Chelmer
Consultancy Services
'Groundbreaking Services'

Hydrogeology Basement Impact Assessment

Site	59 Solent Road London NW6 1TY
Client	Mahesh Varia
Date	March 2017
Our Ref	HGR/8461 Rev. A

Chelmer Site Investigation Laboratories Ltd
Unit 15 East Hanningfield Industrial Estate, Old Church Road, East Hanningfield, Essex CM3 8AB
Essex: 01245 400930 | London: 0203 6409136 | info@siteinvestigations.co.uk | www.siteinvestigations.com

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This assessment has involved consideration, using normal professional skill and care, of the findings of ground investigation data obtained from the Client and other sources. Ground investigations involve sampling a very small proportion of the ground of interest as a result of which it is inevitable that variations in ground conditions, including groundwater, will remain unrecorded around and between the exploratory hole locations; groundwater levels/pressures will also vary seasonally and with other man-induced influences; no liability can be accepted for any adverse consequences of such variations.

This report must be read in its entirety in order to obtain a full understanding of our recommendations and conclusions.

CONTENTS

1.0 INTRODUCTION

1.1 This report presents the outcome of a Hydrogeology Basement Impact Assessment (HBIA) for the proposed development of 59 Solent Road, London NW6 1TY. The local planning authority is the London Borough of Camden.

1.2 Chelmer Site Investigation Laboratories Ltd (Chelmer) was instructed in January 2017 by Mahesh Varia to complete this report. The report has been prepared by Joel Slater BEng, and reviewed by Dr Martin Preene BEng PhD CEng FICE CGeol FGS CSci CEnv C.WEM FCIWEM. Dr Preene is a UK Registered Ground Engineering Adviser with 30 years' experience of geotechnical engineering.

1.3 This report presents a HBIA that complies with Camden Borough CPG4. As required by the CPG4, the screening flow chart covering the groundwater flow questions have been provided in Appendix A.

1.4 The HBIA aims to identify any detrimental impacts the proposed basement may have to the local area or neighbouring properties through its potential impacts to hydrogeological conditions. This has been performed by using the Stage 1 Screening assessment set out in CPG4 and completing the screening flow chart in Appendix A. Where Stage 1 identifies potential impacts these have been addressed in Appendix A, which refers to the relevant Conceptual Site Model sections in this report. The third stage of the HBIA includes a site investigation and desk study; these are detailed in Section 3.0. The Conceptual Site Model, Section 4.0, evaluates the implications of the proposed development (Stage 4).

1.5 The proposed development involves the excavation and construction of a single storey basement extension to extend beneath the full length of the existing building footprint and into the rear garden of 59 Solent Road. Existing and proposed plans are presented in Appendix B.

1.6 Desk study data have been collected from various sources including borehole/well logs from the vicinity of the site from the British Geological Survey (BGS) (Appendix C) and geological data, environmental data and historic maps from Groundsure which are presented in Appendix D. Relevant information from the desk study and site investigation is presented in Sections 2.0 and 3.0.

1.7 A ground investigation was undertaken by Chelmer (2016) between 26th and 31st August 2016; the findings are summarised in Section 3.0. The Factual Report from the ground investigation is presented in Appendix E.

1.8 The following site-specific documents in relation to the proposed basement have been considered:

Hardman Structural Engineers

Drawing 2298-02 Oct 2016 (Existing Site Plan)
Drawing 2298-03 Oct 2016 (Existing Ground Floor Plan)
Drawing 2298-11 Oct 2016 (Proposed Basement Floor Plan)

Drawing 2298-12 Oct 2016 (Proposed Ground Floor Plan)
Drawing 2298-31 Oct 2016 (Proposed Section A-A)
Drawing 2298-32 Oct 2016 (Proposed Section B-B)
Drawing 2298-33 Oct 2016 (Proposed Section C-C)
Drawing 2298-101 Oct 2016 (Detail 01 Existing and Proposed)
Drawing 2298-102 Oct 2016 (Detail 02 Existing and Proposed)

2.0 PROPERTY AND AREA DETAILS

2.1 The property is located towards the northern side of Solent Road, approximately 410 m northwest of West Hampstead Thameslink station, in the London Borough of Camden. The site location plan is presented in Figure 1 below. The site occupies approximately 0.01 ha and is centred on approximate Ordnance Survey National Grid Reference 525100E, 185130N.

Figure 1. Site location Plan (Contains British Geological Survey materials © NERC 2016. Base mapping is provided by ESRI)

2.2 The site comprises 59 Solent Road, London NW6 1TY, a Victorian, three-storey, terraced property. It is neighboured by the adjoining No. 57 Solent Road (No. 57) to the south and No. 61 Solent Road (No. 61) to the north. There is concrete hardstanding in front of the property and a half paved garden to the rear.

2.3 The proposed development as detailed by Hardman Structural Engineers involves the following developments:

- *A new basement extension to extend the full length of the existing building footprint and also to extend into the garden area.*
- *A lightwell is proposed at the front of the property beneath the existing windows on the front wall*
- *A new side and rear extension at ground floor level.*
- *The new basement will be constructed by introducing reinforced concrete underpinned foundations to No. 61 Solent Road side.*

Existing and proposed plans are presented in Appendix B.

2.4 The proposed basement excavation and extension covers an area approximately 19.0 m long by 6.0 m wide with excavation generally extending to a depth of approximately 3.2 m below existing ground floor level (bgl) (as scaled from Drawing 2298-33). The basement perimeter walls will comprise reinforced concrete (RC) underpinning and retaining walls beneath the existing and proposed ground floor.

2.5 A search has been made of planning applications on London Borough of Camden's website in order to obtain details of any other basements which have been constructed, or are planned, in the vicinity of the site. The website displays a planning application (2010/5437/P) for a basement at No. 57. Drawing 2298-02 by Hardman Structural Engineers indicates this basement extends 8 m from the front wall towards the rear with a light well extending approximately 1.7 m from the front wall into the front garden. No evidence has been found that any other properties in close proximity to No. 59 along the row of terraced houses have a basement beneath them.

3.0 PHYSICAL SETTING

3.1 Site History and Age of the Property

3.1.1 No. 59 Solent Road is described by Hardman Structural Engineers Basement Impact Assessment, October 2016, as *"a Victorian three storey terraced residential property with no basement. The roof space has been extended into a loft level rooms circa 2011. At the front of the property there is a concrete hard-standing. To the rear there is also a hard-standing with a half paved garden."*

3.1.2 Historic maps (presented in the Groundsure Report in Appendix D) are available from 1871, when the site and surrounding area was largely undeveloped with only a small village approximately 250 m to the east, a few small structures (possibly farm or residential buildings) and the Midlands Railway in its current location approximately 230 m to the southwest. By 1894 the terraced houses along Solent Road, including No. 59, had been developed along with the majority of the current residential area in the surrounding 500 m. Very few further developments are noticeable on the historical maps in the immediate surrounding area since 1894. The Groundsure Report identified no potentially contaminative land uses on the site.

3.2 Topography

3.2.1 The BGS Onshore GeoIndex indicates that the site is on a gentle north to south slope, at approximately 56 mOD. The ground level rises to approximately 60 mOD at the northern end of Solent Road and decreases to 50 mOD at the southern end. The mapping indicates a slope of less than 3° across the area.

3.3 Hydrogeological Setting (Groundwater)

3.3.1 The book 'The Lost Rivers of London' (Barton, 1992) identifies the lost river The Westbourne as running approximately 250 m south of the site. A map of the tributaries of the Thames and showing the approximate location of No. 59 Solent Road is presented in Figure 2 and the location of The Westbourne relative to No. 59 Solent Road is presented in Figure 3.

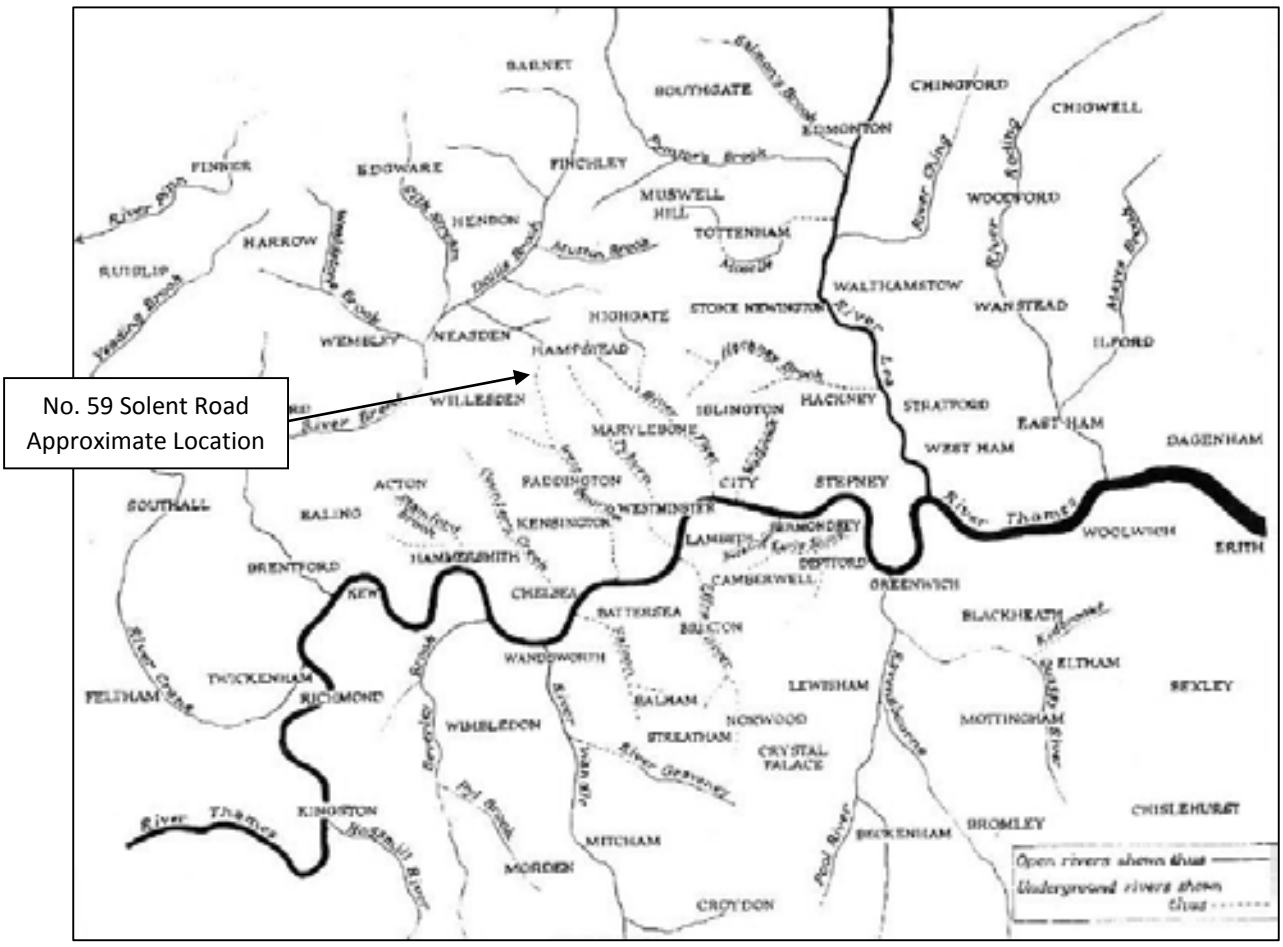


Figure 2. Tributaries of the Thames from Kingston to Erith identified in 'The Lost Rivers of London' (Barton, 1992)

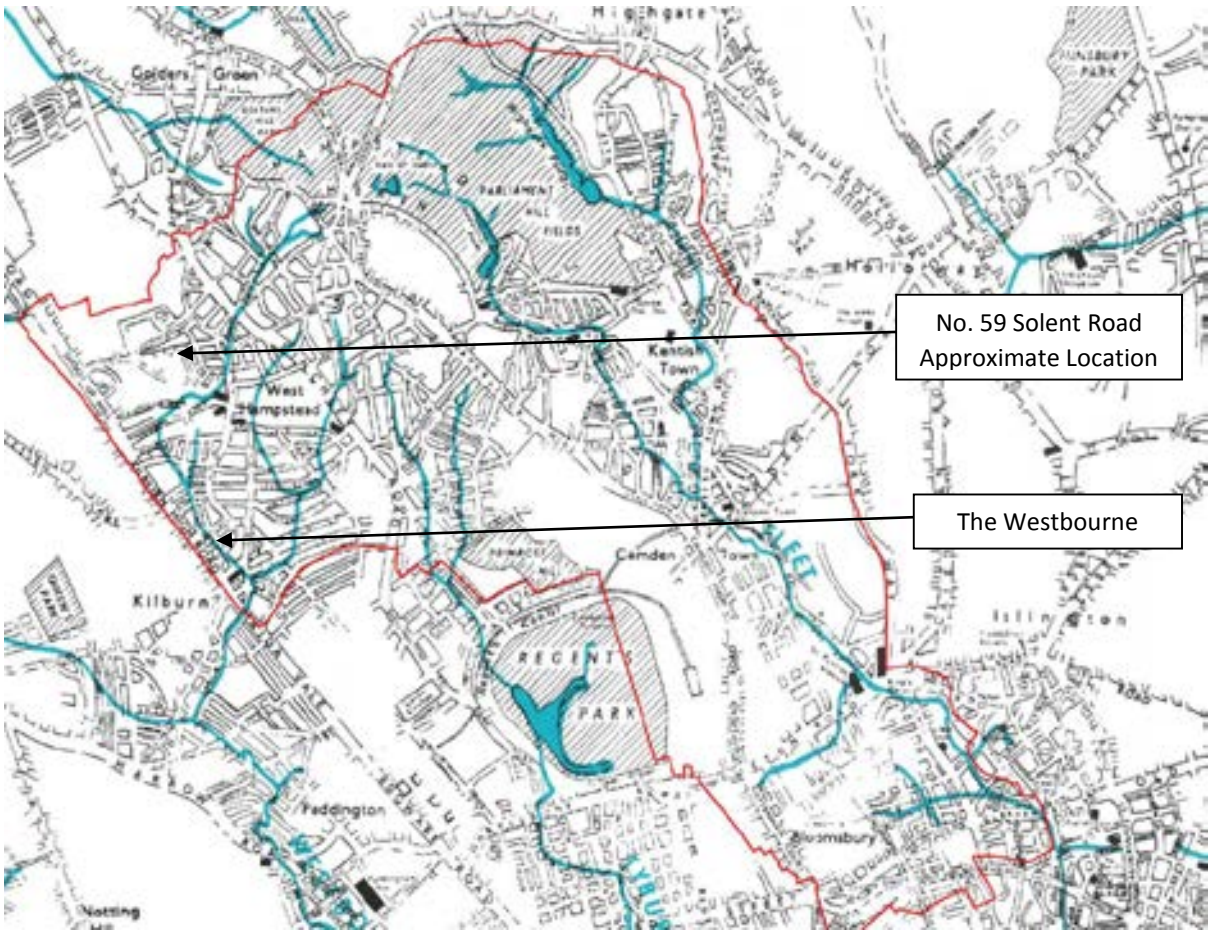


Figure 3. Extract from Figure 11 of the Camden Geological, Hydrogeological and Hydrological Study (Arup, 2010)

3.3.2 The Groundsure Report (see Appendix D) indicates that the mapped bedrock (the London Clay Formation) at the property is classified as an 'Unproductive' aquifer. 'Unproductive' aquifers are defined as 'rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow'.

3.3.3 The Groundsure Report did not identify any groundwater abstraction licences within 500 m of the site, the closest is indicated as being 1861 m to the southeast.

3.3.4 Additional hydrogeological data obtained from the Groundsure Report, includes:

- There are no Source Protection Zones (SPZ) identified by the report within 500 m of the site.
- There are no BGS groundwater flooding susceptibility areas within 50 m of the site.

3.3.5 A search of the BGS borehole database was undertaken for information on previous ground investigations and any wells in the vicinity of the site, the approximate locations of which are presented on the location plan in Figure 4 below. The borehole logs are presented in Appendix C.

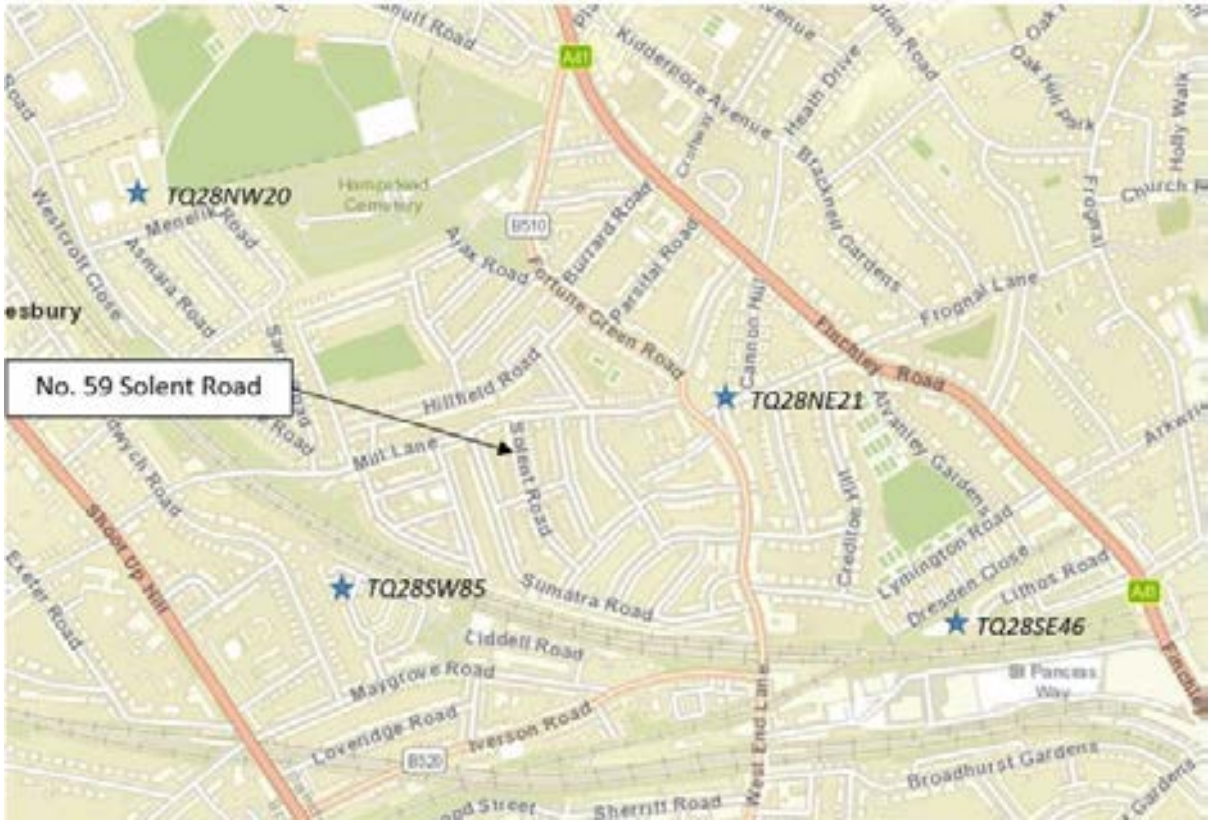


Figure 4. BGS Borehole Locations (Contains British Geological Survey materials © NERC 2016. Base mapping is provided by ESRI)

3.3.6 Four BGS boreholes were reviewed, with the deepest borehole extending to 177.1 m bgl. The boreholes typically showed Topsoil, Made Ground or Vegetable Mould to depths of between 0.2 and 0.7 m bgl, overlying the London Clay Formation. Only TQ28SE46 went deep enough to penetrate below the base of the London Clay Formation; it encountered Clay Sand (possibly the Lambeth Group) at approximately 80 m bgl, sand (possibly Thanet Sand Formation) at 88 m bgl and then Chalk from 96 m bgl to the maximum drilling depth of 177.1 m bgl. No groundwater was discovered in TQ28SW85 and no groundwater information was included in any of the other logs.

