11 Highgate West Hill, London, N6 6JR

Groundwater and surface water Basement Impact Assessment (BIA)

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NON-TECHNICAL SUMMARY

The site location is 11 Highgate West Hill, London, N6 6JR (NGR 528155 186475). The site is a two storey (plus partial cellar and loft conversion) semi-detached property with front and rear gardens. No. 11a forms the rear corner of property. The proposed development involves removal of an existing conservatory and construction of a ground floor and basement extension. Existing and proposed plans are presented in Appendix A.

The following assessments are presented:

- Desk Study
- Screening
- Scoping
- Site investigation (3rd party data)
- Basement Impact Assessment

The authors of the assessments are:

- Peter Baur (MCIWEM C.WEM), a Chartered Hydrologist with 37 years of experience
- Emilie Roberts, a hydrogeologist (MSc) and Fellow of the Geological Society of London with 9 years of experience
- Checking and review by Hannah Fraser (CGeol FGS), a Chartered Geologist (hydrogeologist) and Fellow of the Geological Society of London with 23 years of experience

The site is underlain by London Clay Formation (bedrock geology). No superficial deposits are present beneath the site, but Head deposits appear to be present. The site is not underlain by made ground or worked ground. The site is not underlain by a Secondary (or Upper) aquifer according to the Environment Agency designations. The London Clay is classified by the Environment Agency as unproductive. Groundwater has been measured at 1.5 m bgl.

The BIA has concluded that the site is at very low risk of flooding from surface water and rivers/sea and at no risk of flooding from reservoir flooding. Furthermore, the site is not at risk of sewer flooding.

In terms of impact of the proposed development on the hydrological environment, it is concluded that surface water drainage volumes will increase as a result of the proposed development. For the 1 in 100-year 6-hour storm (including an allowance for climate change) this amounts to 3.22 m^3 additional runoff. If allowed to drain to the sewer the additional runoff will increase flows in the existing sewer network and increase the risk of sewer flooding in the local or wider catchment.

An on-site sustainable drainage system (SuDS) is proposed as a mitigation measure. Provided the SuDS system is correctly installed, used and maintained, the proposed development will have no impact on the local and wider hydrological environment.

There is a very low risk of groundwater flooding. However, the proposed development lies below the water table and is therefore at risk of inundation from seepage within the London Clay and potentially significant flow in the overlying weathered London Clay (which may represent Head deposits). Mitigation measures are that i) provision should be made to keep the excavation dry; and ii) the basement should be waterproofed to Grade 3 (BS 8102) to protect against ingress of soil moisture and perched groundwater. NHBC requirements should be included in the detailed design. Residual impacts would be then be negligible.

Since it is not known whether neighbouring properties have original basements / cellars adjacent to the proposed development, backing up of groundwater around existing neighbouring cellars is therefore a possibility. Based on the configuration of the original basement, it is unlikely that neighbouring basements are contiguous, and risks are likely to be low. However, a condition survey to establish the existence and location of basements and cellars is recommended at 10 Highgate West Hill and 11a Highgate West Hill, to confirm this. There are no further significant impacts predicted to the wider hydrogeological environment.

CONTENTS

FIGURES

TABLES

APPENDICES

1 INTRODUCTION

1.1 Objective

The purpose of this assessment is to consider the effects of a proposed basement development at 11 Highgate West Hill, London, N6 6JR on the local hydrology and hydrogeology, and potential impacts to neighbours and the wider environment. The site location is presented in Figure 2-1.

The BIA approach follows current planning procedure for basements and lightwells adopted by LB Camden and comprises the following elements (CPG Basements):

- Desk Study;
- Screening;
- Scoping;
- Site Investigation, monitoring and interpretation;
- Impact Assessment

1.2 Scope of works

Ground and Project Consultants Ltd has instructed H Fraser Consulting Ltd (HFCL) to provide the surface water and groundwater aspects of a Basement Impact Assessment (BIA) at the following property:

11 Highgate West Hill, London, N6 6JR.

The site is in the London Borough of Camden.

The agreed scope of work was to undertake the surface water and groundwater aspects of a screening and scoping study and BIA, to include a desk study, screening and scoping exercise, review of site investigation information (provided by the client) and basement impact assessment.

This assessment is limited to an assessment of the hydrogeological and hydrological aspects of the proposed development and does not purport to make any comment on contamination or pollution, engineering, slope stability, design or construction issues.

1.3 Authors

The BIA and the hydrogeological aspects of the work were undertaken by Emilie Roberts, a hydrogeologist (MSc) and Fellow of the Geological Society of London with 9 years of experience.

The surface flow assessment has been authored and approved by Chartered Hydrologist Peter Baur (MCIWEM C.WEM). Peter is an independent consulting hydrologist with 37 years of experience as a hydrologist and consultant.

The BIA and the hydrogeological aspects of the work have been reviewed and approved by Chartered Geologist (hydrogeologist) Hannah Fraser (CGeol). Hannah is Director of H Fraser Consulting Ltd and has 24 years' experience as a hydrogeologist and consultant. Hannah has significant experience of undertaking Basement Impact Assessments in many London Boroughs.

1.4 Sources of information

The following data have been referenced:

- Existing and proposed plans (Appendix A)
- Groundsure reports (Appendix B):

  - GS-6973593 Enviro & Geo Insight; and
  - GS-6973593 Historical maps
- Geological mapping: British Geological Survey 1:50,000 series, England and Wales Sheet 256. North London. Bedrock and Superficial Deposits Geology*);*
- Flood risk mapping https://flood-warning-information.service.gov.uk/long-term-flood-risk*;*
- LB Camden, Strategic Flood Risk Assessment (produced by URS, 2014);
- LB Camden, Planning Guidance (CPG) – Basements (March 2018);
- LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development (produced by Arup, 2012);
- LB Camden, Local Plan Policy A5 Basements (2017);
- LB Camden's Audit Process Terms of Reference;
- Site investigation report (Appendix C): Ground and Water report GWPR3834. October 2020. Factual ground investigation report for the site at 11 Highgate West Hill, Highgate, London N6 6JR on behalf of Ground and Project Consultants Ltd

1.5 Existing and proposed development

11 Highgate West Hill (including adjoining No. 11a) is a two storey (plus cellar and loft conversion) property with front and rear gardens located at grid reference NGR 528155 186475 and occupying an area of approximately 0.1 hectares. 11 Highgate West Hill (including No. 11a) comprises the (northwest) (or right-hand side, when viewed from the front) of a pre-1870s semi-detached property, with No. 11a forming the rear right corner of property. The property is bounded to the southeast by No. 10 (the left side of the semi-detached property) and to the northwest by No. 12. Residential properties 103, 104 and 105 Highgate West Hill are directly opposite No.11 (to the northeast) and the rear (southwest) of the property is bounded by West Hill Court.

The site elevation is between 60 and 70 m above Ordnance Datum (aOD)[1] and locally, slopes down to the southeast. There are no records of planning applications for basements within 20 m of the house,[2] but the existence of nearby original cellars / basements is unknown. Neighbouring No.10 and No.12 may have cellars similar to the existing cellar at No. 11 and it is not known whether No.11a has an existing basement / cellar.

The proposed development involves removal of an existing conservatory, construction of a ground floor and basement extension and deepening of existing stairwell and cellar. The ground floor extension will house a kitchen diner and external seating area, with underlying basement and lightwell. The stairwell to the existing basement will be deepened and lengthened to house a WC and the water system including boiler and hot water cylinder. The proposed finished floor level of the basement is at 3.2m below ground level (bgl) to the rear of the property and deepening the existing stairwell and cellar to the front of the property by 0.445 m (from 2.19m bgl to 2.635m bgl).

[1] Based on Groundsure historical maps GS-6973592
[2] LBC planning portal

Areas of existing and proposed permeable and impermeable surfaces on the part of the site on which construction will take place that will change as a result of the proposed development are presented in Table 1-1.

Table 1-1 Areas of existing and proposed permeable and impermeable surfaces

Surface type	Existing area (m^2)	Proposed area (m^2)	Change in area (m^2)
Permeable (e.g. garden)	247	240	-7
Impermeable (e.g. existing conservatory and paved area; proposed extension and paved area)	67	74	+7
Total	314	314	0

An open lightwell is proposed in association with the proposed basement. It is understood that the lightwell is unable to receive runoff from any part of the proposed impermeable surfaces and that any runoff into the lightwell is pumped to waste via a sump pump.

2 DESK STUDY

Background information has been derived from Groundsure reports GS-6975392 and GS-6975393 for the site, provided by Ground and Project Consultants Ltd; geological information has been derived from on-line BGS sources (Geology of Britain Viewer, GeoIndex, Lexicon); on-line mapping and aerial photography have been derived from Streetmap, Googlemaps, Bing Maps and GoogleEarth. Table 2-1 presents relevant background information for the site. The site location is shown in Figure 2-1.

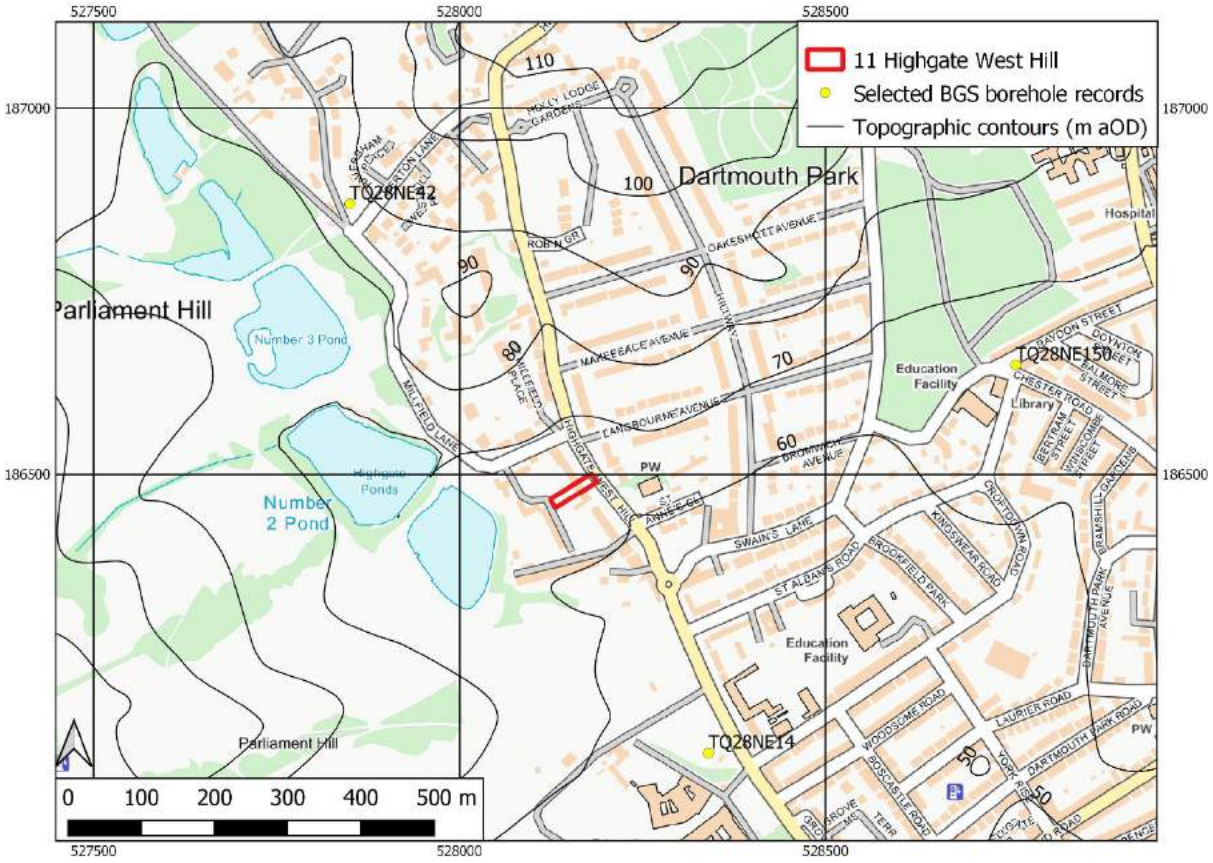


Figure 2-1 Site location

Contains Ordnance Survey data © Crown copyright and database right 2020

Table 2-1 Background information

Site history	11 Highgate West Hill is marked on the earliest available map, of 1871 (1:1056 scale), along with the row of houses now known as 6 – 13 Highgate West Hill. Immediately opposite No. 11 was found undeveloped land and/or parkland adjacent to St Anne's Church. No.11 was bounded to the rear by the gardens of Brookfield House. A map of 1873-1874 (1:10,560) shows the locality was partially developed, comprising mainly large detached or semi-detached houses with undeveloped land and/or parkland (e.g. Highgate Ponds, Parliament Hill, Dartmouth Park).The 1:2,500 scale map from 1936 shows the addition of widespread building to the east of No.11, including the detached houses opposite and West Hill Court to the rear.

Geology	The British Geology Survey (BGS) 1:50,000 map of the North London[3] indicates that the site is underlain by London Clay Formation (bedrock geology). No superficial deposits are mapped beneath the site, but the site lies in an area with a propensity for Quaternary Head deposits. The London Clay mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay.[4] Head is poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction processes.[5] Figure 2-1 shows the location of selected BGS boreholes. The closest borehole records are for TQ28NE14, located c.400 m south of the site. Borehole records show London Clay to a depth of 72 m. The site is not underlain by made ground or worked ground.[6]
Aquifer status	The site is not underlain by a Secondary (or Upper) aquifer according to the Environment Agency designations.[7] The London Clay is classified by the Environment Agency as unproductive.[8] These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
Watercourses	Hampstead Heath is located c.80 m west of the property, with Highgate No.1 Pond located c.88 m west. The closest watercourse is 160 m to the west, linking the Men's Bathing Pond (No.2) with No.1 Pond. Other surface water features within 500 m of the site comprise i) the No.3 pond ; ii) a watercourse linking No.3 Pond to the Men's Pond and iii) a watercourse draining to No.2 Pond from the west.[9] The Highgate Ponds, located c.88 m west of the property, form part of the 'lost' River Fleet.[10] The site is not within the catchment of the Hampstead Heath Pond Chain.[11] There are no surface water abstractions within 2 km.[12]
Springs	There are no springs mapped within 500 m of the property.[13] However, it is noted that springs can occur at the geological boundary between the London Clay and the overlying Claygate Member, which is c.230 m north (uphill) of the site.

