavy metals and TPH and PAH generally below limit of detection (asbestos not included within the testing suite). Groundwater sampling/gas monitoring was not undertaken as part of the works.

The proposed development plans have not been finalised but is likely to comprise the construction of two tower blocks, up to 25 storeys in the north and between 5 and 7 storeys in the south for mixed residential and commercial use with a single storey basement car park founded within the weathered London Clay Formation.

As part of planning, it has been noted that the scope of any intrusive investigation is to be agreed with Camden Borough Council prior to mobilisation to site and it is anticipated that this was not undertaken prior to completion of the existing investigation.

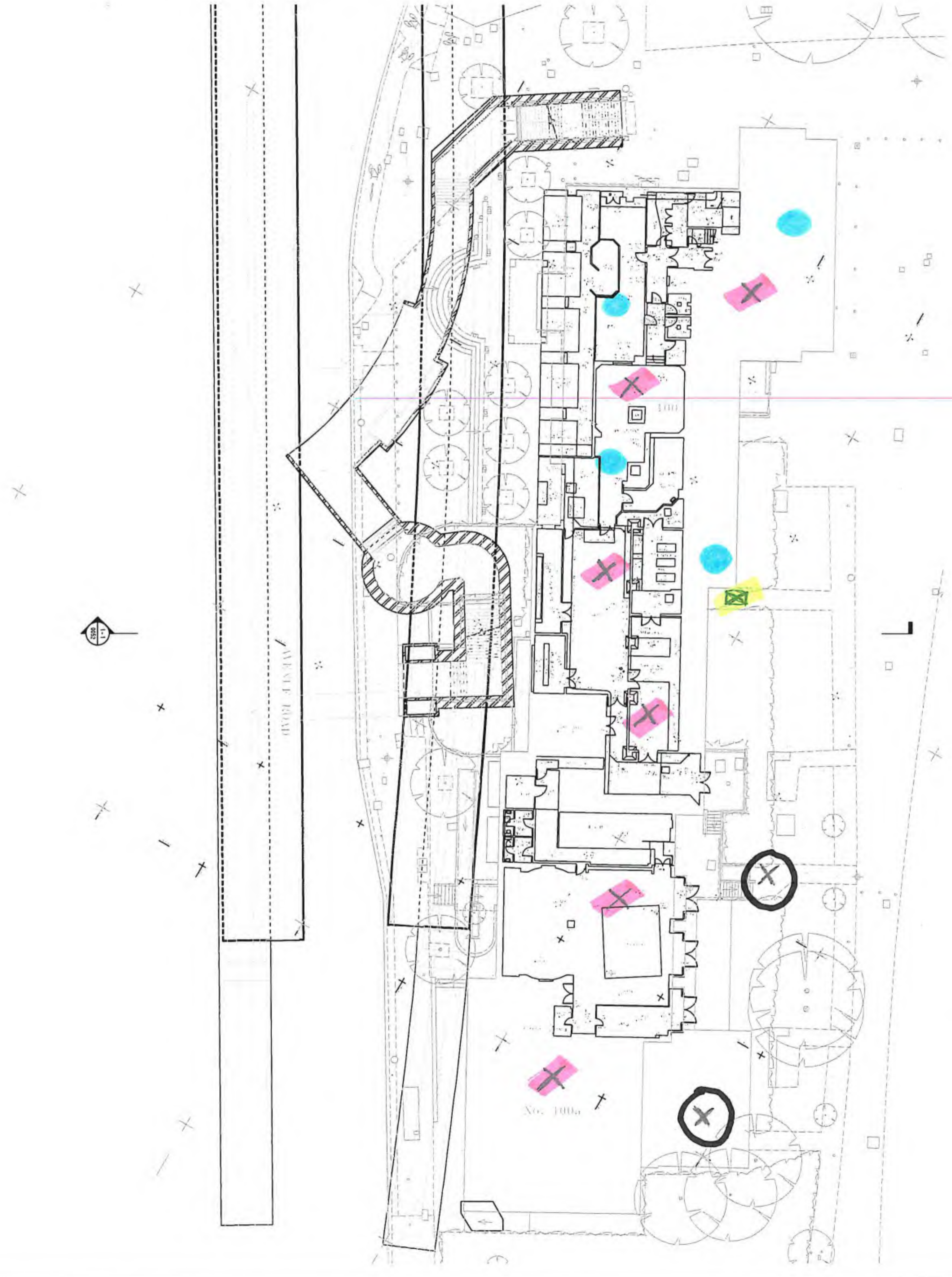
Please could you review the attached report at your earliest opportunity and provide comment on what (if any) further intrusive investigation is likely to be required to satisfy planning.

If you have any queries, please do not hesitate to contact me.

Regards,

Helen

This e-mail may contain information which is confidential, legally privileged and/or copyright protected. This e- mail is intended for the addressee only. If you receive this in error, please contact the sender and delete the material from your computer.
This e-mail may contain information which is confidential, legally privileged and/or copyright protected. This e- mail is intended for the addressee only. If you receive this in error, please contact the sender and delete the material from your computer.



● - Concept boreholes.
⊠ - Proposed hand dug pit
⊗ - Proposed window sample holes at ground level - require acoustic barriers
✕ - Proposed window sample holes inside building / basement

* Note: not all holes to be drilled, some are secondary / back up locations.

THE INFORMATION ON THIS DRAWING HAS BEEN REPRODUCED FROM SURVEYS BY OTHERS AS FOLLOWS:
THE BUILDING AND SITE SURVEY INFORMATION HAS BEEN OBTAINED FROM GLANVILLE CONSULTANTS.
THE LUL SURVEY INFORMATION HAS BEEN OBTAINED FROM THE SURVEY BY SURVEY ASSOCIATES LTD. DATED MAY 2013.
URS ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OF THESE SURVEYS.

CONSTRUCTION RISKS	MAINTENANCE / CLEANING RISK	DEMOLITION RISKS

In addition to the hazard/risks normally associated with the types of work detailed on this drawing take note of above.
It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELEVANT DRAWINGS ISSUED BY THE ENGINEER AND ARCHITECT.

2. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.

3. DO NOT SCALE FROM THIS DRAWING.

4. ALL LEVELS AND DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

5. CONCRETE GRADES TO BE AS FOLLOWS: SLABS - GRADE C40 VERTICAL ELEMENTS (I.E. COLUMNS AND WALLS) - GRADE C60

6. REFERENCES TO DRAWING NUMBERS (USUALLY 4 DIGITS) SHALL BE PREFIXED WITH 47066169/... UNLESS OTHERWISE NOTED.

7. CONTRACTOR TO CONFIRM ALL LEVELS AND DIMENSIONS ON SITE. ANY DIMENSIONAL VARIATION PROPOSED AS A RESULT OF IRREGULARITIES IN LINE AND LEVEL ENCOUNTERED ON SITE ARE ONLY TO BE MADE AFTER AGREEMENT WITH THE CONSTRUCTION MANAGER.

8. ALL DIMENSIONS AND LEVELS OF EXISTING STRUCTURE ARE AS SHOWN ON SURVEY DRAWINGS AND MAY NOT BE AS CONSTRUCTED ON SITE.

This drawing is for preliminary purposes only and is subject to amendment during design development. UNDER NO CIRCUMSTANCES MUST THIS DRAWING BE USED FOR CONSTRUCTION PURPOSES

Revision Details	By / Check	Date	Suffix
DRAFT STAGE C ISSUE	MIC	16.01.14	A
PRELIMINARY ISSUE	MIC	01.08.13	-

Purpose of issue: INFORMATION

Client: ESSENTIAL LIVING (SWISS COTTAGE) LTD.

Project Title: 100 AVENUE ROAD SWISS COTTAGE

Drawing Title: EXISTING BASEMENT LAYOUT

Drawn	Checked	Approved	Date
MIC	ALG	ALG	MAY 2013

URS Internal Project No. | Suitability

Scale @ A1: 1 : 200 | Zone / Mileage

This document has been prepared in accordance with the scope of URS' appointment with its client and is subject to the terms of that appointment. URS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided. Only written dimensions shall be used.
© URS Infrastructure & Environment UK Limited

URS Infrastructure & Environment UK Limited
St George's House, 5 St George's Road
Wimbledon, London
SW19 4DR
TEL +44 (0)20 8944 3300
FAX +44 (0)20 8944 3301
www.ursglobal.com

Drawing Number: 47066169/0051 | Rev: A

APPENDIX B

Proposed Development Plans

Disclaimer:
Do not scale from this drawing.
Check all dimensions on site before fabrication or setting out.
This document is copyright and may not be reproduced without permission of the owner.

Notes:

DRAFT

-PRS apartment layouts are not compliant with Essential Living brand manual pending release of layout requirements

Rev:	Notes:	Date:	Dwn:	Iss:
A	Issued for Information	11.04.13	mkp	cco
B	Issued for Information	08.05.13	mkp	cco
C	Issued for Information	10.05.13	mkp	cco
D	Issued for Information	12.06.13	mkp	cco
E	Issued for Information	11.07.13	mc	mkp
F	Issued for Information	24.07.13	mc	mkp
G	Issued for Information	06.09.13	mc	mkp
H	Issued for Information	20.09.13	mkp	cco
J	Issued for Information	16.10.13	mkp	cco
K	Issued for Information	29.11.13	mkp	cco
L	Issued for Information	13.01.14	ioo	cc
M	Issued for Information	24.01.14	ioo	cc

Key:

N

0 1 5 10m

Key / Location:

- Studio PRS
- 1 Bed PRS
- 2 Bed PRS
- 3 Bed PRS
- 1 Bed INTER
- 2 Bed INTER
- 3 Bed INTER
- 1 Bed RENTED
- 2 Bed RENTED
- 3 Bed RENTED
- PRS Club Use
- Flexible Retail
- Community Use
- Ancilliary Space
- Plant Space
- WAU Wheelchair Accessible Unit

GRID
Architects // Masterplanners
128 Southwark Street,
London SE1 0SW
United Kingdom
T +44 (0) 20 7593 3260 E info@gridarchitects.co.uk W www.gridarchitects.co.uk

Client:
Essential Living

Project:
100 Avenue Road, Swiss Cottage
Residential led, mixed use development

Drawing Title:
GA Plan
Level 00
Ground Floor Plan

Drawn By:	Issued By:	Date of First Issue:
MC	MKP	11.04.13

Project No:	Scale @ A1:
12064	1:125 / 1:250 @ A3

Drawing No:	Revision:
SK_100	M

Client	Project	Job No
Essential Living Limited	**Swiss Cottage, London**	**CG/28215A**
CGL	Title **Basement Extension**	**Appendix B**

APPENDIX C

Concept Factual Report

SITE INVESTIGATION REPORT

100 Avenue Road
Swiss Cottage
London
NW3 3HFL

ISSUE 00

SITE INVESTIGATION REPORT

100 Avenue Road
Swiss Cottage
London
NW3 3HFL

Prepared for: Essential Living Ltd

Concept: 16/2832 - FR 00 07/07/2016

Unit 8, Warple Mews,
Warple Way
London W3 0RF
Tel: 020 8811 2880
Fax: 020 8811 2881
e-mail: si@conceptconsultants.co.uk
www.conceptconsultants.co.uk

CONCEPT
Unit 8 Warple Mews, Warple Way, London W3 0RF
Tel: 0208 811 2880, Fax: 0208 811 2881
Email: si@conceptconsultants.co.uk

DOCUMENT ISSUE REGISTER			
Project Name:	100 Avenue Road, Swiss Cottage		
Project Number:	16/2832		
Document Reference:	16/2832 - FR 00	**Current Issue**	Issue 00
Document Type:	Site Investigation Report		

Development	Name	Signature	Date
Prepared by:	O Savvidou		07/07/2016
Checked by:	Ana Davila		07/07/2016
Approved by:	M Dedic		07/07/2016

Issued to:	Aecom

Date	Issue	Amendment Details/ Reason for issue	Issued to
07/07/16	Issue 00		Aecom

Notes:

CONTENTS

1. PROJECT PARTICULARS

Site Location:	100 Avenue Road, Swiss Cottage, London, NW3 3HF
Client:	Essential Living Ltd
Investigation Supervisor:	Aecom
Fieldwork:	04/05/2016 – 11/05/2016
Laboratory Work:	18/05/2016 – 06/07/2016

2. PURPOSE AND SCOPE OF WORKS

The purpose of the investigation was to understand the ground and groundwater conditions at the site and to determine the nature and extent of any ground and groundwater contamination.

The site is currently occupied by an existing six-storey office building with part semi-basement and part basement car park. The building is to be demolished as part of the proposed development and construct a residential-led mixed use development with a single basement level.

The scope of the works comprised the following:

- 4 No. Cable Percussion Boreholes to a maximum depth of 47.00m;
- Logging;
- Instrumentation Monitoring;
- Geotechnical and Chemical Laboratory Testing.

Table 1 – Exploratory Hole List

Hole ID	Hole Type	Depth (m)
BH101	CP	47.00
BH102	CP	47.00
BH105	CP	30.00
BH106	CP	30.00

Key
CP – Cable Percussion Borehole

3. DESCRIPTION OF WORKS

The works were carried out in accordance with the URS Infrastructure & Environment Ltd. Specification for Ground investigation “100 Avenue Road, Swiss Cottage” document first issue, dated 23/05/2014.

The site is directly adjacent to Swiss Cottage underground station and bounded, by a pedestrianized space between Avenue Road and Eton Avenue to the north,

by Avenue Road to the west, by Swiss Cottage Library and Swiss Cottage Leisure Centre to the south and by the Swiss Cottage Open Space and the Hampstead Theatre to the east.

The approximate centre of the site is located at National Grid Reference: 526700E, 184315N. The ground elevation is varied between +53.20mOD and +54.20mOD.

The locations of all exploratory holes are shown in the Exploratory Hole Location Plan presented in Section 7 of this report.

4. INVESTIGATION METHODS

4.1 Diamond Coring / Inspection Pits

All boreholes were carried out within the basement of the property. The concrete slab at all borehole locations was diamond cored (Ø300mm) followed by hand excavated inspection pits to a maximum depth of 1.20m prior to boring commencing.

4.2 Cable Percussion Drilling

4 No. Cable Percussion Boreholes (BH101-BH102, BH105-BH106) were drilled to a maximum depth of 47.00m using cable percussion rigs (Dando 100) with 200mm and 150mm diameter casing as appropriate.

4.2.1 Sampling and Testing during Cable Percussion Drilling

Bulk samples were taken at regular intervals in the Made Ground. Undisturbed Thin Walled samples (UT) were taken in accordance with EC7 using a down-hole sliding hammer in cohesive material at regular intervals or as instructed by the Investigation Supervisor.

Standard Penetration Tests (SPT) were carried out at specified intervals or as otherwise instructed by the Investigation Supervisor. The resulting SPT “N” blowcount values are presented in the relevant borehole records.

Small, disturbed samples were retrieved from the cutting shoe of the UT100 sampler, the SPT split spoon sampler and at intervals specified by the Investigation Supervisor.

Environmental samples (tubs, jars and vials) were taken for chemical analysis in the Made Ground, at each change of strata and where visual or olfactory evidence of contamination was noted or as instructed by the Investigation Supervisor. All samples taken for chemical analysis were screened for volatiles using a Phocheck Tiger photoionization detector.

The cable percussion borehole logs are presented in Section 8 of this report.

4.3 Standpipe Installations

Monitoring wells with flush stopcock covers were installed in the boreholes as follows:

Table 2 – Monitoring Installation Details

Hole ID	Base of Borehole (m bgl)	Diameter of Installation (mm)	Type of Installation	Base (m bgl)	Top RZ (m bgl)	Bottom RZ (m bgl)
BH101	47.00	50	SPG/GW	1.50	0.50	1.50
			VWP	12.00		
			VWP	22.00		
			VWP	32.00		
			VWP	42.00		
BH102	47.00		VWP	7.00		
			VWP	17.00		
			VWP	27.00		
			VWP	37.00		
			VWP	47.00		

KEY

SPG/GW – Gas & Groundwater Standpipe
VWP –Vibrating Wire Piezometer
RZ – Response Zone

The boreholes were backfilled with bentonite pellets with gas/groundwater response zones backfilled with a 10mm pea shingle filter with a geosoc surround.