3.3.7 The ground investigation completed by Chelmer (2016) comprised two C.F.A boreholes (BH1 and BH2) and two hand excavated trial pits (TP1 and TP2). The boreholes were undertaken on the front and rear gardens and advanced to 8.1 m bgl. The boreholes encountered 0.7 m of Made Ground overlying the London Clay Formation. The London Clay Formation was recorded as weathered, firm (becoming stiff at 2 m depth and very stiff from 6 m bgl) silty CLAY with occasional partings of silt and fine sand to the maximum drilling depth of 8.1 m bgl. No groundwater was noted during the intrusive site investigation within the boreholes to 8.1 m bgl during drilling.

3.3.8 The geology is consistent with public domain geological information on the site from the British Geological Survey (BGS) Geology of Britain Viewer which indicates that the underlying geology at this site is the London Clay Formation with no overlying superficial deposits recorded.

3.3.9 Groundwater monitoring visits were undertaken on 8th and 14th February 2017 and groundwater levels were recorded at depths of 0.65 m and 0.68 m bgl in BH1, and 1.83 m and 1.91 m bgl in BH2. No further groundwater monitoring visits are currently planned.

3.3.10 The site is located in the Thames hydrometric area, as identified by the National Hydrological Monitoring Programme (NHMP). The NHMP identified a lower than average rainfall in the month preceding the 2016 ground investigation (August 2016), at 70% of the average August rainfall. No NHMP summary is currently available for January 2017. Therefore, higher groundwater levels may be experienced due to seasonal fluctuations and following periods of increased rainfall.

3.3.11 The SFRA (URS, 2014) indicates that the site is not in an area with increased susceptibility to elevated groundwater, which is defined as an area *'where there is increased potential for groundwater levels to rise within 2m of the ground surface following periods of higher than average recharge'*. Permeable superficial deposits with increased potential for elevated groundwater only cover a small area towards the south of the borough. Local groundwater flows within the permeable Made Ground deposits may occur, however, these are identified by the SFRA as being 'a slope stability, rather than flood risk, issue within Camden'. As presented in Figure 4e of the SFRA the nearest recorded groundwater flooding incident was approximately 200 m to the northwest of the site, which indicates there is still some potential for elevated groundwater. An extract of Figure 4e of the SFRA is displayed in Figure 5 below.

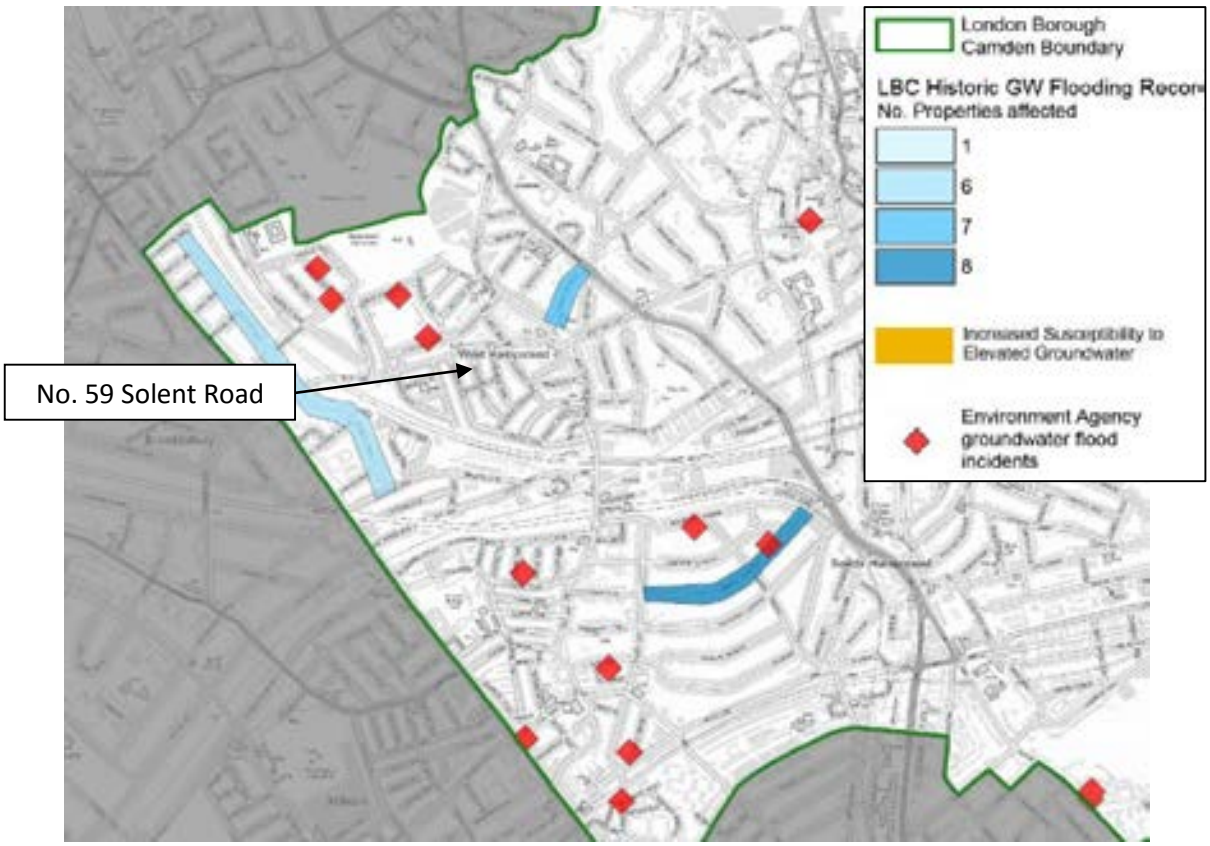


Figure 5. Extract from Figure 4e of the SFRA (URS, 2014)

4.0 CONCEPTUAL SITE MODEL

4.1 *Basis of Conceptual Site Model*

4.1.1 The Conceptual Site Model has been built using desk study evidence together with the ground investigation findings, as outlined in Section 3 of this report. The ground investigation was completed on 31st August 2016 (Appendix E).

4.1.2 The Impact Assessment below is based on the Screening Assessment in Appendix A and any concerns identified in Sections 2.0 and 3.0.

4.1.3 The Conceptual Site Model can be summarised as:

- The proposed basement excavation is approximately 3.2 m below existing ground level.
- The site is located in a relatively flat area, with the surrounding area sloping at less than 3°.
- Ground conditions comprise, Made Ground over the London Clay Formation with no overlying superficial deposits.
- The site is located above an 'Unproductive' bedrock aquifer, formed by the London Clay Formation.
- Standing groundwater levels in standpipes installed at the site have been recorded groundwater as high as 0.65 m bgl.

4.2 *Groundwater Flow Impact Assessment*

4.2.1 The site is located above an 'Unproductive' stratum formed by the clay of the London Clay Formation with no overlying superficial deposits. In general, in London the 'water table' is close to ground level in the poorly draining / low permeability London Clay Formation. No groundwater was observed during the drilling process of the ground investigations performed by Chelmer (2016), where BH1 and BH2 were drilled to 8.1 m bgl with monitoring standpipes installed in both boreholes to 8.0 m bgl. Two groundwater level monitoring visits have been completed to date and the groundwater levels were recorded at 0.65 m and 0.68 m bgl in BH1, and 1.83 m and 1.91 m bgl in BH2. This would indicate that the London Clay Formation at the site has a sufficiently low permeability that the flow rate was too slow for groundwater entries to occur before the instrumentation (standpipes) were installed during the ground investigation. No further groundwater monitoring visits are currently planned.

4.2.2 The permeability within the London Clay Formation at the site is expected to be very low due to the high clay content. Groundwater is expected to flow downslope to the south towards The Westbourne, however this is expected to be minimal due to the low permeability and a low topographic relief. This hydrogeological regime (ie: groundwater levels and pressures) will be affected by long-term climatic variations as well as seasonal fluctuations and other man-induced influences, all of which must be taken into account by the designers when selecting a design water level for the permanent works. No long term, multi-seasonal groundwater monitoring data are available so a conservative approach will be needed, as required by current geotechnical design standards.

4.2.3 The proposed basement level will be founded within the London Clay Formation. The on-site boreholes indicated the groundwater level was as high as 0.65 m bgl within the London Clay Formation. However, the proposed basement is not anticipated to have any measurable impact on groundwater flows/levels. This finding is justified because:

- Due to the anticipated very low permeability of the London Clay Formation and the low topographical relief the quantity of groundwater flow passing through the basement footprint (which is approximately 18.5 m wide perpendicular to the expected direction of groundwater flow) will be very limited.
- The direction of groundwater flow is to the south, approximately parallel to Solent Road. Furthermore, a search of planning applications indicated only one property in close proximity to No. 59 has a basement and this is downslope at the adjoining No. 57 Solent Road (approximately 8 m wide perpendicular to the expected direction of groundwater flow).

In general terms, groundwater impacts from basements in London are a potential concern when excavating in strata such as River Terrace Deposits, Bagshot Formation and Claygate Member, not in the London Clay Formation.

4.2.4 Although the flow through London Clay Formation is expected to be minimal, perched water may be present within the more permeable Made Ground and therefore care should be taken during construction and localised sump pumping may be required.

5.0 CONCLUSIONS

5.1 These conclusions consider only the primary findings of this assessment; the whole report should be read to obtain a full understanding of the matters considered.

5.2 The site is located above an 'Unproductive' bedrock aquifer (London Clay Formation). The basement will be founded below the groundwater level and therefore has the potential to obstruct the flow of groundwater. However, the proposed basement is not anticipated to have any measurable impact on groundwater flows/levels due to the low permeability of the 'Unproductive' aquifer and low topographical relief.

5.3 A perched water table may be present within the more permeable Made Ground and therefore care should be taken during construction and localised sump pumping may be required.

5.4 The standpipes installed in BH1 and BH2 on site should be maintained so that further groundwater level monitoring readings can be taken during the detailed design and prior to the start of construction.

References

Arup (2010). Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development, Issue01, November 2010.

Barton, N (1992). The Lost Rivers of London. Historical Publications, London.

Chelmer Site Investigation Laboratories Limited (2016). Factual Report, 59 Solent Road, London NW6 1TY. Report FACT/7543.

Hardman Structural Engineers (2016). Basement Impact Assessment for New Basement to 59 Solent Road, London NW6 1TY, October 2016.

London Borough of Camden (2015). Camden Planning Guidance CPG4, Basements and Lightwells, July 2015.

URS (2014). London Borough of Camden Strategic Flood Risk Assessment, Final Report, July 2014.

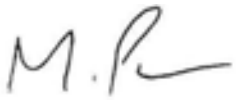
End of report

Report prepared by:

Joel Slater BEng(Hons)

Senior Geotechnical Engineer

Report reviewed by:



Dr Martin Preene CEng FICE CGeol FGS CSci CEnv C.WEM FCIWEM

UK Registered Ground Engineering Advisor

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b) Save for the client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.
c) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
d) Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, CSI has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the client of any such changes, or of their repercussions.
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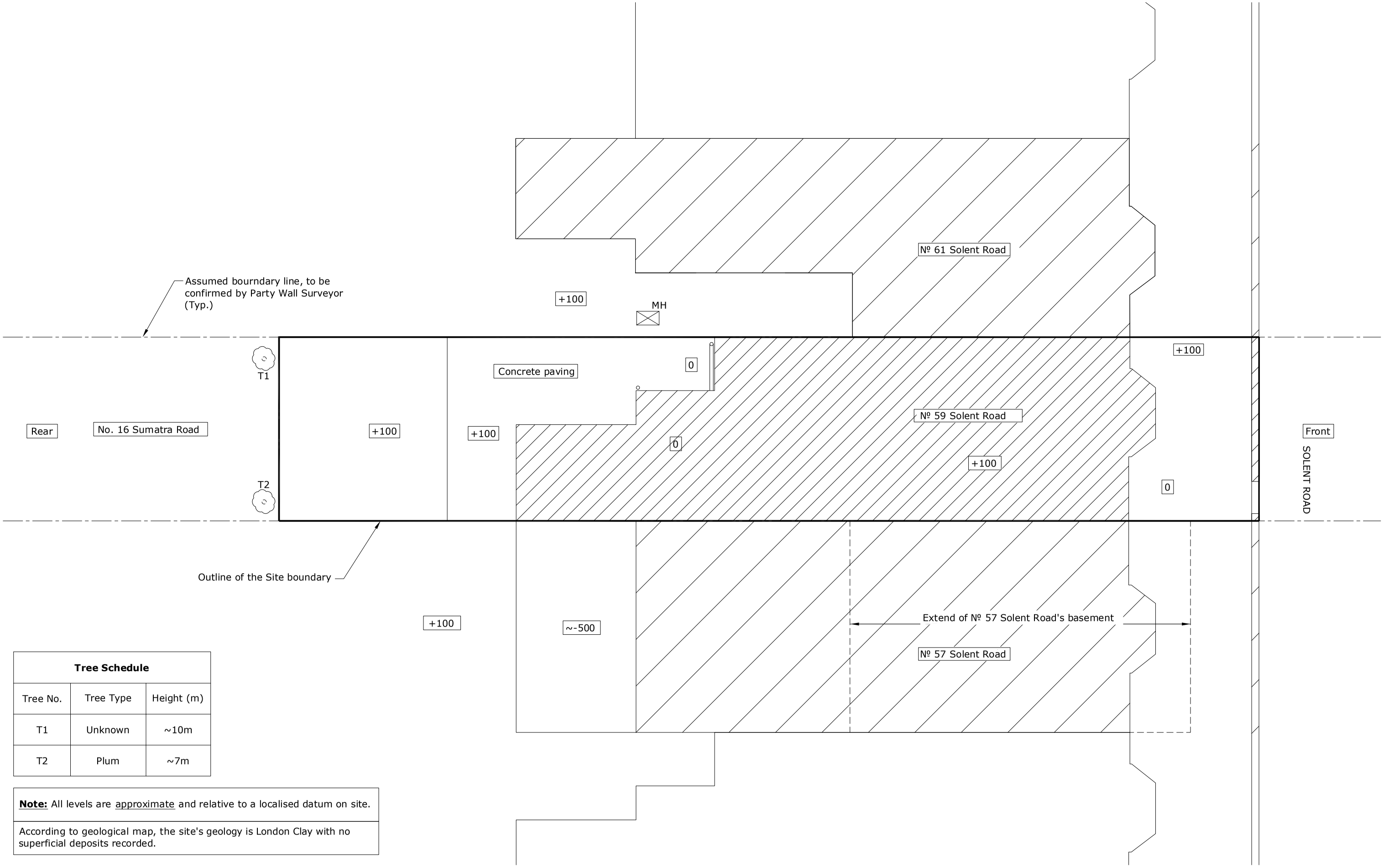
APPENDIX A

SCREENING ASSESSMENT

Subterranean (groundwater) flow screening chart	
1. a) Is the site located directly above an aquifer?	No. The site is located above the 'Unproductive' aquifer of the London Clay Formation.
b) Will the proposed basement extend beneath the water table surface?	Yes. The initial Basement Impact Assessment Ref. 2298 dated October 2016 by Hardman Structural Engineers answered this question as 'No' due to the boreholes being dry during drilling. However, during subsequent monitoring visits groundwater was recorded at depths of 0.65 m and 0.68 m bgl in BH1, and 1.83 m and 1.91 m bgl in BH2. The 'dry' borehole recorded during drilling highlights that the movement of groundwater in the London Clay Formation is very slow as no noticeable water could enter the borehole during the drilling period (< 1 day). The groundwater 'equilibrated' during the period of time between the original ground investigation (August 2016) and the monitoring visits (February 2017). Due to the anticipated low permeability of the London Clay Formation and the low topographical relief the proposed basement is not anticipated to have any impact on groundwater conditions and will require little or no dewatering (see Section 4.2). No further groundwater monitoring visits are currently planned.
2. Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No current surface water bodies were identified within 250 m of the site by the Groundsure Report (Appendix D) and the nearest well identified by the BGS GeoIndex is almost 1 km southwest of the site, to a depth os 85.3 m bgl within the Thanet Sand Formation.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No. The site is approximately 1.3 km from the catchment of the pond chains on Hampstead Heath.
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No. The proposed basement will be located beneath the footprint of the existing structure and extend into the rear garden area where there is an existing area of hardstanding.
5. As part of the site drainage, will more surface water (e.g. rainfall and runoff) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No. As detailed by Hardman Structural Engineers, in their Basement Impact Assessment Ref. 2298 dated October 2016, there will be no increase in surface water discharge into the ground. The Flood Risk Assessment (FRA) carried out by ARK Environmental Consultancy in December 2016 indicates that the flood risk will be reduced due to a 10% increase in permeable areas. The FRA concludes that the site remains as one dwelling with no change to site operations or sensitivity and minimal SUDS and flood protection measures could still be incorporated as appropriate but no specific SUDS are required due to the impermeable area decreasing.
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond or spring line?	No. There are no current surface water bodies or spring lines indicated within 250 m of the site.

APPENDIX B



Tree Schedule		
Tree No.	Tree Type	Height (m)
T1	Unknown	~10m
T2	Plum	~7m

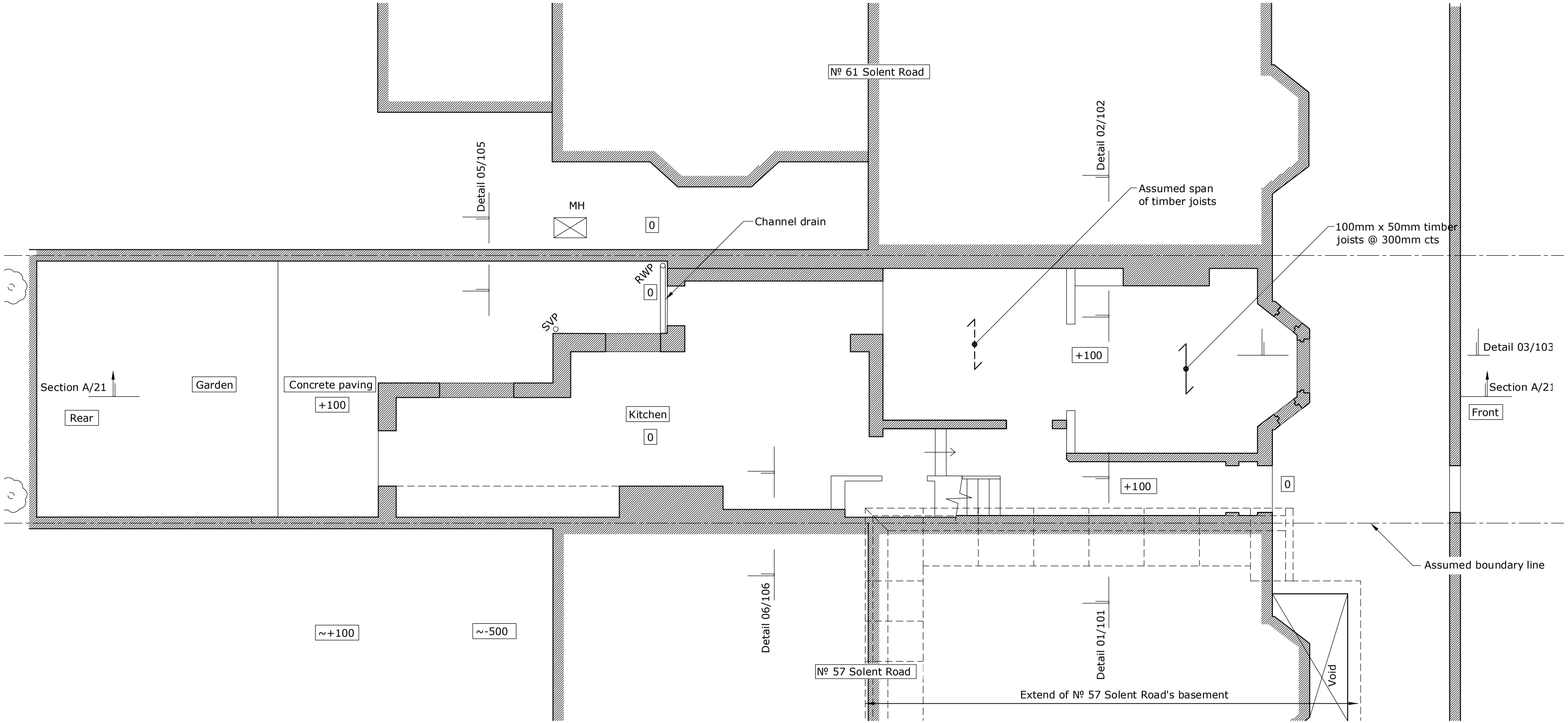
Note: All levels are approximate and relative to a localised datum on site.