[3] British Geological Survey 1:50,000 series, England and Wales Sheet 256. North London. Bedrock and Superficial Deposits Geology
[4] https://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=LC
[5] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=HEAD
[6] LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development (produced by Arup, 2010), Figure 16
[7] Groundsure report GS-6973593
[8] Groundsure report GS-6973593
[9] Groundsure report GS-6973593
[10] LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development (produced by Arup, 2010), Figure 11
[11] LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development (produced by Arup, 2010), Figure 14
[12] Groundsure report GS-6973593
[13] 1:25 000 mapping

Wells	The closest groundwater abstraction is a historic licence 1874 m south of the site, at Kentish Town Sports Centre.[14] There are no source protection zones (SPZs) within 500 m of the property.[15]
Surface water flooding	The property is classified as at very low risk of flooding from surface water, rivers and sea and no risk of flooding from reservoir flooding.[16] The site is situated within the 'Group3_001' Critical Drainage Area (CDA).[17] [18] The site is not situated within a Local Flood Risk Zone.[19] The area in which the site is situated is reported to be unaffected by sewer flooding.[20]
Groundwater flooding	BGS flood GFS data[21] indicates that there are no areas at risk of groundwater flooding within 250 m of the site. Furthermore, no records of groundwater flood incidents are held by the Environment Agency or LBC within 500 m of the site.[22]

[14] Groundsure report GS-6973593
[15] Groundsure report GS-6973593
[16] https://flood-warning-information.service.gov.uk/long-term-flood-risk/map
[17] LB Camden Strategic Flood Risk Assessment, URS report 47070547, July 2014, Figure 6
[18] A Critical Drainage Area is defined in URS report 47070547, July 2014, page 27 as "A discrete geographic area (usually a hydrological catchment) where multiple and interlinked sources of flood risk (surface water, groundwater, sewer, main river and/or tidal) cause flooding in one or more Local Flood Risk Zones during severe weather thereby affecting people, property or local infrastructure."
[19] A Local Flood Risk Zone (LFRZ) is defined in URS report 47070547, July 2014, page 27 as "discrete areas of flooding that do not exceed the national criteria for a 'Flood Risk Area' but still affect houses, businesses or infrastructure. A LFRZ is defined as the actual spatial extent of predicted flooding in a single location."
[20] LB Camden Strategic Flood Risk Assessment, URS report 47070547, July 2014
[21] Landmark report 1886_EC_A_Context: BGS Flood GFS data
[22] Strategic Flood Risk Assessment for LB Camden (URS, 2014), Fig. 4e

3 SCREENING

3.1 Groundwater

A groundwater screening assessment has been undertaken and the results are presented in Table 3-1.

Table 3-1 Groundwater screening assessment

Question	Response	Details
1a. Is the site located directly above an aquifer?	No	The London Clay is classified as unproductive
1b. Will the proposed basement extend beneath the water table surface?	Unknown	The water table is level is unknown. The presence of Head deposits can allow significant sub-surface flow. Furthermore, seepage and perched water in the shallow subsurface cannot be discounted.
2. Is the site within 100m of a watercourse, well (used/ disused) or potential spring line?	No	The nearest watercourse is 160 m from the site. The closest groundwater abstraction is 1874 m from the site. Although there are no springs mapped within 500 m, it is noted that springs can occur at the geological boundary between the London Clay and the Claygate Member which is c.230 m north (uphill) of the site.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No	The site is c.80 m east of Hampstead Heath, but outside the catchment of the pond chains
4. Will the proposed basement development result in a change in the proportion of hard surface/paved areas?	Yes	A 7 m^2 increase in impermeable area is proposed
5. As part of the drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDs)	Unknown	The 7 m^2 increase in impermeable area will reduce surface water discharge to the ground, but a SuDS scheme may be required which may increase discharge to the ground.
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?	Yes	Highgate No.1 Pond, located c.88 m west of the site is at approximately the same elevation as the site (based on 1:25 000 OS mapping)

3.2 Surface water and flooding

A surface water and flooding screening assessment has been undertaken and the results are presented in Table 3-2.

Table 3-2 Surface water and flooding screening assessment

Question	Response	Details
1. Is the site within the catchment of the pond chains on Hampstead Heath?	No	The site is situated to the east of Hampstead Heath, outside the catchment of the pond chains.
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	Yes	Surface drainage volume is predicted to increase as a result of the proposed development (see Section 1.5).
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	Yes	An increase in the external area of impermeable surface will result from the development of the basement and ground floor extension (see Section 1.5).
4. Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	Yes	Surface drainage volume is predicted to increase as a result of the increase in external impermeable area.
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No	During construction of the proposed basement the potential exists for sediment to be mobilised and/or fuel/oil to be accidentally spilt and transported offsite in site runoff. Standard pollution control measures will be in place during construction and will mitigate against this risk. The proposed basement development will be constructed so that, when construction is complete, the basement walls will be impermeable, sealed and isolated from surface water and cannot influence surface water quality.
6. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example	No	The site is not located in a Local Flood Risk Zone and is not identified to have a surface water flood risk and is not in

because the proposed basement is below the static water level of nearby surface water feature.	an area where sewer flooding is known to occur.

3.3 Non-technical summary of screening process

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

- The water table level is unknown. The presence of Head deposits can allow significant subsurface flow. Furthermore, seepage and perched water in the shallow subsurface cannot be discounted
- Although there are no springs mapped within 500 m, it is noted that springs can occur at the geological boundary between the London Clay and the Claygate Member which is c.230 m north (uphill) of the site.
- The proposed basement development will result in a small (7 m^2) increase in hard surface/paved areas. This will reduce surface water discharge to the ground, but a SuDS scheme may be required which may increase discharge to the ground
- The lowest point of the proposed excavation is at approximately the same elevation as Highgate No.1 Pond, located c.88 m west of the site the site
- There is the potential for surface drainage volume to increase as a result of the proposed development.

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

4 SCOPING

4.1 Groundwater level

The water table level is unknown. The presence of Head deposits can allow significant subsurface flow. Furthermore, seepage and perched water in the shallow subsurface cannot be discounted. Provision should be made to keep the excavation dry, bearing in mind the results of the site investigation and the location of the water table.

Waterproofing

There are well documented best-practice methods for waterproofing basement structures, to prevent ingress of groundwater to the built structure, and to counter the effects of soil moisture, as outlined in BS 8102:2009 'Code of practice for protection of below ground structures against water from the ground.' BS 8102 gives guidance on the construction of new basements, introducing three performance grades, as shown in Table 4-1. BS 8102 also specifies three types of waterproof protection, Types A, B and C; shown in Table 4-2.

Table 4-1 Level of performance of waterproofing system

Grade	Required level of performance
1	Some seepage and dampness is permitted
2	No water penetration, but dampness is permitted
3	No water penetration or dampness is permitted

Table 4-2 Types of waterproof protection

Type	Waterproof protection
A	Internal or external tanking
B	Structurally integral protection
C	Internal drained cavity protection with a sump and pump for removal of water or its disposal by gravity

The National House Building Council (NHBC) requires basements which are to be used for habitable accommodation to be constructed to Grade 3, and those used for parking cars to be constructed to Grade 2. [23]

NHBC also require that ground investigations should be undertaken to identify the most appropriate waterproofing options, in conjunction with the construction materials to be used[24]. In the absence of adequate ground investigations to establish the ground water regime and drainage characteristics, BS 8102 (Clause 6.1) requires that '*Waterproofing measures should be designed on the basis of water to the full height of the retained ground at some time during the structure's life*'.

[23] NHBC Standards 2017
[24] NHBC Standards 2017

The basement should be waterproofed to Grade 3 (BS 8102) to protect against ingress of soil moisture and perched groundwater. NHBC requirements should be included in the detailed design.

Backing up of groundwater

Basements can create the potential for backing up of groundwater around the structure, which may cause nuisance to neighbouring basements. There are no records of planning applications for basements within 20 m of the house, although neighbouring No.10 and No.12 may have cellars similar to the existing cellar at No. 11 and it is not known whether No.11a has an existing basement / cellar. Any potential cellar / basement at No.12 is separated from No.11 by a passageway and is therefore not further considered. However, a condition survey to establish the existence and location of basements and cellars is recommended at 10 Highgate West Hill and 11a Highgate West Hill.

Potential change in surface water discharge

The proposed basement development result in a small (7 m^2) increase in hard surface/paved areas. This has the potential to reduce surface water discharge to the ground, although this effect may be reversed by using a SuDS scheme that may result in an increased discharge of water to the ground.

4.2 Surface water issues

The proposed development involves an increase in impermeable surfaces of 7 m^2. As a result, there is the potential for surface water drainage volumes to increase. Predicted volumes of surface drainage are presented in Section 5.

5 SITE INVESTIGATION / ADDITIONAL ASSESSMENTS

5.1 Site investigation

Site investigation was undertaken by Ground & Water Ltd on 9 September 2020 for Ground and Project Consultants Ltd. Drilling logs and a location plan are presented in Appendix C.

One borehole (BH1) was drilled in the front garden to a depth of 8.45 m. Ground conditions encountered were Made Ground to 0.2 m, topsoil to 1.2 m, weathered London Clay Formation to 7.05 m and unweathered London Clay Formation to 8.45 m. The unweathered London Clay Formation is a light brown mottled bluish grey silty Clay with occasional bands of selenite crystals and occasional sand lenses. A water strike was encountered at 3.0 m and a standpipe was installed in this hole to 5 m. The borehole water level was 1.5 m bgl on 30 September 2020.

Six trial pits (TP0, TP1, TP2, TP4, TP5 and TP6) were dug and results are summarised in Table 5-1.

Table 5-1 Summary of trial pit results

Trial pit ref.	Location	Summarised geology	Groundwater strikes
TP0	Existing conservatory	Made Ground to 0.84 m Weathered London Clay to 0.9 m	None
TP1	Rear garden	Made Ground to 0.6 m Weathered London Clay to 1.0 m	None
TP2	Rear garden	Made Ground to 0.8 m Weathered London Clay to 1.2 m	None
TP4	Stairwell	Made Ground to 0.2 m Weathered London Clay to 0.4 m	0.25 m
TP5	Cellar	Made Ground to 0.1 m Weathered London Clay to 0.4 m	0.25 m. Water seepage from above ground wall
TP6	Cellar	Made Ground to 0.1 m Weathered London Clay to 0.4 m	0.25 m

Groundwater was not encountered in the trial pits in the rear garden / conservatory area (TP0, TP1 and TP2), whose depths varied between 0.9 m and 1.2 m. However, groundwater was encountered at a depth of 0.25 m at all internal holes (TP4, TP5 and TP6 which are located in the stairwell and cellar), with water seepage from above ground at TP5.

The geology encountered is consistent with geological mapping which shows that the site is underlain by London Clay with no superficial deposits. In some instances, the weathered London Clay observed in trial pits was gravelly, with a flint gravel and may in fact represent Head Deposits.

5.2 Surface drainage volumes

In order to assess the effect of the proposed development on the wider catchment, rainfall runoff drainage volumes were estimated for the existing and proposed permeable and impermeable

surfaces. The results for the existing site and the proposed development are presented in Appendices D and E, respectively. A summary of the results is presented in Table 5-2.

The development will result in an increase in impermeable area of 7 m^2.

The net effect of the development, for the 1 in 100-year 6-hour storm, including a climate change factor, is to increase runoff volumes over existing volumes (excluding a climate change factor) by 3.22 m^3. If allowed to drain to the sewer, the additional runoff will increase flows in the existing sewer network and increase the risk of sewer flooding in the local or wider catchment.

The proposed lightwell has an estimated open area of 4.42 m^2 and will receive and collect rainfall falling directly into it. For the 1 in 100-year 6-hour storm, including a climate change factor, the volume of rainfall collecting in the lightwell is estimated to be 0.55 m^3.

Table 5-2 Estimation of runoff volumes: existing and proposed development

SUMMARY OF SITE RUNOFF CALCULATIONS					
Building Site Area:	0.0074	ha			
Climate Change Factor CC	40	%			
	Current	**Proposed**			
Permeable surface (ha)	0.0007	0			
Impermeable surface (ha)	0.0067	0.0074			
Total (ha)	0.0074	0.0074			
1 in 1-year storm event					
Runoff resulting from a 1 in 1-year 6-hour event		**Greenfield site**	**Current site**	**Proposed Development**	**Proposed Development +CC**
From pervious surfaces (m^3)		N/A	0.01	0.00	0.00
From impermeable surfaces (m^3)			1.54	1.70	2.38
TOTAL runoff produced from site (m^3)		**N/A**	**1.55**	**1.70**	**2.38**
Difference between greenfield site and proposed development + CC (m^3)					N/A
Difference between current site and proposed development + CC (m^3)					0.83
Peak greenfield runoff rate (l/s)					N/A
1 in 30-year storm event					
Runoff resulting from a 1 in 30-year 6-hour event		**Greenfield site**	**Current site**	**Proposed Development**	**Proposed Development +CC**
From pervious surfaces (m^3)		N/A	0.02	0.00	0.00
From impermeable surfaces (m^3)			4.29	4.73	6.63
TOTAL runoff produced from site (m^3)		**N/A**	**4.31**	**4.73**	**6.63**
Difference between greenfield site and proposed development + CC (m^3)					N/A
Difference between current site and proposed development + CC (m^3)					2.32
Peak greenfield runoff rate (l/s)					N/A
1 in 100-year storm event					
Runoff resulting from a 1 in 100-year 6-hour ever		**Greenfield site**	**Current site**	**Proposed Development**	**Proposed Development +CC**
From pervious surfaces (m^3)		N/A	0.03	0.00	0.00
From impermeable surfaces (m^3)			5.95	6.57	9.20
TOTAL runoff produced from site (m^3)		**N/A**	**5.98**	**6.57**	**9.20**
Difference between greenfield site and proposed development + CC (m^3)					N/A
Difference between current site and proposed development + CC (m^3)					3.22
Peak greenfield runoff rate (l/s)					N/A

N/A – Not applicable

6 BASMENT IMPACT ASSESSMENT

6.1 Conceptual site model

11 Highgate West Hill is a two storey (plus partial basement and loft conversion) semi-detached property with front and rear gardens. No. 11a forms the rear corner of property. There are no records of planning applications for basements within 20 m of the house, although neighbouring No.10 may have a cellar similar to the existing (original) cellar at No. 11 and it is not known whether No.11a has an existing (original) basement / cellar.

The proposed development involves removal of an existing conservatory and construction of a ground floor and basement extension. The proposed finished floor level of the basement is at 3.2 m bgl to the rear of the property, and will and deepen the existing stairwell and cellar to the front of the property by 0.445 m (from 2.19m bgl to 2.635m bgl).

The proven ground conditions are Made Ground to between 0.1 m and 0.84 m, with Topsoil encountered in one location to 1.2 m. This is underlain by weathered London Clay Formation (which may represent Head deposits) to 7.05 m with London Clay Formation to 8.45 m. The monitored groundwater level is 1.5 m bgl and groundwater strikes were encountered at 0.25 m below the cellar. The site is not underlain by a Secondary (or Upper) aquifer and the London Clay is classified as unproductive.

6.2 Hydrogeology and groundwater flooding

There is a very low risk of groundwater flooding. However, the proposed development lies below the water table and is therefore at risk of inundation from seepage within the London Clay and potentially significant flow in the overlying weathered London Clay (which may represent Head deposits). Mitigation measures are that i) provision should be made to keep the excavation dry from potentially significant flow; and ii) the basement should be waterproofed to Grade 3 (BS 8102) to protect against ingress of soil moisture and perched groundwater. NHBC requirements should be included in the detailed design. Residual impacts would be then be negligible.

Since it is not known whether neighbouring properties have original basements / cellars adjacent to the proposed development, backing up of groundwater around existing neighbouring cellars is therefore a possibility. Based on the configuration of the original basement, t is considered unlikely that neighbouring basements would be contiguous, and risks are therefore considered to be low. However, a condition survey to establish the existence and location of basements and cellars is recommended at 10 Highgate West Hill and 11a Highgate West Hill to confirm this. Apart from this, there are no significant impacts predicted to the wider hydrogeological environment.

6.3 Hydrology, surface water flooding and sewer flooding

The BIA has concluded that the site is at very low risk of flooding from surface water and rivers/sea and at no risk of flooding from reservoir flooding or sewers. The site is located within a Critical Drainage Area, but is not situated within a Local Flood Risk Zone.

However, the proposed development will cause an increase in surface water drainage amounting to an estimated 3.22 m^3 from impermeable surfaces and 0.55 m^3 in the proposed lightwell during the 1 in 100-year 6-hour storm including an allowance for climate change.