Where vibrating wires installed the boreholes were backfilled with cement / bentonite grout mix at 3.5:1:1 ratio (water:cement:bentonite).

All installations were finished with concrete and a lockable stopcock covers flush with the ground.

The boreholes with no installations were backfilled with cement/bentonite grout and reinstated using the extracted concrete.

4.4 Instrumentation Monitoring

Monitoring was carried out by Concept subsequent to completion of the fieldworks.

Ground water in the standpipes was monitored using an In-Situ Rugged interphase dipmeter and the gas concentrations were recorded using a Gas data GFM436 gas monitor. The accuracy of the instrument is summarised in Section 9 where the gas monitoring reports and groundwater results are presented.

The vibrating wires were monitored using a Geosense G200 Vibrating Wire Readout unit and the results are presented in the same section.

4.5 Logging / Laboratory Testing

Logging of all soil samples was carried out in accordance with BS 5930:2015.

Geotechnical testing is performed at Concept Site Investigations laboratory in accordance with BS1377:1990 unless otherwise stated in the report. Concept is accredited by UKAS for tests where the UKAS logo is appended to the individual test report or summary. Approved signatories for laboratory testing are as follows:

- AB – Alan Bates (Quality Manager)
- DB – Darren Beever (Laboratory Manager)

Where subcontracted analysis has been carried out, the details of the laboratory (and accreditation where applicable) are shown in the individual test report or summary.

The results are presented in tabular format in Section 10 of this report.

All chemical testing was specified and scheduled by Aecom and carried out by i2 Analytical Ltd in accordance with the requirements of UKAS ISO17025 and MCERTS. The results are presented in tabular format in Section 11 of this report.

4.6 Setting Out

The locations of all exploratory holes were agreed with the Investigation Supervisor and set out prior to commencement of the site works.

Following completion of the ground works the locations and elevations of the boreholes were established by utilising precise levelling techniques.

The co-ordinates and levels of the as-built locations of the boreholes are shown in the Exploratory Hole Location Plan presented in Section 7 of this report.

5. GEOLOGICAL GROUND PROFILE

The geological strata encountered during the investigation are summarised in the table below. The Top and Bottom of the strata noted in the table indicates the highest and lowest boundaries encountered in all exploratory holes.

Table 3 - Geological Ground Profile

STRATUM	TOP (mbbl)	BASE (mbbl)	DESCRIPTION
MADE GROUND	0.00	1.00	Concrete over soft, light brown occasionally mottled light bluish grey micaceous silty CLAY with occasional pockets of orangish yellow fine to medium sand rare fine to coarse flint, brick and concrete fragments and occasional selenite crystals *(encountered in BH102)*
WEATHERED LONDON CLAY	0.42	8.00	Soft to firm, extremely closely fissured light brown occasionally mottled light bluish grey micaceous CLAY with occasional selenite crystals
LONDON CLAY FORMATION	6.60	Extent not proven	Stiff to very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of dark grey silt, bioturbation, selenite crystals, shell fragments, pyrite nodules and dark grey staining

REFERENCES

British Standards Institution, (2015) Code of practice for ground investigations, British Standard BS5930: 2015, BSI, London

British Standards Institution, (2011) Investigation of potentially contaminated sites, British Standard BS10175: 2011, BSI, London.

UK Specification for Ground Investigation, (2011) Site Investigation Steering Group, Thomas Telford, London

British Geological Survey (1996) London and the Thames Valley 4th Edition, London HMSO.

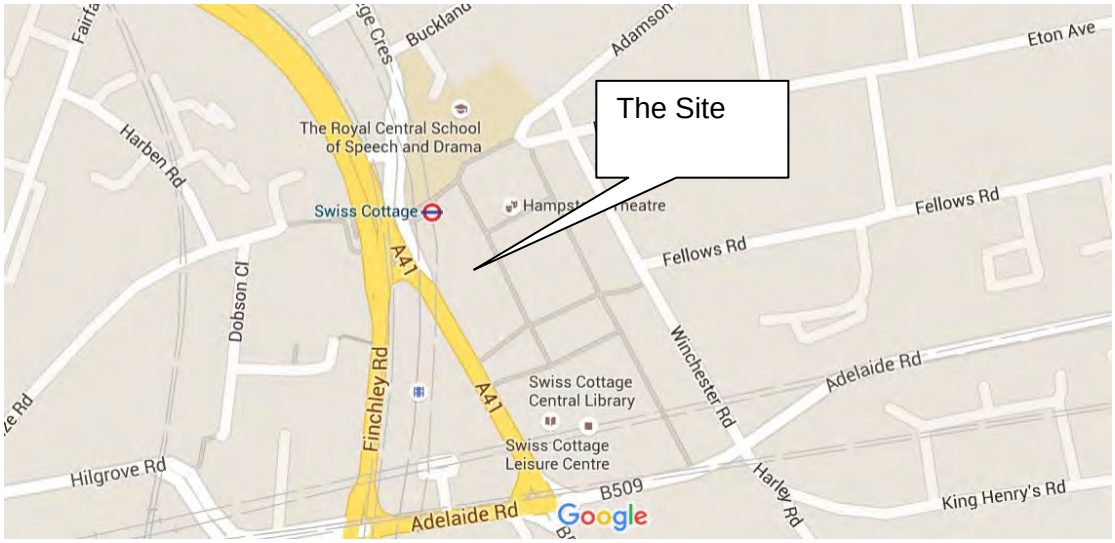
British Standards Institution BS EN ISO 22475-1, (2006) Geotechnical Investigation and Testing – Sampling Methods and Groundwater Measurements – Part 1: Technical Principles for Execution

British Standards Institution BS EN 1997:1 (2004) EuroCode 7 - Geotechnical Design. Part 1 – General Rules.

British Standards Institution BS EN 1997:2 (2007) EuroCode 7 - Geotechnical Design. Part 2 - Ground Investigation and Testing.

King C. (1981) The stratigraphy of the London Basin and associated deposits. Tertiary Research Special Paper, Vol. 6, Backhuys, Rotterdam, p158.

6. SITE LOCATION PLAN



Not to Scale © Crown Copyright reserved

7. EXPLORATORY HOLE LOCATION PLAN

NOTES

1. This drawing should not be scaled.

BH	EASTING (m)	NORTHING (m)	LEVEL (mOD)	DEPTH (m)
BH101	526710.40	184331.10	54.16	50.00
BH102	526715.00	184305.10	53.21	50.00
BH105	526703.50	184308.30	53.28	30.00
BH106	526697.10	184321.40	53.97	30.00

KEY

BH- Cable Percusion Borehole

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS
Unit 8, Warple Mews
Warple Way Tel: 020 8811 2880
London W3 0RF Fax: 020 8811 2881
e-mail: concept@conceptconsultants.co.uk
www.conceptconsultants.co.uk

Client:	Essential Living Ltd
Project:	100 Avenue Road Swiss Cottage
Title:	Exploratory Hole Location Plan Basement Level
Dwg. No:	162832/00
Status:	Issue
Scale:	NTS

Drawn	Checked	Passed	Date
RD	OS	MD	May 2016

8. CABLE PERCUSSION BOREHOLE LOGS

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client

Essential Living Ltd

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	0.42	DC	16/05/2016	16/05/2016	LR	FC/RB			Diamond Coring	
0.42	1.20	IP	16/05/2016	16/05/2016	DL	FC/RB			Hand Excavated	
1.20	47.00	CP	16/05/2016	17/05/2016	LR	FC/RB			Dando 100	SW68

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)

WATER ADDED

From (m)	To (m)

CHISELLING/SLOW PROGRESS

From (m)	To (m)	Duration (hr)	Remarks
7.10	7.25	00:30:00	Claystone
14.50	14.65	00:30:00	Claystone

HOLE

Depth (m)	Diameter (mm)
0.00	200
20.00	200
47.00	150

CASING

Depth (m)	Diameter (mm)
0.00	200
3.00	200
20.10	150

ROTARY CORE RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation
SPG/GW	50	1.50	0.50	1.50	20/05/2016
VWP		12.00			18/05/2016
VWP		22.00			18/05/2016
VWP		32.00			18/05/2016
VWP		42.00			18/05/2016

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.30	Concrete / Flush Cover	20/05/2016
0.30	0.50	Bentonite Pellets	20/05/2016
0.50	1.50	Pea Shingle	20/05/2016
1.50	2.00	Bentonite Pellets	20/05/2016
2.00	12.00	Cement / Bentonite Grout	18/05/2016
12.00	22.00	Cement / Bentonite Grout	18/05/2016
22.00	32.00	Cement / Bentonite Grout	18/05/2016
32.00	42.00	Cement / Bentonite Grout	18/05/2016
42.00	47.00	Cement / Bentonite Grout	18/05/2016

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client

Essential Living Ltd

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
16/05/16	0.00		Dry	
16/05/16	1.20		Dry	
16/05/16	21.50	20.10	Dry	
17/05/16	21.50	20.10	Dry	
17/05/16	41.00	20.10	Dry	
18/05/16	41.00	20.10	Dry	
18/05/16	47.00	20.10	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	3.00	N13	2, 3 / 3, 3, 3, 4	3.00	Dry
S	6.00	N19	2, 3 / 4, 4, 5, 6	3.00	Dry
S	9.00	N31	5, 7 / 8, 8, 8, 7	3.00	Dry
S	12.00	N35	5, 7 / 8, 8, 9, 10	3.00	Dry
S	15.00	N38	5, 7 / 8, 9, 10, 11	3.00	Dry
S	18.00	N39	5, 7 / 8, 10, 10, 11	3.00	Dry
S	21.00	N41	6, 8 / 9, 10, 10, 12	20.10	Dry
S	24.00	N41	5, 8 / 8, 9, 11, 13	20.10	Dry
S	27.00	N45	5, 8 / 9, 10, 13, 13	20.10	Dry
S	30.00	N46	6, 8 / 9, 10, 13, 14	20.10	Dry
S	33.00	N49	6, 7 / 10, 12, 13, 14	20.10	Dry
S	36.00	N50/0.245	8, 10 / 12, 14, 17, 7	20.10	Dry
S	39.00	N50/0.275	8, 9 / 11, 13, 14, 12	20.10	Dry
S	42.00	N50/0.295	8, 9 / 10, 12, 14, 14	20.10	Dry
S	45.00	N50/0.265	8, 10 / 12, 14, 15, 9	20.10	Dry

GENERAL REMARKS

1. Borehole carried out from basement level.
2. Ø300mm diamond coring carried out between GL and 0.42m depth.

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
INC - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
WS -Window Sampling, WSL-Windowless Sampling
DC -Dynamic Coring

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	1 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
16/05/16		Dry			(0.42)	CONCRETE.					
			53.73		0.42						
						Soft to firm, extremely closely fissured light brown mottled light bluish grey slightly micaceous silty CLAY with rare pockets of orangish brown fine sand (<30mm) and occasional selenite crystals (<8mm). Fissures are subhorizontal and subvertical, planar, smooth, unpolished. (THAMES GROUP : WEATHERED LONDON CLAY FORMATION)	0.50			... VOC 0.6ppm	
							0.50	ES01			
							0.50	B02			
							1.00			... VOC 2.00ppm	
16/05/16		Dry					1.00	ES03			
							1.00	B04			
						... becoming firm below 1.00m	1.50-1.95	UT05	30 blows	100% Recovery	
							2.00	D06			
						... becoming light brown and micaceous below 2.00m					
							2.50	D07			
							3.00		N13	2, 3 / 3, 3, 3, 4	
							3.00	D08			
							4.00	D09			
					(7.58)	... with occasional pockets of orangish brown fine to medium sand (<30mm) below 4.00m					
							4.50-4.95	UT10	44 blows	100% Recovery	
							5.00	D11			
							5.50-6.00	B12			
						... with frequent pockets of orangish brown fine to medium sand (<40mm), orangish brown discolouration along fissures and rare black flecks between 5.50m and 7.00m					
							6.00		N19	2, 3 / 4, 4, 5, 6	
							6.00	D13			
							7.00-7.50	B14			
						... becoming stiff, brown mottled yellowish brown with occasional pockets of yellowish brown silt (<30mm) below 7.00m					
						... with a band of medium strong to strong grey claystone recovered as: fine to coarse gravel and cobbles between 7.10m and 7.25m	7.50-7.95	UT15	70 blows	100% Recovery	
			46.15		8.00		8.00	D16			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:56

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	2 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						Stiff, extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of dark grey silt (<10mm) and occasional bioturbation. Fissures are subhorizontal and subvertical (30°- 50°), planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - C)	8.50	D17			
						... with rare pyrite nodules (<20 x 35mm) below 8.50m	9.00		N31	5, 7 / 8, 8, 8, 7	
						... with selenite crystals at 8.50m	9.00	D18			
							10.00-10.50	B19			
						... with 1No off-white medium gravel sized shell fragment at 10.00m					
						... with a parting of dark grey silty fine sand at 10.00m	10.50-10.95	UT20	70 blows	100% Recovery	
							11.00	D21			
							11.50	D22			
						... with slightly glauconitic sand and occasional dark green flecks between 11.50m and 13.00m					
						... becoming silty below 11.50m	12.00		N35	5, 7 / 8, 8, 9, 10	
							12.00	D23			
							13.00	D24			
						... with occasional pockets of dark grey silt (<20mm) between 13.00m and 17.50m					
							13.50-13.90	UT25	80 blows	90% Recovery	
							13.95	D26			
							14.50	D27			
						... with a band of weak grey claystone recovered as: fine to coarse gravel between 14.50m and 14.60m					
							15.00		N38	5, 7 / 8, 9, 10, 11	
							15.00	D28			
					(15.50)						
							16.00-16.50	B29			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:56

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	3 of 6

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						... with rare off-white and light brown tubular shell fragments (Dentalium) (<10mm) and off-white coarse sand sized and fine gravel sized bivalve and gastropod shell fragments between 16.00m and 20.50m ... with 1No pyrite nodule (40 x 30mm) at 16.00m	16.50-16.95	UT30	80 blows	100% Recovery	
							17.00	D31			
							17.50	D32			
						... becoming very stiff below 17.50m					
							18.00		N39	5, 7 / 8, 10, 10, 11	
							18.00	D33			
							19.00	B34			
							19.50-19.85	UT35	80 blows	80% Recovery	
						... with a pyritised wood fragment (25x10m) at 19.50m					
							19.90	D36			
							20.50	D37			
						... becoming silty with occasional white specks below 20.50m					
							21.00		N41	6, 8 / 9, 10, 10, 12	
							21.00	D38			
16/05/16	20.10	Dry									
17/05/16	20.10	Dry									
							22.00	D39			
							22.50-22.90	UT40	80 blows	90% Recovery	
							22.95	D41			
						... with 1No pyrite nodule (25mm) at 22.95m					
			30.65		23.50		23.50	D42			
						Very stiff, extremely closely fissured greyish brown slightly micaceous silty CLAY with rare pockets of dark grey silt (<10mm), occasional bioturbation and occasional white					
							24.00		N41	5, 8 / 8, 9, 11, 13	

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	4 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						silt flecks. Fissures are subhorizontal and subvertical (30º- 50º), planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - B) ... with a parting of dark grey silt at 24.00m	24.00	D43			
							25.00-25.50	B44			
							25.50-25.90	UT45	80 blows	90% Recovery	
						... with 1No claystone fragment (15 x 10mm) and dark grey staining at 25.95m	25.95	D46			
							26.50	D47			
							27.00		N45	5, 8 / 9, 10, 13, 13	
							27.00	D48			
						... with 1No pyrite nodule (10mm) at 28.00m ... with rare pockets of dark grey silt (<20mm) below 28.00m	28.00	D49			
							28.50-28.90	UT50	80 blows	90% Recovery	
							28.95	D51			
							29.50	D52			
							30.00		N46	6, 8 / 9, 10, 13, 14	
							30.00	D53			
							31.00-31.50	B54			
						... with 1No off-white fine gravel sized shell fragment at 31.00m					
							31.50-31.90	UT55	80 blows	90% Recovery	
							31.95	D56			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:56