According to geological map, the site's geology is London Clay with no superficial deposits recorded.

Rev.	Date	Comment	By

project 59 Solent Road NW6 1TY	scale 1:100 @ A3	job Nº 2298	
client Mahesh Varia	drafted by AU	drawing Nº 02	
title Existing Site Plan	date Oct 2016		
	status Pre-Tender	revision	

Hardman Structural Engineers
Studio 112, 134-146 Curtain Road, London EC2A 3AR
Tel 020 7729 7900 Fax 020 7729 7707
Email info@hardmanengineers.com
www.hardmanengineers.com



Note:
1. All levels are approximate and relative to a localised datum on site.

2. Survey has been carried out on ground floor only. Information also obtained from archived drawings hold by Building Control and Party Wall Award drawings to No.57 Solent Road.

Rev.	Date	Comment	By

project 59 Solent Road, NW6 1TY	scale 1:75 @ A3	job № 2298	
client Mahesh Varia	drafted by AU	drawing № 03	
title Existing Ground Floor Plan	date Oct 2016		
	status Pre-Tender	revision	

Hardman Structural Engineers
Studio 112, 134-146 Curtain Road, London EC2A 3AR
Tel 020 7729 7900 Fax 020 7729 7707
Email info@hardmanengineers.com
www.hardmanengineers.com

Note:
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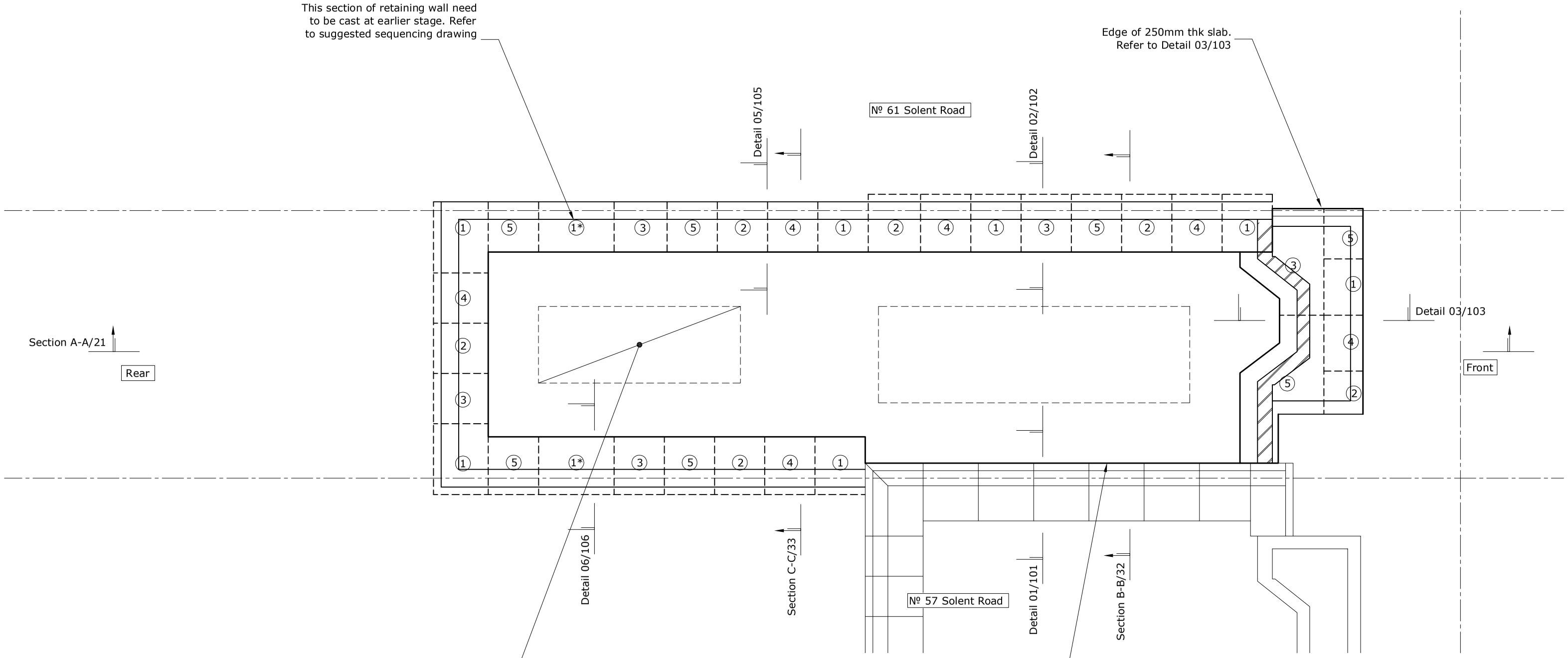

Health and Safety Legends:

⚠ **CAUTION**: Warning of significant design risks and site harzards

● **DO THIS**: Encourage a particular action

⊘ **DON'T DO THIS**: Avoid or prevent a particular action

Rev.	Date	Comment	By
A	05/12/16	Updated Layout	AU

General Notes

1. Do not scale from this drawing.
2. This drawing is to be read in conjunction with all relevant Engineers and Architects drawings and specifications.
3. Report any discrepancies between this drawing and on site to the Engineer.
4. Contractor is responsible for temporary propping.

Note: Underground drainage to Architect's details

project: 59 Solent Road, NW6 1TY	scale: 1:75 @ A3	job №: 2298	
client: Mahesh Varia	drafted by: AU	drawing №: 11	
title: Proposed Basement Floor Plan	date: Oct 2016		
	status: Pre-Tender	revision: A	

Hardman Structural Engineers
Studio 112, 134-146 Curtain Road, London EC2A 3AR
Tel 020 7729 7900 Fax 020 7729 7707
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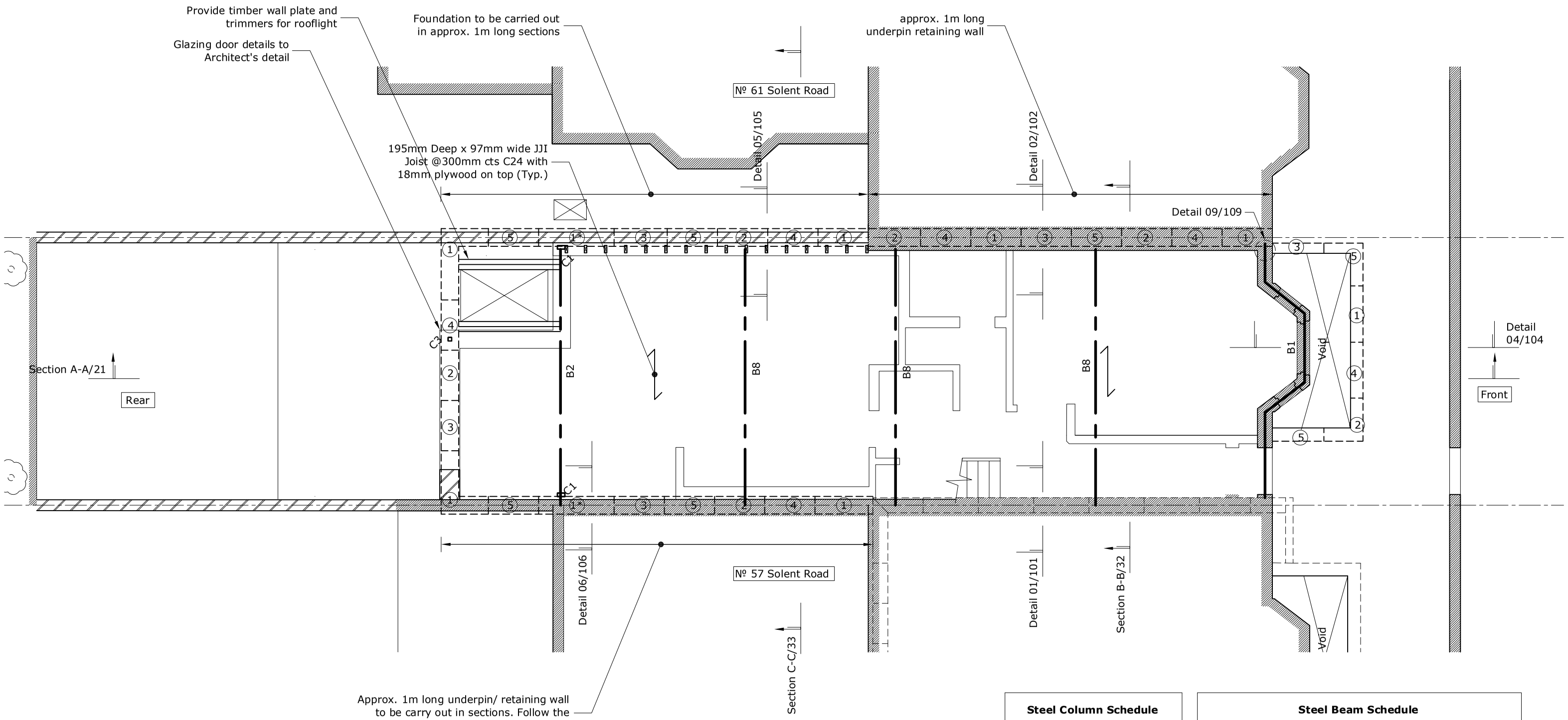

Approx. 1m long underpin/ retaining wall to be carry out in sections. Follow the numbering system on this drawing. (Typ.)

● **Contractor** to dig a trail pit next to this wall before carry out the underpinning. **Contractor** to inform **Engineer**

Health and Safety Legends:

⚠ **CAUTION**: Warning of significant design risks and site harzards

● **DO THIS**: Encourage a particular action

⊘ **DON'T DO THIS**: Avoid or prevent a particular action

Steel Column Schedule	
C1	160 x 80 x 10 RHS
C2	150 x 90 PFC
C3	80 SHS 8

Steel Beam Schedule	
B1	100 SHS 10 with 100 X 100 UKA two beam to be pre-welded in projection shape and bolted together by M16 Grade 8.8 Hollow-bolts @400 cts. (Galvanised all steelwork here)
B2	203 UC 46
B8	120 SHS 8

Rev.	Date	Comment	By
A	05/12/16	Updated Layout	AU

Note

1. Refer to Drawing 11 for general notes.

project: 59 Solent Road, NW6 1TY		scale: 1:75 @ A3	job №: 2298
client: Mahesh Varia		drafted by: AU	drawing №: 12
title: Proposed Ground Floor Plan		date: Oct 2016	
		status: Pre-Tender	revision: A

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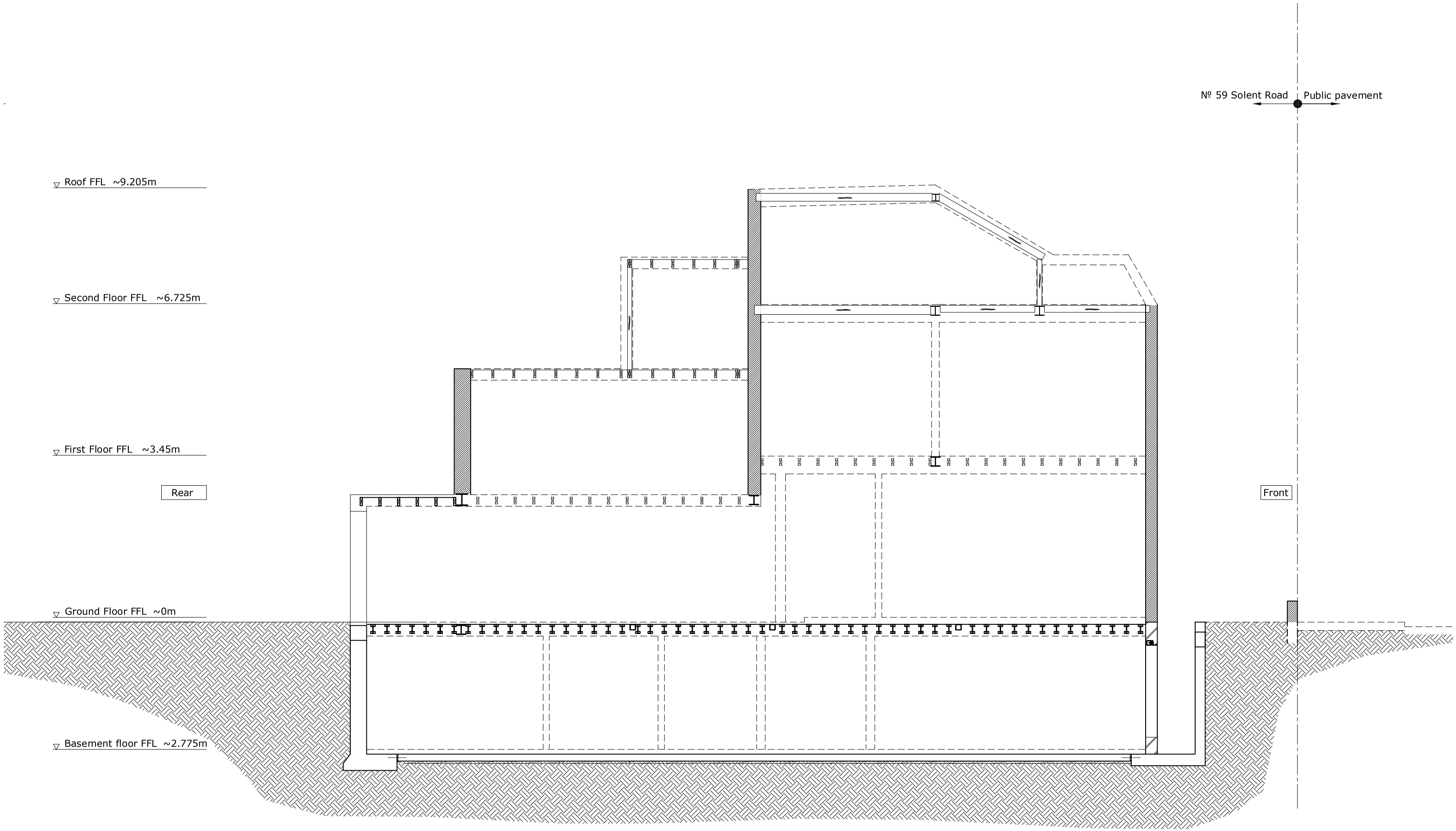
Studio 112, 134-146 Curtain Road, London EC2A 3AR
Tel 020 7729 7900 Fax 020 7729 7707
Email info@hardmanengineers.com
www.hardmanengineers.com



Rev.	Date	Comment	By
A	05/12/16	Updated Layout	AU

project: 59 Solent Road, NW6 1TY	scale: 1:75 @ A3	job №: 2298	
client: Mahesh Varia	drafted by: AU	drawing №: 31	
title: Proposed Section A-A	date: Oct 2016		
	status: Pre-Tender	revision: A	

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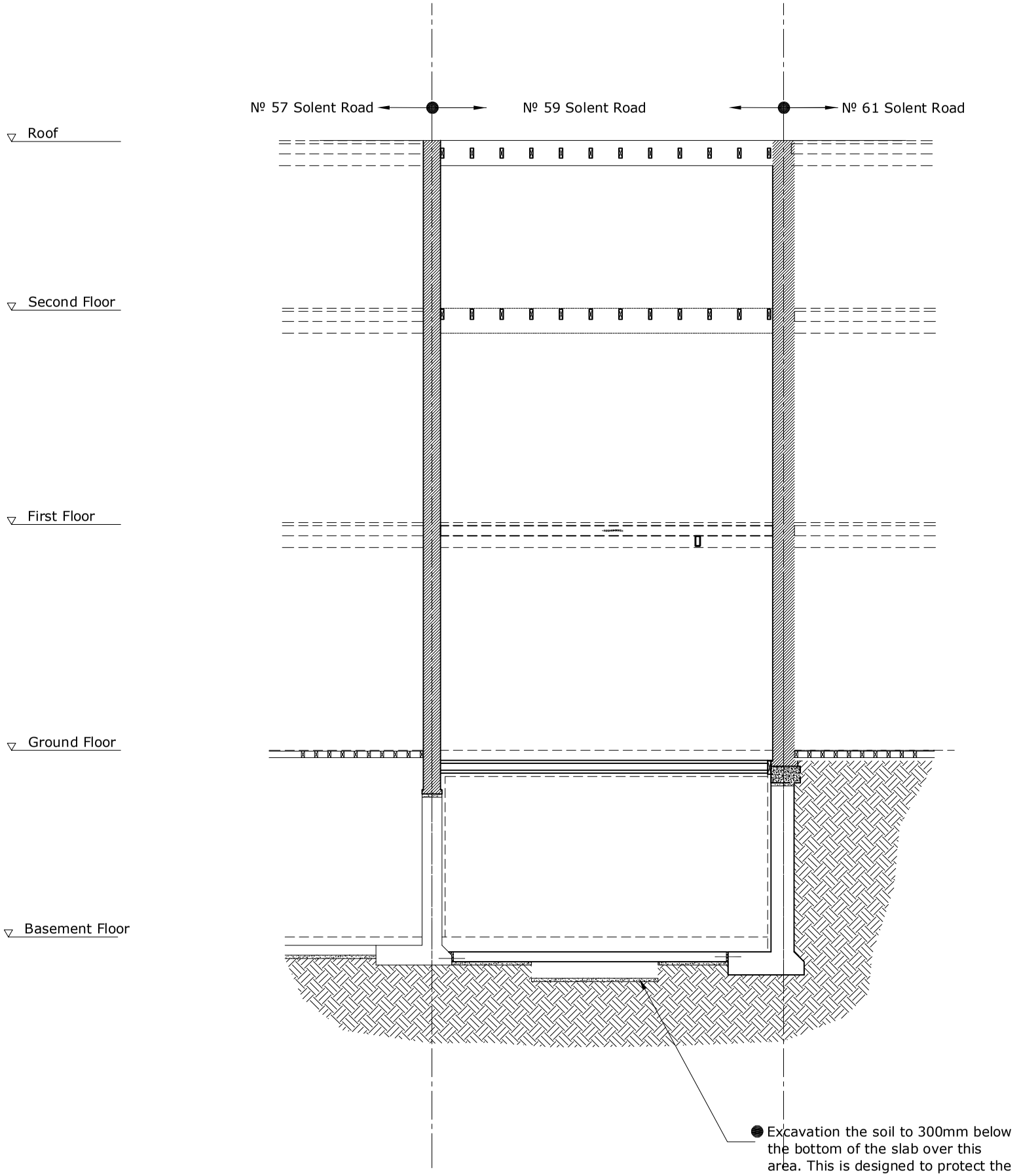