It is recommended that a sump and automatic positively pumped device should be installed at the base of the lightwell to evacuate any water that collects there. Evacuated water should report to the sustainable drainage system (SuDS) recommended below

If allowed to drain to the sewer the additional runoff from impermeable areas and pumped water from the lightwell will increase flows in the existing sewer network and increase the risk of sewer flooding in the local or wider catchment.

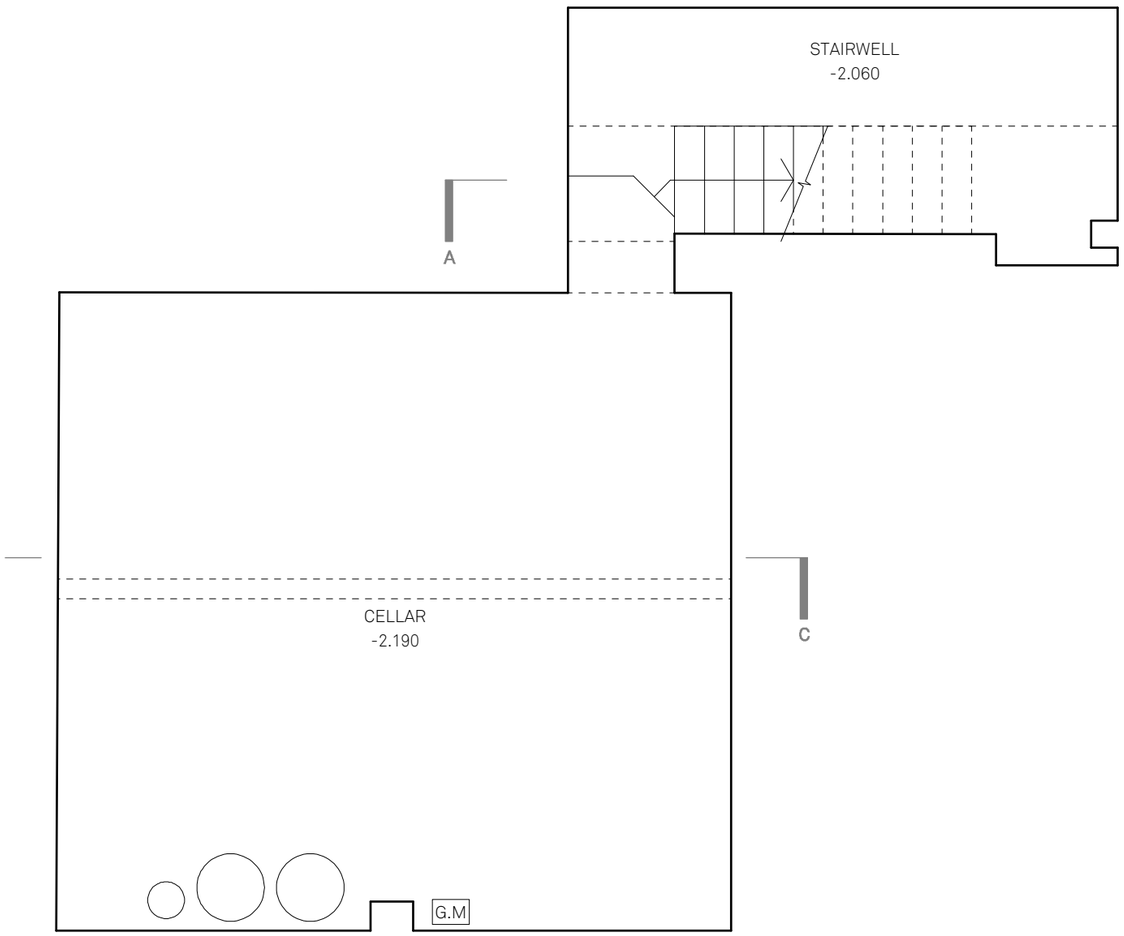
Accordingly, the following mitigation measure is proposed:

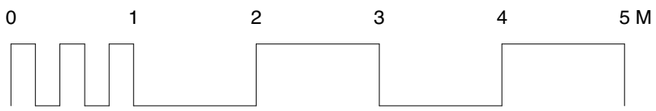
- An on-site SuDS system should be designed and installed in the garden of the site. All rainfall runoff from proposed impermeable surfaces (the ground floor extension and paved area) and rainwater pumped from the lightwell, should be directed to the SuDS system.

Provided the above mitigation measure is correctly installed, used and maintained, the BIA concludes that the proposed development will have no impact on the local and wider hydrological environment.