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	5 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						... with occasional pockets of dark grey and light brown silt (<20mm) below 31.95m					
							32.50	D57			
							33.00		N49	6, 7 / 10, 12, 13, 14	
							33.00	D58			
							34.00	D59			
							34.50-34.90	UT60	80 blows	90% Recovery	
							34.95	D61			
						... with occasional partings of dark grey silt (<30mm) below 34.95m					
					(23.50)		35.50-36.00	B62			
						... with 1No very weak grey claystone fragment (15mm) at 35.50m					
							36.00		N50/ 0.245	8, 10 / 12, 14, 17, 7	
							36.00	D63			
							37.00	D64			
							37.50-37.85	UT65	80 blows	80% Recovery	
							37.90	D66			
							38.50	D67			
							39.00		N50/ 0.275	8, 9 / 11, 13, 14, 12	
							39.00	D68			
							40.00-40.50	B69			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:56

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH101

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	16/05/16	54.15	E 526710.4 N 184331.1	47.00m
	Date Completed 17/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	6 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						... becoming slightly micaceous with rare pockets of dark grey silt (<15mm), frequent white flecks and rare pyrite nodules (<20mm) between 40.00m and 40.50m	40.50-40.85	UT70	80 blows	80% Recovery	
							40.90	D71			
17/05/16	20.10	Dry									
18/05/16	20.10	Dry					41.50	D72			
							42.00		N50/ 0.295	8, 9 / 10, 12, 14, 14	
							42.00	D73			
							43.00	D74			
							43.50-43.85	UT75	100 blows	80% Recovery	
							43.90	D76			
							44.50-45.00	B77			
							45.00		N50/ 0.265	8, 10 / 12, 14, 15, 9	
							45.00	D78			
							46.00	D79			
						... with 1No pyritised wood fragment (8mm) at 46.00m					
							46.50-46.95	U80	100 blows	100% Recovery	
18/05/16	20.10	Dry	7.15		47.00	... becoming silty and micaceous with rare pockets of dark grey silt (<20mm) at 47.00m	47.00	D81			
						End of Borehole					

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:56

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client

Essential Living Ltd

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	0.50	DC	11/05/2016	11/05/2016	LR	FC/RB			Diamond Coring	
0.50	1.20	IP	11/05/2016	11/05/2016	LR	FC/RB			Hand Excavated	
1.20	47.00	CP	11/05/2016	13/05/2016	LR	FC/RB			Dando 100	SW68

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)

WATER ADDED

From (m)	To (m)

CHISELLING/SLOW PROGRESS

From (m)	To (m)	Duration (hr)	Remarks
17.40	17.60	00:30:00	Claystone

HOLE

Depth (m)	Diameter (mm)
0.00	200
20.00	200
47.00	150

CASING

Depth (m)	Diameter (mm)
0.00	200
3.00	200
20.10	150

ROTARY CORE RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation
VWP		7.00			13/05/2016
VWP		17.00			13/05/2016
VWP		27.00			13/05/2016
VWP		37.00			13/05/2016
VWP		47.00			13/05/2016

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.20	Concrete / Flush Cover	13/05/2016
0.20	2.00	Bentonite Pellets	
2.00	7.00	Cement / Bentonite Grout	
7.00	17.00	Cement / Bentonite Grout	
17.00	27.00	Cement / Bentonite Grout	
27.00	37.00	Cement / Bentonite Grout	
37.00	47.00	Cement / Bentonite Grout	

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client

Essential Living Ltd

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
11/05/16	0.00		Dry	
11/05/16	1.20		Dry	
11/05/16	20.00	3.00	Dry	
12/05/16	20.00	3.00	Dry	
12/05/16	42.45	20.10	Dry	
13/05/16	42.45	20.10	Dry	
13/05/16	47.00	20.10	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	3.00	N13	2, 2 / 3, 3, 3, 4	3.00	Dry
S	6.00	N16	2, 3 / 3, 4, 4, 5	3.00	Dry
S	9.00	N22	2, 3 / 3, 4, 7, 8	3.00	Dry
S	12.00	N30	3, 4 / 4, 7, 9, 10	3.00	Dry
S	15.00	N41	3, 4 / 9, 10, 10, 12	3.00	Dry
S	18.00	N43	4, 5 / 9, 11, 11, 12	3.00	Dry
S	21.00	N39	4, 5 / 7, 8, 12, 12	20.10	Dry
S	24.00	N38	5, 6 / 7, 9, 10, 12	20.10	Dry
S	27.00	N41	5, 6 / 7, 10, 11, 13	20.10	Dry
S	30.00	N43	6, 7 / 8, 10, 12, 13	20.10	Dry
S	33.00	N50	6, 7 / 10, 12, 14, 14	20.10	Dry
S	36.00	N49	7, 8 / 9, 12, 13, 15	20.10	Dry
S	39.00	N50/0.295	6, 8 / 10, 13, 14, 13	20.10	Dry
S	42.00	N50/0.275	6, 8 / 11, 13, 15, 11	20.10	Dry
S	45.00	N50/0.245	8, 10 / 13, 15, 16, 6	20.10	Dry

GENERAL REMARKS

1. Borehole carried out from basement level.
2. Ø300mm diamond coring carried out between GL and 0.50m depth.

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
INC - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
WS -Window Sampling, WSL-Windowless Sampling
DC -Dynamic Coring

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	1 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
11/05/16		Dry			(0.50)	CONCRETE.					
			52.71		0.50		0.50			... VOC 1.3ppm	
						Soft, light brown occasionally mottled light bluish grey micaceous silty CLAY with occasional pockets of orangish yellow fine to medium sand (<10mm), rare fine to coarse flint, brick and concrete fragments and occasional selenite crystals (<7mm). (MADE GROUND)	0.50	ES01			
					(0.50)		0.50	B02			
							0.70			... Rootlets of live appearance at 0.50m	
			52.21		1.00		1.00			... VOC 0.4ppm	
							1.00	ES03			
11/05/16		Dry					1.00	B04			
						Firm, extremely closely to very closely fissured light brown mottled light bluish grey slightly micaceous CLAY with occasional selenite crystals (<7mm). Fissures are randomly orientated, planar, smooth, unpolished. (THAMES GROUP : WEATHERED LONDON CLAY FORMATION)	1.50-1.95	UT05	40 blows	100% Recovery	
						... becoming light brown to brown with rare black staining below 2.00m	2.00	D06			
						... with occasional pockets of orangish brown fine sand (<12mm) below 2.50m	2.50	D07			
							3.00		N13	2, 2 / 3, 3, 3, 4	
						... with 1No pyrite nodule (10 x 15mm) at 3.00m	3.00	D08			
					(5.60)						
							4.00	D09			
						... with occasional to frequent orangish brown staining at 4.00m					
							4.50-4.95	UT10	50 blows	100% Recovery	
							5.00	D11			
						... becoming slightly sandy with greyish green flecks at 4.95m. Sand is fine and glauconitic.					
							5.50-6.00	B12			
						... becoming silty with frequent partings and pockets of orangish brown silty fine sand (<50mm) below 5.50m					
							6.00		N16	2, 3 / 3, 4, 4, 5	
							6.00	D13			
			46.61		6.60						
						Firm to stiff, very closely fissured greyish brown slightly micaceous silty CLAY with occasional pockets of of dark grey silt (<30mm), occasional selenite crystals (<20mm) and rare bioturbation. Fissures are subhorizontal, subvertical (30°- 50°), planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - C)	7.00-7.50	B14			
							7.50-7.95	UT15	80 blows	100% Recovery	
							8.00	D16			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:57

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	2 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						... with 1No pyrite nodule (80 x 90 x 15mm) and occasional partings of dark grey silt at 7.95m					
						... with a band of claystone between 7.95m and 8.00m	8.50	D17			
						... becoming stiff and homogeneous clay with occasional bioturbation and with no pockets, partings and selenite crystals below 8.50m	9.00		N22	2, 3 / 3, 4, 7, 8	
							9.00	D18			
							10.00-10.50	B19			
							10.50-10.95	UT20	70 blows	100% Recovery	
						... with rare white flecks below 10.50m					
						... with a parting of yellowish brown fine sand at 10.58m	11.00	D21			
						... becoming silty and micaceous with rare pockets of dark grey silty fine sand (<10mm) below 10.95m	11.50	D22			
							12.00		N30	3, 4 / 4, 7, 9, 10	
							12.00	D23			
							13.00	D24			
							13.50-13.95	UT25	80 blows	100% Recovery	
						... with a parting of yellowish brown fine sand at 13.60m	14.00	D26			
						... with occasional partings of light brown silty fine sand at 13.95m					
						... with rare white flecks below 13.95m	14.50	D27			
						... with rare pyrite nodules (<20mm) below 14.50m					
					(16.40)		15.00		N41	3, 4 / 9, 10, 10, 12	
							15.00	D28			
							15.50-16.00	B29			
						... with rare pockets of dark grey silt (<10mm) and rare light brown coarse sand sized and fine gravel sized tubular shell fragments at 15.50m					

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	3 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							16.50-16.95	UT30	80 blows		
							17.00	D31			
						... becoming very stiff below 16.95m					
							17.40	D32			
						... with a band of medium strong to strong grey claystone (200mm) recovered as: angular medium to coarse gravel sized claystone fragments at 17.40m					
							18.00		N43	4, 5 / 9, 11, 11, 12	
							18.00	D33			
							19.00	D34			
							19.50-19.95	UT35	80 blows	100% Recovery	
11/05/16	3.00	Dry					20.00	D36			
12/05/16	3.00	Dry				... with dark grey staining and rare fine to coarse sand sized off-white shell fragments below 19.95m					
							20.50-21.00	B37			
						... with rare pockets of dark grey silt (<20mm) below 20.50m					
							21.00		N39	4, 5 / 7, 8, 12, 12	
							21.00	D38			
							22.00	D39			
							22.50-22.95	UT40	80 blows	100% Recovery	
			30.21		23.00		23.00	D41			
						Very stiff, very closely fissured greyish brown micaceous silty CLAY with rare pockets of dark grey silty fine sand (40mm), occasional bioturbation, rare pyrite nodules (<20mm), rare off-white fine to coarse sand sized shell fragments, rare dark grey staining and rare white flecks. Fissures are subhorizontal, subvertical (30º- 50º), planar, smooth, unpolished.	23.50	D42			
							24.00		N38	5, 6 / 7, 9, 10, 12	

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	4 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						(THAMES GROUP : LONDON CLAY FORMATION - B)	24.00	D43			
							25.00-25.50	B44			
							25.50-25.90	UT45	80 blows	90% Recovery	
						... with rare orangish brown discolouration below 25.66m	25.95	D46			
						... becoming extremely closely fissured and slightly micaceous below 25.95m	26.50	D47			
							27.00		N41	5, 6 / 7, 10, 11, 13	
							27.00	D48			
							28.00	D49			
							28.50-28.90	UT50	80 blows	90% Recovery	
						... with rare pockets of orangish yellow fine sand (<8mm), occasional bioturbation, reddish brown discolouration and rare shell fragments at 28.50m	28.95	D51			
							29.50-30.00	B52			
							30.00		N43	6, 7 / 8, 10, 12, 13	
							30.00	D53			
							31.00	D54			
						... with rare pockets of dark grey silty fine sand (<25mm) between 31.00m and 34.00m	31.50-31.85	UT55	80 blows	80% Recovery	
						... with reddish brown discolouration at 31.50m	31.90	D56			

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	5 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							32.50	D57			
							33.00		N50	6, 7 / 10, 12, 14, 14	
							33.00	D58			
							34.00	D59			
							34.50-34.95	UT60	80 blows	100% Recovery	
						... becoming locally extremely closely fissured slightly sandy with occasional pockets of reddish brown fine sand (<15mm) at 34.50m					
					(24.00)		35.00	D61			
							35.50-36.00	B62			
						... with rare lenses and pockets of dark grey and light brown silty fine sand (<6mm) between 35.50m and 40.00m					
							36.00		N49	7, 8 / 9, 12, 13, 15	
							36.00	D63			
							37.00	D64			
						... with a pocket of grey silty fine sand (25mm) at 37.00m					
							37.50-37.90	UT65	80 blows	90% Recovery	
						... with rare partings of light brown fine sand, shell fragments and bioturbation at 37.50m					
							37.95	D66			
							38.50	D67			
						... with 1No pyrite nodule (10mm) at 38.50m					
							39.00		N50/ 0.295	6, 8 / 10, 13, 14, 13	
							39.00	D68			
							40.00-40.50	B69			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:57

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH102

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	11/05/16	53.21	E 526715.0 N 184305.1	47.00m
	Date Completed 13/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	6 of 6

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							40.50-40.85	UT70	80 blows	80% Recovery	
						... with rare foraminifera and bioturbation at 40.50m	40.90	D71			
							41.50	D72			
							42.00		N50/ 0.275	6, 8 / 11, 13, 15, 11	
							42.00	D73			
12/05/16	20.10	Dry									
13/05/16	20.10	Dry									
							43.00	D74			
							43.50-43.95	U75	100 blows	100% Recovery	
						... becoming extremely closely fissured with occasional pockets of light brown fine sand (<11mm) and rare white flecks at 43.50m	44.00	D76			
						... with occasional partings and pockets of dark grey and brown silty fine sand (<30mm) below 44.00m	44.50-45.00	B77			
						... with white silt flecks (<4mm) between 44.50m and 45.00m	45.00		N50/ 0.245	8, 10 / 13, 15, 16, 6	
							45.00	D78			
							46.00	D79			
							46.50-46.85	U80	100 blows	80% Recovery	
							46.90	D81			
13/05/16	20.10	Dry	6.21		47.00		47.00	D82			
						End of Borehole					

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:57

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client

Essential Living Ltd

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	0.55	DC	09/05/2016	09/05/2016	LR	FC/RB			Diamond Coring	
0.55	1.20	IP	09/05/2016	09/05/2016	LR	FC/RB			Hand Excavated	
1.20	30.00	CP	09/05/2016	10/05/2016	LR	FC/RB			Dando 100	SW68

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)

WATER ADDED

From (m)	To (m)

CHISELLING/SLOW PROGRESS

From (m)	To (m)	Duration (hr)	Remarks
7.90	8.05	00:30:00	Claystone
16.00	16.65	00:30:00	Claystone

HOLE

Depth (m)	Diameter (mm)
0.00	200
12.00	200
30.00	150

CASING

Depth (m)	Diameter (mm)
0.00	200
3.00	200
12.00	150

ROTARY CORE RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.55	Concrete	10/05/2016
0.55	30.00	Cement/Bentonite Grout	10/05/2016

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client

Essential Living Ltd

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
09/05/16	0.00		Dry	
09/05/16	1.20		Dry	
09/05/16	15.00	12.00	Dry	
10/05/16	15.00	12.00	Dry	
10/05/16	30.00	12.00	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	3.00	N14	2, 2 / 3, 3, 3, 5	3.00	Dry
S	6.00	N19	3, 3 / 4, 4, 5, 6	3.00	Dry
S	9.00	N20	3, 3 / 4, 5, 5, 6	3.00	Dry
S	12.00	N29	4, 5 / 5, 6, 8, 10	12.00	Dry
S	15.00	N30	4, 5 / 5, 8, 8, 9	12.00	Dry
C	16.50	N37	10, 14 / 13, 9, 8, 7	12.00	Dry
S	18.00	N35	4, 5 / 7, 8, 10, 10	12.00	Dry
S	21.00	N33	4, 6 / 8, 7, 8, 10	12.00	Dry
S	24.00	N38	5, 6 / 8, 9, 10, 11	12.00	Dry
S	27.00	N40	5, 7 / 8, 10, 10, 12	12.00	Dry
S	30.00	N45	6, 7 / 9, 10, 12, 14	12.00	Dry

GENERAL REMARKS

1. Borehole carried out from basement level.
2. Ø300mm diamond coring carried out between GL and 0.55m depth.

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
INC - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
WS -Window Sampling, WSL-Windowless Sampling
DC -Dynamic Coring