Rev.	Date	Comment	By

Note

1. Refer to Drawing 11 for general notes.

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client Mahesh Varia		drafted by AU	drawing № 32
title Proposed Section B-B		date Oct 2016	
		status Pre-Tender	revision

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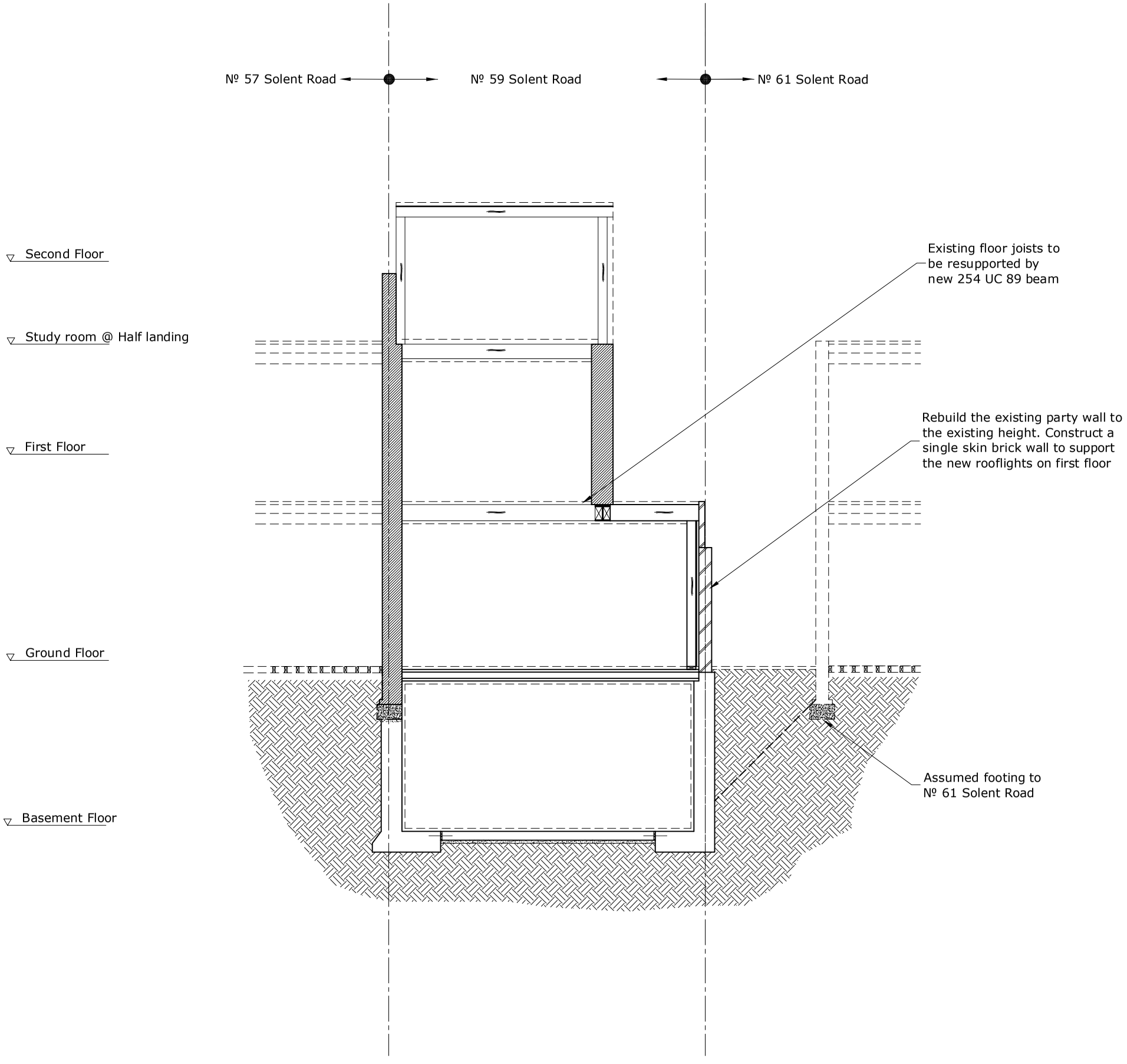

Rev.	Date	Comment	By
A	05/12/16	Changed Layout	AU

Note

1. Refer to Drawing 11 for general notes.

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client Mahesh Varia	drafted by AU	drawing № 33	
title Proposed Section C-C	date Oct 2016		
	status Pre-Tender	revision A	

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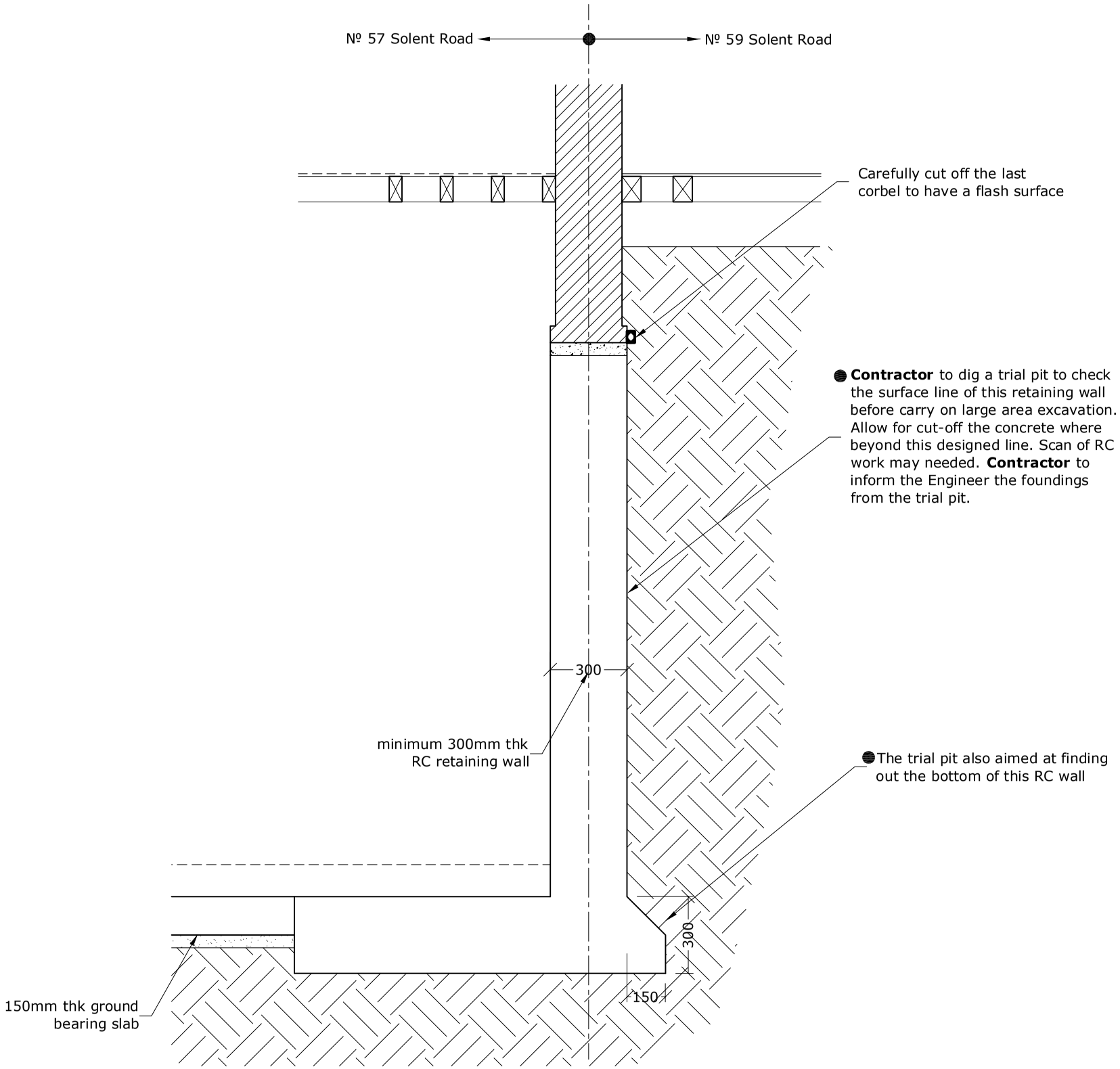
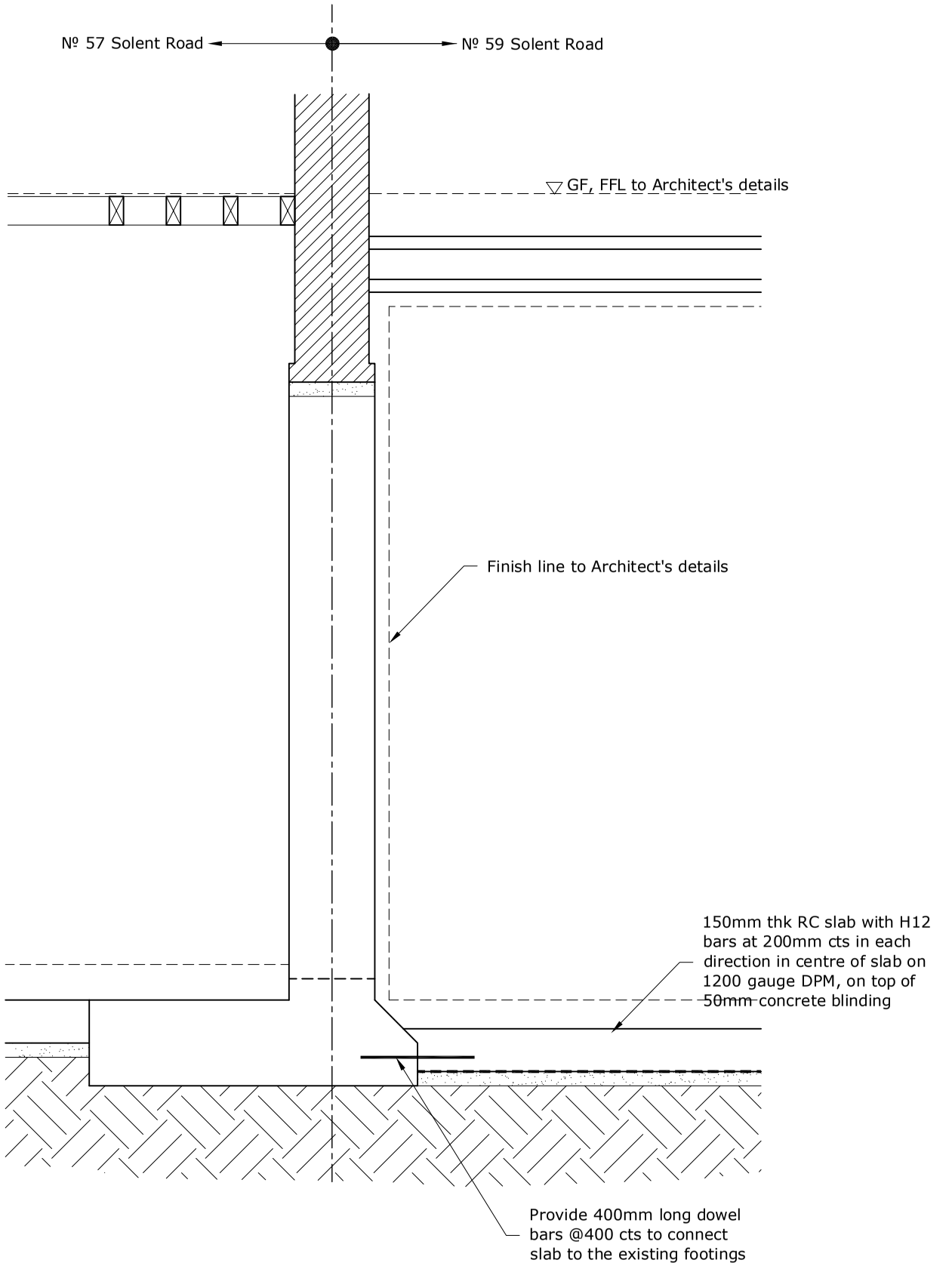


DETAIL 01
EXISTING AND
DEMOLISTION SECTION



DETAIL 01
PROPOSED SECTION

Health and Safety Legends:

⚠ **CAUTION**: Warning of significant design risks and site harzards

DO THIS: Encourage a particular action

DON'T DO THIS: Avoid or prevent a particular action

Note:
Information obtained from archived party wall award drawing carried out 2011

Rev.	Date	Comment	By

Note

1. Refer to Drawing 11 for general notes.

project: 59 Solent Road, NW6 1TY	scale: 1:20 @ A3	job №: 2298	
client: Mahesh Varia	drafted by: AU	drawing №: 101	
title: Detail 01 Existing and Proposed	date: Oct 2016		
	status: Pre-Tender	revision	

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Tel 020 7729 7900 Fax 020 7729 7707
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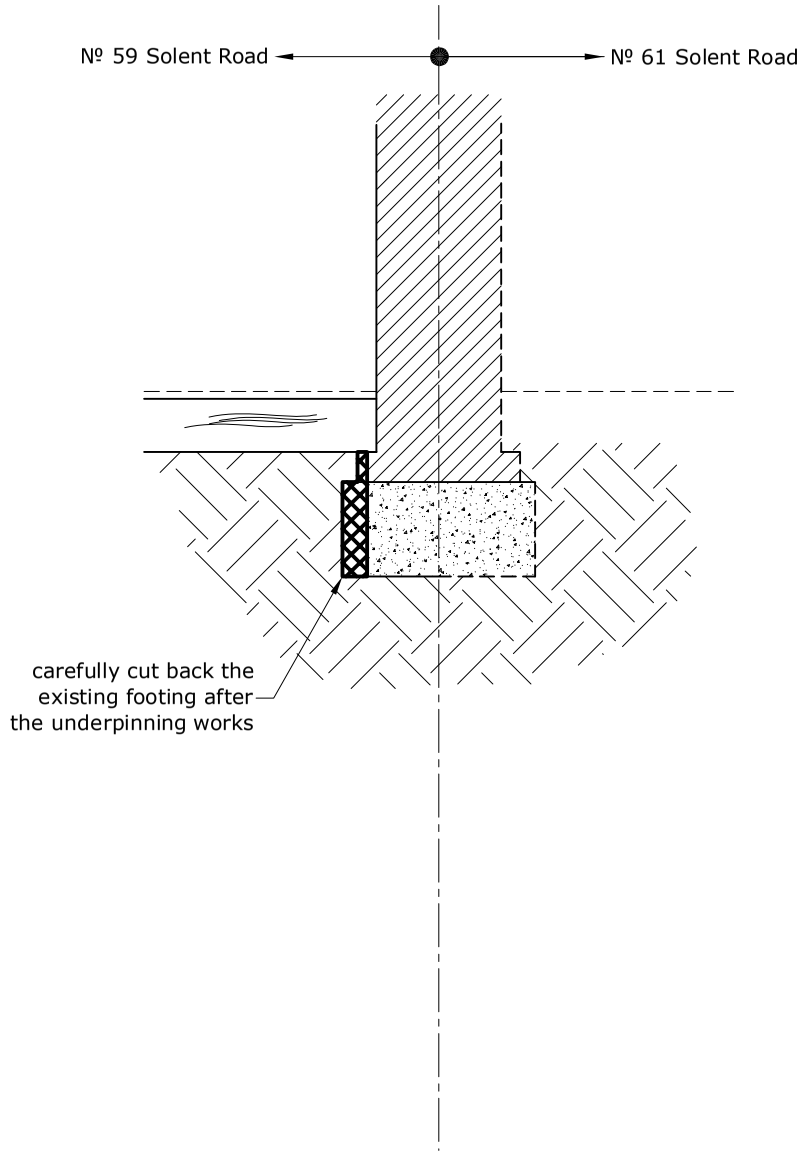
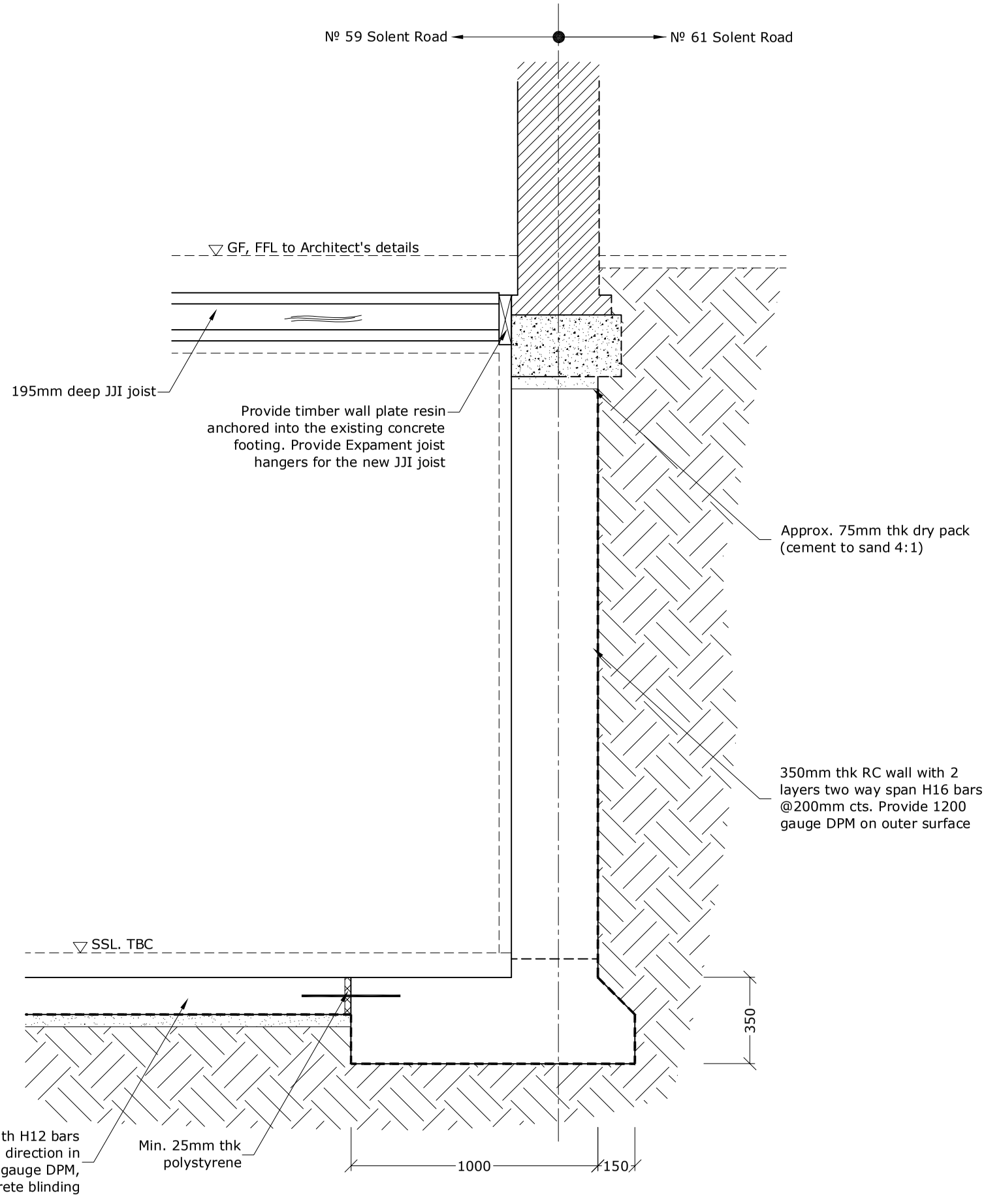


DETAIL 02
EXISTING AND
DEMOLISTION SECTION



DETAIL 02
PROPOSED SECTION

Rev.	Date	Comment	By

Note

1. Refer to Drawing 11 for general notes.

project 59 Solent Road, NW6 1TY		scale 1:20 @ A3	job № 2298
client Mahesh Varia		drafted by AU	drawing № 102
title Detail 02 Existing and Proposed		date Oct 2016	
		status Pre- Tender	revision

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Studio 112, 134-146 Curtain Road, London EC2A 3AR
Tel 020 7729 7900 Fax 020 7729 7707
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APPENDIX C

GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)

6-inch Map Registered No. TQ 28 NE/21

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: B.S. The Cock and Hoop

Nat. Grid Reference 2546·8526

For whom made

Town or Village St John Hampstead County

Exact site West End Lane. { Attach a tracing from a map, or a sketch-map, if possible.