APPENDIX A

Existing and proposed plans





UNIONARCHITECTS

1807 . 001

rev _

Existing Basement Plan

Highgate West Hill, N6 6JR

1:50 @ A3

RECEPTION ROOM

HALLWAY

PLAYROOM

KITCHEN

CONSERVATORY
+0.000

PAVED PATIO
-0.350

NO.11a HIGHGATE WEST HILL
not surveyed

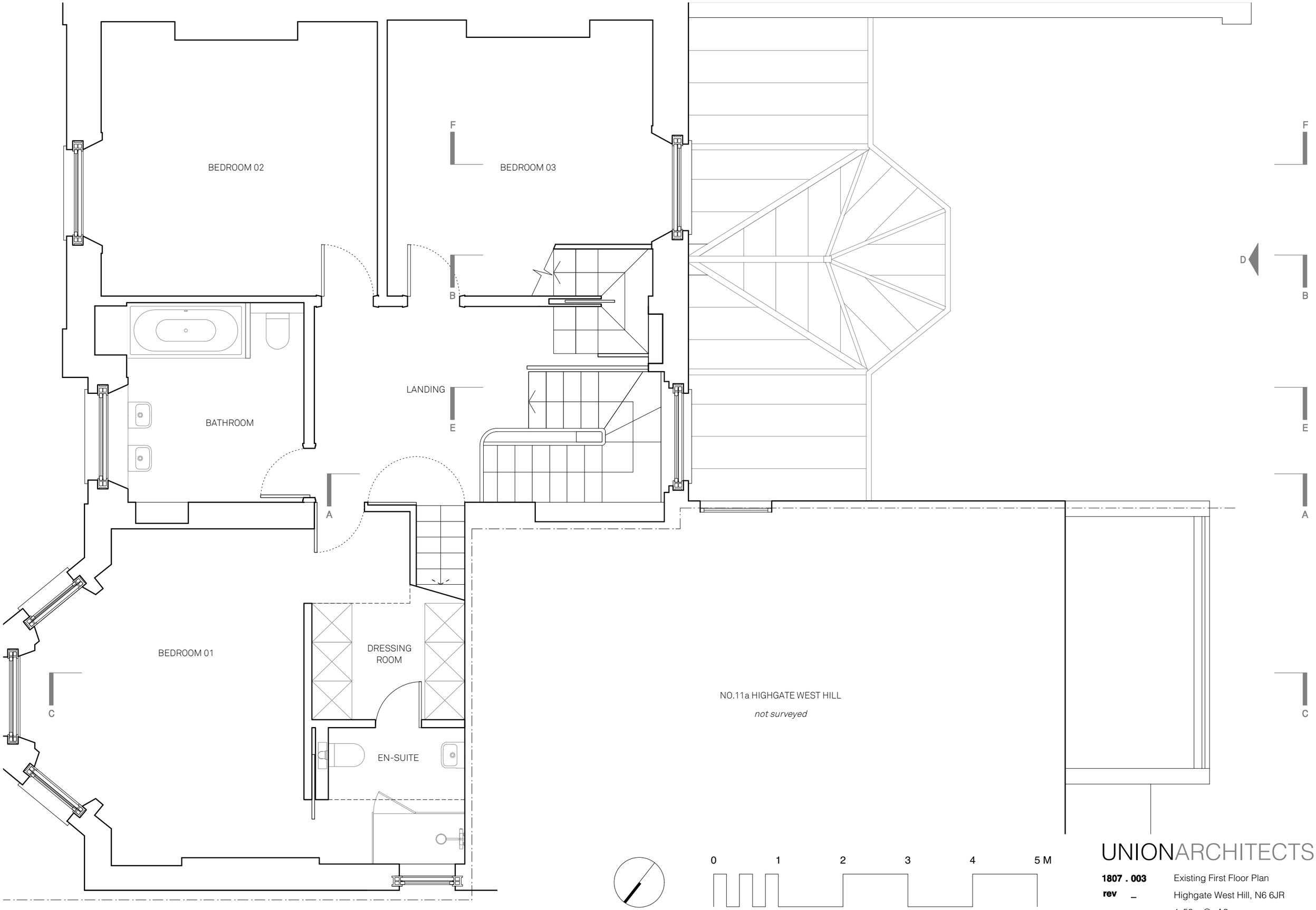
F
B
E
A
C
D

0 1 2 3 4 5 M

UNIONARCHITECTS

1807 . 002
rev _

Existing Ground Floor Plan
Highgate West Hill, N6 6JR
1:50 @ A3



UNIONARCHITECTS

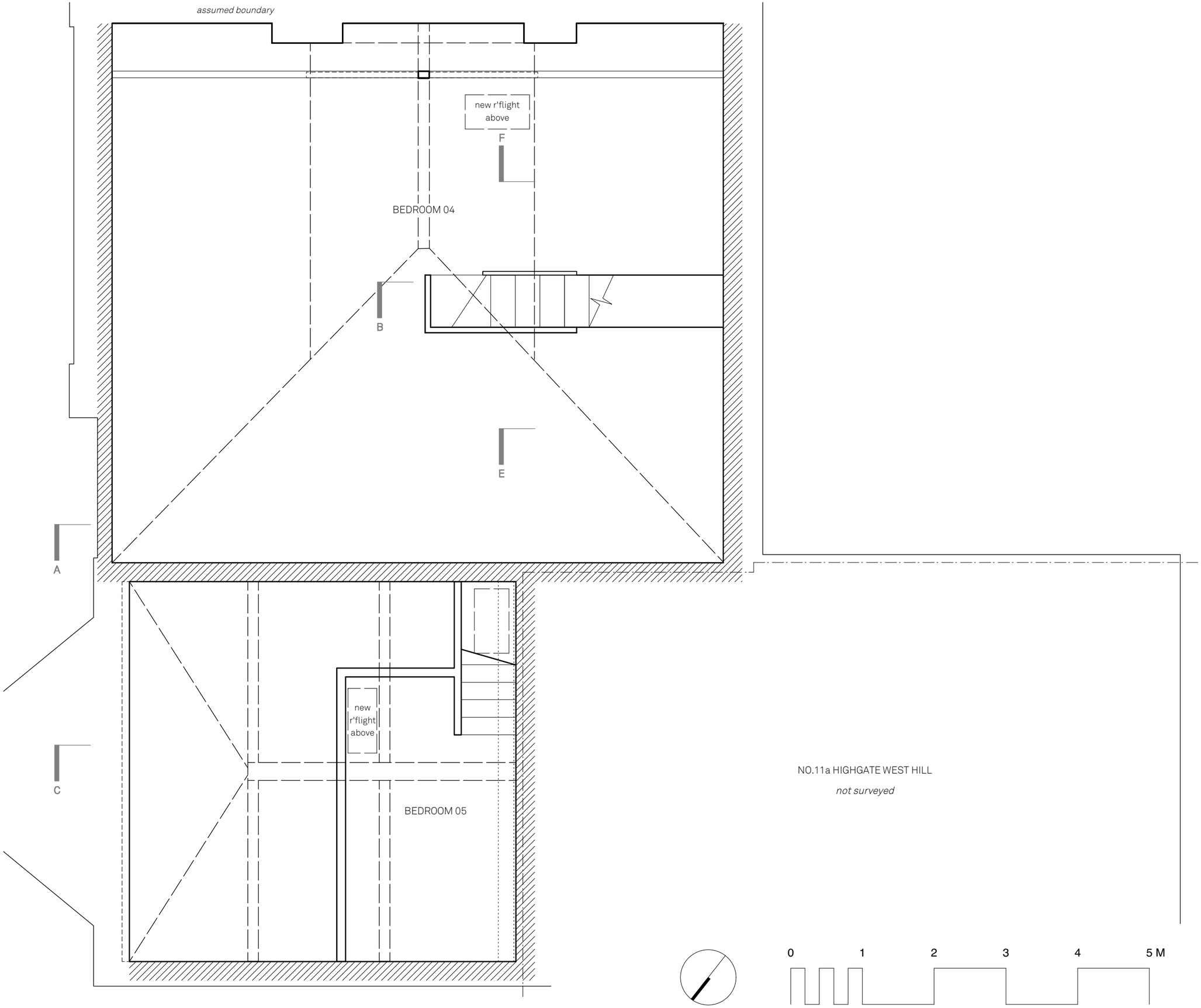
1807 . 003

rev –

Existing First Floor Plan

Highgate West Hill, N6 6JR

1:50 @ A3

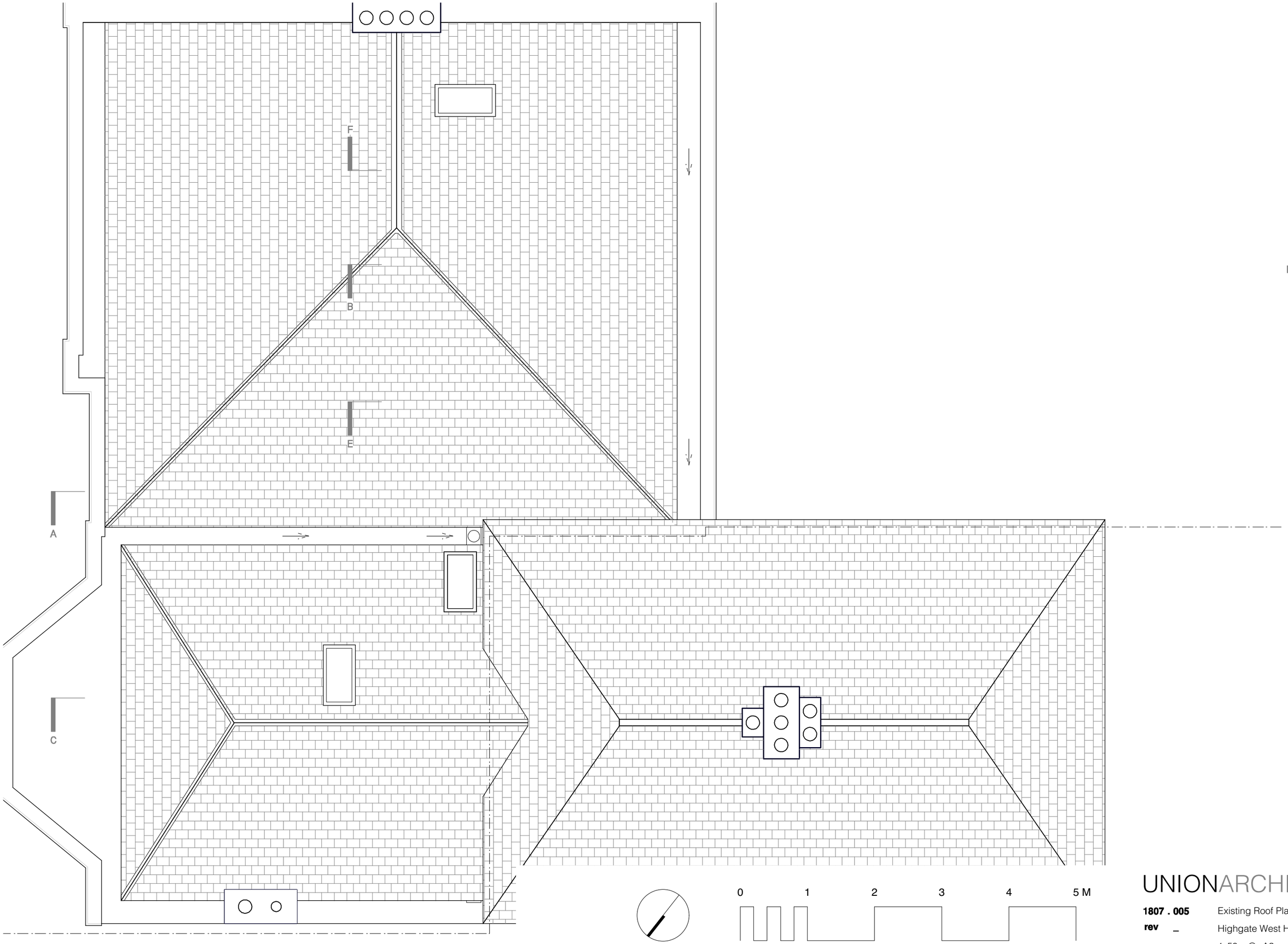


UNIONARCHITECTS

1807 . 004 Existing Loft Plans

rev _ Highgate West Hill, N6 6JR

1:50 @ A3

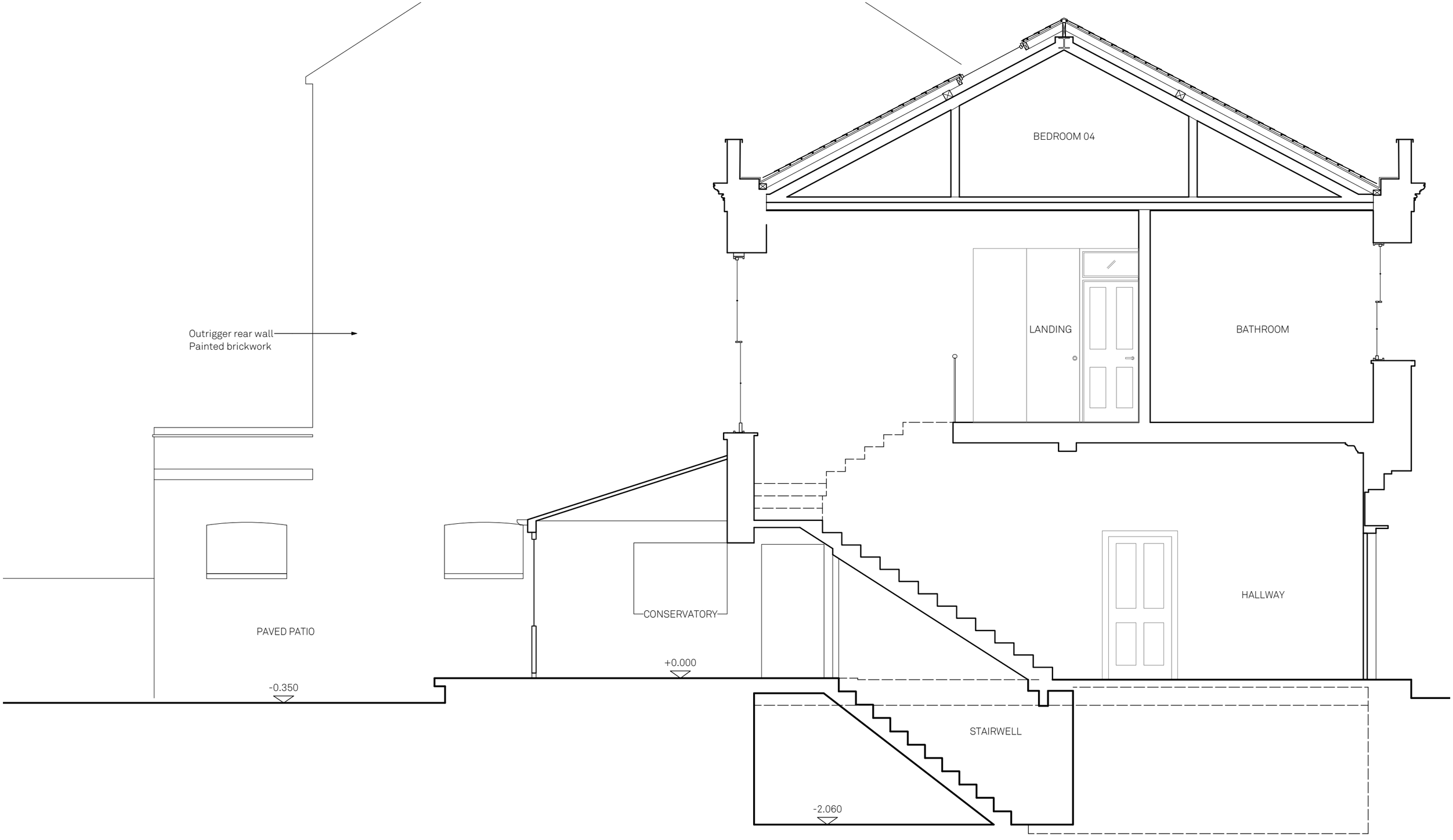


UNIONARCHITECTS

1807 . 005 Existing Roof Plans

rev _ Highgate West Hill, N6 6JR

1:50 @ A3



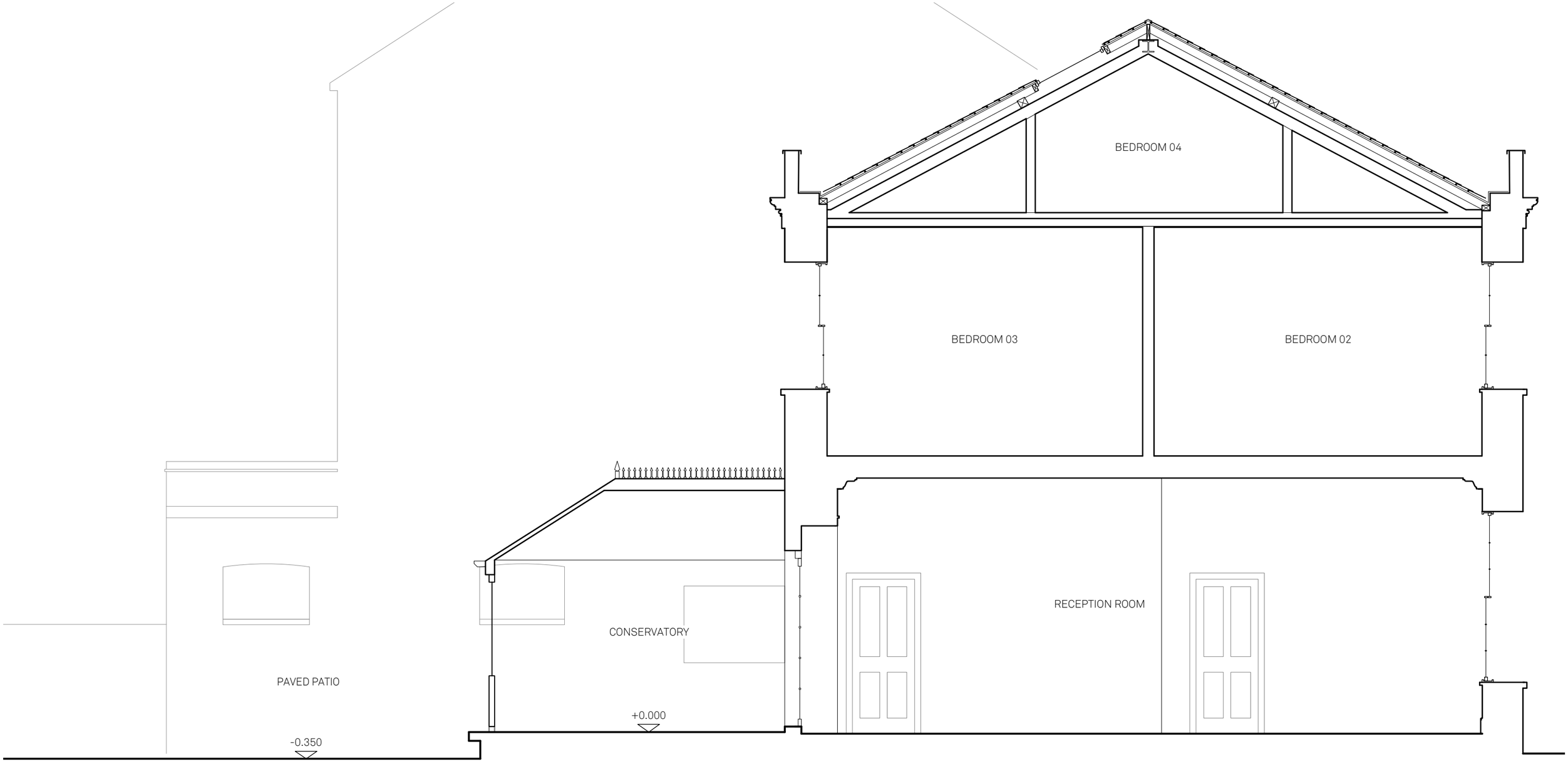
0 1 2 3 4 5 M

UNIONARCHITECTS

1807 . 006 Existing Section AA

rev _ Highgate West Hill, N6 6JR

1:50 @ A3



0 1 2 3 4 5 M

UNIONARCHITECTS

1807 . 007 Existing Section BB

rev _ Highgate West Hill, N6 6JR

1:50 @ A3

0 1 2 3 4 5 M

UNIONARCHITECTS

1807 . 008 Existing Section CC

rev _ Highgate West Hill, N6 6JR

1:50 @ A3

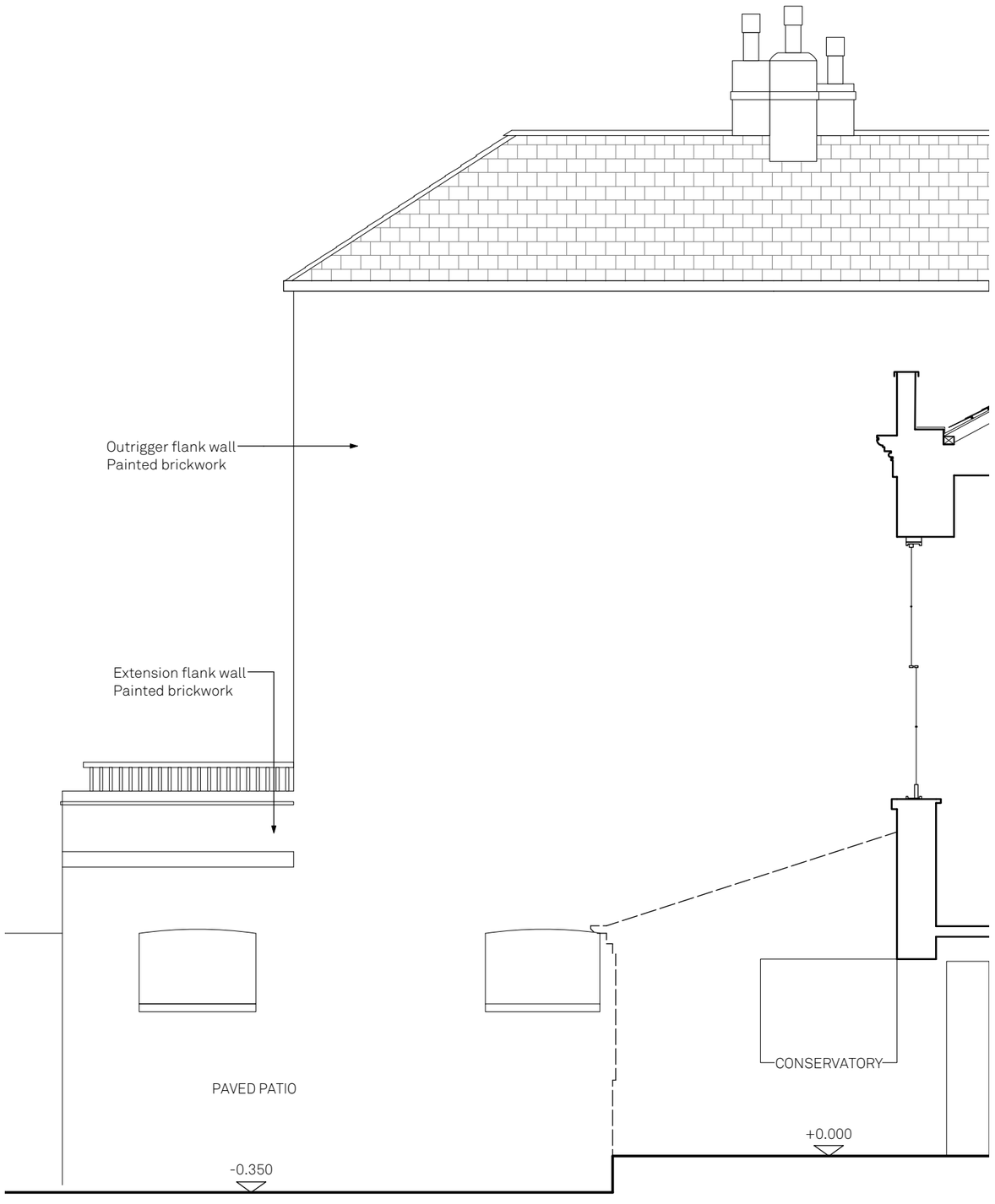
0 1 2 3 4 5 M

UNIONARCHITECTS

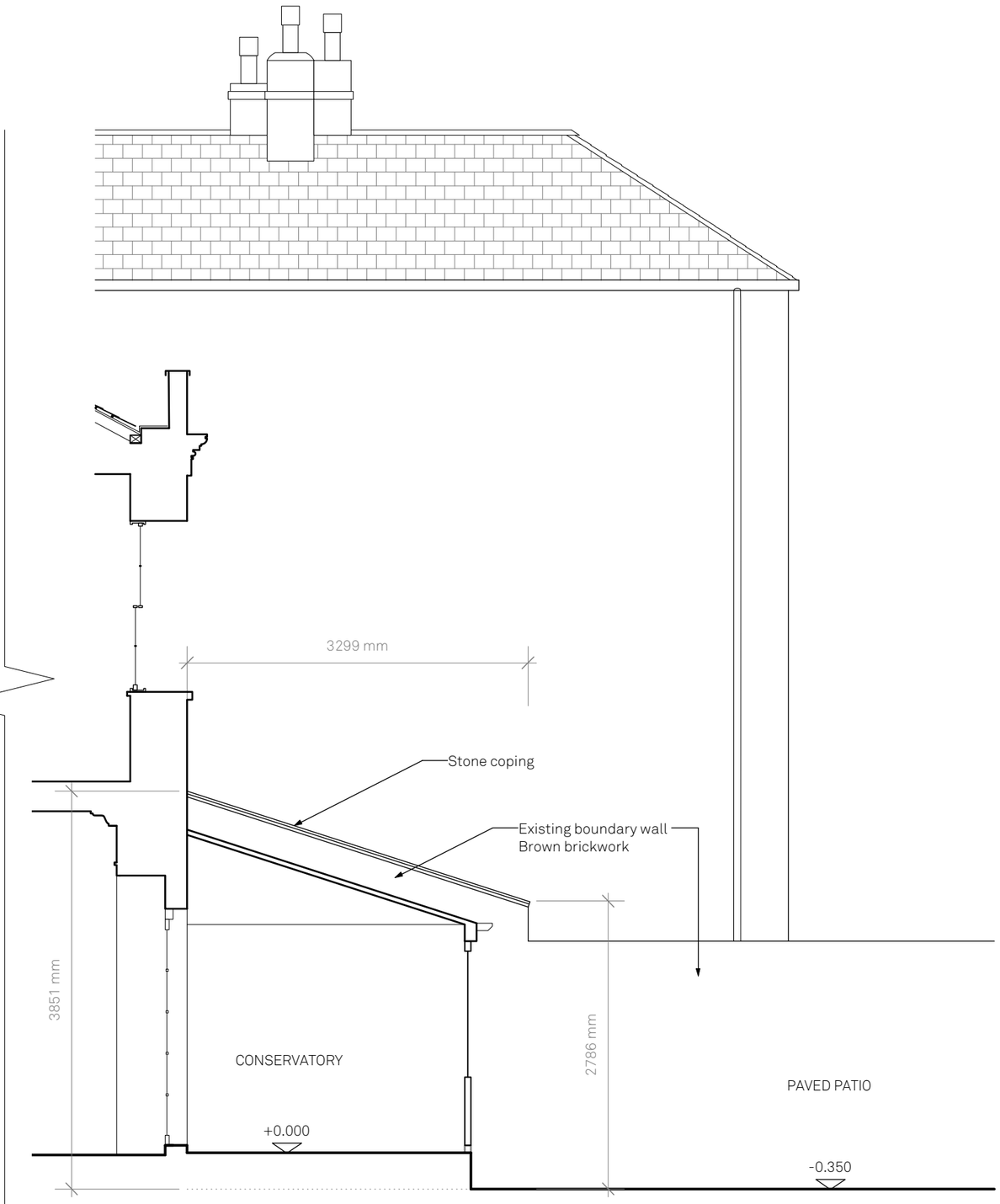
1807 . 009 Existing Rear Elevation D

rev _ Highgate West Hill, N6 6JR

1:50 @ A3



SECTION EE



SECTION FF

0 1 2 3 4 5 M

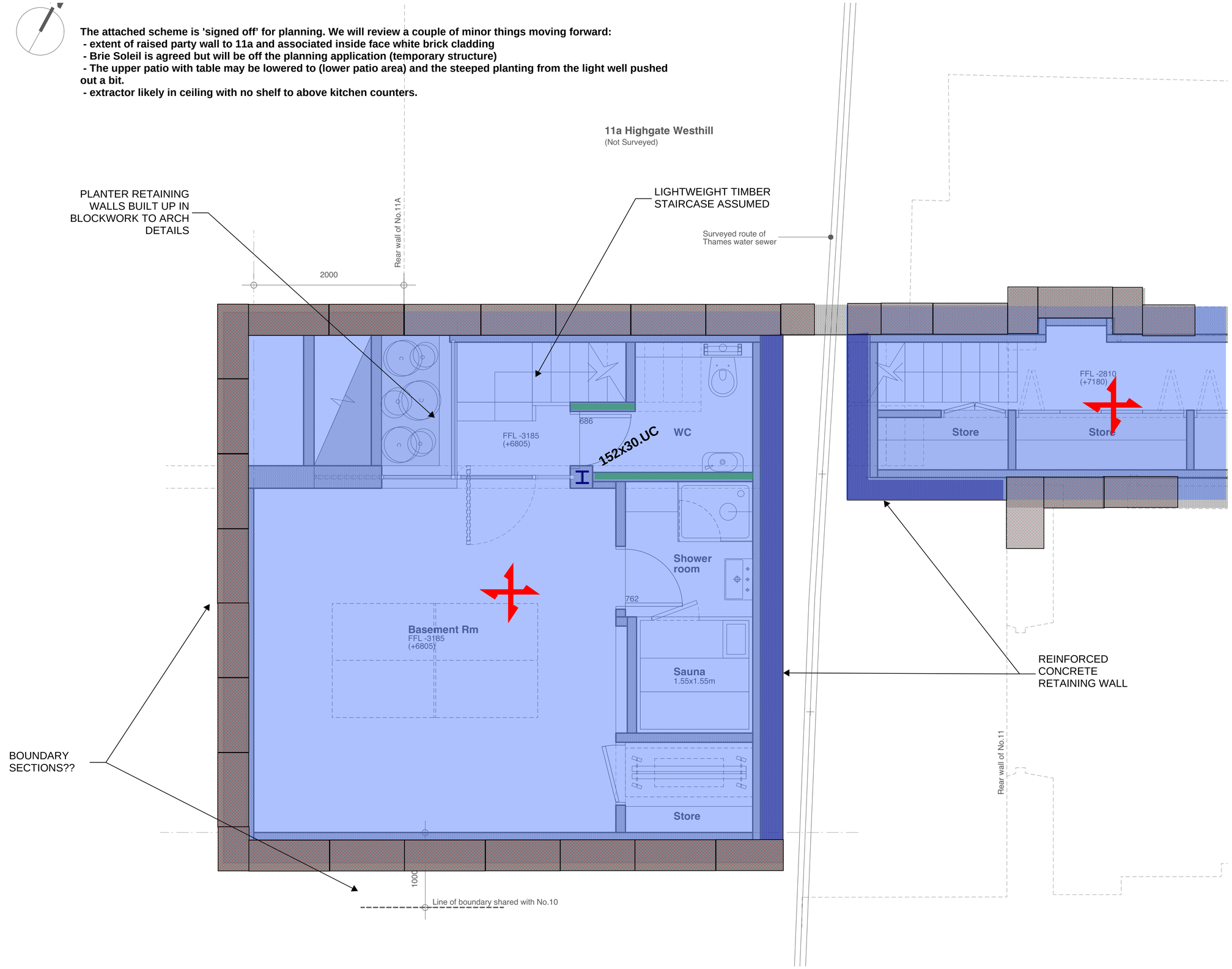
UNIONARCHITECTS

1807 . 010 Existing Sections EE & FF

rev _ Highgate West Hill, N6 6JR

1:50 @ A3

The attached scheme is 'signed off' for planning. We will review a couple of minor things moving forward:
- extent of raised party wall to 11a and associated inside face white brick cladding
- Brie Soleil is agreed but will be off the planning application (temporary structure)
- The upper patio with table may be lowered to (lower patio area) and the steeped planting from the light well pushed out a bit.
- extractor likely in ceiling with no shelf to above kitchen counters.