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	1 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
09/05/16		Dry			(0.55)	CONCRETE.					
			52.73		0.55		0.50			... VOC 7.4ppm	
						Soft to firm, extremely closely fissured light brown occasionally mottled light bluish grey micaceous CLAY with occasional selenite crystals (<5mm) and rare black flecks. Fissures are randomly orientated, planar, smooth, unpolished. (THAMES GROUP : WEATHERED LONDON CLAY FORMATION)	0.50	ES01			
							0.60			... Traces of rootlets at 0.55m	
							0.60	B02			
							1.00			... VOC 6.6ppm	
09/05/16		Dry					1.00	ES03			
							1.00	B04			
							1.50-1.95	UT05	40 blows	100% Recovery	
						... with rare pockets of yellowish brown fine sand (<20mm) and a pyrite nodule (10x10mm) at 1.50m					
							2.00	D06			
						... becoming firm, brown mottled orangish brown and silty below 2.00m					
							2.50	D07			
						... with rare pockets of orangish brown silt (<7mm) below 2.50m					
							3.00		N14	2, 2 / 3, 3, 3, 5	
							3.00	D08			
					(6.05)						
							4.00	D09			
							4.50-4.95	UT10	50 blows	100% Recovery	
							5.00	D11			
						... with rare pockets of orangish brown fine sand (<10mm) at 5.00m					
							5.50-6.00	B12			
						... with partings of orangish brown silt, frequent pockets of orangish brown fine sand (<30mm) and frequent selenite crystals (<15mm) at 5.50m					
							6.00		N19	3, 3 / 4, 4, 5, 6	
						... with frequent selenite crystals (<20mm) between 6.00m and 6.45m	6.00	D13			
			46.68		6.60		6.60-7.00	B14			
						Firm to stiff, extremely closely fissured greyish brown slightly micaceous CLAY with occasional bioturbation and rare pyrite nodules (<25mm). (THAMES GROUP : LONDON CLAY FORMATION - C)					
						... with occasional partings and pockets of dark grey silty fine sand (<20mm), rare pockets of orangish brown silt (<10mm) and occasional selenite crystals (<10mm) between 6.60m and 8.50m.	7.50-7.95	UT15	80 blows	100% Recovery	
							7.95	D16			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						... with a claystone band between 7.90m and 8.05m					
							8.50	D17			
						... with 2No pyritised wood fragments (30x5mm and 50x30mm) at 8.50m					
							9.00		N20	3, 3 / 4, 5, 5, 6	
							9.00	D18			
							10.00-10.50	B19			
						... becoming silty with rare pockets of dark grey silty fine sand (<15mm) below 10.00m					
							10.50-10.90	UT20	80 blows	90% Recovery	
						... with a pyrite nodule (20x11mm) at 10.50m					
							10.95	D21			
						... becoming stiff and very closely fissured with occasional partings and pockets of dark grey silty fine sand (<10mm) below 10.95m.					
							11.50	D22			
							12.00		N29	4, 5 / 5, 6, 8, 10	
							12.00	D23			
							13.00	D24			
						... with occasional off-white and light brown tubular shell fragments (<7mm) below 13.00m					
							13.50-13.95	UT25	70 blows	100% Recovery	
						... with rare pockets of grey fine sand (<25mm), bioturbation and pyrite nodules (<12mm) at 13.50m					
							14.00	D26			
					(15.40)						
							14.50	D27			
						... with no partings and pockets of sand below 14.50m					
09/05/16	12.00	Dry					15.00		N30	4, 5 / 5, 8, 8, 9	
10/05/16	12.00	Dry					15.00	D28			
						... with 1No pyritised wood fragment (20x20mm) at 15.00mm					
							16.00-16.50	B29			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						... becoming very stiff and slightly micaceous below 16.00m					
							16.50		N37	10, 14 / 13, 9, 8, 7	
							16.50-17.00	B30			
						... with rare off-white coarse sand sized and fine gravel sized shell fragments and rare white specks below 16.50m					
						... with a band of claystone between 16.50m and 16.65m	17.00-17.45	UT31	80 blows	100% Recovery	
						... with rare pyrite nodules (<10mm), shell fragments, bioturbation and a pyritised wood fragment (4x3mm) at 17.00m					
							17.50	D32			
							18.00		N35	4, 5 / 7, 8, 10	
							18.00	D33			
						... with 1No lignite fragment (20x10mm) at 18.00m					
							19.00	D34			
						... with 1No pyritised wood fragment (20x15mm) at 19.00m					
							19.50-19.95	UT35	80 blows	100% Recovery	
						... with rare pockets of grey fine sand (<35mm), bioturbation and white flecks at 19.50m					
							20.00	D36			
							20.50-21.00	B37			
						... becoming silty with rare pockets of dark grey silt (<15mm) and frequent bioturbation below 20.50m					
							21.00		N33	4, 6 / 8, 7, 8, 10	
							21.00	D38			
			31.28		22.00		22.00	D39			
						Very stiff, very closely fissured greyish brown micaceous silty CLAY with rare pockets of dark grey silt (<15mm), occasional bioturbation, occasional off-white coarse sand and fine gravel sized shell fragments, occasional pyrite nodules (<25mm) and rare white specks. Fissures are subhorizontal and subvertical (30°- 50°), planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - B)	22.50-22.95	UT40	80 blows	100% Recovery	
							23.00	D41			
							23.50	D42			
							24.00		N38	5, 6 / 8, 9, 10, 11	

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH105

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	06/05/16	53.28	E 526703.5 N 184308.3	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	4 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							24.00	D43			
							25.00-25.50	B44			
							25.50-25.95	UT45	80 blows	100% Recovery	
					(8.00)		26.00	D46			
							26.50	D47			
						... with 1No pyritised wood fragment (15x15mm) at 26.50m and (25x5mm) at 28.00m.	27.00	N40		5, 7 / 8, 10, 10, 12	
							27.00	D48			
							28.00	D49			
							28.50-28.90	UT50	80 blows	90% Recovery	
							28.95	D51			
						... with 2 No pockets of dark grey fine sand (30mm) at 28.95m	29.50	B52			
10/05/16	12.00	Dry	23.28		30.00		30.00	N45		6, 7 / 9, 10, 12, 14	
						End of Borehole	30.00	D53			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH106

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client

Essential Living Ltd

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	0.52	DC	05/05/2016	05/05/2016	LR	FC/RB			Diamond Coring	
0.52	1.20	IP	05/05/2016	05/05/2016	LR	FC/RB			Hand Excavated	
1.20	30.00	CP	05/05/2016	06/05/2016	LR	FC/RB			Dando 100	SW68

WATER STRIKES

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)
0.45				
13.10	13.10		12.10	

WATER ADDED

From (m)	To (m)

CHISELLING/SLOW PROGRESS

From (m)	To (m)	Duration (hr)	Remarks

HOLE

Depth (m)	Diameter (mm)
0.00	200
12.00	200
30.00	150

CASING

Depth (m)	Diameter (mm)
0.00	200
3.00	200
12.10	150

ROTARY CORE RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.52	Concrete/Flush Cover	06/05/2016
0.52	30.00	Cement/Bentonite Grout	06/05/2016

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH106

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client

Essential Living Ltd

PROGRESS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
05/05/16	0.00		Dry	
05/05/16	0.45		0.45	... Water seepage
05/05/16	0.50		Dry	
05/05/16	17.00	12.10	Dry	
06/05/16	17.00	12.10	Dry	
06/05/16	13.10	12.10	13.10	... Water seepage
06/05/16	30.00	12.10	Dry	

SPT DETAILS

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	3.00	N11	1, 1 / 2, 2, 3, 4	3.00	Dry
S	6.00	N19	2, 3 / 4, 4, 5, 6	3.00	Dry
S	9.00	N23	2, 3 / 4, 6, 6, 7	3.00	Dry
S	12.00	N28	3, 4 / 5, 6, 8, 9	12.00	Dry
S	15.00	N29	3, 4 / 5, 7, 8, 9	12.10	Dry
S	18.00	N31	3, 4 / 5, 7, 9, 10	12.10	Dry
S	21.00	N33	4, 5 / 6, 8, 9, 10	12.10	Dry
S	24.00	N37	4, 5 / 8, 9, 10, 10	12.10	Dry
S	27.00	N39	5, 7 / 8, 9, 11, 11	12.10	Dry
S	30.00	N48	5, 6 / 11, 12, 12, 13	12.10	Dry

GENERAL REMARKS

1. Borehole carried out from basement level.
2. Ø300mm diamond coring carried out between GL and 0.52m depth.
3. Water seeping through the concrete at 0.45m depth.
4. Slight water seepage encountered at 13.10m depth.

KEY

SAMPLES

ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
INC - Inclinometer

HOLE TYPES

IP -Inspection Pit, TP-Trial Pit
CP -Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
WS -Window Sampling, WSL-Windowless Sampling
DC -Dynamic Coring

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH106

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	1 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
05/05/16		Dry				CONCRETE.					
					(0.52)						
05/05/16		0.45									
05/05/16		Dry	53.44		0.52		0.51			... VOC 0.7ppm	
							0.52			... Traces of rootlets at 0.52m	
						Firm, extremely closely fissured brown mottled light bluish grey micaceous silty CLAY with occasional selenite crystals (<5mm) and rare black flecks. Fissures are randomly orientated, planar, smooth, unpolished and occasionally polished. (THAMES GROUP : WEATHERED LONDON CLAY FORMATION)	0.52	ES01			
							0.52	B02			
							1.00			... VOC 0.3ppm	
							1.00	ES03			
							1.00	B04			
							1.50-1.95	UT05	24 blows	100% Recovery	
							2.00	D06			
							2.50			... No traces of rootlets below 2.50m	
							2.50	D07			
							3.00		N11	1, 1 / 2, 2, 3, 4	
							3.00	D08			
							4.00	D09			
					(7.08)	... with occasional pockets of orangish brown fine sand (<50mm) below 4.00m					
							4.50-4.95	UT10	30 blows	100% Recovery	
							5.00	D11			
						... becoming stiff, with frequent selenite crystals below 5.00m					
							5.50-6.00	B12			
						... with frequent pockets of orangish brown fine sand (<50mm) and orangish brown staining below 5.50m ... with 1No pyrite nodule at 5.50m					
							6.00		N19	2, 3 / 4, 4, 5, 6	
							6.00	D13			
							7.00	D14			
						... becoming greyish brown below 7.00m					
							7.50-7.95	UT15	60 blows	100% Recovery	
			46.36		7.60						
						Stiff, extremely closely fissured greyish brown micaceous CLAY with occasional bioturbation, selenite crystals (<10mm) and	8.00	D16			

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No
BH106

Project
100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						rare dark grey staining. Fissures are randomly orientated, planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - C)	8.00-8.50	B17			
						... with rare off-white fine gravel sized shell fragments at 8.00m	9.00		N23	2, 3 / 4, 6, 6, 7	
							9.00	D18			
							10.00	D19			
						... becoming very closely fissured and silty with rare white flecks below 10.00m	10.50-10.95	UT20	80 blows	100% Recovery	
							11.00	D21			
							11.50	D22			
						... with rare pockets of dark grey silty fine sand (<5mm) and no selenite crystals below 11.50m.	12.00		N28	3, 4 / 5, 6, 8, 9	
							12.00	D23			
							12.50-13.00	B24			
						... with rare pyrite nodules (<20mm) below 12.50m					
06/05/16	12.10	13.1									
							13.50-13.95	UT25	80 blows	100% Recovery	
							14.00	D26			
						... with rare light brown tubular shell fragments below 14.00m	14.50	D27			
							15.00		N29	3, 4 / 5, 7, 8, 9	
							15.00	D28			
					(15.35)						
							16.00	D29			

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH106

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	3 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							16.50-16.90	UT30	80 blows	90% Recovery	
						... with rare pockets of grey fine sand (<40mm), pyrite nodules (<18mm), bioturbation and shell fragments at 16.50m					
05/05/16	12.10	Dry					17.00	D31			
06/05/16	12.10	Dry				... becoming very stiff with rare (45°) fissures below 17.00m					
							17.50-18.00	B32			
							18.00		N31	3, 4 / 5, 7, 9, 10	
							18.00	D33			
							19.00	D34			
						... with frequent bioturbation at 19.00m					
							19.50-19.90	UT35	80 blows	90% Recovery	
							19.95	D36			
						... becoming silty at 19.95m, at 20.50m, and at 22.00m					
							20.50	D37			
							21.00		N33	4, 5 / 6, 8, 9, 10	
							21.00	D38			
							22.00	D39			
							22.50-22.90	UT40	80 blows	90% Recovery	
			31.01		22.95		22.95	D41			
						Very stiff, very closely fissured greyish brown micaceous silty CLAY with occasional partings of dark grey silty fine sand, frequent bioturbation, rare pyrite nodules (<20mm) and rare off-white fine to coarse sand sized shell fragments. Fissures are subhorizontal and subvertical (30°- 50°), planar, smooth, unpolished. (THAMES GROUP : LONDON CLAY FORMATION - B)	23.50	D42			
							24.00		N37	4, 5 / 8, 9, 10, 10	

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 020 88 112 880_Fax: 020 88 112 881
E-mail: si@conceptconsultants.co.uk

Borehole No

BH106

Project

100 Avenue Road, Swiss Cottage

Job No	Date Started	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2832	05/05/16	53.96	E 526697.1 N 184321.4	30.00m
	Date Completed 06/05/16			

Client	Method/ Plant Used	Sheet
Essential Living Ltd	Cable Percussion	4 of 4

PROGRESS			STRATA				SAMPLES & TESTS				
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
							24.00	D43			
							24.50-25.00	B44			
						... with rare pyrite nodules (<20mm) and 1No weak grey claystone fragment (25mm) at 24.50m					
							25.50-25.95	UT45	80 blows	100% Recovery	
							26.00	D46			
						... with rare dark grey staining along fissure surfaces at 26.00m					
					(7.05)		26.50	D47			
							27.00		N39	5, 7 / 8, 9, 11, 11	
							27.00	D48			
							28.00	D49			
							28.50-28.90	UT50	80 blows	90% Recovery	
							28.95	D51			
							29.50-30.00	B52			
06/05/16	12.10	Dry	23.96		30.00		30.00		N48	5, 6 / 11, 12, 12, 13	
						End of Borehole	30.00	D53			

Issue No: 02	Checked By: OS	Approved By: AN	Log Print Date & Time: 06/07/2016 15:58

9. INSTRUMENTATION MONITORING RESULTS

Borehole	Depth of Installation (mbgl)	Date of Installation	Type	Top (mbgl)	Bottom (mbgl)	Date & Time	Water Level (mbgl)	Water Level (mOD)	Remarks
BH101	1.50	20/05/2016	SPG/GW	0.50	1.50	26/05/2016 11:20:00	Dry		
	1.50	20/05/2016	SPG/GW	0.50	1.50	02/06/2016 11:00:00	Dry		
	1.50	20/05/2016	SPG/GW	0.50	1.50	09/06/2016 10:00:00	1.42	52.73	
	1.50	20/05/2016	SPG/GW	0.50	1.50	16/06/2016 09:40:00	1.03	53.12	

KEY

SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe

CONCEPT
Unit 8, Warple Mews, Warple Way
W3 0RF
Telephone: 02088112880_Fax: 020881128801
E-mail: si@conceptconsultants.co.uk

GROUNDWATER MONITORING

Project: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

Job No: 16/2832

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH101

Installed depth(m):	**12.0**		mOD		54.16
Instrument Number	336613		Range	kPa	1000
k factor kPa	-0.09518248	per digit	Date Installed:		18/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
18/05/2016	09:00	3391	8698.0	0.00	0.00	0.00	Base Reading (Out of water)
26/05/2016	11:30	-	8150.4	52.13	47.48	5.32	Base Reading (In water)
02/06/2016	10:00	3510	8116.8	55.32	47.80	5.64	
09/06/2016	10:20	3525	8047.9	61.88	48.47	6.31	
16/06/2016	10:00	3568	7855.1	80.24	50.34	8.18	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE

GEOSENSE QUALITY FORM	
FORM No	G/QF/149
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	29/03/2016	SN.	8233
Serial	336613	Baro	995.0	Readout No.	2108
Works ID	G4 9 3	Temp °C	20	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	8790.2	8790.2	8790.2	1.07	0.07	0.31%	0.02%
10.007	69.000	8078.9	8078.9	8078.9	68.78	68.98	-0.06%	-0.01%
20.015	138.000	7362.8	7362.8	7362.8	136.95	137.76	-0.31%	-0.07%
30.022	207.000	6633.3	6633.3	6633.3	206.37	207.20	-0.18%	0.06%
40.029	276.000	5903.4	5903.4	5903.4	275.85	276.08	-0.04%	0.02%
50.036	345.000	5167.2	5167.2	5167.2	345.93	344.92	0.27%	-0.02%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 9th March 2016. Certificate of Calibration No 4160291, Issued by Minerva Metrology and Calibration (ILAC RVA No K048)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.09518248	-0.013805	-0.009706