1" N.S.Map No.	1" O.S.Map No.	Confidential or not
256.		

Purpose for which made Tube

Ground Level at shaft bore relative to O.D. 197·34 If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from L.C.C. Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft.	Thickness In.	Depth Ft.	Depth In.
Soil	Vegetable Mould	1	1		
TGR (?)	Vegetable Mould with stone gravel.	1	1	2	2
LC (?)	Hard yellow clay	2	0	4	2

(5412) Wt.32837/PS.134 2m. 10/64 G.W.B.Ltd. Op.863

1063 Wt. 22438/0384 10m 7/45 (51) F.&S.

RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)
1-inch Map Registered No. TQ28NW/20
2443.8558
256

Name and Number of Shaft or Bore West Hampstead School.

For Messrs. L.C.C. Education Dept.

Town or Village

County Six-inch quarter sheet

6-inch Map Registered No. TQ 28 NW/20.

Exact site

Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made

Level at which shaft / bore commenced relative to O.D. State if shaft / bore is up, down, horizontal or inclined; in latter cases give angle of inclination and direction

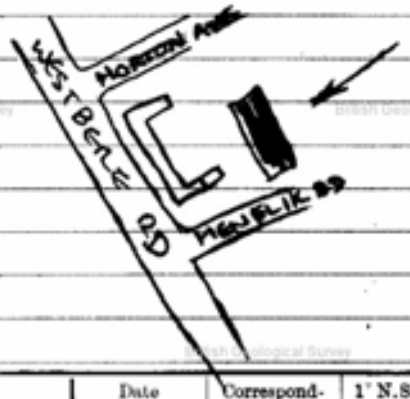
Made by

Information from Date of Sinking 1960

Specimens

Additional Notes in Space Overleaf

(For Survey use only) Geological Classification	Nature of Strata	Thickness			Depth		
	no. 1.						
	Topsoil			6			6
	Brown fissured clay LC (L)		23	-		23	6
	Blue fissured clay LC		1	6		25	-
	no. 2A.						
	Topsoil		1	-		1	-
	Brown mottled clay LC (L)		1	-		2	-
	Brown fissured clay LC (L)		21	6		23	6
	Blue fissured clay LC		1	6		25	-
	no. 3.						
	Topsoil			6			6
	Brown mottled clay LC (L)		1	-		1	6
	Brown fissured clay		21	6		23	-
	Blue fissured clay LC		2	-		25	-
	no. 4.						
	Topsoil			6			6
	Brown fissured clay LC (L)		23	-		23	6
	Blue fissured clay LC		16	6		40	-

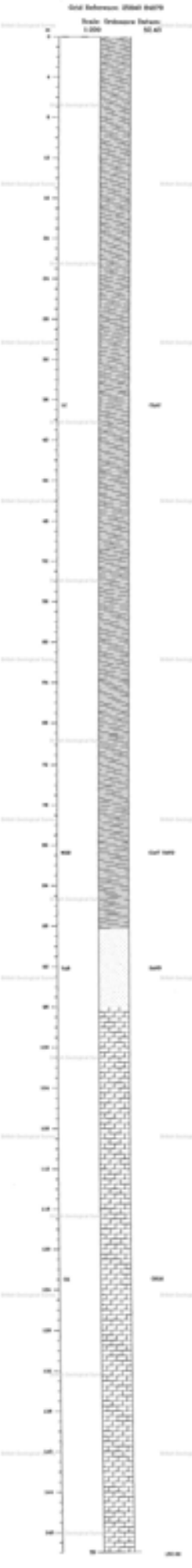


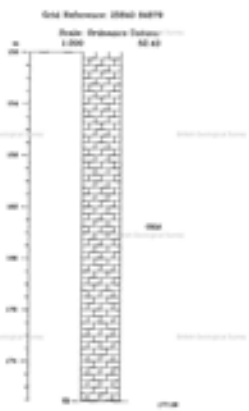
Continued Overleaf

Geological Survey and Museum, South Kensington, London, S.W.7.	Date received	Correspondence File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map	on 6" Map

N-ELECTRIC LIGHT STN LITHOS RD

N-ELECTRIC LIGHT STN LITHOS RD





(*For Survey use only*)
6-inch Map Registered No.

TQ28SE/46

GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

Name of Shaft or Bore given by Geological Survey: /

Name and Number given by owner: Electric Light assoc. Lithos Road.

Nat. Grid Reference 25840 84879

For whom made

Town or Village Hampstead County London

1" N.S.Map No.	1" O.S.Map No.	Confidential or not
28		

Exact site ... Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made ~~Trial~~ Water

Ground Level at shaft/bore relative to O.D. ... If not ground level give O.D. of beginning of shaft/bore

Made by ... Date of sinking 1901

Information from ... Date received

Examined by

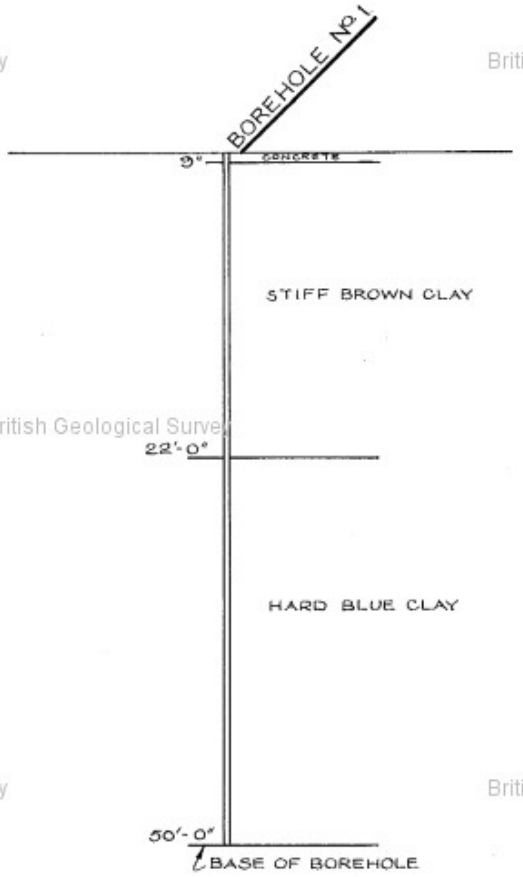
SPECIMEN NUMBERS AND ADDITIONAL NOTES

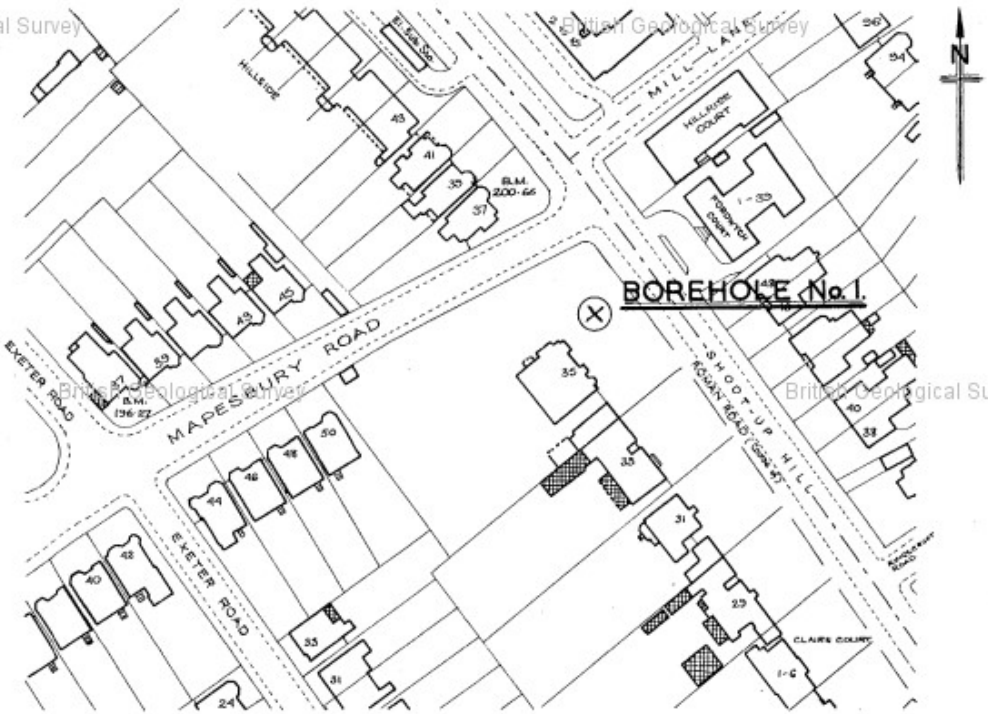
(*For Survey use only*) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft.	Thickness In.	Depth Ft.	Depth In.
	London Atlas sheet no VI NE			581	
	Summary of Progress 1906			177.09m	
	p.149 in full.				
			(2.24)		
			(9.75)		
			(73.15)		
			83.21)		
			84.43)		
			88.31)	2.15	
			96.01)	1.72	
			96.32)	1.43	
			(177.09)		

(5423) Wt 32837/P.4154 2m 10/34 G.W.B.Ltd. Gp.863

D/141·1/1.

DATE	AMENDMENTS	SIGNED





SITE PLAN

Scale :- 1/1250

REFERENCE PLAN TQ 2484.N.W.

TQ28SW/85

247 8496

256.

BOREHOLE SUNK 8TH JULY, 1964.
DIAMETER OF BOREHOLE 6"
NO MOVEMENT OF GROUND WATER DISCOVERED
DURING DRILLING OPERATIONS.
SEE SITE INVESTIGATION REPORT No. 693/14
MADE BY MESSRS TERRESEARCH LTD.

DETAILS OF STRATA ENCOUNTERED

Scale :- 1/4" to 1'

LONDON BOROUGH OF BRENT

SITE INVESTIGATION WORK
AT
MAPESBURY ROAD
WILLESDEN

C. W. STEEDMAN, A.M.I.C.E., M.I.Mun.E., M.T.P.I., M.R.San.I.
BOROUGH ENGINEER & SURVEYOR.

DATE APRIL '65.

DESIGNED		TRACING No. T/141-1/1
DRAWN	A.D.G.S.	
TRACED	B.H.	DRAWING No. D/141·1/1.
CHECKED		

APPENDIX D

Chelmer Site Investigation Laboratories Ltd

TOWER BRIDGE BUSINESS CENTRE,46-48,
EAST SMITHFIELD,
LONDON, E1W 1AW

Groundsure Reference:	GS-3631528
Your Reference:	HGR8461
Report Date	13 Feb 2017
Report Delivery Method:	Email - pdf

Groundsure Enviro Insight

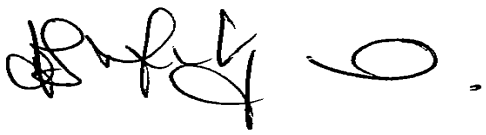
Address: 59, SOLENT ROAD, LONDON, NW6 1TY

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



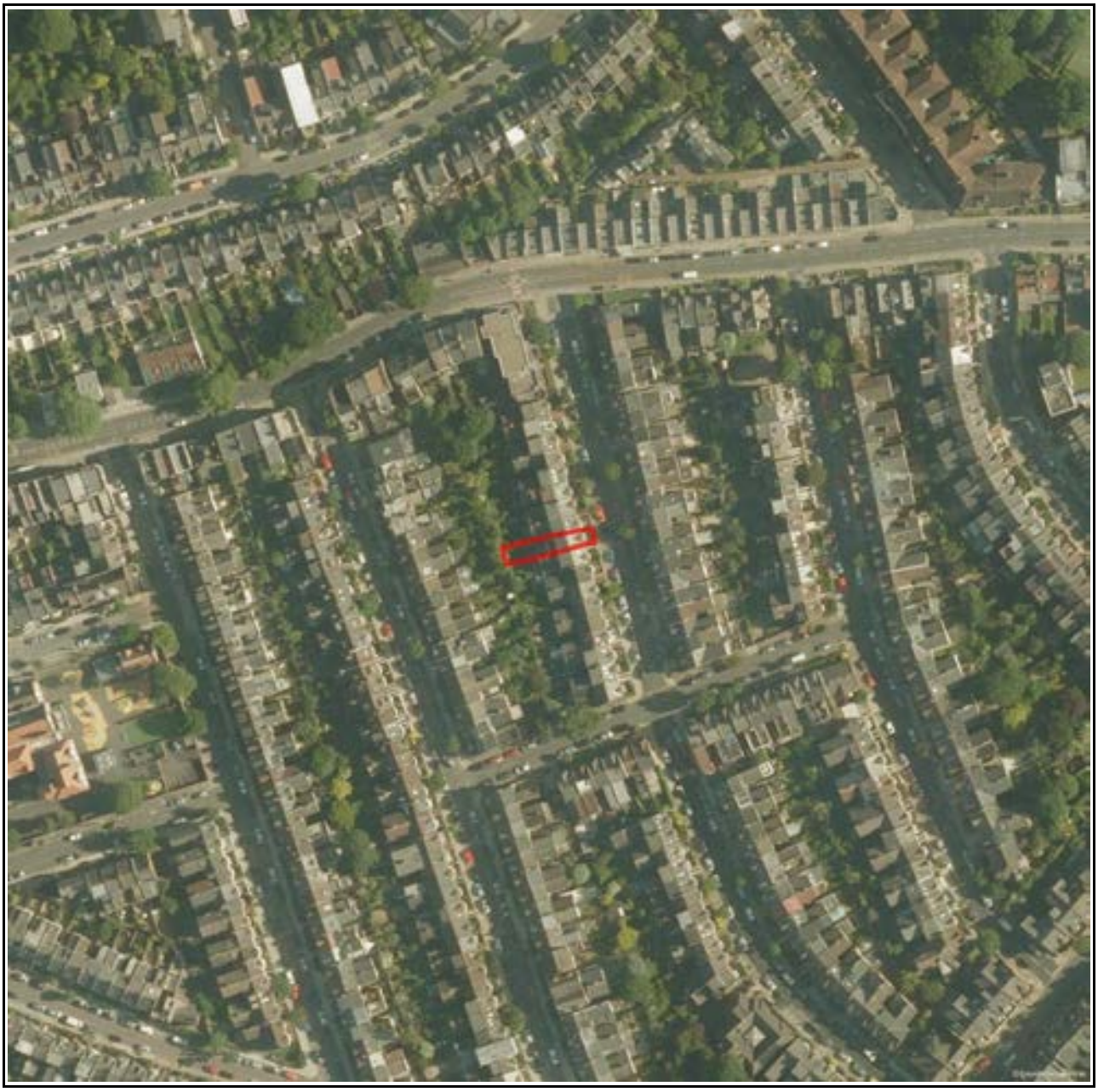
Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Groundsure Enviro Insight

Address:	**59, SOLENT ROAD, LONDON, NW6 1TY**
Date:	**13 Feb 2017**
Reference:	**GS-3631528**
Client:	**Chelmer Site Investigation Laboratories Ltd**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	07-Jun-2015
Grid Reference:	525097,185132
Site Size:	0.01ha

Report Reference: GS-3631528
Client Reference: HGR8461

Contents Page

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	15	71
1.2 Additional Information – Historical Tank Database	0	0	1	15
1.3 Additional Information – Historical Energy Features Database	0	1	22	36
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	21	60
1.6 Potentially Infilled Land	0	0	10	33

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	2	12
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	1
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	1	1	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	13	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	2
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology

5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology

	0-500m
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	No
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	4
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	0	0	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Enviroment Agency Zone 2 floodplains within 250m of the study site?	No
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Not Prone
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Not Applicable

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	1
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	2	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Negligible
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

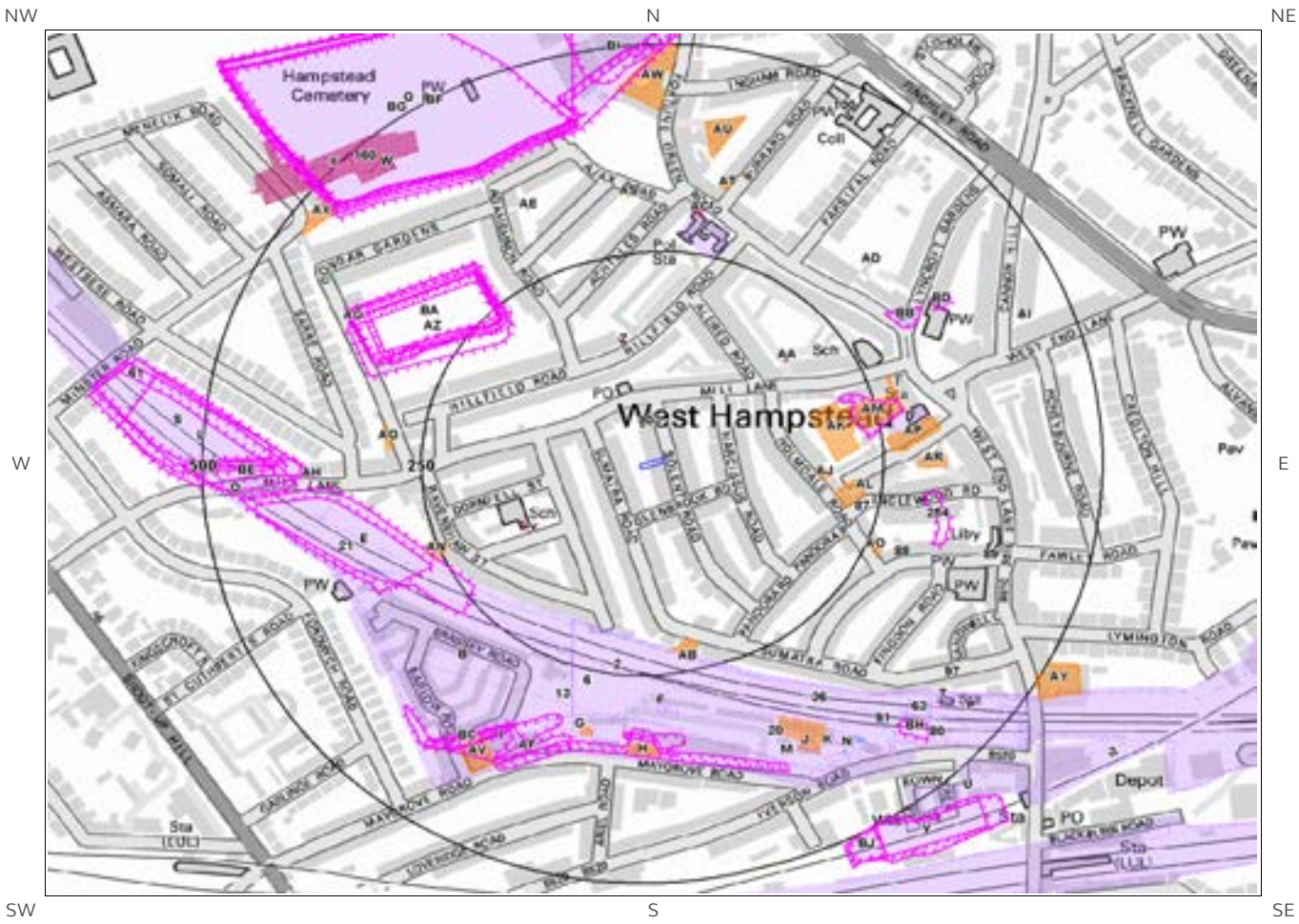
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 86