1 Proposed Basement Fl Plan (part)
Scale: 1:50

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS & ENGINEERS DRAWINGS & THE SPECIFICATIONS.
2. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ALL DIMENSIONS & FOR THE CORRECT SETTING OUT OF THE WORK ON SITE.
3. DO NOT SCALE FROM THIS DRAWING.
4. WATERPROOFING TO ARCHITECTS DETAILS.

TEMPORARY WORKS

- CONTRACTOR IS FULLY RESPONSIBLE FOR ALL TEMPORARY WORKS DESIGN, SEQUENCE OF WORKS, PREPARATION OF METHOD STATEMENTS, ETC.
- CONTRACTOR IS FULLY RESPONSIBLE FOR ALL ASPECTS OF TEMPORARY STABILITY OF GROUND AND BUILDINGS DURING THE WORKS.
- CONTRACTOR IS TO ENGAGE A SPECIALIST TEMPORARY WORKS ENGINEER TO CARRY OUT ALL TEMPORARY WORKS DESIGN & SEQUENCING.

NOT FOR CONSTRUCTION
NOT FOR COSTING

- STEEL COLUMN
- LOAD BEARING STRUCTURE UNDER
- RC SLAB TBD
- TIMBER JOISTS/RAFTERS - 200x50 C24 JOISTS AT 400 CTRS UNO SHEATHED IN 18mm PLY
- STEEL BEAM
- TIMBER BEAM - ASSUME DOUBLE JOIST/RAFTER UNO
- TIMBER STUDWORK - 100x75 C24 STUDS AT 400 CTRS SHEATHED IN 12mm PLY
- LINTEL AT HIGH LEVEL - PRECAST CONCRETE NAYLOR R6 UNO
- PROPOSED SPAN DIRECTION
- ASSUMED EXISTING SPAN DIRECTION
- MASS CONCRETE PADSTONE
- MOMENT CONNECTION

Rev	Date	Amendments
P1	xx.xx.20	PRELIMINARY ISSUE

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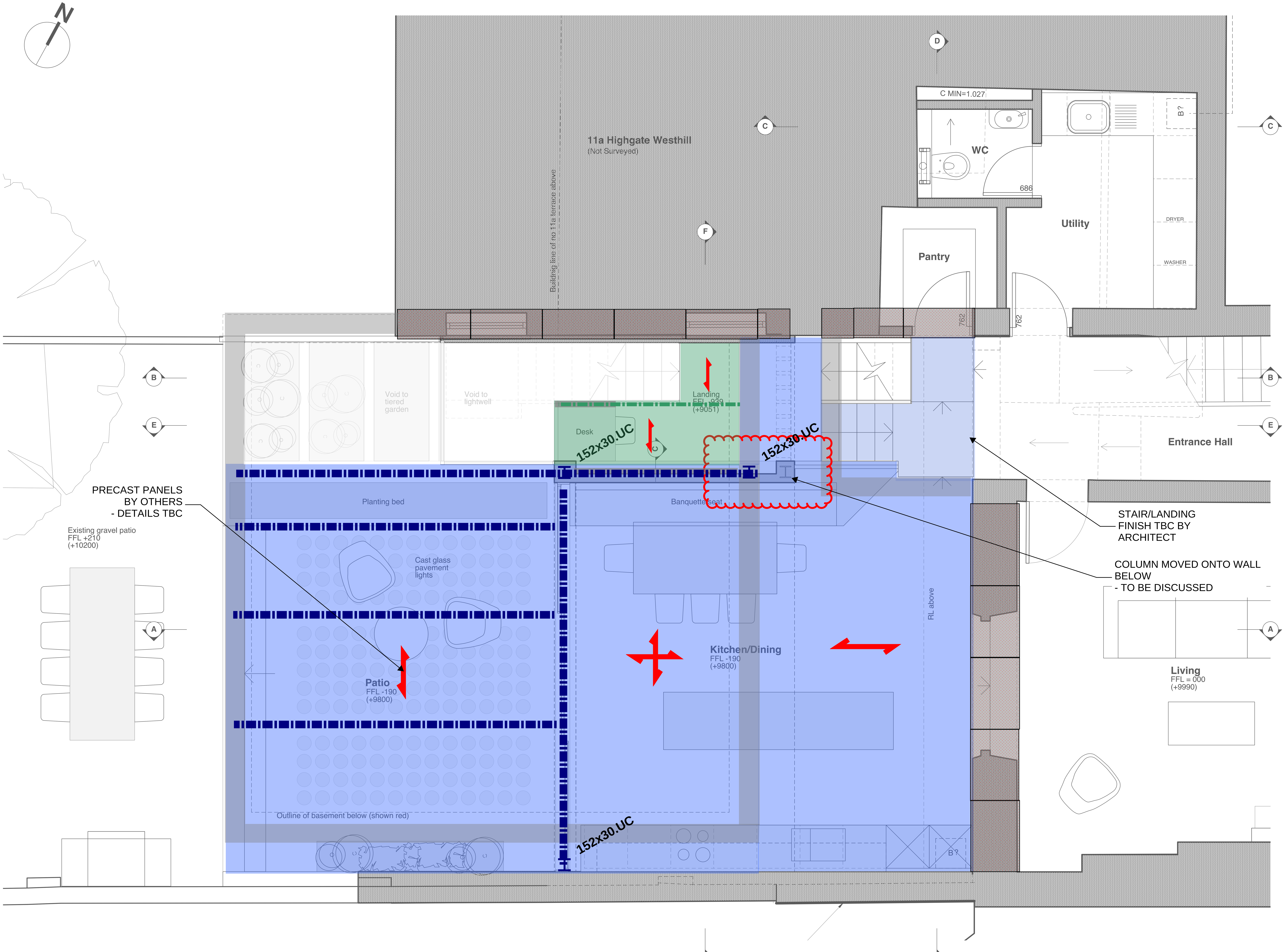
Project
20052 - 11 HIGHGATE WEST HILL

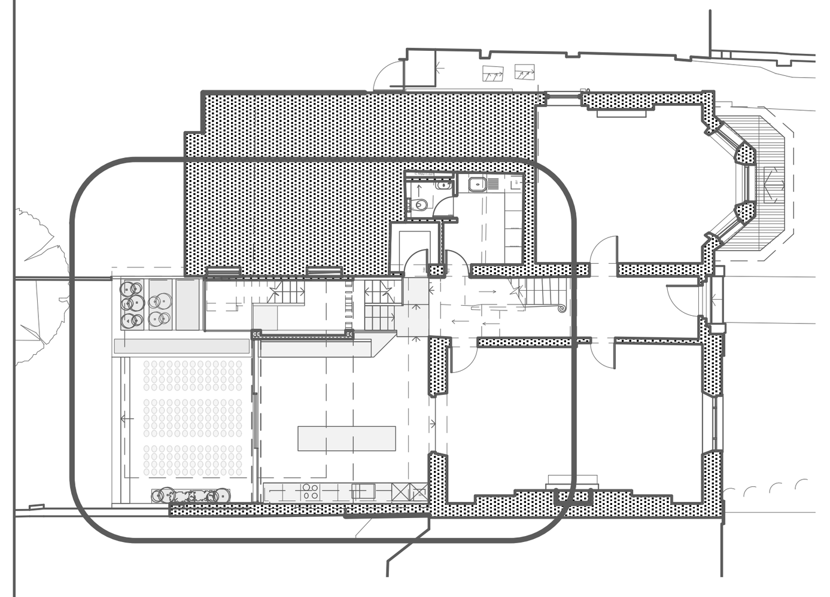
Drawing
BASEMENT LEVEL



1 Proposed Gnd Fl Plan (part)
Scale: 1:50

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3



Proctor & Shaw

daan

11 Highgate West Hill,
N6 6JR

11a Highgate Westhill
(Not Surveyed)

LOW LEVEL ROOF BEAM
SUPPORTED WITH 100.SHS
HANGER

100x100x6.3.SHS STUB
COLUMN BETWEEN MID
AND HIGH LEVEL BEAMS

PARTY WALL
ASSUMED

152.UC (LL)

152.UC (LL)

152.UC (LL)

152.UC (HL)

152.UC (ML)

152.UC (ML)

Green flat
roof

203.UC (ML)

203.UC (ML)

203.UC (ML)

203.UC (HL)

305x165.UB (HL)

Green flat
roof

Green flat
roof

Rooflight

Landing

Bedroom

PARTY WALL
ASSUMED

CONTINUOUS 203.UC (ML)