Polynomial factors

	kPa	psi	mH_2O
A	-5.81333E-07	-8.43123E-08	-5.9280E-08
B	-0.087068182	-0.012628	-0.008878
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.055101711	-0.007991546	-0.005619

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD
GEOSENSE CERTIFIED ISO 9001:2008

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH101

Installed depth(m):	**22.0**		mOD		54.16
Instrument Number	336155		Range	kPa	1000
k factor kPa	-0.123101007	per digit	Date Installed:		18/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
18/05/2016	09:00	3338	8975.9	0.00	0.00	0.00	Base Reading (Out of water)
26/05/2016	11:30	-	7601.6	169.18	49.42	17.26	Base Reading (In water)
02/06/2016	10:00	3639	7551.5	175.34	50.04	17.88	
09/06/2016	10:20	3640	7547.4	175.85	50.10	17.94	
16/06/2016	10:00	3640	7547.4	175.85	50.10	17.94	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE

GEOSENSE QUALITY FORM	
FORM No G/QF/149	
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	08/01/2016	SN.	8233
Serial	336155	Baro	972.0	Readout No.	2108
Works ID	G2 12 65	Temp °C	19	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9011.8	9011.8	9011.8	0.35	0.09	0.07%	0.02%
15.083	104.000	8170.7	8170.7	8170.7	103.89	103.94	-0.02%	-0.01%
30.167	208.000	7328.3	7328.3	7328.3	207.59	207.80	-0.08%	-0.04%
45.250	312.000	6481.6	6481.6	6481.6	311.83	312.03	-0.03%	0.01%
60.334	416.000	5633.2	5633.2	5633.2	416.26	416.31	0.05%	0.06%
75.417	520.000	4789.8	4789.8	4789.8	520.08	519.82	0.02%	-0.03%

Calibration of Fluke PPC4E valid from 27 January 2015. Certificate of calibration 1500176298 (Traceable to ANSI/NCSL Z540.1 - NVLAP Lab code 105016-0)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.123101007	-0.017854	-0.012553

Polynomial factors

	kPa	psi	mH_2O
A	-1.09211E-07	-1.58391E-08	-1.1136E-08
B	-0.121593779	-0.017635	-0.012399
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.085500126	-0.012400308	-0.008719

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD GEOSENSE CERTIFIED ISO 9001

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH101

Installed depth(m):	**32.0**		mOD		54.16
Instrument Number	336160		Range	kPa	1000
k factor kPa	-0.117929303	per digit	Date Installed:		18/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
18/05/2016	09:00	3209	9711.5	0.00	0.00	0.00	Base Reading (Out of water)
26/05/2016	11:30	-	7777.9	228.03	45.42	23.26	Base Reading (In water)
02/06/2016	10:00	3613	7660.6	241.86	46.83	24.67	
09/06/2016	10:20	3620	7631.0	245.35	47.19	25.03	
16/06/2016	10:00	3619	7635.2	244.86	47.14	24.98	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE QUALITY FORM	
FORM No G/QF/149	
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	08/01/2016	SN.	8233
Serial	336160	Baro	972.0	Readout No.	2108
Works ID	G2 12 70	Temp °C	19	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9715.6	9715.6	9715.6	1.02	-0.05	0.20%	-0.01%
15.083	104.000	8843.3	8843.3	8843.3	103.89	104.10	-0.02%	0.02%
30.167	208.000	7968.1	7968.1	7968.1	207.11	207.97	-0.17%	-0.01%
45.250	312.000	7086.5	7086.5	7086.5	311.07	311.95	-0.18%	-0.01%
60.334	416.000	6198.5	6198.5	6198.5	415.80	416.03	-0.04%	0.01%
75.417	520.000	5305.8	5305.8	5305.8	521.07	520.00	0.21%	0.00%

Calibration of Fluke PPC4E valid from 27 January 2015. Certificate of calibration 1500176298 (Traceable to ANSI/NCSL Z540.1 - NVLAP Lab code 105016-0)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.117929303	-0.017104	-0.012025

Polynomial factors

	kPa	psi	mH_2O
A	-4.14977E-07	-6.01852E-08	-4.2316E-08
B	-0.111695616	-0.016200	-0.011390
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.021228586	-0.003078838	-0.002165

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH101

Installed depth(m):	**42.0**		mOD		54.16
Instrument Number	336179		Range	kPa	1000
k factor kPa	-0.12313397	per digit	Date Installed:		18/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
18/05/2016	09:00	3256	9434.3	0.00	0.00	0.00	Base Reading (Out of water)
26/05/2016	11:30	-	6827.2	321.03	44.90	32.74	Base Reading (In water)
02/06/2016	10:00	3857	6722.0	333.98	46.23	34.07	
09/06/2016	10:20	3865	6694.2	337.40	46.57	34.41	
16/06/2016	10:00	3862	6704.6	336.12	46.44	34.28	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE QUALITY FORM	
FORM No G/QF/149	
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	08/01/2016	SN.	8233
Serial	336179	Baro	972.0	Readout No.	2108
Works ID	G2 12 89	Temp °C	19	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9464.1	9464.1	9464.1	0.79	-0.06	0.15%	-0.01%
15.083	104.000	8626.3	8626.3	8626.3	103.96	104.12	-0.01%	0.02%
30.167	208.000	7787.2	7787.2	7787.2	207.27	207.95	-0.14%	-0.01%
45.250	312.000	6942.5	6942.5	6942.5	311.29	311.97	-0.14%	-0.01%
60.334	416.000	6093.5	6093.5	6093.5	415.82	416.00	-0.03%	0.00%
75.417	520.000	5240.5	5240.5	5240.5	520.86	520.01	0.16%	0.00%

Calibration of Fluke PPC4E valid from 27 January 2015. Certificate of calibration 1500176298 (Traceable to ANSI/NCSL Z540.1 - NVLAP Lab code 105016-0)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.12313397	-0.017858	-0.012556

Polynomial factors

	kPa	psi	mH_2O
A	-3.55228E-07	-5.15197E-08	-3.6223E-08
B	-0.117910377	-0.017101	-0.012024
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
0.082131315	0.011911721	0.008375

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH102

Installed depth(m):	**7.0**		MoD		54.16
Instrument Number	336611		Range	kPa	1000
k factor kPa	-0.097266155	per digit	Date Installed:		13/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
13/05/2016	09:00	3255	9440.1	0.00	0.00	0.00	Base Reading (Out of water)
16/05/2016	09:30	3417	8564.7	85.15	55.85	8.69	Base Reading (In water)
17/05/2016	09:00	3541	7975.3	142.48	61.69	14.53	
18/05/2016	10:00	3633	7576.5	181.27	65.65	18.49	
26/05/2016	11:00	3996	6262.5	309.07	78.69	31.53	
02/06/2016	10:20	4176	5734.3	360.45	83.93	36.77	
09/06/2016	10:30	4408	5146.6	417.62	89.76	42.60	
16/06/2016	10:15	4597	4732.1	457.94	93.87	46.71	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE

GEOSENSE QUALITY FORM	
FORM No	G/QF/149
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	29/03/2016	SN.	8233
Serial	336611	Baro	995.0	Readout No.	2108
Works ID	G4 9 1	Temp °C	20	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9482.0	9482.0	9482.0	0.98	0.04	0.28%	0.01%
10.007	69.000	8784.7	8784.7	8784.7	68.79	68.98	-0.06%	-0.01%
20.015	138.000	8081.7	8081.7	8081.7	137.17	137.93	-0.24%	-0.02%
30.022	207.000	7371.8	7371.8	7371.8	206.22	207.00	-0.23%	0.00%
40.029	276.000	6655.2	6655.2	6655.2	275.92	276.13	-0.02%	0.04%
50.036	345.000	5936.1	5936.1	5936.1	345.87	344.93	0.25%	-0.02%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 9th March 2016. Certificate of Calibration No 4160291, Issued by Minerva Metrology and Calibration (ILAC RVA No K048)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.097266155	-0.014107	-0.009918

Polynomial factors

	kPa	psi	mH_2O
A	-5.65631E-07	-8.2035E-08	-5.7678E-08
B	-0.088544988	-0.012842	-0.009029
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.01810272	-0.002625485	-0.001846

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD
GEOSENSE CERTIFIED ISO 9001:2008

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH102

Installed depth(m):	**17.0**		MoD		54.16
Instrument Number	336612		Range	kPa	1000
k factor kPa	-0.092145039	per digit	Date Installed:		13/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
13/05/2016	09:00	3240	9526.6	0.00	0.00	0.00	Base Reading (Out of water)
16/05/2016	09:30	3467	8319.4	111.23	48.51	11.35	Base Reading (In water)
17/05/2016	09:00	3485	8233.7	119.13	49.31	12.15	
18/05/2016	10:00	3492	8200.7	122.17	49.62	12.46	
26/05/2016	11:00	3541	7975.3	142.94	51.74	14.58	
02/06/2016	10:20	3729	7191.4	215.17	59.11	21.95	
09/06/2016	10:30	4358	5265.3	392.65	77.21	40.05	
16/06/2016	10:15	3978	6319.3	295.53	67.30	30.14	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE

GEOSENSE QUALITY FORM	
FORM No	G/QF/149
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	29/03/2016	SN.	8233
Serial	336612	Baro	995.0	Readout No.	2108
Works ID	G4 9 2	Temp °C	20	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9602.0	9602.0	9602.0	1.09	0.04	0.31%	0.01%
10.007	69.000	8867.2	8867.2	8867.2	68.79	69.00	-0.06%	0.00%
20.015	138.000	8126.1	8126.1	8126.1	137.08	137.93	-0.27%	-0.02%
30.022	207.000	7377.7	7377.7	7377.7	206.04	206.90	-0.28%	-0.03%
40.029	276.000	6618.2	6618.2	6618.2	276.02	276.26	0.01%	0.07%
50.036	345.000	5859.5	5859.5	5859.5	345.93	344.88	0.27%	-0.03%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 9th March 2016. Certificate of Calibration No 4160291, Issued by Minerva Metrology and Calibration (ILAC RVA No K048)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.092145039	-0.013364	-0.009396

Polynomial factors

	kPa	psi	mH_2O
A	-5.67514E-07	-8.23081E-08	-5.7870E-08
B	-0.083370407	-0.012091	-0.008501
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.09054056	-0.013131336	-0.009233

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD
GEOSENSE CERTIFIED ISO 9001:2008

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH102

Installed depth(m):	**27.0**		MoD		54.16
Instrument Number	336649		Range	kPa	1000
k factor kPa	-0.097179006	per digit	Date Installed:		13/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
13/05/2016	09:00	3232	9574.4	0.00	0.00	0.00	Base Reading (Out of water)
16/05/2016	09:30	3717	7237.9	227.05	50.32	23.16	Base Reading (In water)
17/05/2016	09:00	3933	6464.8	302.19	57.98	30.82	
18/05/2016	10:00	4037	6136.0	334.14	61.24	34.08	
26/05/2016	11:00	4895	4173.4	524.86	80.70	53.54	
02/06/2016	10:20	4234	5578.3	388.34	66.77	39.61	
09/06/2016	10:30	4641	4642.8	479.25	76.04	48.88	
16/06/2016	10:15	4789	4360.2	506.71	78.84	51.68	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE

GEOSENSE QUALITY FORM	
FORM No G/QF/149	
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	29/03/2016	SN.	8233
Serial	336649	Baro	995.0	Readout No.	2108
Works ID	G4 9 39	Temp °C	20	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9608.0	9608.0	9608.0	1.05	0.01	0.30%	0.00%
10.007	69.000	8910.8	8910.8	8910.8	68.81	69.01	-0.06%	0.00%
20.015	138.000	8207.6	8207.6	8207.6	137.14	137.98	-0.25%	-0.01%
30.022	207.000	7498.2	7498.2	7498.2	206.08	206.94	-0.27%	-0.02%
40.029	276.000	6779.9	6779.9	6779.9	275.88	276.12	-0.03%	0.03%
50.036	345.000	6058.5	6058.5	6058.5	345.99	344.95	0.29%	-0.01%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 9th March 2016. Certificate of Calibration No 4160291, Issued by Minerva Metrology and Calibration (ILAC RVA No K048)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.097179006	-0.014094	-0.009910

Polynomial factors

	kPa	psi	mH_2O
A	-6.24637E-07	-9.05927E-08	-6.3695E-08
B	-0.087392875	-0.012675	-0.008912
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
-0.031669156	-0.004593061	-0.003229

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD — GEOSENSE CERTIFIED ISO 9001:2008

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH102

Installed depth(m):	**37.0**		MoD		54.16
Instrument Number	336156		Range	kPa	1000
k factor kPa	-0.123676353	per digit	Date Installed:		13/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
13/05/2016	09:00	3215	9672.9	0.00	0.00	0.00	Base Reading (Out of water)
16/05/2016	09:30	3571	7841.9	226.45	40.26	23.10	Base Reading (In water)
17/05/2016	09:00	3591	7754.8	237.23	41.36	24.20	
18/05/2016	10:00	3607	7686.1	245.72	42.22	25.06	
26/05/2016	11:00	3674	7408.4	280.07	45.73	28.57	
02/06/2016	10:20	3675	7404.3	280.57	45.78	28.62	
09/06/2016	10:30	3675	7404.3	280.57	45.78	28.62	
16/06/2016	10:15	3691	7340.3	288.49	46.59	29.43	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE QUALITY FORM	
FORM No	G/QF/149
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	08/01/2016	SN.	8233
Serial	336156	Baro	972.0	Readout No.	2108
Works ID	G2 12 66	Temp °C	19	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9714.8	9714.8	9714.8	0.57	-0.03	0.11%	-0.01%
15.083	104.000	8878.2	8878.2	8878.2	104.04	104.16	0.01%	0.03%
30.167	208.000	8042.9	8042.9	8042.9	207.34	207.82	-0.13%	-0.03%
45.250	312.000	7201.2	7201.2	7201.2	311.44	311.93	-0.11%	-0.01%
60.334	416.000	6355.0	6355.0	6355.0	416.09	416.21	0.02%	0.04%
75.417	520.000	5510.7	5510.7	5510.7	520.51	519.91	0.10%	-0.02%

Calibration of Fluke PPC4E valid from 27 January 2015. Certificate of calibration 1500176298 (Traceable to ANSI/NCSL Z540.1 - NVLAP Lab code 105016-0)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.123676353	-0.017937	-0.012611

Polynomial factors

	kPa	psi	mH_2O
A	-2.56595E-07	-3.72147E-08	-2.6165E-08
B	-0.11976972	-0.017371	-0.012213
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
0.046248648	0.006707563	0.004716

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARD GEOSENSE ISO 9001

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

CONCEPT SITE INVESTIGATIONS

Vibrating Wire Piezometer: BH102

Installed depth(m):	**47.0**		MoD		54.16
Instrument Number	336161		Range	kPa	1000
k factor kPa	-0.11994047	per digit	Date Installed:		13/05/2016

Date	Time	Microseconds	Digits (B units)	Pressure kPa	Reduced Level (mOD)	Head (m)	Remarks
13/05/2016	09:00	3257	9426.8	0.00	0.00	0.00	Base Reading (Out of water)
26/05/2016	11:00	3920	6507.7	350.12	42.87	35.71	Base Reading (In water)
02/06/2016	10:20	3945	6425.5	359.98	43.88	36.72	
09/06/2016	10:30	3951	6406.0	362.32	44.12	36.96	
16/06/2016	10:15	3948	6415.7	361.15	44.00	36.84	

Note: For ease of entry, using mini readout CLP04, the reading of 0.03389 has beeen entered as 3389

GEOSENSE QUALITY FORM	
FORM No	G/QF/149
ISS.	7
DATE :	Jan-16
SIG.	GC

STANDARD VW PIEZOMETER HAE CALIBRATION

Model	VWP-3001	Cal date	08/01/2016	SN.	8233
Serial	336161	Baro	972.0	Readout No.	2108
Works ID	G2 12 71	Temp °C	19	R/O Cal. date	21/05/2015