ID	Distance [m]	Direction	Use	Date
1A	196	S	Railway Sidings	1957
2	196	S	Railway Sidings	1866
3	197	S	Railway Sidings	1948
4A	198	S	Railway Sidings	1973
5A	198	S	Railway Sidings	1968
6	202	S	Railway Sidings	1894
7AM	211	E	Gravel Pit	1873
8B	229	S	Railway Sidings	1951
9B	231	SW	Railway Sidings	1973
10B	231	SW	Railway Sidings	1967
11E	237	SW	Cuttings	1866
12B	239	S	Railway Sidings	1957
13	240	S	Railway Sidings	1920
14C	245	N	Police Station	1996
15C	245	N	Police Station	1974
16D	262	E	Fire Station	1996
17D	262	E	Fire Station	1974
18D	262	E	Fire Station	1965
19E	266	SW	Cuttings	1894
20	269	S	Coal Depot	1957
21	278	SW	Railway Sidings	1966
22F	281	S	Railway Building	1948
23F	286	S	Railway Building	1920
24F	291	S	Railway Building	1894
25BB	307	NE	Gravel Pits	1873
26I	312	S	Unspecified Pit	1866
27G	314	S	Railway Building	1948
28H	315	S	Unspecified Ground Workings	1866
29G	316	S	Railway Buildings	1920
30G	317	S	Railway Building	1920
31H	318	S	Unspecified Ground Workings	1973
32H	318	S	Unspecified Ground Workings	1957

33H	318	S	Unspecified Ground Workings	1968
34G	321	S	Railway Buildings	1894
35O	329	W	Railway Sidings	1949
36	331	SE	Railway Building	1920
37I	333	S	Unspecified Ground Workings	1951
38BC	345	SW	Unspecified Ground Workings	1920
39I	356	SW	Unspecified Tanks	1951
40BD	358	NE	Gravel Pit	1873
41I	359	SW	Unspecified Tanks	1920
42J	365	SE	Railway Building	1948
43J	365	SE	Coal Depot	1957
44K	369	SE	Railway Buildings	1973
45K	369	SE	Railway Buildings	1968
46L	371	W	Cuttings	1993
47L	371	W	Cuttings	1976
48L	371	W	Cuttings	1966
49M	371	S	Railway Building	1948
50J	373	SE	Railway Building	1920
51N	375	SE	Railway Buildings	1948
52M	375	S	Railway Building	1920
53J	376	SE	Railway Building	1894
54N	384	SE	Railway Building	1920
55BE	388	W	Cuttings	1866
56BF	392	NW	Cemetery	1911
57O	394	W	Cuttings	1894
58R	395	NW	Cemetery	1920
59P	397	SE	Railway Station	1948
60BG	398	NW	Cemetery	1894
61	400	W	Railway Sidings	1938
62S	400	W	Railway Sidings	1920
63	400	SE	Railway Sidings	1957
64P	401	SE	Railway Station	1968
65P	401	SE	Railway Station	1973
66Q	402	NW	Cemetery	1949
67Q	402	NW	Cemetery	1966
68Q	402	NW	Cemetery	1976
69Q	402	NW	Cemetery	1993
70P	404	SE	Railway Station	1920
71R	404	NW	Cemetery	1938
72R	405	NW	Cemetery	1938
73S	406	W	Cuttings	1873
74BH	412	SE	Cuttings	1866
75S	417	W	Cuttings	1894
76S	418	W	Cuttings	1911

77T	418	SE	Railway Building	1957
78T	421	SE	Railway Station	1989
79T	434	SE	Railway Building	1894
80	441	SE	Railway Station	1894
81BI	457	N	Cemetery	1949
82U	479	SE	Unspecified Works	1973
83U	479	SE	Unspecified Works	1968
84V	497	SE	Cuttings	1948
85BJ	499	SE	Cuttings	1920
86V	500	SE	Cuttings	1957

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 16

ID	Distance (m)	Direction	Use	Date
87	231	E	Unspecified Tank	1871
88	291	E	Unspecified Tank	1871
89	388	E	Unspecified Tank	1871
90N	395	SE	Unspecified Tank	1915
91	396	SE	Unspecified Tank	1896
92N	399	SE	Unspecified Tank	1955
93N	399	SE	Unspecified Tank	1955
94N	399	SE	Unspecified Tank	1953
95N	399	SE	Unspecified Tank	1953
96N	403	SE	Unspecified Tank	1915
97	415	SE	Unspecified Tank	1871
98X	453	NW	Gas Works	1877
99W	456	NW	Gasometers	1877
100	466	NE	Unspecified Tank	1971
101W	468	NW	Gasometers	1877
102X	493	NW	Gasometers	1877

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 59

ID	Distance (m)	Direction	Use	Date
103	43	N	Electricity Substation	1973
104Y	140	SW	Electricity Substation	1953
105Y	140	SW	Electricity Substation	1974
106Y	141	SW	Electricity Substation	1991
107Y	141	SW	Electricity Substation	1991
108Z	142	N	Electricity Substation	1992
109Z	142	N	Electricity Substation	1994
110Z	142	N	Electricity Substation	1973
111Z	144	N	Electricity Substation	1991
112Y	147	SW	Electricity Substation	1953
113AA	181	NE	Electricity Substation	1994
114AA	181	NE	Electricity Substation	1992
115AA	181	NE	Electricity Substation	1953
116AA	181	NE	Electricity Substation	1973
117AA	181	NE	Electricity Substation	1953
118AA	181	NE	Electricity Substation	1953
119AA	181	NE	Electricity Substation	1991
120AL	226	E	Electricity Substation	1973
121AB	233	S	Electricity Substation	1991
122AB	233	S	Electricity Substation	1991
123AB	233	S	Electricity Substation	1985
124AB	234	S	Electricity Substation	1974
125AB	234	S	Electricity Substation	1994
126AC	296	N	Electricity Substation	1991
127AC	299	N	Electricity Substation	1992
128AC	299	N	Electricity Substation	1994
129AC	300	N	Electricity Substation	1973
130AD	332	NE	Electricity Substation	1992
131AD	332	NE	Electricity Substation	1994
132AE	333	NW	Electricity Substation	1991
133AE	333	NW	Electricity Substation	1991
134AE	333	NW	Electricity Substation	1953
135AE	333	NW	Electricity Substation	1974
136AE	333	NW	Electricity Substation	1953
137AD	333	NE	Electricity Substation	1973
138AD	334	NE	Electricity Substation	1991
139AF	359	S	Electricity Substation	1955
140AF	359	S	Electricity Substation	1970
141AF	359	S	Electricity Substation	1953
142AF	359	S	Electricity Substation	1991
143AF	359	S	Electricity Substation	1981
144AF	359	S	Electricity Substation	1984
145AF	360	S	Electricity Substation	1992
146AF	361	S	Electricity Substation	1991

147AF	361	S	Electricity Substation	1991
148AG	369	NW	Electricity Substation	1991
149AG	369	NW	Electricity Substation	1974
150AG	370	NW	Electricity Substation	1991
151AH	375	W	Electricity Substation	1991
152AH	375	W	Electricity Substation	1974
153AH	375	W	Electricity Substation	1995
154AI	442	NE	Electricity Substation	1991
155AI	443	NE	Electricity Substation	1971
156AI	443	NE	Electricity Substation	1979
157AI	443	NE	Electricity Substation	1877
158X	453	NW	Gas Works	1877
159W	456	NW	Gasometers	1877
160	468	NW	Gasometers	1877
161X	493	NW	Gasometers	

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 81

ID	Distance (m)	Direction	Use	Date
162AJ	170	E	Garages	1953
163AJ	170	E	Garages	1953
164AK	173	E	Post Office Garage	1953
165AK	173	E	Post Office Garage	1953
166AK	173	E	Post Office Garage	1953
167AJ	184	E	Garages	1953
168AL	196	E	Garages	1953
169AL	196	E	Garages	1953
170AL	197	E	Garages	1953
171AB	211	S	Garages	1955
172AB	211	S	Garages	1955

173AB	211	S	Garages	1953
174AB	211	S	Garages	1953
175AM	212	E	Garage	1953
176AM	212	E	Garage	1953
177AM	220	E	Coach Works	1973
178AM	232	E	Garage	1953
179AN	236	SW	Garages	1953
180AN	236	SW	Garages	1953
181AO	249	E	Garages	1953
182AO	249	E	Garages	1953
183AO	254	E	Garages	1953
184AP	254	E	Garage	1991
185D	254	E	Garage	1953
186D	254	E	Garage	1953
187AP	255	E	Garage	1953
188AP	255	E	Garage	1973
189AQ	281	W	Garages	1953
190AQ	283	W	Garages	1953
191D	285	E	Garage	1994
192D	285	E	Garage	1992
193AR	289	E	Garages	1953
194AR	289	E	Garages	1953
195AR	289	E	Garages	1953
196AS	318	N	Garages	1953
197G	318	S	Garage	1955
198G	318	S	Garage	1955
199G	318	S	Garage	1953
200G	318	S	Garage	1953
201AS	319	N	Garages	1953
202AS	319	N	Garages	1953
203AT	331	N	Garages	1953
204H	331	S	Garages	1953
205H	331	S	Garages	1953
206AT	331	N	Garages	1953
207AT	331	N	Garages	1953
208H	332	S	Garages	1955
209H	332	S	Garages	1955
210J	333	SE	Car Breakers Yard	1974
211AU	367	N	Garage	1953
212AU	367	N	Garage	1953
213AV	368	SW	Garage	1992
214AU	368	N	Garage	1953
215AU	368	N	Garage	1971
216AU	368	N	Garage	1979
217AU	368	N	Garage	1962
218AU	368	N	Garage	1994

219AV	374	SW	Garage	1955
220AV	374	SW	Garage	1981
221AV	374	SW	Garage	1984
222AV	374	SW	Garage	1991
223AV	374	SW	Garage	1970
224AV	374	SW	Garage	1953
225AV	375	SW	Garage	1991
226AV	375	SW	Garage	1991
227AU	389	N	Garage	1994
228AW	420	N	Garage	1971
229AW	420	N	Garage	1953
230AW	420	N	Garage	1979
231AW	420	N	Garage	1962
232AW	420	N	Garage	1991
233AW	433	N	Garage	1953
234AW	437	N	Garage	1953
235AW	437	N	Garage	1953
236AX	460	NW	Garages	1953
237AX	460	NW	Garages	1960
238AY	494	SE	Garage	1960
239AY	494	SE	Garage	1953
240AY	494	SE	Garage	1955
241AY	496	SE	Garage	1955
242AY	496	SE	Garage	

1.6 Potentially Infilled Land

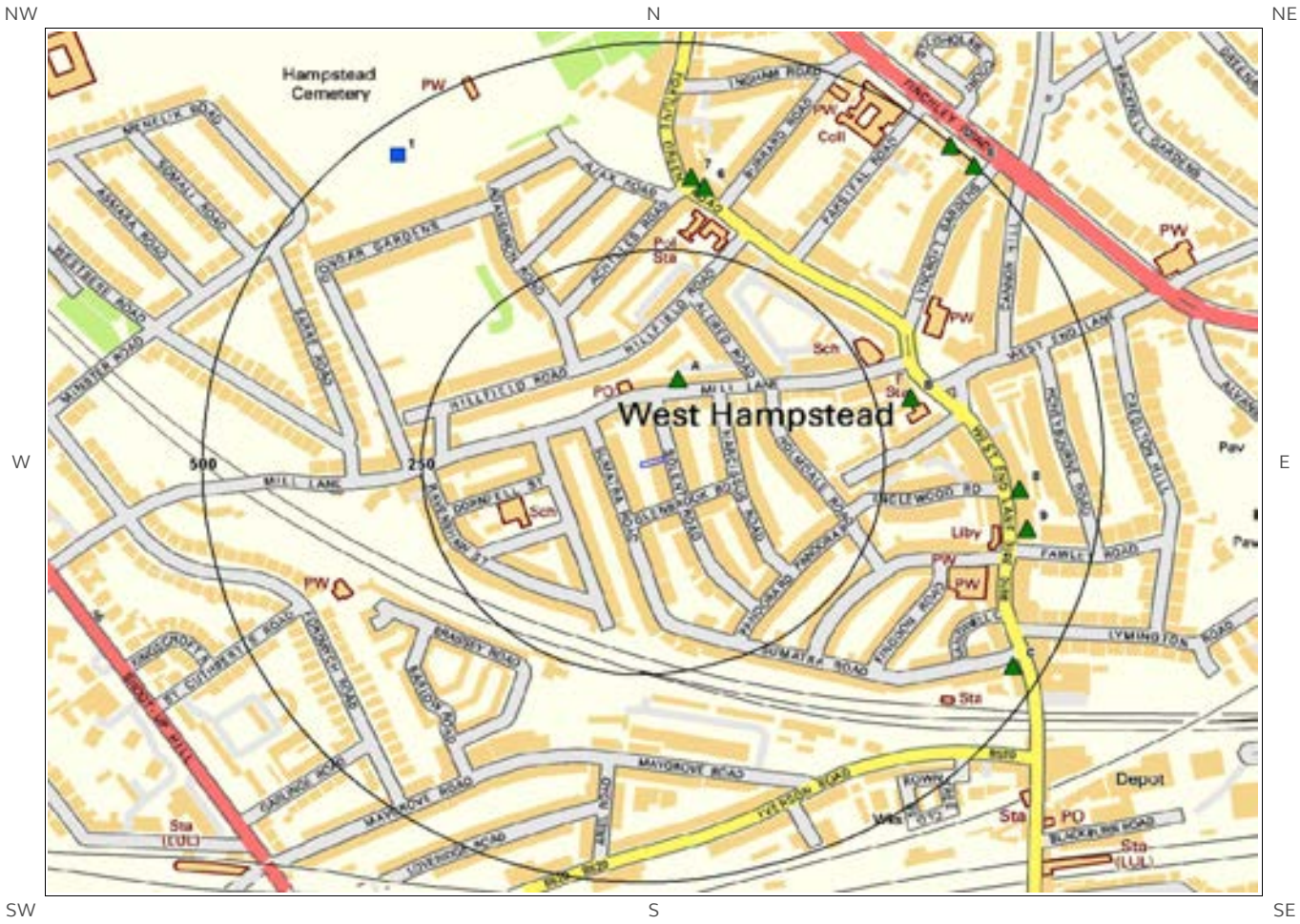
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 43

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
243AM	211	E	Gravel Pit	1873
244AZ	215	NW	Reservoir	1911
245AZ	228	NW	Reservoir	1920
246BA	228	NW	Reservoir	1938
247AZ	234	NW	Covered Reservoir	1894
248BA	236	NW	Covered Reservoir	1976
249BA	236	NW	Covered Reservoir	1993
250BA	236	NW	Reservoir	1938
251E	237	SW	Cuttings	1866
252BA	242	NW	Reservoir	1949
253E	266	SW	Cuttings	1894
254	300	E	Pond	1866
255BB	307	NE	Gravel Pits	1873
256I	312	S	Unspecified Pit	1866

257H	315	S	Unspecified Ground Workings	1866
258H	318	S	Unspecified Ground Workings	1968
259H	318	S	Unspecified Ground Workings	1973
260H	318	S	Unspecified Ground Workings	1957
261I	333	S	Unspecified Ground Workings	1951
262BC	345	SW	Unspecified Ground Workings	1920
263BD	358	NE	Gravel Pit	1873
264L	371	W	Cuttings	1993
265L	371	W	Cuttings	1966
266L	371	W	Cuttings	1976
267BE	388	W	Cuttings	1866
268BF	392	NW	Cemetery	1911
269BE	394	W	Cuttings	1894
270R	395	NW	Cemetery	1920
271BG	398	NW	Cemetery	1894
272Q	402	NW	Cemetery	1966
273Q	402	NW	Cemetery	1976
274Q	402	NW	Cemetery	1993
275Q	402	NW	Cemetery	1949
276R	404	NW	Cemetery	1938
277R	405	NW	Cemetery	1938
278S	406	W	Cuttings	1873
279BH	412	SE	Cuttings	1866
280S	417	W	Cuttings	1894
281S	418	W	Cuttings	1911
282BI	457	N	Cemetery	1949
283V	497	SE	Cuttings	1948
284BJ	499	SE	Cuttings	1920
285V	500	SE	Cuttings	1957

2. Environmental Permits, Incidents and Registers Map



- Site Outline
- Search Buffers (m)
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
2A	94	N	525119 185229	Address: Cotton Club Dry Cleaners, 57 Mill Lane, NW6 1NB Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
3A	94	N	525119 185229	Address: Cotton Club Dry Cleaners, 57 Mill Lane, NW6 1NB Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4B	290	E	525385 185206	Address: Sparkle Dry Cleaning, 329 West End Lane, NW6 1RS Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
5B	290	E	525385 185206	Address: Sparkle Dry Cleaning , 329 West End Lane, NW6 1RS Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
6	327	N	525149 185460	Address: Texaco 63 Fortune Green, London, NW6 1DR Process: Unloading of Petrol into Storage at Service Stations Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
7	337	N	525134 185472	Address: D&D Dry Cleaners, 68 Fortune Green Rd, NW6 1DS Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
8	406	E	525509 185096	Address: Shamrock Express Cleaners, 210 West End Lane, NW6 1UU Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
9	420	E	525517 185048	Address: Shamrock, 210 West End Lane, NW6 1UU Process: Dry Cleaning Status: Revoked Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
10C	468	SE	525501 184883	Address: Madame George Dry Cleaners , 227 West End Lane, NW6 1XJ Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
11C	468	SE	525501 184883	Address: Madame George Dry Cleaners, 227 West End Lane, NW6 1XJ Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Distance (m)	Direction	NGR	Details	
12D	495	NE	525430 185509	Address: The London Dry Cleaning Company, 519A Finchley Road, NW3 7BB Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
13D	495	NE	525430 185509	Address: The London Dry Cleaning Company, 519A Finchley Road, NW3 7BB Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
14E	497	NE	525457 185486	Address: Cottontail Cleaners, 509 Finchley Road, Hamstead, NW3 7BB Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
15E	497	NE	525457 185486	Address: Cottontail Cleaners, 509 Finchley Road, NW3 7BB Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: Enforcement Notified Date of Enforcement: 19/01/2009 Comment: Non - payment of the annual subsistence fee.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

1

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	462	NW	524800 185500	Address: Shoot Up Hill, Shoot Up Hill, -, -, - Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: TEMP.0234 Permit Version: 1	Receiving Water: RIVER THAMES Status: REVOKED - UNSPECIFIED Issue date: 15/09/1989 Effective Date: 15-Sep-1989 Revocation Date: 05/10/2000