GREEN ROOF TO BE INSTALLED
PRIOR TO GLAZING

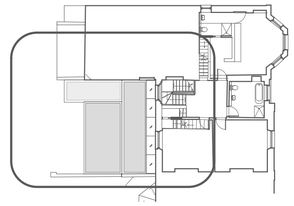
STEEL BEAM WITHIN BULKHEAD
BELOW UPPER ROOF
- TO BE DISCUSSED

1 Proposed 1st Fl Plan (part)
Scale: 1:50

nUs'ó'Y ho'8hi pUol

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3



Proctor & Shaw

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daan

I ni aUSp
11 Highgate West Hill,
N6 6JR

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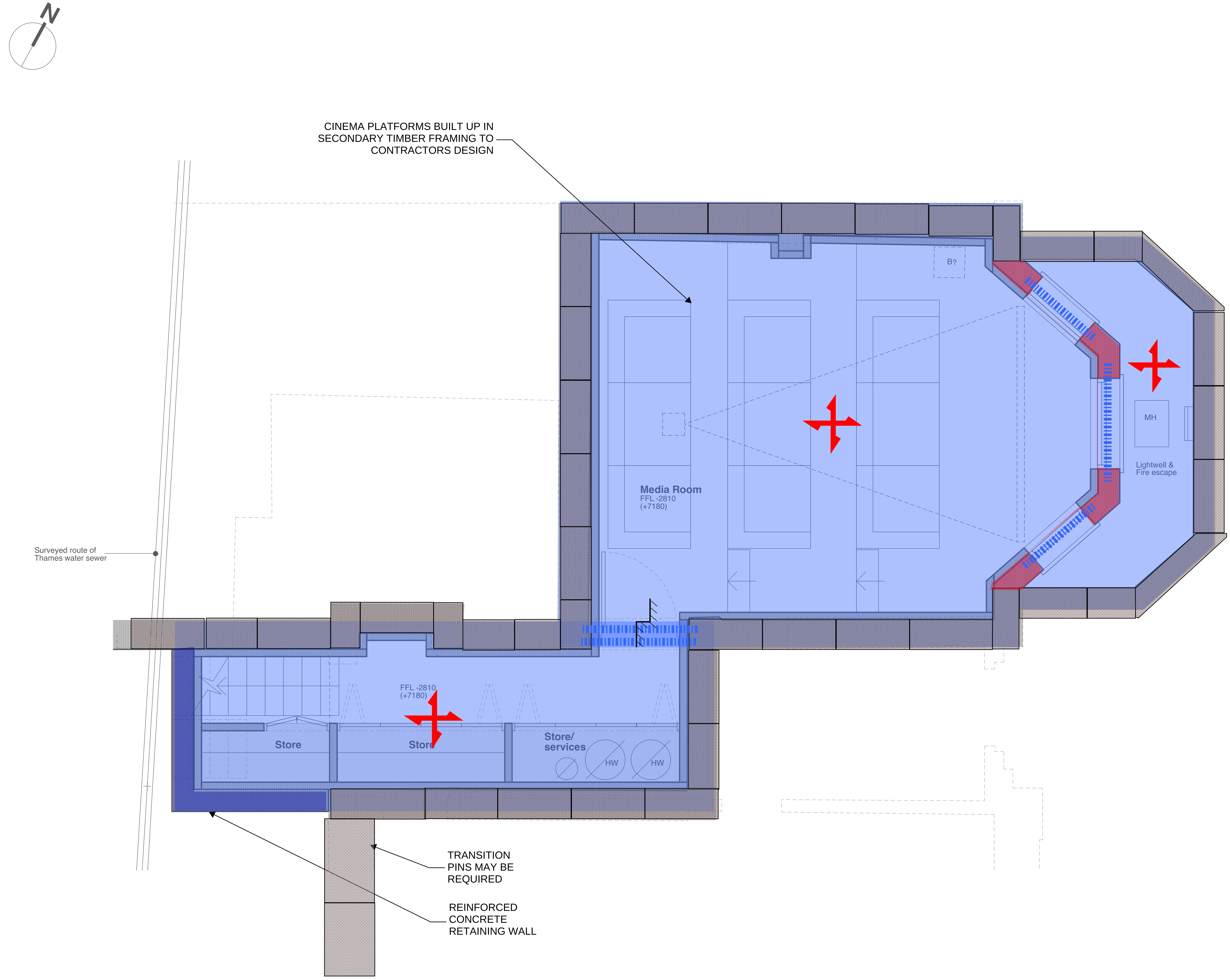
Pan E



1 Proposed Basement Fl Plan (part)
Scale: 1:50

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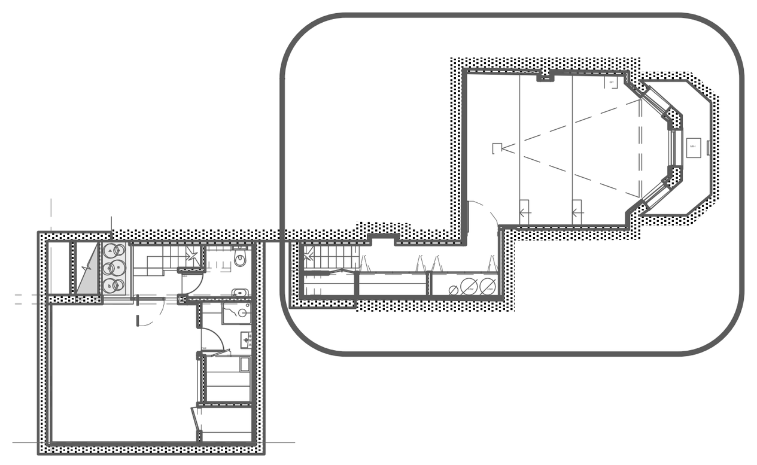
Scale 1:50 @ A3



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11 Highgate West Hill,
N6 6JR

1

Proposed Basement Fl Plan (part)

Scale: 1:50

@pXYo'TnPt YnWYo'Si l vnYWXp
A7Ti 'hi p'oSPdUl't i nc'pi 'VYWr nUT'TYe UhoY ho'i hdv
B7pXU'Si hpnPSpi n'e r op'SXUSc'Pdd'TYe UhoY ho'PhT'dUsUdo'i h'oYpU'
PhT'Si hVYne 't YpX'PnSXYpUSp'RUVi nU'l ni SUUTYnW7

''''UuYopYnWdUsUdo'' ''''''''''''''hUt 'dUsUdo

C7TYoSnUl PhSYUo'RUpt UUh'pXU'TnPt YnWPhT'pXU'ol USYVYSPpY ho'
e r op'RU'nUl i npUT'pi 'pXU'PnSXYpUSp'RUVi nU'l ni SUUTYnW7
D7Vi n'TUpPYdo'i V'opnr Spr nU5nUVUn'pi 'UhWYnUUnO'TnPt YnWo'PhT'
ol USYVYSPpY ho

nUsYoY ho'8hi pUol

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3

Proctor & Shaw

p 'o 5FGio 'P 5
ot @@Doh5d
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l ni aUSp'hi 7
daan

l ni aUSp
11 Highgate West Hill,
N6 6JR

W 'V -
@@: 'O'PB
@D: 'O'P@

Tnt W7hi
Pal

nUs7
E

1 Proposed Front (East) Elevation
Scale: 1:50

@pX'Ó'TnPt YWY'Si i vnYWXp
A7Ti 'hi p'oSPdUTt i nc'pi 'VWY nUT'T'Ý UhoY ho'i hdv
B7pXUSi hpnPSpi n'e r oq'SXUSc'PdsT'T'Ý UhoY ho'PhT'dUsUdo'i h'o'pU'
PhT'Si hYWe't 'pX'PnSX'pUSp'RUVi nUTi ni SUUT'YWY

"""Uu'ópYWdUsUdo"""""""""""""""""""""""hUt 'dUsUdo

C7T'ÓSnUl PhS'Ób'RUpt UUh'pXUT'nPt YWPhT'pXUTol USYW5PpY ho'
e r op'RUTnUl i npUT'pi 'pXUTPnSXYpUSp'RUVi nUTi ni SUUT'YWY
DfVi n'TUpP'dó'i V'opnr Spr nU5'nUVUh'pi 'UhWhUUh@'TnPt YWb'PhT'
ol USYW5PpY ho

nUsÓÝ ho'8hi pUol

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3

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p 'o 5FGo 'P 5
ot @@Doh 5d
4CC1: 2A: GACCE@@ 7 7

I ni aUSp'hi 7
daan

I ni aUSp
11 Highgate West Hill,
N6 6JR

V '1U 2

@D 'O'PB
@AD'O'P@

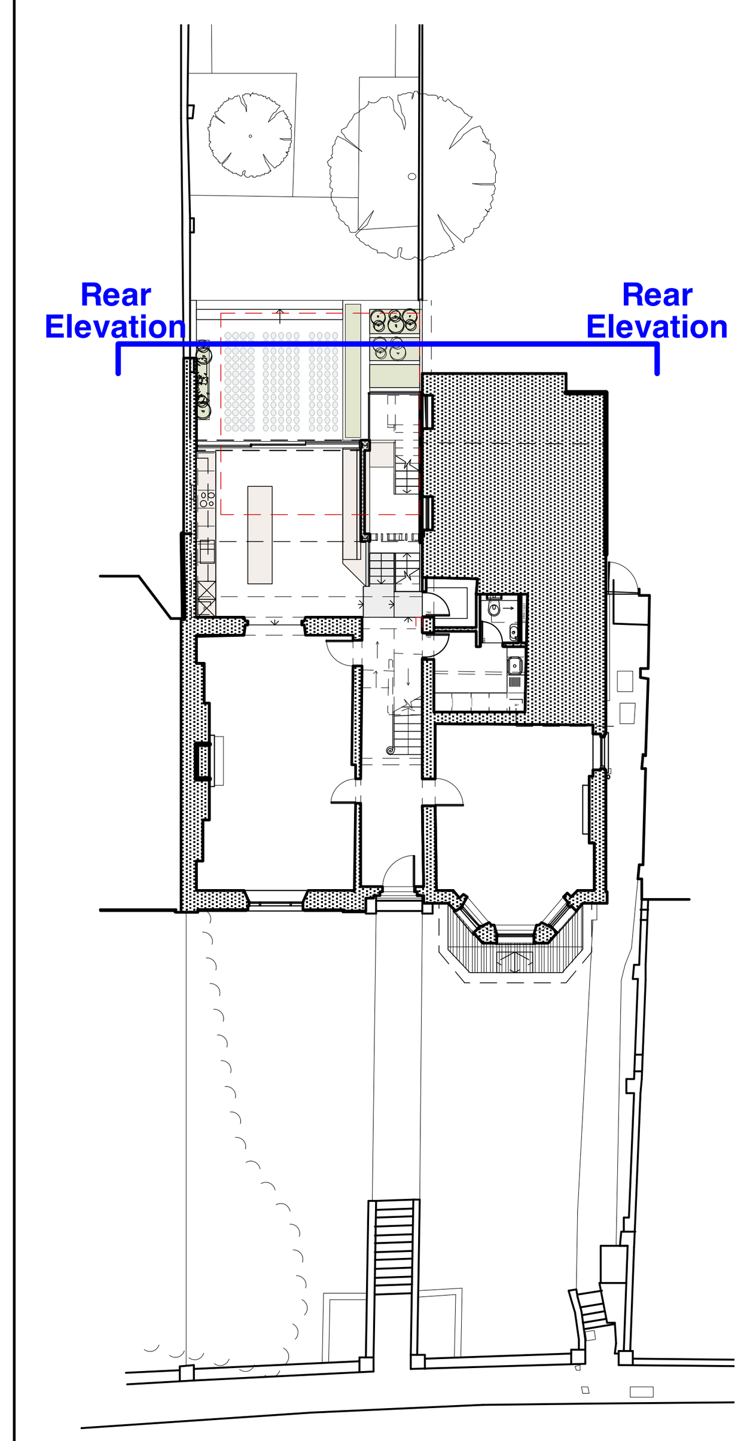
Tnt Whi nUs7

Pao E

1 Proposed Rear (West) Elevation
Scale: 1:50

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3



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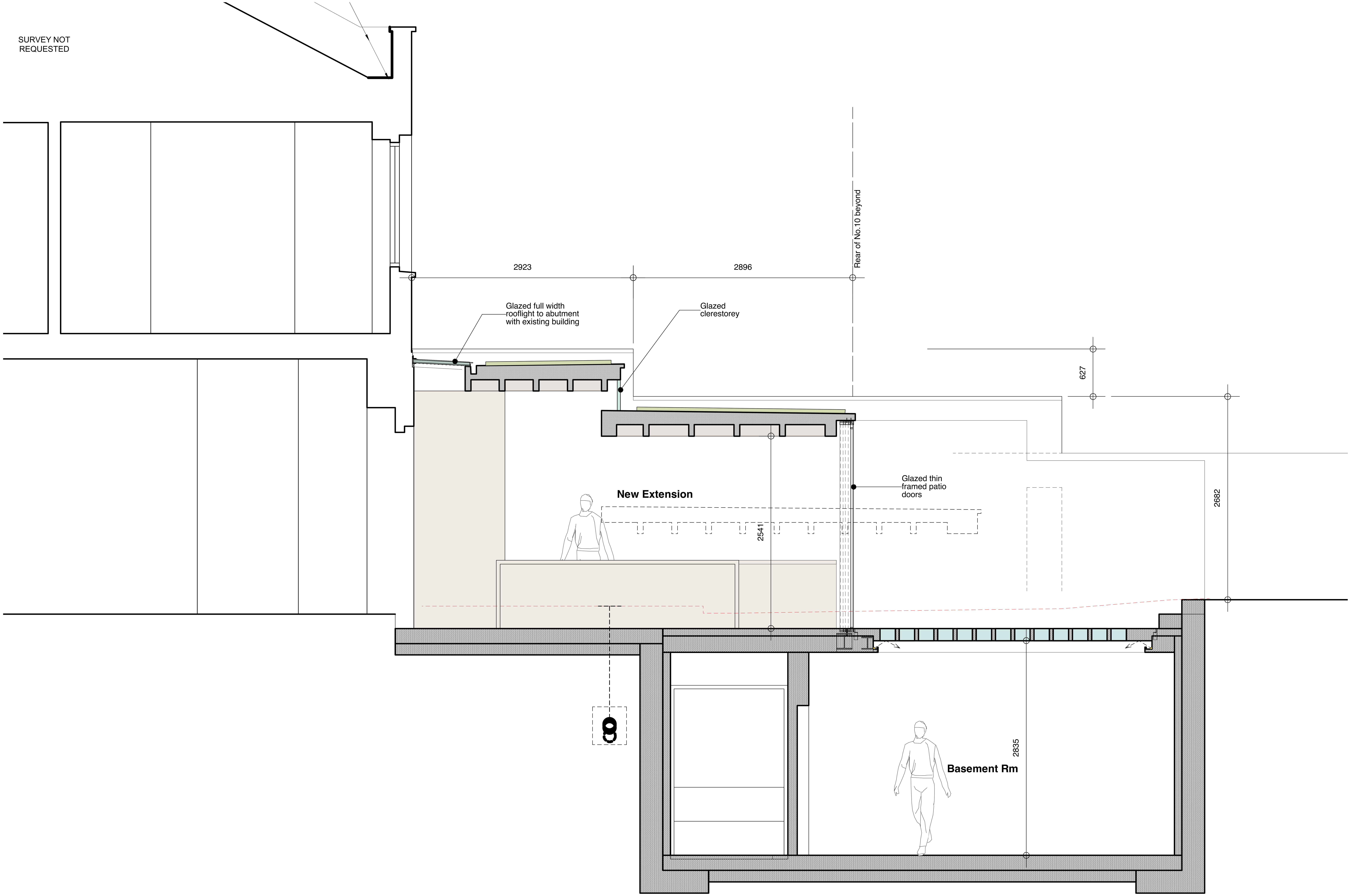
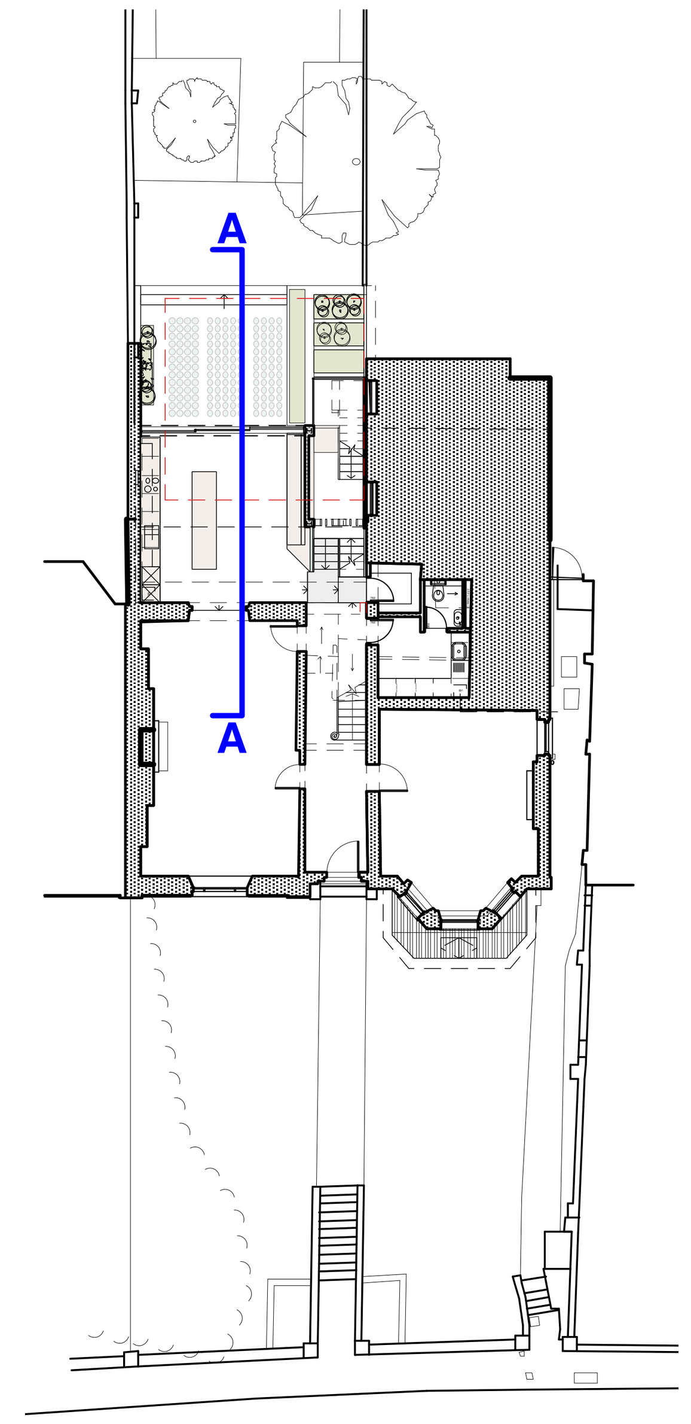