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	9466.6	9466.6	9466.6	1.09	-0.06	0.21%	-0.01%
15.083	104.000	8609.3	8609.3	8609.3	103.91	104.14	-0.02%	0.03%
30.167	208.000	7749.8	7749.8	7749.8	207.01	207.93	-0.19%	-0.01%
45.250	312.000	6882.4	6882.4	6882.4	311.03	311.97	-0.19%	-0.01%
60.334	416.000	6009.3	6009.3	6009.3	415.76	416.01	-0.05%	0.00%
75.417	520.000	5130.5	5130.5	5130.5	521.16	520.01	0.22%	0.00%

Calibration of Fluke PPC4E valid from 27 January 2015. Certificate of calibration 1500176298 (Traceable to ANSI/NCSL Z540.1 - NVLAP Lab code 105016-0)

CALIBRATION FACTORS

Linear factor (k)

kPa per digit	psi per digit	mH_2O per digit
-0.11994047	-0.017395	-0.012231

Polynomial factors

	kPa	psi	mH_2O
A	-4.61755E-07	-6.69695E-08	-4.7086E-08
B	-0.113200039	-0.016418	-0.011543
C			

Thermal factor (T)

kPa per °C	psi per °C	mH_2O per °C
0.026552546	0.003850986	0.002708

Note: Digits are $Hz^2 \times 10^{-3}$ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)^2 + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading^2) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

CALIBRATED TO UKAS TRACEABLE STANDARDS GEOSENSE ISO 9001:2008

THIS CERTIFICATE IS VALID ONLY WHEN CARRYING THE OFFICIAL ORIGINAL STAMP OF GEOSENSE BELOW

Nova House, Rougham Industrial Estate, Rougham, Bury St Edmunds, Suffolk, IP30 9ND, England
t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk www.geosense.co.uk

10. GEOTECHNICAL LABORATORY TEST RESULTS

CONCEPT SITE INVESTIGATIONS

Site Name:	100 Avenue Road, Swiss Cottage	**Job No.:**	16/2832
Client:	Essential Living Ltd	**Date Reported:**	06/07/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH101	UT	05	1.50	Firm to stiff, brown CLAY with rare pockets of yellowish brown fine sand (<20mm), selenite crystals and a pyrite nodule (10x10mm)	31	99	79	28	51	
BH101	UT	15	7.50	Stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), reddish brown staining, a pyrite nodule (11x5mm) and a pyritised wood fragment (15x11mm)	25	99	69	28	41	
BH101	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), bioturbation and pyrite nodules (<12mm)	26	99	70	26	44	
BH101	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<35mm), bioturbation and white flecks	29	100	78	31	47	
BH101	UT	45	25.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and rare shell fragments	27	99	75	29	46	
BH101	UT	55	31.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<30mm), bioturbation and white flecks	24	100	71	26	45	
BH101	UT	60	34.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), occasional bioturbation and rare shell fragments	25	99	71	29	42	
BH101	UT	70	40.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and a pyrite nodule (8x5mm)	25	99	74	31	43	
BH101	U	80	46.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), bioturbation, white flecks and a pyrite nodule (10x15mm)	23	99	71	25	46	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS Association of Geotechnical & Geoenvironmental Specialists

UKAS TESTING 4503

Date - samples received:	20/05/2016	Checked by:	DB
Date - samples tested:	27/06/2016	Date:	04/07/2016
Approved Signatories:	A G Bates - AGB (Quality Mngr) - D Beever - DB (Lab Mngr)	DB	

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	100 Avenue Road, Swiss Cottage	**Job No.:**	16/2832
Client:	Essential Living Ltd	**Date Reported:**	06/07/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH102	UT	05	1.50	Firm to stiff, extremely closely fissured brown CLAY with rare selenite crystals	31	99	76	29	47	
BH102	UT	15	7.50	Stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare white flecks	26	100	72	27	45	
BH102	UT	20	10.50	Very stiff, greyish brown silty CLAY with rare white flecks, bioturbation and a parting of yellowish brown fine sand at 10.58m	26	100	75	27	48	
BH102	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	28	100	74	27	47	
BH102	UT	45	25.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and rare orangish brown discolouration below 25.66m	27	100	78	28	50	
BH102	UT	55	31.50	Very stiff, greyish brown slightly micaceous CLAY with occasional pockets of yellowish brown fine sand (<8mm) and reddish brown discolouration	23	100	71	27	44	
BH102	UT	65	37.50	Very stiff, greyish brown slightly micaceous CLAY with rare partings of light brown fine sand, shell fragments and bioturbation	27	99	69	23	46	
BH102	U	75	43.50	Very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with occasional pockets of light brown fine sand (<11mm) and rare white flecks	26	100	79	28	51	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS Association of Geotechnical & Geoenvironmental Specialists

UKAS TESTING 4503

Date - samples received:	16/05/2016	Checked by:	DB
Date - samples tested:	01/07/2016	Date:	05/07/2016
Approved Signatories:	A G Bates - AGB (Quality Mngr) - D Beever - DB (Lab Mngr)	DB	

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	100 Avenue Road, Swiss Cottage	**Job No.:**	16/2832
Client:	Essential Living Ltd	**Date Reported:**	06/07/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH105	UT	05	1.50	Firm to stiff, brown CLAY with rare pockets of yellowish brown fine sand (<20mm), selenite crystals and a pyrite nodule (10x10mm)	30	99	75	28	47	
BH105	UT	10	4.50	Firm to stiff, locally extremely closely fissured brown CLAY with frequent yellowish brown discolouration and occasional selenite crystals	28	99	76	28	48	
BH105	UT	15	7.50	Stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), reddish brown staining, a pyrite nodule (11x5mm) and a pyritised wood fragment (15x11mm)	26	99	73	27	46	
BH105	UT	20	10.50	Stiff, greyish brown slightly micaceous CLAY with occasional bioturbation and a pyrite nodule (20x11mm)	27	99	79	27	52	
BH105	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), bioturbation and pyrite nodules (<12mm)	24	99	74	27	47	
BH105	UT	31	17.00	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pyrite nodules (<10mm), shell fragments, bioturbation and a pyritised wood fragment (4x3mm)	28	99	76	31	45	
BH105	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<35mm), bioturbation and white flecks	25	100	76	27	49	
BH105	UT	40	22.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<45mm), occasional bioturbation and rare white flecks	26	100	74	28	46	
BH105	UT	45	25.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and rare shell fragments	27	99	77	28	49	
BH105	UT	50	28.50	Very stiff, greyish brown slightly micaceous CLAY with rare polished surfaces, white flecks and bioturbation	26	100	75	29	46	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS Association of Geotechnical & Geoenvironmental Specialists

UKAS TESTING 4503

Date - samples received:	12/05/2016	Checked by:	DB
Date - samples tested:	25/06/2016	Date:	05/07/2016
Approved Signatories:	A G Bates - AGB (Quality Mngr) - D Beever - DB (Lab Mngr)	DB	

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	100 Avenue Road, Swiss Cottage	**Job No.:**	16/2832
Client:	Essential Living Ltd	**Date Reported:**	06/07/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH106	UT	05	1.50	Firm, locally extremely closely fissured brown CLAY with occasional selenite crystals, rare bluish grey discolouration and rootlets	31	99	73	26	47	
BH106	UT	10	4.50	Firm to stiff, locally extremely closely fissured brown CLAY with frequent yellowish brown discolouration and occasional selenite crystals	29	99	75	28	47	
BH106	UT	15	7.50	Stiff to very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm), selenite crystals and bioturbation	27	99	72	26	46	
BH106	UT	20	10.50	Stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm) and bioturbation	28	100	70	28	42	
BH106	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), bioturbation and pyrite nodules (<7mm)	24	99	70	23	47	
BH106	UT	30	16.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm), pyrite nodules (<18mm), bioturbation and shell fragments	28	99	73	29	44	
BH106	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm) and bioturbation	26	100	74	26	48	
BH106	UT	40	22.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<10mm) and bioturbation	26	100	75	28	47	
BH106	UT	45	25.50	Very stiff, locally stiff greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<45mm), pyrite nodules (<35mm), bioturbation and white flecks	27	99	74	31	43	
BH106	UT	50	28.50	Very stiff, locally very closely fissured greyish brown slightly micaceous CLAY with rare foraminifera, bioturbation and pyrite nodules (<20mm)	26	99	74	31	43	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

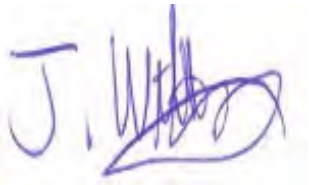
UKAS TESTING
4503

Date - samples received:	09/05/2016	Checked by:	DB
Date - samples tested:	29/06/2016	Date:	05/07/2016
Approved Signatories:	A G Bates - AGB (Quality Mngr) - D Beever - DB (Lab Mngr)	DB	

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618
Facsimile: (01424) 729911
info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-07389
Issue:	1
Date of Issue:	28/06/2016
Contact:	Darren Beever
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q15-00395
Order No:	L1241
Customer Reference:	16/2832
Date Received:	22/06/2016
Date Approved:	28/06/2016
Details:	Swiss Cottage
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-07389

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
65622	BH101 UT10 4.50 - 4.95	21/06/2016	22/06/2016	Silty clayey loam	
65623	BH101 UT30 16.50 - 16.95	21/06/2016	22/06/2016	Clay	
65624	BH101 UT60 34.50 - 34.90	21/06/2016	22/06/2016	Clay	
65625	BH101 U80 46.50 - 46.95	21/06/2016	22/06/2016	Clay	
65626	BH102 UT15 7.50 - 7.95	21/06/2016	22/06/2016	Silty clay	
65627	BH102 UT40 22.50 - 22.95	21/06/2016	22/06/2016	Clay	
65628	BH102 U75 43.50 - 43.95	21/06/2016	22/06/2016	Clay	
65629	BH105 UT10 4.50 - 4.95	21/06/2016	22/06/2016	Clay	
65630	BH105 UT31 17.00 - 17.45	21/06/2016	22/06/2016	Clay	
65631	BH105 UT50 28.50 - 28.90	21/06/2016	22/06/2016	Silty clay	

Results Summary

Report No.: 16-07389

			ELAB Reference	65622	65623	65624	65625	65626
			Customer Reference	UT10	UT30	UT60	U80	UT15
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH101	BH101	BH101	BH101	BH102
			Sample Depth (m)	4.50 - 4.95	16.50 - 16.95	34.50 - 34.90	46.50 - 46.95	7.50 - 7.95
			Sampling Date	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	mg/l	20	3100	526	431	944	1160
Miscellaneous								
pH	M	pH units	0.1	7.8	8.5	8.6	8.1	8.0

Results Summary

Report No.: 16-07389

			ELAB Reference	65627	65628	65629	65630	65631
			Customer Reference	UT40	U75	UT10	UT31	UT50
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH102	BH102	BH105	BH105	BH105
			Sample Depth (m)	22.50 - 22.95	43.50 - 43.95	4.50 - 4.95	17.00 - 17.45	28.50 - 28.90
			Sampling Date	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	mg/l	20	485	793	2540	693	582
Miscellaneous								
pH	M	pH units	0.1	8.6	8.4	7.8	8.4	8.5

Sample Summary

Report No.: 16-07556

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
66705	BH106 UT05 1.50 - 1.95	21/06/2016	05/07/2016	Clay	
66706	BH106 UT25 13.50 - 13.95	21/06/2016	05/07/2016	Clay	
66707	BH106 UT45 25.50 - 25.95	21/06/2016	05/07/2016	Clay	

Results Summary

Report No.: 16-07556

			ELAB Reference	66705	66706	66707
			Customer Reference	UT05	UT25	UT45
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH106	BH106	BH106
			Sample Depth (m)	1.50 - 1.95	13.50 - 13.95	25.50 - 25.95
			Sampling Date	21/06/2016	21/06/2016	21/06/2016
Determinand	**Codes**	**Units**	**LOD**			
Anions						
Water Soluble Sulphate	M	mg/l	20	3130	937	703
Miscellaneous						
pH	M	pH units	0.1	7.6	8.1	8.2

2683

Method Summary

Report No.: 16-07556

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	06/07/2016	113	Electromeric
Water soluble anions	M	Air dried sample	06/07/2016	172	Ion Chromatography

Report Information

Report No.: 16-07556

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	05	1.50	Firm, locally extremely closely fissured brown CLAY with frequent selenite crystals, rare grey discolouration and rootlets	30	4.1	1.919	1.470	31	160	80	Brittle
BH101	UT	10	4.50	Firm to stiff, extremely closely fissured brown CLAY with rare pockets of yellowish brown fine sand (<15mm), frequent yellowish brown discolouration and occasional selenite crystals	90	4.8	1.911	1.472	30	173	87	Brittle
BH101	UT	15	7.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of dark grey fine sand (<35mm), bioturbation, a pyrite nodule (19x11mm) and a claystone fragment (40x50mm) at 7.53m	150	5.2	2.025	1.622	25	374	187	Brittle (Sample tested between 7.62 and 7.80m)
BH101	UT	20	10.50	Very stiff, greyish brown slightly micaceous CLAY with rare pyrite nodules (<5mm), shell fragments, bioturbation and a claystone fragment (27x22mm) at 10.51m	210	3.8	1.989	1.557	28	308	154	Brittle (Sample tested between 10.55 and 10.75m)
BH101	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), occasional pyrite nodules (<25mm), rare bioturbation and shell fragments	270	3.5	2.016	1.597	26	317	159	Brittle
BH101	UT	30	16.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation and rare shell fragments	330	2.5	2.014	1.602	26	357	179	Brittle

Date - samples received: 20/05/2016

Date - samples tested: 20/06/2016

Checked by: DB Date: 04/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare bioturbation and a pyritised wood fragment (25x10m)	390	2.8	1.957	1.519	29	303	152	Brittle
BH101	UT	40	22.50	Very stiff, greyish brown slightly micaceous CLAY with rare shell fragments and bioturbation	450	3.2	2.023	1.615	25	322	161	Brittle
BH101	UT	45	25.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), bioturbation and white flecks	510	3.7	1.998	1.577	27	407	204	Brittle
BH101	UT	50	28.50	Very stiff, greyish brown slightly micaceous CLAY with rare bioturbation and a pyrite nodule (21x14mm)	570	3.7	2.025	1.614	25	339	170	Brittle
BH101	UT	55	31.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<30mm), bioturbation and white flecks	630	3.0	2.048	1.649	24	464	232	Brittle
BH101	UT	60	34.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), occasional bioturbation and rare shell fragments	690	1.7	2.038	1.632	25	402	201	Brittle

Date - samples received: 20/05/2016

Date - samples tested: 21/06/2016

Checked by: DB Date: 04/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH101	UT	65	37.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with occasional bioturbation and white flecks	750	1.4	2.046	1.649	24	417	209	Brittle
BH101	UT	70	40.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and a pyrite nodule (8x5mm)	810	1.8	2.029	1.623	25	640	320	Brittle
BH101	UT	75	43.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with frequent white flecks, rare black flecks and bioturbation	870	7.8	1.971	1.586	24	922	461	Brittle
BH101	U	80	46.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), bioturbation, white flecks and a pyrite nodule (10x15mm)	930	7.6	1.978	1.614	23	1036	518	Brittle with slight plastic deformation

Date - samples received: 20/05/2016

Date - samples tested: 22/06/2016

Checked by: DB Date: 04/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	05	1.50	Firm to stiff, extremely closely fissured brown CLAY with rare selenite crystals	30	4.5	1.915	1.464	31	186	93	Brittle
BH102	UT	10	4.50	Firm, locally extremely closely fissured orangish brown CLAY with rare dark grey discolouration and selenite crystals	90	4.3	1.935	1.510	28	194	97	Brittle
BH102	UT	15	7.50	Stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare white flecks	150	3.6	1.998	1.585	26	275	138	Brittle
BH102	UT	20	10.50	Very stiff, greyish brown silty CLAY with rare white flecks, bioturbation and a parting of yellowish brown fine sand at 10.58m	210	3.6	2.001	1.590	26	509	255	Brittle (Sample tested between 10.53 and 10.73m)
BH102	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of yellowish brown fine sand (<16mm), bioturbation and a parting of yellowish brown fine sand at 13.60m	270	3.2	2.009	1.595	26	351	176	Brittle (Sample tested between 13.54 and 13.74m)
BH102	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare bioturbation and white flecks	390	4.2	1.971	1.542	28	308	154	Brittle