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

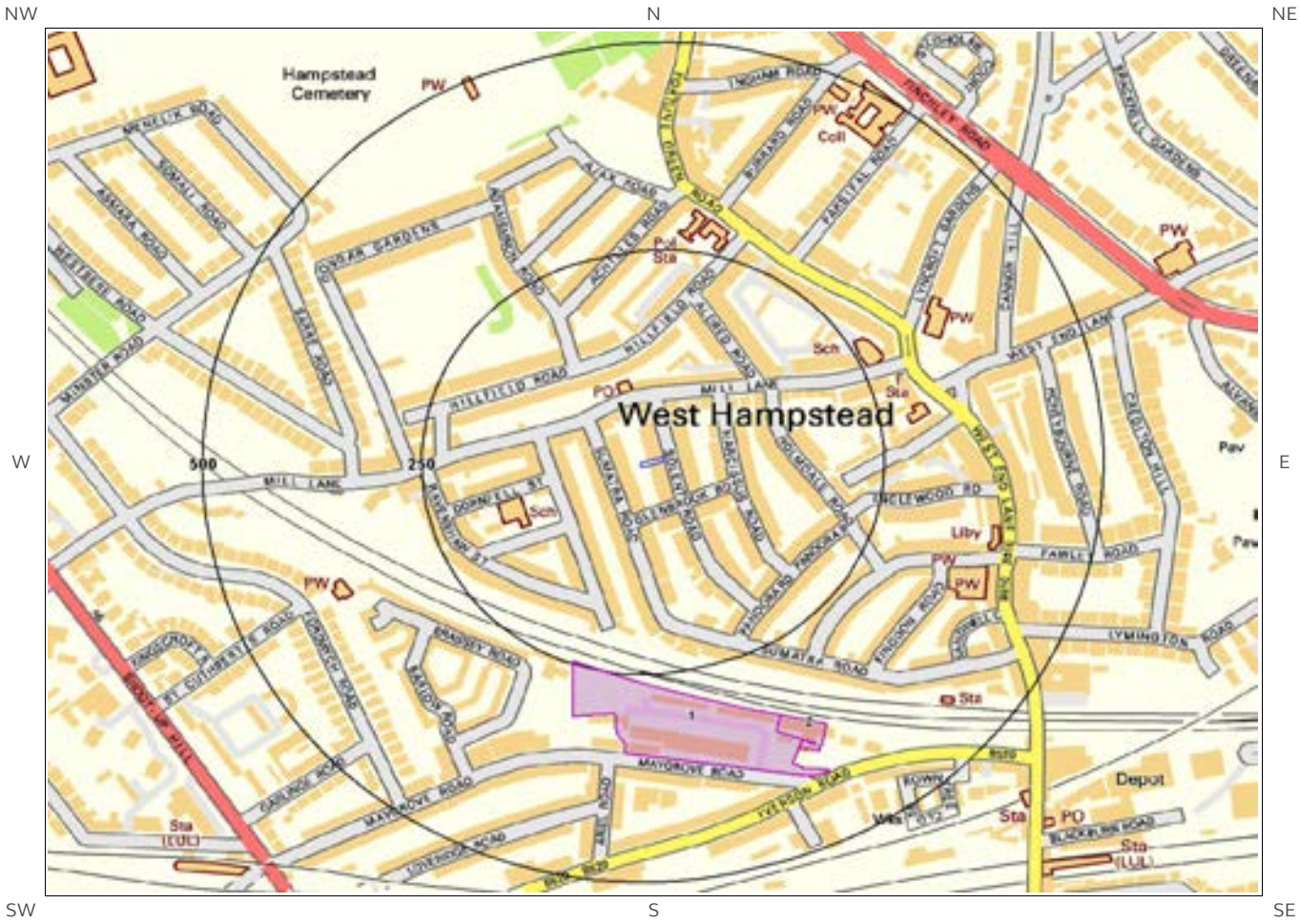
Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site? 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



Site Outline

250

500

Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

1

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	978	E	526000 184800	Site Address: Canfield Place, London NW6 Waste Licence: - Site Reference: DON009 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

2

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

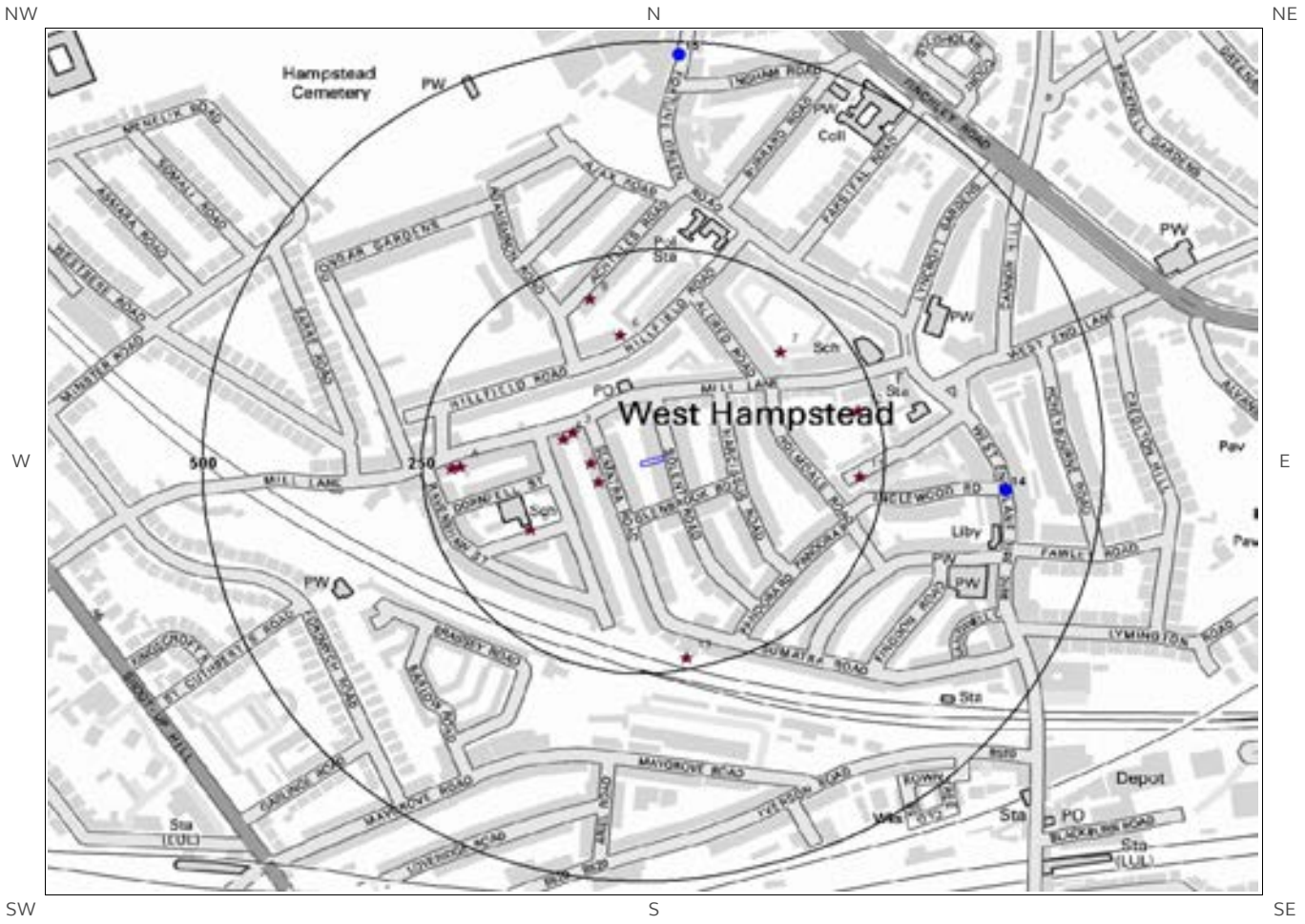
ID	Distance (m)	Direction	NGR	Details		
1	247	S	525145 184822	Type of Site: Scrap Metal Yard Site Address: N/A	Planning Application Reference: N/A Date: 1973	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2	333	SE	525260 184804	Type of Site: Car Breaker's Yard Site Address: N/A	Planning Application Reference: N/A Date: 1973	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



Site Outline

Search Buffers (m)

250

500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 13

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	53	W	CCTV Traders	525028 185105	CCTV Traders, 19, Sumatra Road, London, NW6 1PS	Electronic Equipment	Industrial Products
2	57	W	Spatial Image Systems Ltd	525020 185128	Spatial Image Systems Ltd, 9, Sumatra Road, London, NW6 1PS	Measurement and Inspection Equipment	Industrial Products
3	86	NW	Brandon Hire	524999 185166	Brandon Hire, 104, Mill Lane, London, NW6 1NF	Construction and Tool Hire	Hire Services
4	93	W	Norman Motors Ltd	524988 185158	Norman Motors Ltd, 100, Mill Lane, London, NW6 1NF	Vehicle Parts and Accessories	Motoring
5	148	SW	Electricity Sub Station	524951 185049	Electricity Sub Station, NW6	Electrical Features	Infrastructure and Facilities
6	154	N	Electricity Sub Station	525053 185283	Electricity Sub Station, NW6	Electrical Features	Infrastructure and Facilities
7	183	NE	Electricity Sub Station	525236 185263	Electricity Sub Station, NW6	Electrical Features	Infrastructure and Facilities
8	205	N	Open Gate Press Ltd	525019 185326	Open Gate Press Ltd, 51, Achilles Road, London, NW6 1DZ	Published Goods	Industrial Products
9A	206	W	A K Locksmiths Ltd	524870 185124	A K Locksmiths Ltd, 56, Mill Lane, London, NW6 1NJ	Vehicle Repair, Testing and Servicing	Repair and Servicing
10A	216	W	Computer Clinic	524861 185122	Computer Clinic, 52, Mill Lane, London, NW6 1NJ	Electrical Equipment Repair and Servicing	Repair and Servicing
11	222	E	Electricity Sub Station	525326 185113	Electricity Sub Station, NW6	Electrical Features	Infrastructure and Facilities
12	227	E	Works	525324 185191	Works, NW6	Unspecified Works Or Factories	Industrial Features
13	236	S	Electricity Sub Station	525129 184895	Electricity Sub Station, NW6	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 2

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
14	390	E	525493 185095	Obsolete	Cavendish Motors, West End Lane, West End Lane, London, Greater London, NW6 1XF	Not Applicable	Obsolete
15	484	N	525120 185620	Texaco	Fortune Green Service Station, Fortune Green Road, Fortune Green Road, Fortune Green, London, Greater London, NW6 1DR	Not Applicable	Obsolete

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.3 Bedrock and Solid Geology

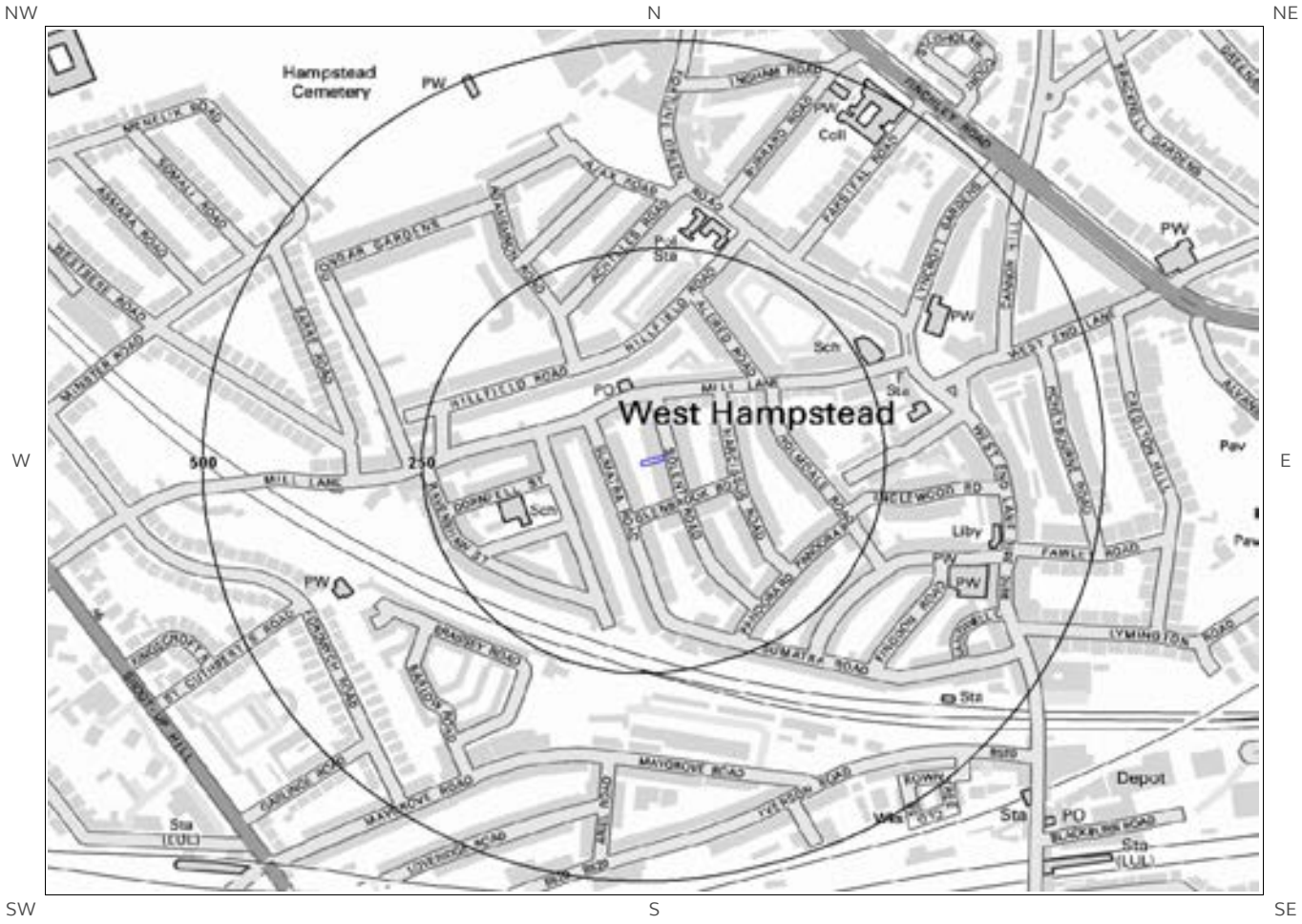
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LC-CLSISA	LONDON CLAY FORMATION	CLAY, SILT AND SAND

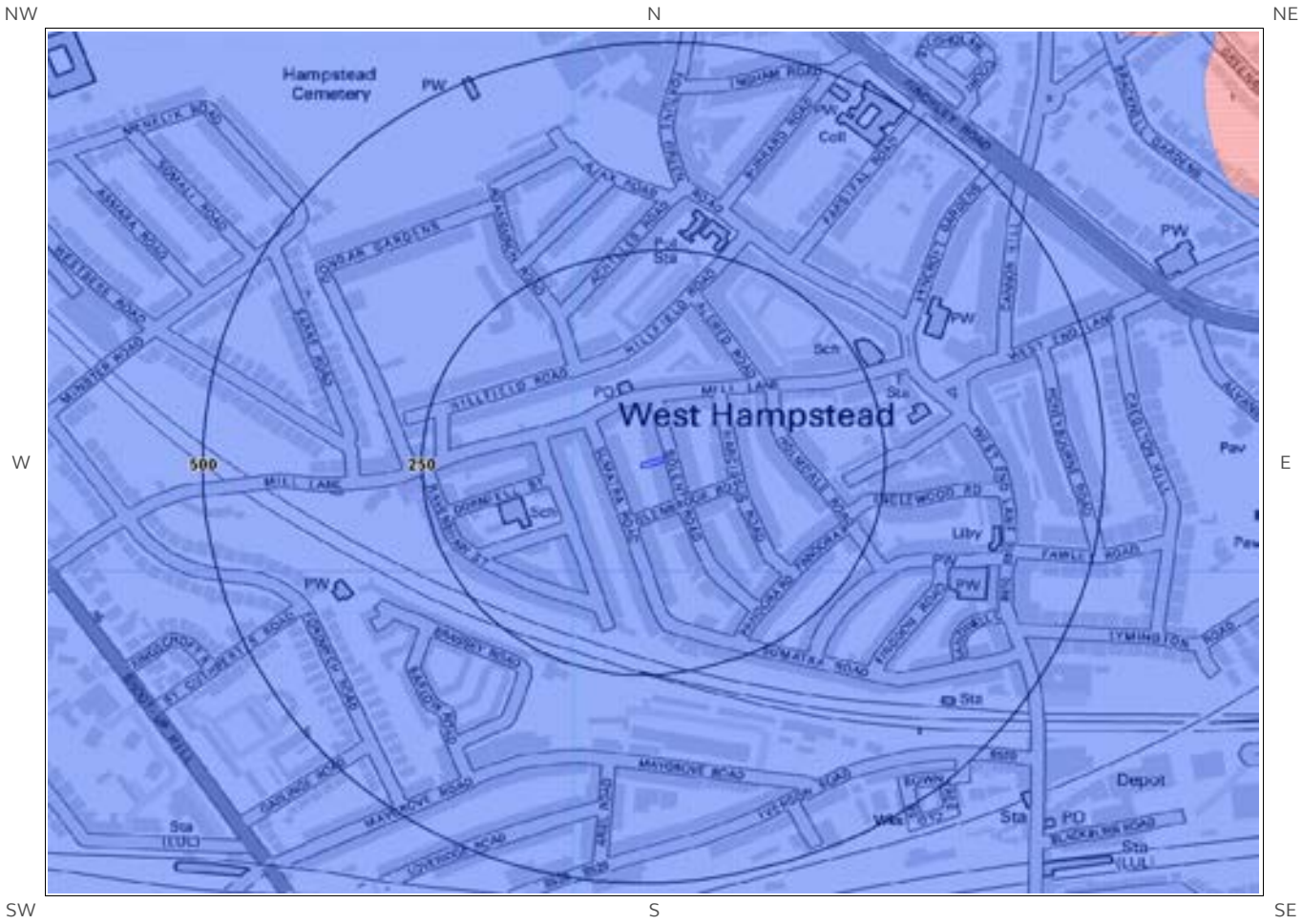
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