1 Proposed Section AA
Scale: 1:50

0.0 0.5 1.0 1.5 2.0 M
Scale 1:50 @ A3



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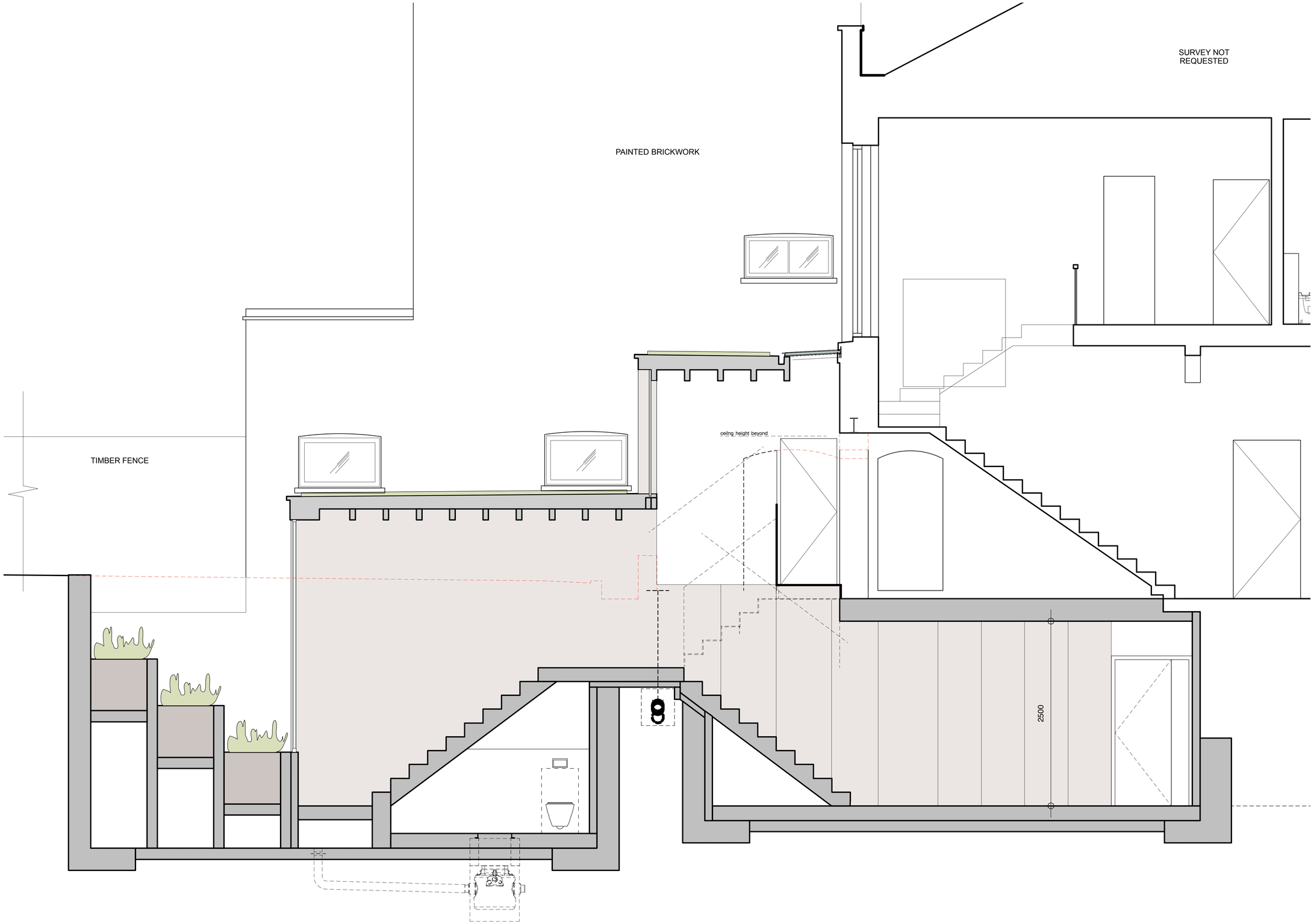
PP

E



1 Proposed Section BB
Scale: 1:50

1. THIS DRAWING IS COPYRIGHT
2. DO NOT SCALE: WORK TO FIGURED DIMENSIONS ONLY
3. THE CONTRACTOR MUST CHECK ALL DIMENSIONS AND LEVELS ON SITE AND CONFIRM WITH ARCHITECT BEFORE PROCEEDING .

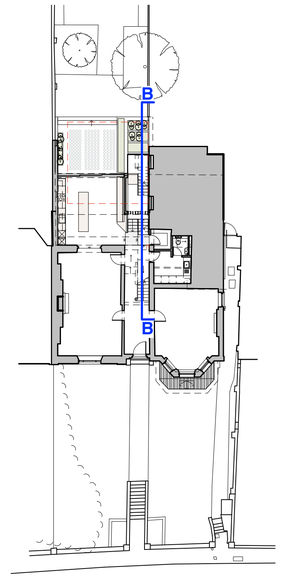
EXISTING LEVELS NEW LEVELS

4. DISCREPANCIES BETWEEN THE DRAWING AND THE SPECIFICATIONS MUST BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING .
5. FOR DETAILS OF STRUCTURE , REFER TO ENGINEER'S DRAWINGS AND SPECIFICATIONS

REVISIONS / NOTES:

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3



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SW11 5SN, London
+44 (0)208 244 6110 www.proctorandshaw.com

PROJECT NO.
2006

PROJECT
11 Highgate West Hill,
N6 6JR

Proposed Sections
BB

1:50 @ A3
1:25 @ A1

DRWG. NO
P.10

REV.
-

Proposed Section CC
Scale: 1:50

@pXYo'TnPt YhWYo'Si l vnYWXp
A7Ti 'hi p'oSPdUl't i nc'pi 'VYWr nUT'TYe UhoY ho'i hdv
B7pXU'Si hpnPSpi n'e r op'SXUSc'Pdd'TYe UhoY ho'PhT'dUsUdo'i h'oYpU'
PhT'Si hVYne 't YpX'PnSXYpUSp'RUVi nU'I ni SUUTYhW7

''''UuYopYhWdUsUdo''''''''''''''''''hUt 'dUsUdo

C7TYoSnUl PhSYUo'RUpt UUh'pXU'TnPt YhWPhT'pXU'ol USYVYSPpY ho'
e r op'RU'nUl i npUT'pi 'pXU'PnSXYpUSp'RUVi nU'I ni SUUTYhW7
D7Vi n'TUpPYdo'i V'opnr Spr nU5nUVUn'pi 'UhWYhUUno'TnPt YhWo'PhT'
ol USYVYSPpY ho

nUsYoY ho'8hi pUol

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3

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p 'o 5FGo 'P 5
ot @@Doh5d
4CC'1: 2A: GACC'E@@ 7 7

I ni aUSp'hi 7
daan

I ni aUSp
11 Highgate West Hill,
N6 6JR

-
SS
@D: 'O'PB
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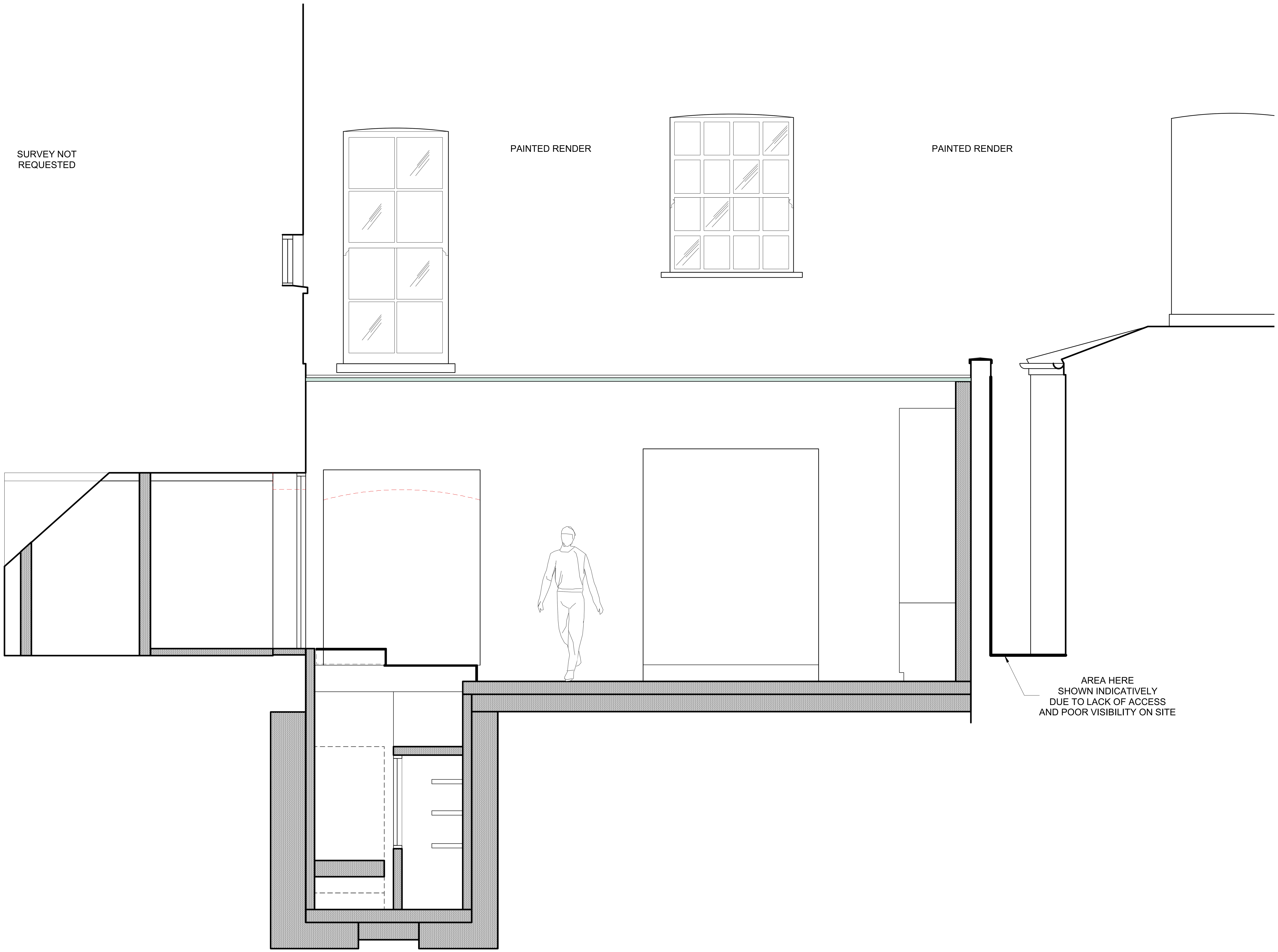
Tnt W7hi
Pcc