Date - samples received: 16/05/2016

Date - samples tested: 21/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS Association of Geotechnical & Geoenvironmental Specialists

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	40	22.50	Stiff to very stiff, greyish brown slightly micaceous CLAY with rare white flecks and bioturbation	450	3.1	2.025	1.621	25	493	247	Brittle
BH102	UT	45	25.50	Very stiff, extremely closely to very closely fissured greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and rare orangish brown discolouration below 25.66m	510	2.7	1.932	1.522	27	438	219	Brittle (Sample tested between 25.54 and 25.74m)
BH102	UT	50	28.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of orangish yellow fine sand (<8mm), occasional bioturbation, reddish brown discolouration and rare shell fragments	570	3.6	2.001	1.589	26	530	265	Brittle
BH102	UT	55	31.50	Very stiff, greyish brown slightly micaceous CLAY with occasional pockets of yellowish brown fine sand (<8mm) and reddish brown discolouration	630	2.8	2.061	1.670	23	498	249	Brittle
BH102	UT	60	34.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous slightly sandy CLAY with occasional pockets of reddish brown fine sand (<15mm)	690	2.2	2.033	1.626	25	788	394	Brittle
BH102	UT	65	37.50	Very stiff, greyish brown slightly micaceous CLAY with rare partings of light brown fine sand, shell fragments and bioturbation	750	2.5	1.983	1.565	27	299	150	Brittle

Date - samples received: 16/05/2016

Date - samples tested: 27/06/2016

Checked by: 5/7/16 Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH102	UT	70	40.50	Very stiff, greyish brown slightly micaceous CLAY with rare foraminifera and bioturbation								Sample unsuitable for testing (Sample cracked along partings before test)
BH102	U	75	43.50	Very stiff, extremely closely fissured greyish brown slightly micaceous CLAY with occasional pockets of light brown fine sand (<11mm) and rare white flecks	870	3.2	1.928	1.528	26	461	231	Brittle
BH102	U	80	46.50	Very stiff, locally extremely closely fissured greyish brown slightly micaceous slightly sandy CLAY with rare pockets of light brown fine sand (<15mm), occasional white flecks and bioturbation	930	5.9	1.889	1.512	25	585	293	Brittle

Date - samples received: 16/05/2016

Date - samples tested: 30/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING
4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH105	UT	05	1.50	Firm to stiff, brown CLAY with rare pockets of yellowish brown fine sand (<20mm), selenite crystals and a pyrite nodule (10x10mm)	30	5.0	1.921	1.477	30	183	92	Brittle
BH105	UT	10	4.50	Firm to stiff, locally extremely closely fissured brown CLAY with frequent yellowish brown discolouration and occasional selenite crystals	90	5.9	1.962	1.531	28	201	101	Brittle
BH105	UT	15	7.50	Stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), reddish brown staining, a pyrite nodule (11x5mm) and a pyritised wood fragment (15x11mm)	150	3.7	2.031	1.608	26	272	136	Brittle
BH105	UT	20	10.50	Stiff, greyish brown slightly micaceous CLAY with occasional bioturbation and a pyrite nodule (20x11mm)	210	7.2	2.008	1.580	27	339	170	Brittle
BH105	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<25mm), bioturbation and pyrite nodules (<12mm)	270	4.9	2.042	1.644	24	383	192	Brittle
BH105	UT	31	17.00	Very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pyrite nodules (<10mm), shell fragments, bioturbation and a pyritised wood fragment (4x3mm)	340	3.0	1.999	1.567	28	315	158	Brittle

Date - samples received: 12/05/2016

Date - samples tested: 22/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING
4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH105	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<35mm), bioturbation and white flecks	390	3.7	2.007	1.607	25	374	187	Brittle
BH105	UT	40	22.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<45mm), occasional bioturbation and rare white flecks	450	3.1	2.007	1.592	26	356	178	Brittle
BH105	UT	45	25.50	Very stiff, greyish brown slightly micaceous CLAY with occasional bioturbation, white flecks and rare shell fragments	510	2.9	1.976	1.554	27	279	140	Brittle
BH105	UT	50	28.50	Very stiff, greyish brown slightly micaceous CLAY with rare polished surfaces, white flecks and bioturbation	570	2.1	2.012	1.602	26	768	384	Brittle

Date - samples received: 12/05/2016

Date - samples tested: 23/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH106	UT	35	19.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm) and bioturbation	390	2.4	1.999	1.584	26	261	131	Brittle
BH106	UT	40	22.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<10mm) and bioturbation	450	5.0	1.992	1.575	26	386	193	Brittle
BH106	UT	45	25.50	Very stiff, locally stiff greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<45mm), pyrite nodules (<35mm), bioturbation and white flecks	510	5.8	2.003	1.577	27	402	201	Brittle with slight plastic deformation
BH106	UT	50	28.50	Very stiff, locally very closely fissured greyish brown slightly micaceous CLAY with rare foraminifera, bioturbation and pyrite nodules (<20mm)	570	1.6	2.015	1.599	26	307	154	Brittle

Date - samples received: 09/05/2016

Date - samples tested: 27/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

CONCEPT SITE INVESTIGATIONS

Summary Test Report - Undrained Triaxial Compression (Single-Stage)

BS 1377 : Part 7: 1990 Clause 8

Date Reported: 06/07/2016

Job No.: 16/2832

Site Location: 100 Avenue Road, Swiss Cottage

Client: Essential Living Ltd

BH No.	Sample Type	Sample No	Depth top (m)	Description	Cell pressure kN/m2	Strain at failure %	Bulk Density Mg/m3	Dry Density Mg/m3	NMC %	Max Dev. Stress kPa	Shear Strength kPa	Mode of failure/Comments
BH106	UT	05	1.50	Firm, locally extremely closely fissured brown CLAY with occasional selenite crystals, rare bluish grey discolouration and rootlets	30	6.1	1.915	1.463	31	125	63	Brittle
BH106	UT	10	4.50	Firm to stiff, locally extremely closely fissured brown CLAY with frequent yellowish brown discolouration and occasional selenite crystals	90	5.0	1.934	1.500	29	228	114	Brittle
BH106	UT	15	7.50	Stiff to very stiff, locally extremely closely fissured greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm), selenite crystals and bioturbation	150	6.6	2.009	1.580	27	323	162	Brittle
BH106	UT	20	10.50	Stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm) and bioturbation	210	3.2	1.973	1.542	28	245	123	Brittle
BH106	UT	25	13.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<20mm), bioturbation and pyrite nodules (<7mm)	270	5.1	2.021	1.625	24	397	199	Brittle
BH106	UT	30	16.50	Very stiff, greyish brown slightly micaceous CLAY with rare pockets of grey fine sand (<40mm), pyrite nodules (<18mm), bioturbation and shell fragments	330	4.3	1.999	1.567	28	370	185	Brittle

Date - samples received: 09/05/2016

Date - samples tested: 24/06/2016

Checked by: DB Date: 05/07/2016

Approved Signatories: A G Bates AGB (Quality Mngr) - D Beever DB (Lab Mngr) **DB**

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING
4503

11. CHEMICAL TEST RESULTS

Evangelos Kafantaris
Concept Site Investigations
Unit 8
Warple Mews
Warple Way
London
W3 0RF

t: 020 88112880

e: evangelos@conceptconsultants.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-18053

Project / Site name:	100 Avenue Road, Swiss Cottage	**Samples received on:**	06/05/2016
Your job number:	16-2832	**Samples instructed on:**	18/05/2016
Your order number:	CL673	**Analysis completed by:**	27/05/2016
Report Issue Number:	1	**Report issued on:**	27/05/2016
Samples Analysed:	1 soil sample		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18053

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL673

Lab Sample Number				576102				
Sample Reference				BH106				
Sample Number				1				
Depth (m)				0.52				
Date Sampled				05/05/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	27				
Total mass of sample received	kg	0.001	NONE	1.9				
General Inorganics								
pH	pH Units	N/A	MCERTS	9.0				
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.9				
Organic Matter	%	0.1	MCERTS	0.3				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10				
Anthracene	mg/kg	0.1	MCERTS	< 0.10				
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Pyrene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60				

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18053

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL673

Lab Sample Number				576102				
Sample Reference				BH106				
Sample Number				1				
Depth (m)				0.52				
Date Sampled				05/05/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16				
Boron (water soluble)	mg/kg	0.2	MCERTS	4.0				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	53				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	160				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	57				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74				
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	5.3				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	17				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18053

Project / Site name: 100 Avenue Road, Swiss Cottage

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
576102	BH106	1	0.52	Light brown clay and sand.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18053

Project / Site name: 100 Avenue Road, Swiss Cottage

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Evangelos Kafantaris
Concept Site Investigations
Unit 8
Warple Mews
Warple Way
London
W3 0RF

t: 020 88112880

e: evangelos@conceptconsultants.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-18054

Project / Site name:	100 Avenue Road, Swiss Cottage	**Samples received on:**	09/05/2016
Your job number:	16-2832	**Samples instructed on:**	18/05/2016
Your order number:	CL672	**Analysis completed by:**	27/05/2016
Report Issue Number:	1	**Report issued on:**	27/05/2016
Samples Analysed:	1 soil sample		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18054

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL672

Lab Sample Number				576103				
Sample Reference				BH105				
Sample Number				1				
Depth (m)				0.50				
Date Sampled				06/05/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	23				
Total mass of sample received	kg	0.001	NONE	1.9				
General Inorganics								
pH	pH Units	N/A	MCERTS	8.2				
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.0				
Organic Matter	%	0.1	MCERTS	0.5				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10				
Anthracene	mg/kg	0.1	MCERTS	< 0.10				
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Pyrene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15				
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	49				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	41				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110				

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18054

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL672

Lab Sample Number				576103				
Sample Reference				BH105				
Sample Number				1				
Depth (m)				0.50				
Date Sampled				06/05/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18054

Project / Site name: 100 Avenue Road, Swiss Cottage

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
576103	BH105	1	0.50	Light brown clay and sand.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18054

Project / Site name: 100 Avenue Road, Swiss Cottage

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Evangelos Kafantaris
Concept Site Investigations
Unit 8
Warple Mews
Warple Way
London
W3 0RF

t: 020 88112880

e: evangelos@conceptconsultants.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-18055

Project / Site name:	100 Avenue Road, Swiss Cottage	**Samples received on:**	12/05/2016
Your job number:	16-2832	**Samples instructed on:**	18/05/2016
Your order number:	CL671	**Analysis completed by:**	27/05/2016
Report Issue Number:	1	**Report issued on:**	27/05/2016
Samples Analysed:	2 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18055

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL671

Lab Sample Number				576104	576105			
Sample Reference				BH102	BH101			
Sample Number				01	01			
Depth (m)				0.50	0.50			
Date Sampled				12/05/2016	12/05/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	24	25			
Total mass of sample received	kg	0.001	NONE	1.9	2.0			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-			
General Inorganics								
pH	pH Units	N/A	MCERTS	8.1	8.5			
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.0	1.9			
Organic Matter	%	0.1	MCERTS	0.2	0.4			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	17			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	1.2			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	47	44			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	70			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	37	19			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	39	44			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	87			

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 16-18055

Project / Site name: 100 Avenue Road, Swiss Cottage
Your Order No: CL671

Lab Sample Number				576104	576105			
Sample Reference				BH102	BH101			
Sample Number				01	01			
Depth (m)				0.50	0.50			
Date Sampled				12/05/2016	12/05/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18055

Project / Site name: 100 Avenue Road, Swiss Cottage

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
576104	BH102	01	0.50	Light brown clay and sand.
576105	BH101	01	0.50	Light brown clay and sand.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-18055

Project / Site name: 100 Avenue Road, Swiss Cottage

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

APPENDIX D

BGS Borehole Logs

Key

- Borehole depth – 0-10m
- Borehole depth – 10-30m
- Borehole depth – 30m+

N

Client	Project	Job No
Essential Living Limited	**Swiss Cottage, London**	**CG/28215A**
CGL	Title **BGS Borehole Location Plan**	**Appendix D**

TQ28SE /277 (A+E)
2665.8425
256
Page 1 of 5

GROUND EXPLORATIONS LIMITED

BOREHOLE SECTION SHEET

Date ..... August, ... 19.52.

CONTRACT NAME FINCHLEY ROAD No. 1 (East) 2132. ORDER NO.

Bored for : The London County Council,

Address : County Hall, S.E.1.

Address of Site : Finchley Road.

District or Town : Swiss Cottage. County : London.

Standing Water Level : Nil. Below Surface : Dia. of Borehole : 6 Inches.

Water Struck (1) Nil. (2) (3)

Boring Commenced : 13. 5. 52. Boring Completed : 21. 5. 52.

Special Remarks :

Jar Samples : 2'6"-273; 5'0"-274; 7'6"-277; 12'6"-277; 17'6"-279; 22'6"-281; 25'0"-282; 28'0"-284; 32'6"-286; 35'0"-287; 36'0"-288; 37'6"-289; 42'6"-291; 43'0"-292; 45'0"-293; 47'6"-294;

Core Samples : 10'0"-11'6"-276; 15'0"-16'6"-278; 20'0"-21'6"-280; 25'6"-27'0"-283; 30'0"-31'6"-285; 40'0"-41'6"-290; 48'6"-50'0"-295;

DESCRIPTION OF STRATA	Thickness Feet	Thickness Inches	Depth Below Surface Feet	Depth Below Surface Inches
Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes.				
No. 1 Boring				
Fill	1	6	1	6 (0·46m.)
Brown Clay	23	6	25	0 (7·62m.)
Clay stone	0	6	25	6 (7·77m.)
Brown Clay	10	6	36	0 (10·97m.)
Blue Clay	7	9	43	9 (13·36m.)
Clay stone	0	3	44	0 (13·41m.)
Blue Clay	6	0	50	0 (15·24m.)
Ground Level 171.2				
TOTAL FROM SURFACE ...	50	0	50	0

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... *Date*..... August, 1952.....

P. & R. Ltd.—9479

King's Scholars Pond Sewer Diversion of Wellington Road branch - Stage II.

TQ 28 SE/352
2671 8422
256.