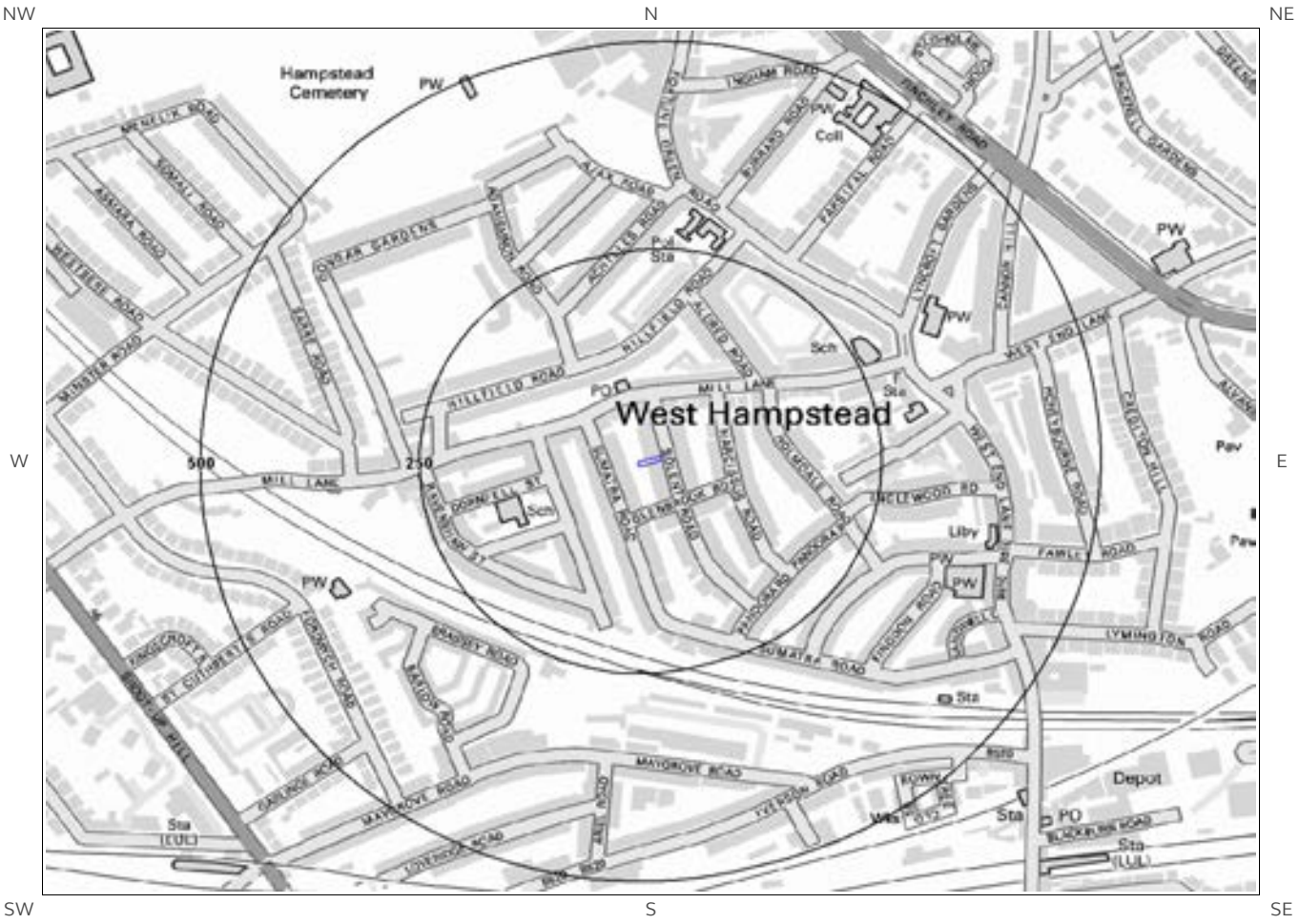
6a. Aquifer Within Superficial Geology



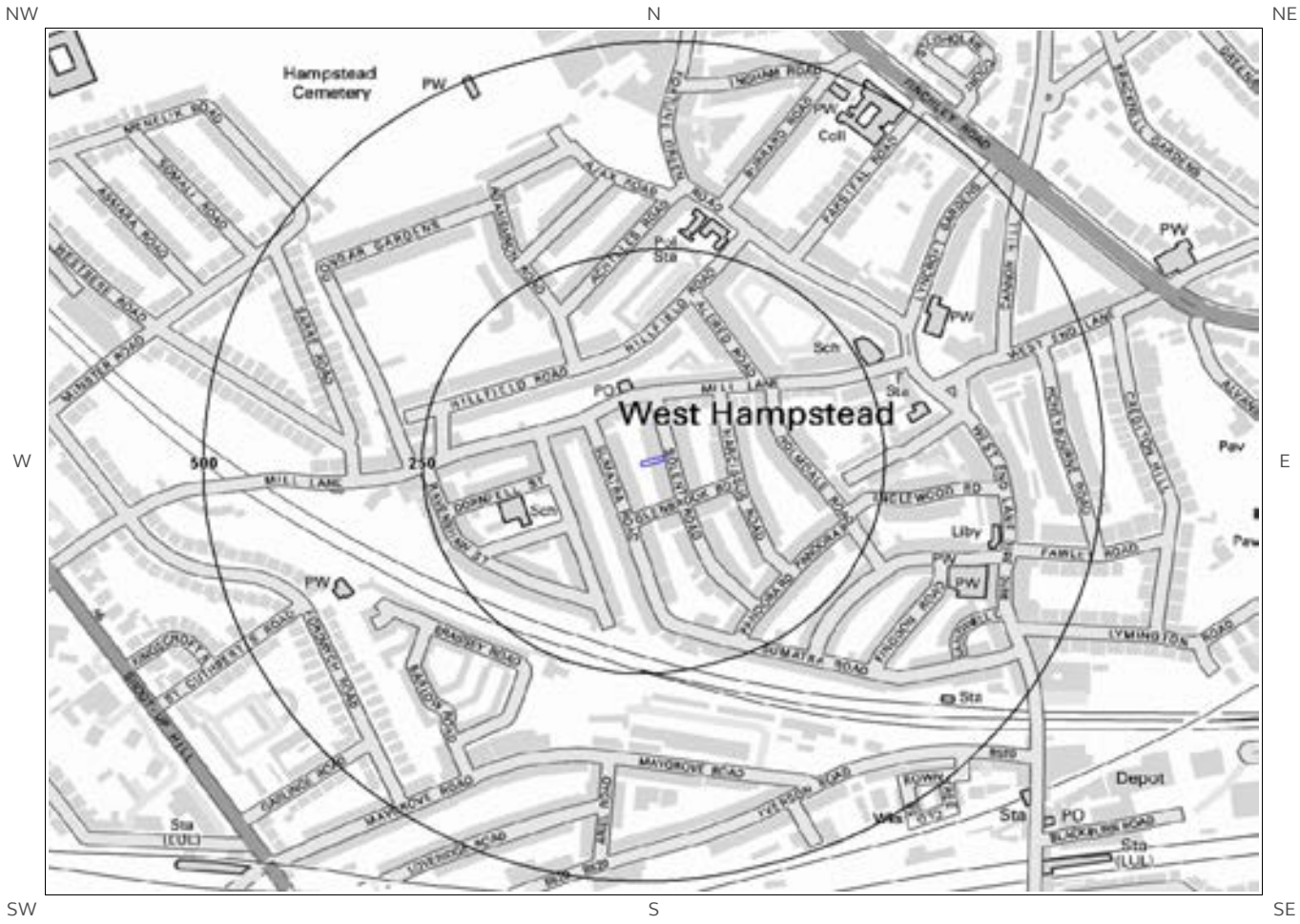
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



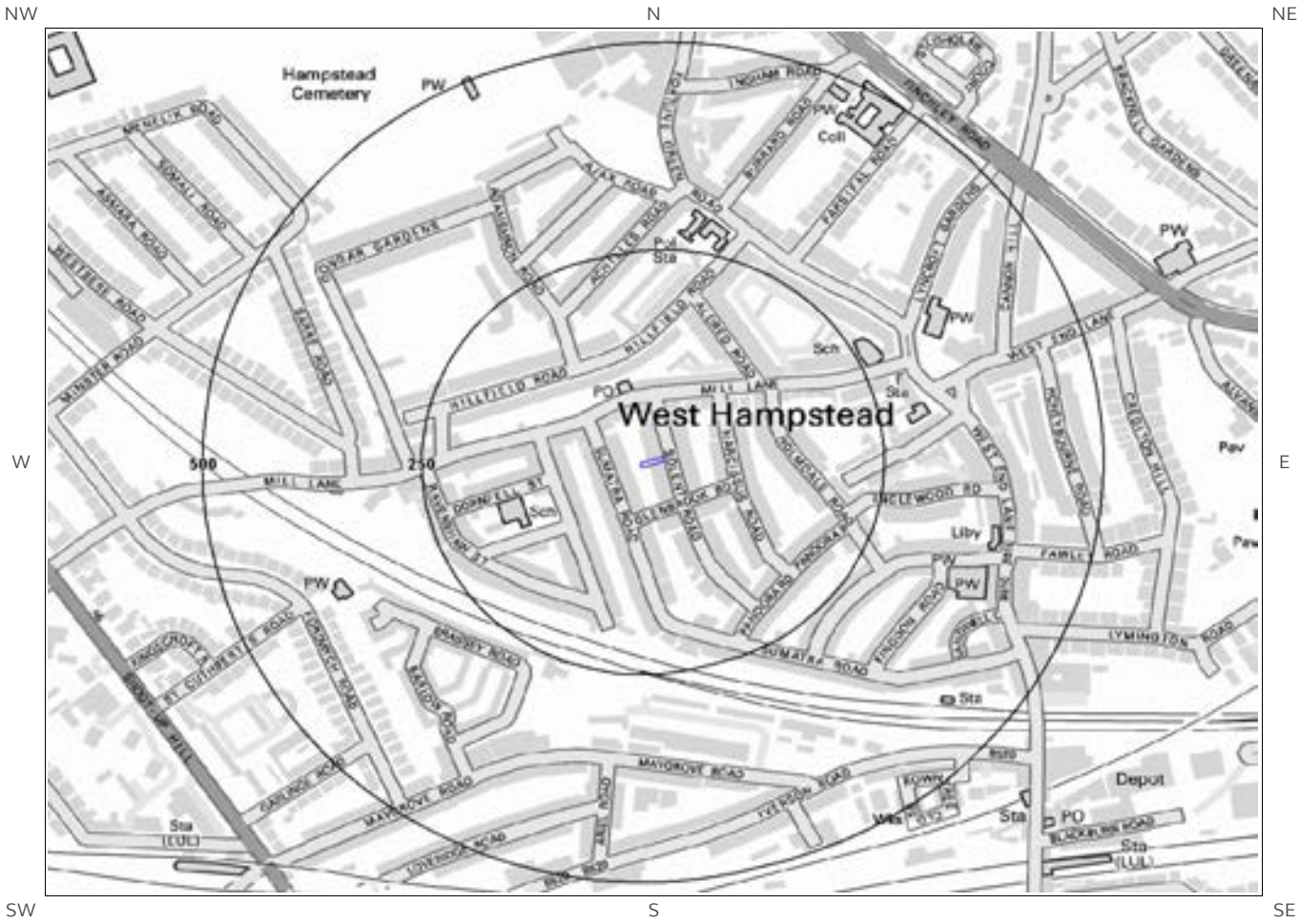
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



6d. Hydrogeology – Source Protection Zones within confined aquifer



6e. Hydrology – Detailed River Network and River Quality



Site Outline

250 — 500 — Search Buffers (m)

Primary River
Secondary River
Tertiary River
Lake/Reservoir
Underground River (inferred)
General Quality Assessment: Biology
General Quality Assessment: Chemistry

Canal
Canal Tunnel
Culvert
Multiple Channel Culvert
Underground River (Potential Sewer)
Underground River (local knowledge)

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? No

Database searched and no data found.

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
2	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	77	W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
4	125	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
5	147	SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1861	SE	526750 184261	Status: Historical Licence No: TH/039/0039/087 Details: General Washing/Process Washing Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1861	SE	526750 184261	Status: Historical Licence No: TH/039/0039/087 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1861	SE	526750 184261	Status: Historical Licence No: TH/039/0039/087 Details: Lake & Pond Throughflow Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1897	SE	526800 184280	Status: Historical Licence No: 28/39/39/0219 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: WRA/N/1407 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? No

Database searched and no data found.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?	No

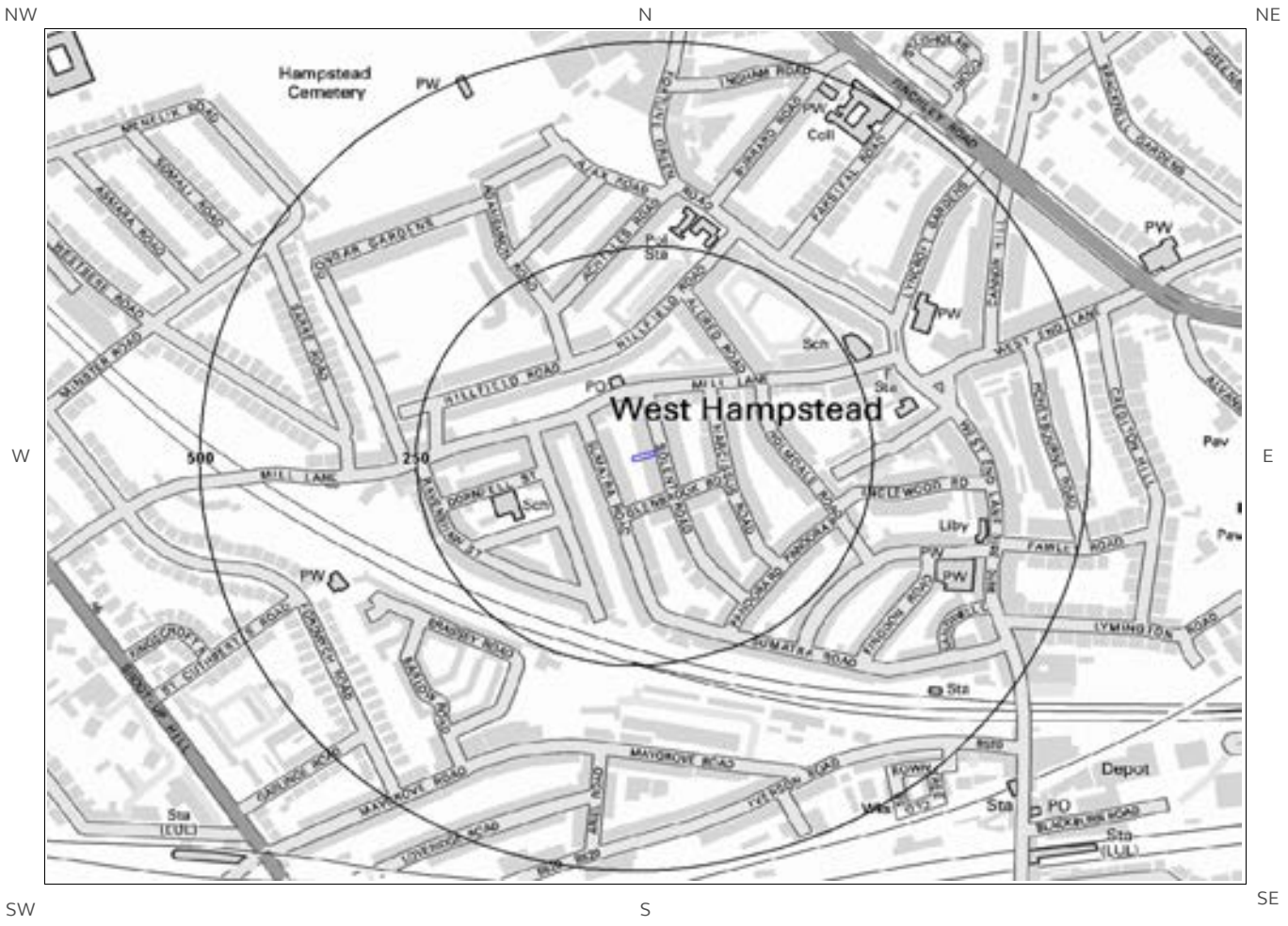
Database searched and no data found.

6.11 Surface Water Features

Are there any surface water features within 250m of the study site?	No

Database searched and no data found.

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



Site Outline

Search Buffers (m)

Zone 2 Floodplain

Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map

Site Outline

100 250 Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? No

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? No

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? No

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Not Prone

The area is not considered to be prone to groundwater flooding based on rock type.

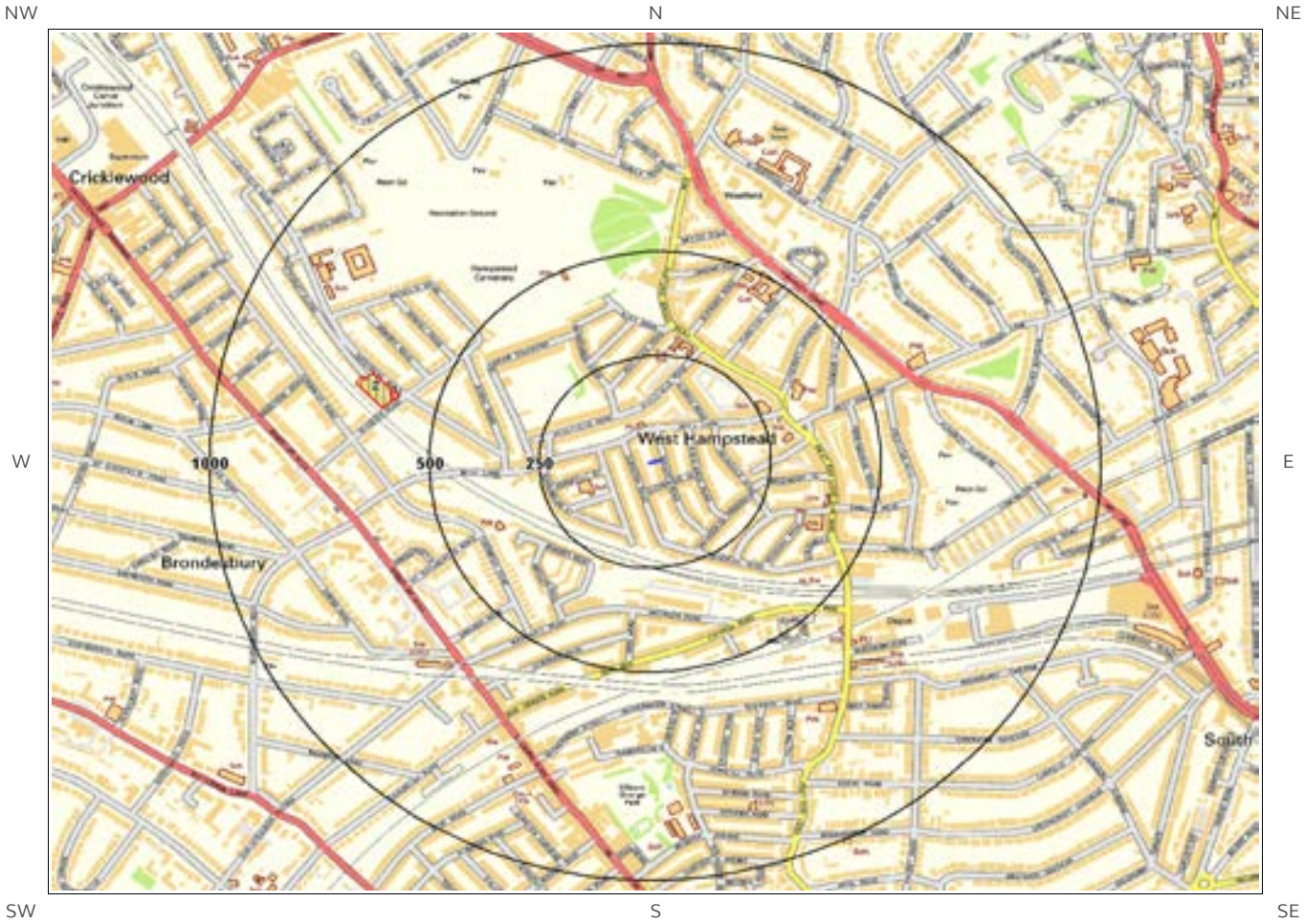
7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? Not Applicable

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



Site Outline

100 250 Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones
Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas
Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site?	Yes

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

1

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1864	NE	UNKNOWN	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

2

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
1	589	W	Westbere Copse	Natural England
2	603	W	Westbere Copse	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

What is the maximum Shrink-Swell*[*] hazard rating identified on the study site? Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

* This indicates an automatically generated 50m buffer and site.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No
Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: **www.environment-agency.gov.uk**
Email: enquiries@environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email:**enquiries@phe.gov.uk**
Main switchboard**: 020 7654 8000**

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: London Borough of Camden
Phone: 020 7974 4444
Web: http://www.camden.gov.uk/
Address: Camden Town Hall, Judd Street, London, WC1H 9JE

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-sept-2016