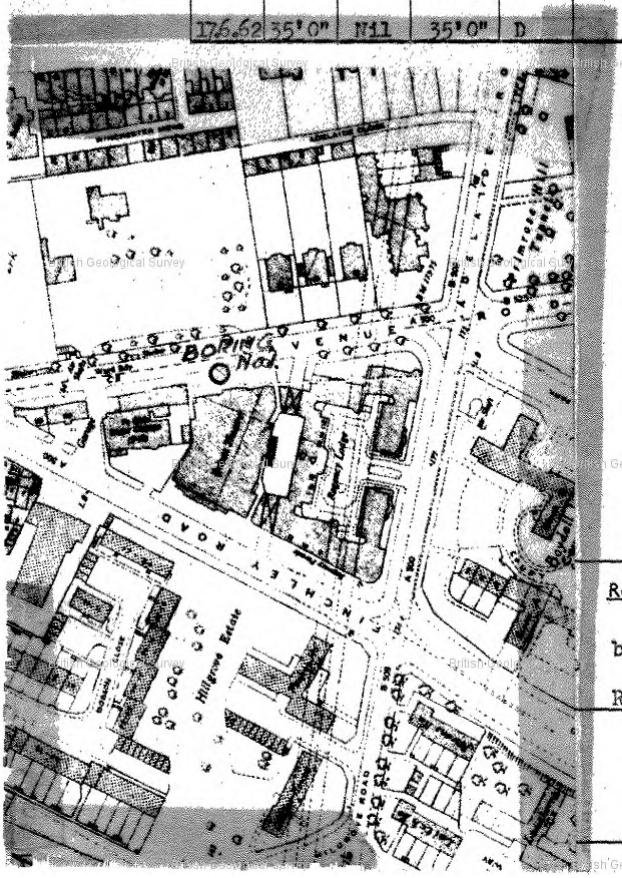
GEORGE WIMPEY AND COMPANY LTD.
CENTRAL LABORATORY

BOREHOLE RECORD

B.H. No. 1

Ground level : +180.1 ft. 54.89m — Date started : 13.6.62.
Type of boring : Shell and Auger — Date completed : 13.6.62.
Dia. of boring : 8" — Lining tubes :

Date	Depth of Boring	Water Level	Samples Depth	Samples Type	Change of Strata Legend	Change of Strata Depth	Change of Strata O.D. Level	Description of Strata
13.6.62		Nil	3'0" 0.91m	D		0.91m 3'0"	53.97m +177.1	Paving stone, fill, stones and clay
			8'0" 2.44m	D				
			13'0" 3.96m	D				Mottled brown and grey slightly fissured clay with gypsum crystals
			18'0" 5.49m	D				
			22'0" 6.71m	D		7.01m 23'0"	47.88m 157.1	
			23'6" 7.16m	D		7.32m 24'0"	47.57m 156.1	Mudstone
			28'0" 8.53m	D				Dark brown becoming grey
			30'0" 9.14m	BD				blue fissured clay with few
			35'0" 10.67m					grains of gypsum
13.6.62	35'0"	Nil	35'0"	D		10.67m 35'0"	4.45m 14.53	

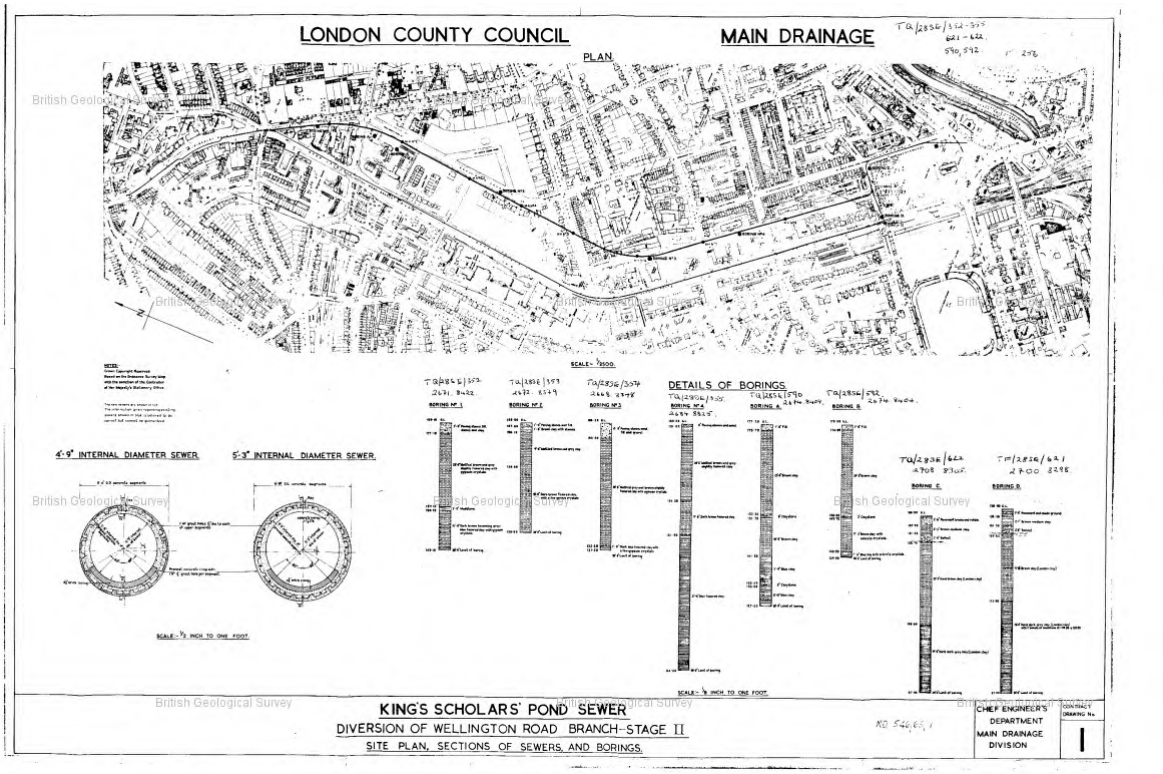


Remarks: Note: Level of borehole determined by reference to O.S.B.M. at corner of Adelaide Road and Avenue Road

Soils No : S/3230
Fig. No :

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 591878 : BGS Reference: TQ28SE352
British National Grid (27700) : 526710,184220
Report an issue with this borehole



Appendix 1 Sheet 3

TQ28SE/893

BOREHOLE NO. 2 2662,8428

Ground Level 178.6 OD Diameter of Boring 8" CR8/98

Water Struck None Method Shell and Auger

Standing Water Level 151.6 OD (3.5.71) Start 29.4.71 Finish 30.4.71

REMARKS: 1 hour overcoming surface obstructions

Description of Strata	Thickness	Depth	Reduced Level	Disturbed Samples	Undisturbed Samples and Insitu Tests
Made ground (square setts, concrete and bricks)	4'0"	4'0"	174.6		
Firm brown silty clay CC (w)	4'0"	8'0"	170.6		6'6" U8977
Stiff brown clay with sulphate crystals CC	22'0"	30'0"	148.6		11'0" U8978 16'0" U8979 21'0" U8980 26'0" U8981
Very stiff grey clay CC	10'0"	40'0"	138.6		31'0" U8982 36'0" U8983
Bottom of Borehole				W8998	
TOTALS	40'0"	40'0"			

NOTES: Descriptions in accordance with C.P.2001 "Site Investigations"

J – Jar Sample B = Bulk Sample W = Water Sample

U - Undisturbed Core Samples, 4 in dia. x 18 in long. Depth shown to top of sample. U* = Sample not recovered.

THAMES EA AC NO 45355

256

TQ28/209

Project No: 4005 **Borehole Number:** 1

Project: Swiss Cottage

Engineer: Gifford & Prts **NGR:** TQ 268 843

Client: Camden BC **Elevation:** 56mOAD

Kinley Hill Farm,
Hawthorn, Seaham,
County Durham, SR7 8SW.
Tel: 0191 527 3970 (Northern)
Tel: 01473 236611 (Southern)

TQ28SE/1769

SUBSURFACE PROFILE				INSTALLATION DETAILS	Remarks
Depth	Legend	Description	Elevation	Well Completion Details	
0		Ground Surface	56.00		Cable Percussion boring at 10" to 9.0m BGL.
0		MADE GROUND Bricks and rubble			Rotary mud flush drilling 9.0-157m BGL
1		TOP SOIL Dark brown sandy soil			Drill at 9 5/8" diameter 9.0-117.0m BGL
3		CLAY Pale brown clay			
4		CLAY Pale brown mottled clay	50.80		Permanent mild steel casing 6" diameter GL-117m BGL
5		CLAY Brown clay. Laminated from 5.2-9m			Drill at 5 5/8" diameter 117.0-157m BGL
17			38.50		113/103mm uPVC liner installed full depth of hole.
17		CLAY Grey clay			Borehole acidized using 2t of 28% HCl.
					Constant rate pump test carried out for 3 days and 1 day recovery

Drilled By: N.Snowball/L.Berry

Logged by: Driller

Date step tested: 9-13 Nov 04

Date acidized: 2 Nov 04

Date geophysically logged: n/a

Sheet: 1 of 7

ACC NO 46102.

TQ28/209

From: sjjenkins@btconnect.com
To: <hydroenq@bgs.ac.uk>
Date: Tue, Aug 15, 2006 5:34 pm
Subject: Swiss Cottage Pump Test - Rosemary Fry

Rosemary
Please find attached the pump test data for Swiss Cottage. Not quite a dry hole but close.
Regards

Steve Jenkins
Contracts Manager
Drilcorp Ltd
T 0191 5273970
F 0191 5273115
M 07743 806302

yield less than 1 m3/hour during pump test.
Recovery slow.
Borehole in use but will need modifications.

AC NO 45499

SWISS COTTAGE OPEN SPACE

TQ28/209

Owner	L B CAMDEN	Licence No	
Occupier		IGS Ref No	
Ground Level	56 m OD		ft OD
Level of Well Top	m OD		ft OD
Rest Water Level	90 m bwt		ft bwt
(Date 02/11/04)	m OD		ft OD
Construction	25/06/04		

Depth bwt m	Diameter mm	Linings (below well top) From m	To m	Diameter mm	Type
0-9	250	0	117	150	SOLID STEEL
9-117	244	0	157	113/103	UPVC
117-157	150				

Abstraction Rates		Type of Pump	
	gph	Chem/Bact Anal	YES NO
	gpd	Well Driller	DRILL CORP

If insufficient space has been allowed, continue in 'Notes' overleaf

Nat Grid Ref	TQ 268 843
Status	LIC
Aquifer	UPPER CHALK

Summary of Geological Section	Thickness	Depth
MADE GROUND	0.5	0.5
TOP SOIL	0.7	1.2
LONDON CLAY	83.0	84.2
N. R. B.	12.0	96.2
THANNET SAND	4.2	100.4
PUTTY CHALK	11.6	112.0
UPPER CHALK	47.0	159.0

RECEIVED FROM
- 4 JUL 2005
ENVIRON AGENCY

TQ28/209

Project No: 400[illegible] *Borehole Number: 1*

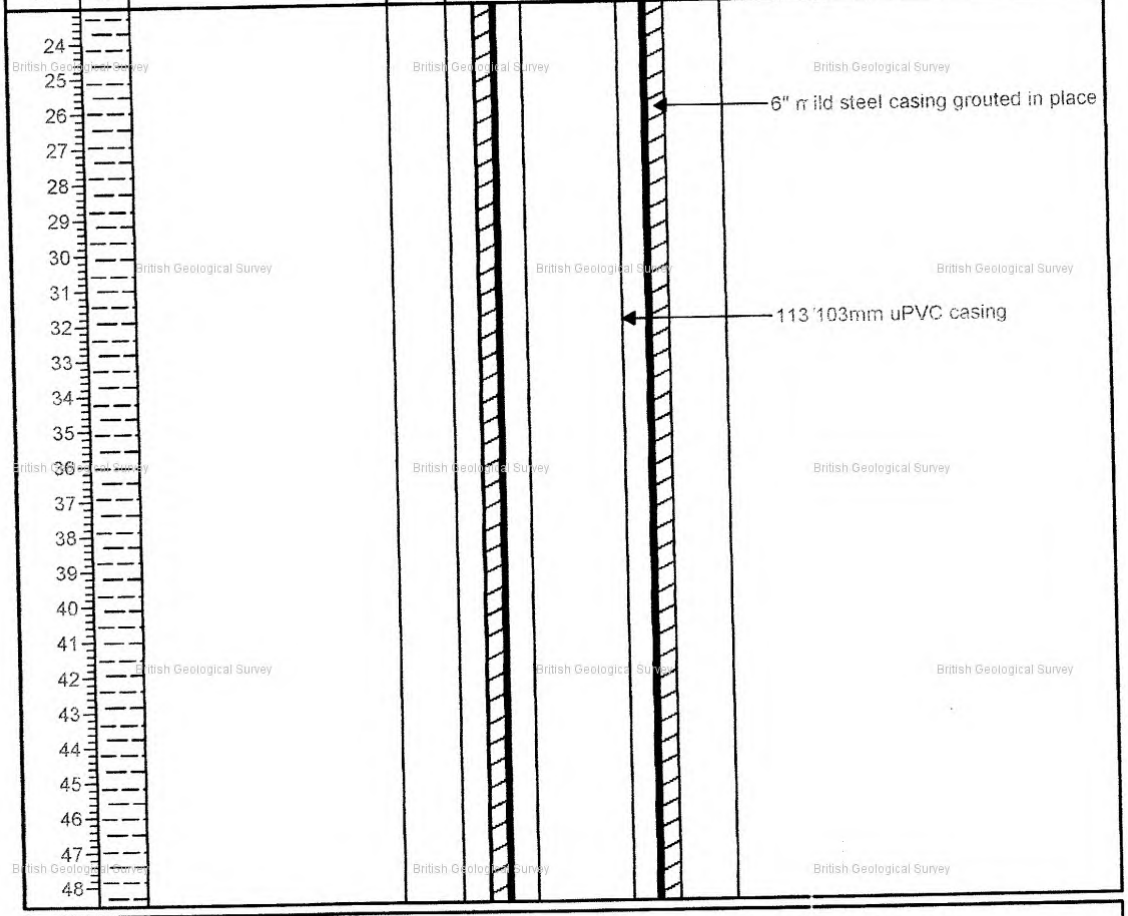
Project: Swiss Cottage

Engineer: Giffo[illegible] & Prts **NGR:** TQ 268 843

Client: Camden BC **Elevation:** 56mOAD

Kinley Hill Farm,
Hawthorn, Seaham,
County Durham, SR7 8SW.
Tel: 0191 527 3970 (Northern)
Tel: 01473 236611 (Southern)

SUBSURFACE PROFILE				INSTALLATION DETAILS	Remarks
Depth	Legend	Description	Elevation	Well Completion Details	



Drilled By: N.Snowball/L.Berry

Logged by: Driller

Date step tested: 9-13 Nov 04

Date acidized: 2 Nov 04

Date geophysically logged: n/a

Sheet: 2 of 7

TQ28/209

CONSTANT RATE PUMPING TEST DATA SHEET

CONTRACT No	4006
Pumping Test at	*Swiss Cottage Open Space*
NGR	TQ 268 843
Observations From[1]	Top of Dip-Tube (100mm above ground level)
	GL = 56mAOD

[1] Description of datum point from which measurements were made (eg ground level, dip tube)

[2] height above ground level (m)

Date	Time	Elapsed Time		Depth of water level below datum (m) Pumping well	Depth of water level below datum (mAOD) Pumping well	Watermeter reading (cu.m)	Pumping rate
		Minutes	Hours				
		DAY (-3)					
		DAY(-2)					
		DAY(-1)					
07/03/2005	9:00	0		89.64	-33.54	0.0000	
		1		90.24	-34.14		
		2		90.97	-34.87		
		3		91.52	-35.42		
		4		92.07	-35.97		
		5		92.52	-36.42		
		6		92.76	-36.66		
		7		93.18	-37.08		
		8		93.49	-37.39		
		9		93.74	-37.64		
		10		94.07	-37.97	0.3268	
		15		95.10	-39.00		
		20		95.80	-39.70		
		25		96.47	-40.37		
		30		97.00	-40.90	0.6567	
		35		97.39	-41.29		
		40		97.74	-41.64		
		45		98.07	-41.97		
		50		98.40	-42.30		
		55		98.63	-42.53		
	10:00	60	1	98.86	-42.76	1.1184	
		70		99.28	-43.18		
		80		99.58	-43.48		
		90		99.79	-43.69		
		100		100.14	-44.04		
	11:00	120	2	100.55	-44.45	2.0467	
		150		101.05	-44.95		
	12:00	180	3	101.38	-45.28	3.9616	
	13:00	240	4	102.00	-45.90	4.8748	
	14:00	300	5	102.42	-46.32	5.7810	
	15:00	360	6	102.85	-46.75	5.7854	
	16:00	420	7	103.15	-47.05	6.5860	
	17:00	480	8	103.45	-47.35	7.4777	
	18:00	540	9	103.60	-47.50	8.3602	
	19:00	600	10	103.78	-47.68	9.2394	
	20:00	660	11	103.96	-47.86	10.1072	
	21:00	720	12	104.14	-48.04	11.0794	
	23:00	840	14	104.40	-48.30		
08/03/2005	1:00	960	16	104.66	-48.56	14.4503	

CONSTANT RATE PUMPING TEST DATA SHEET

CONTRACT No	4006
Pumping Test at	*Swiss Cottage Open Space*
NGR	TQ 268 843
Observations From[1]	Top of Dip-Tube (100mm above ground level)
	GL = 56mAOD

[1] Description of datum point from which measurements were made (eg ground level, dip tube)

[2] height above ground level (m)

Date	Time	Elapsed Time		Depth of water level below datum (m) Pumping well	Depth of water level below datum (mAOD) Pumping well	Watermeter reading (cu.m)	Pumping rate
		Minutes	Hours				
		DAY (-3)					
		DAY(-2)					

Page 1

TQ 28 /209

Notes

- Source Was Acidised To Improve Yield, (on 2nd Nov '04).
- Pump Suction Depth: 130mbdat

Site Plan

British Geological Survey