nUs7
E



1 **Proposed Section DD**
Scale: 1:50

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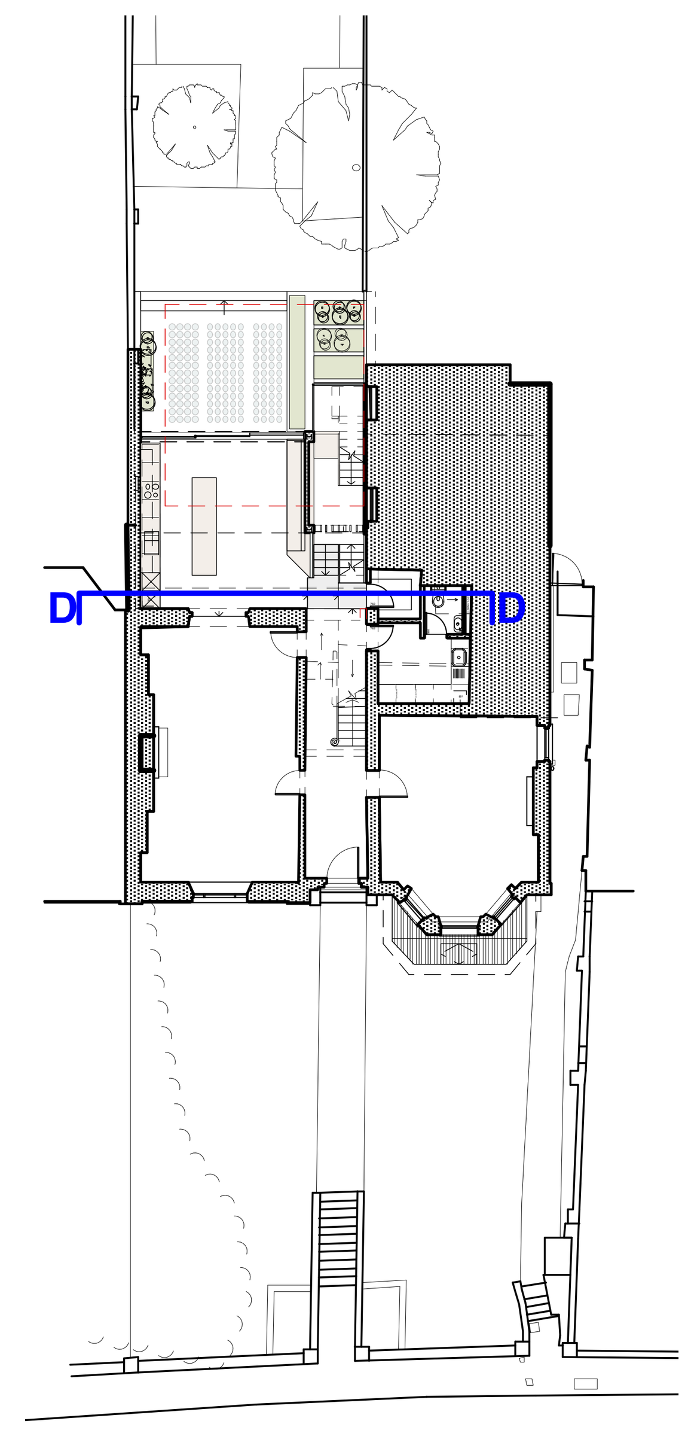
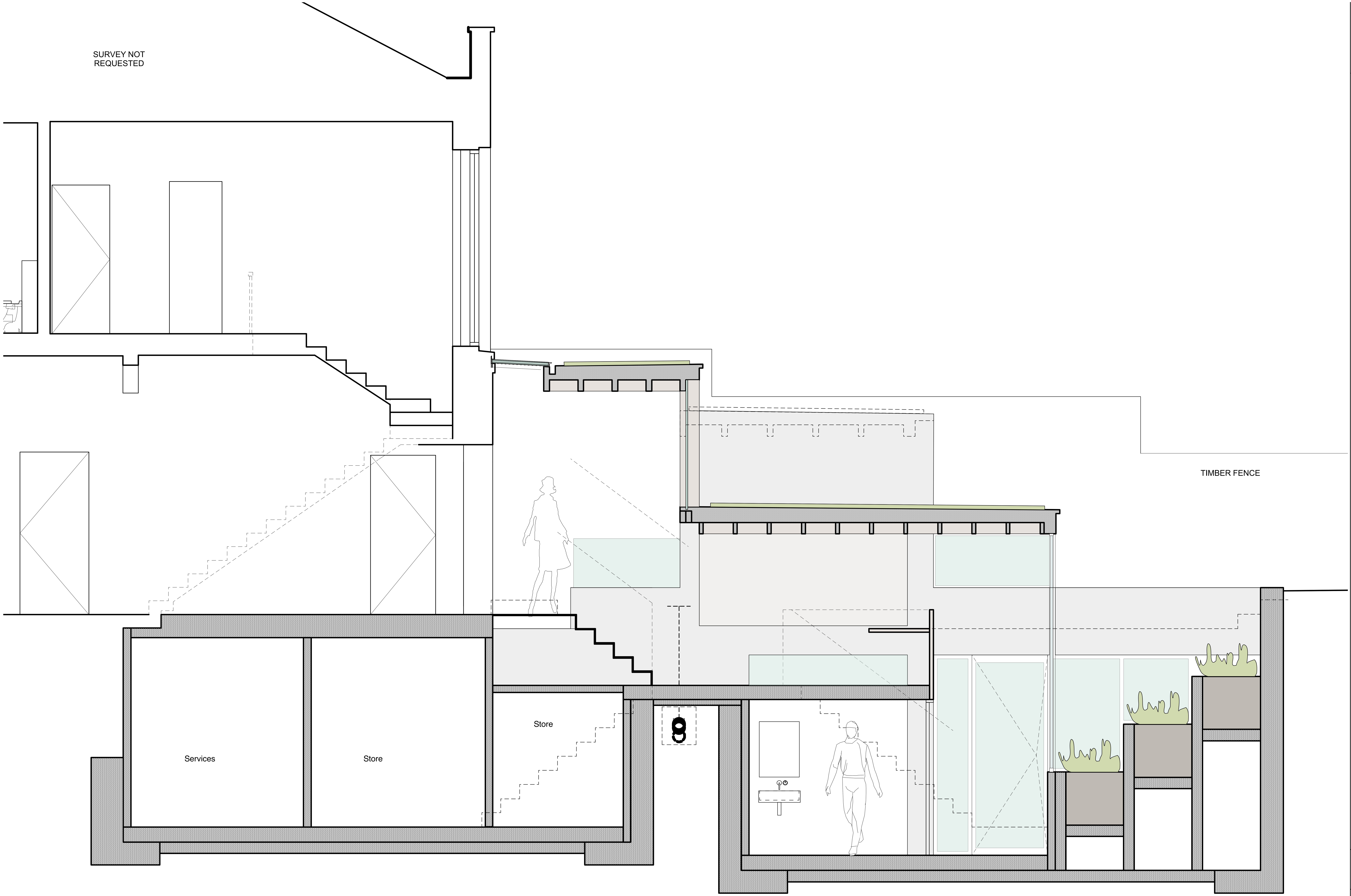
Scale 1:50 @ A3



Proctor & Shaw

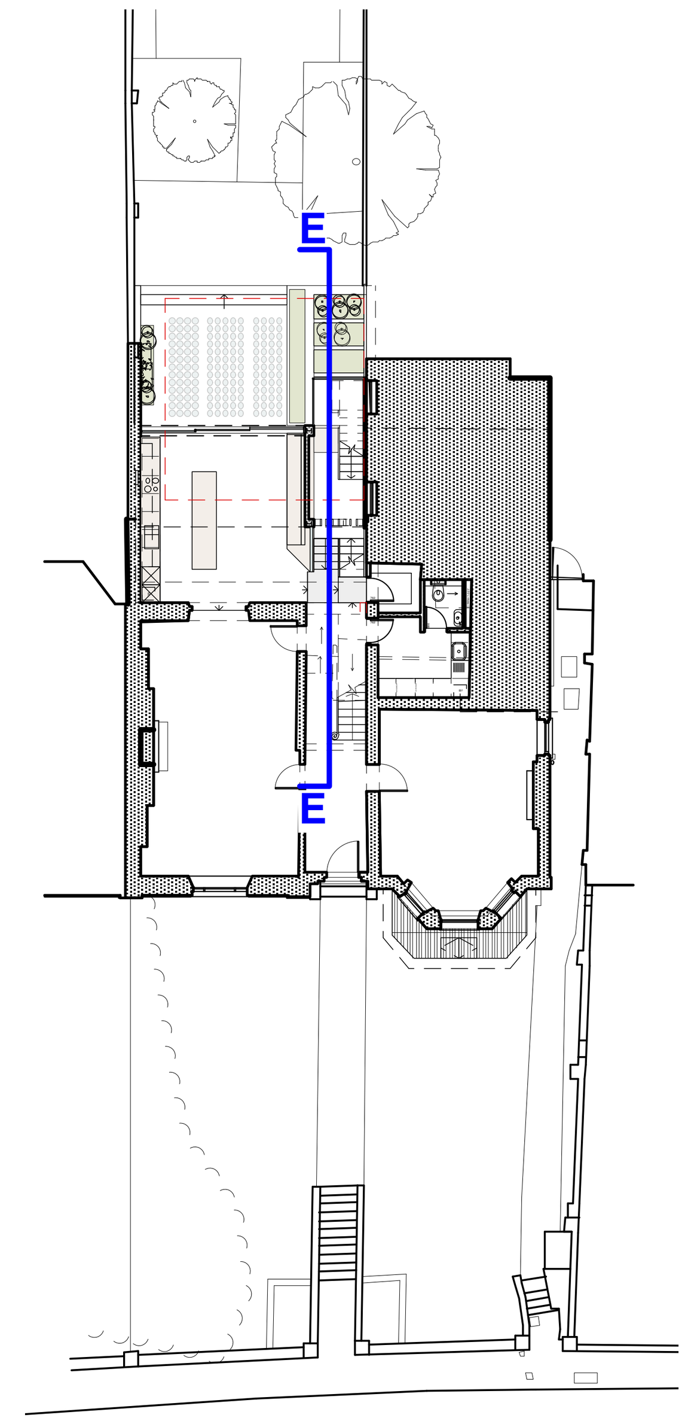
11 Highgate West Hill,
N6 6JR

E



0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3



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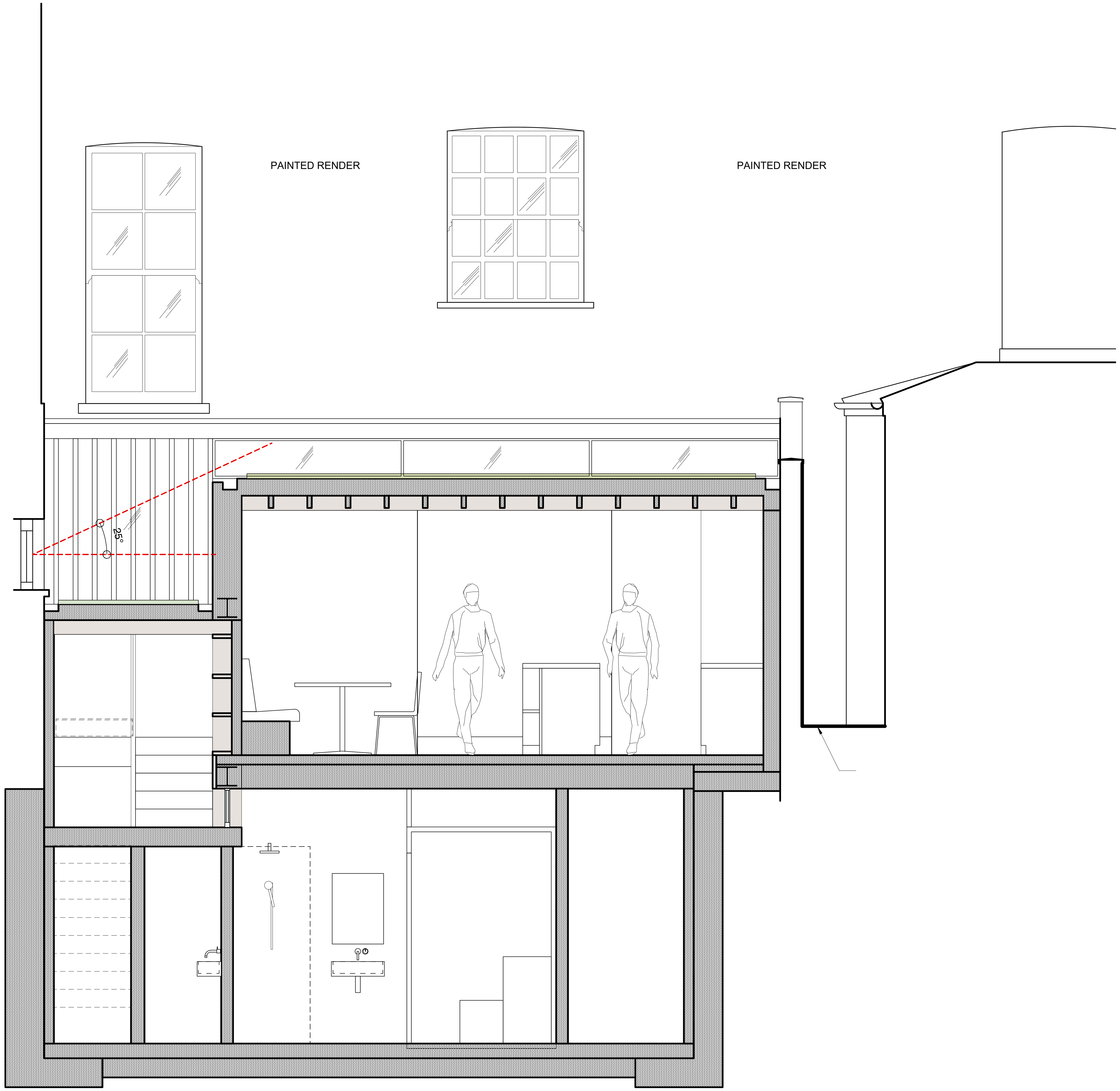
11 Highgate West Hill,
N6 6JR

E

1

Proposed Section EE
Scale: 1:50



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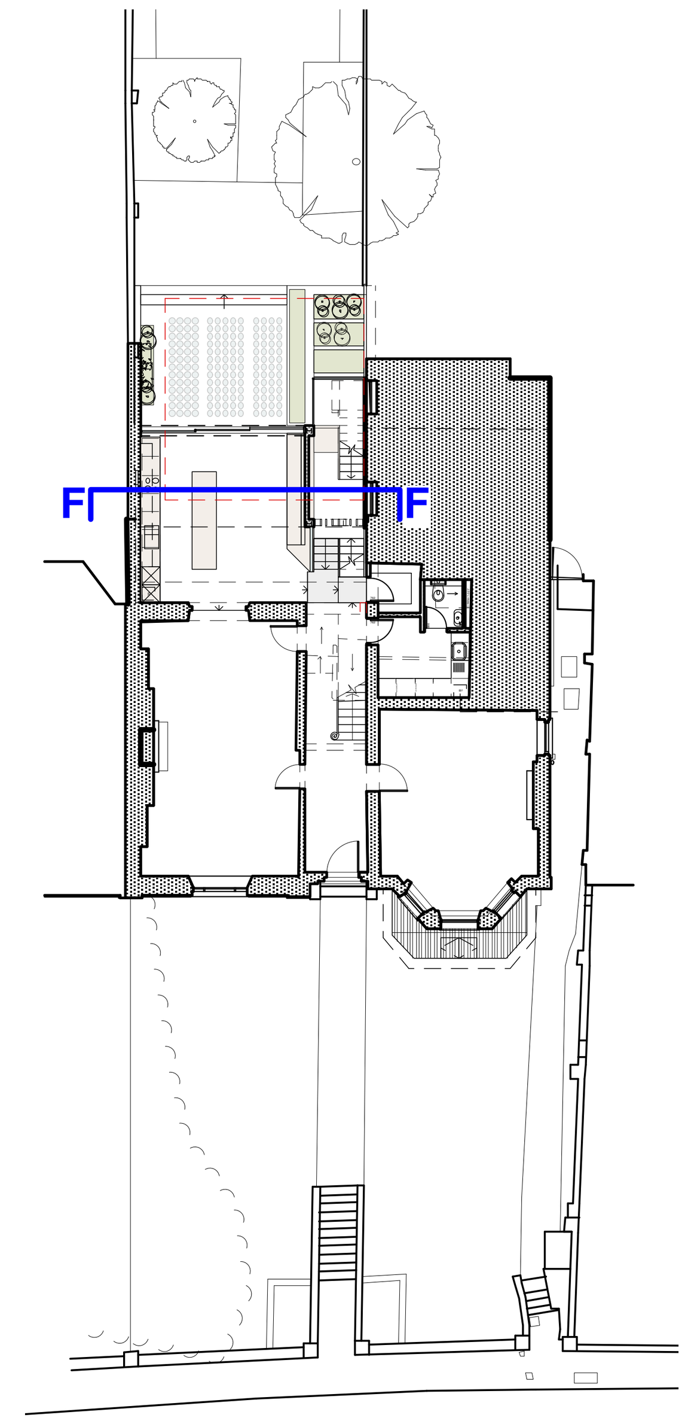
Scale 1:50 @ A3



Proctor & Shaw

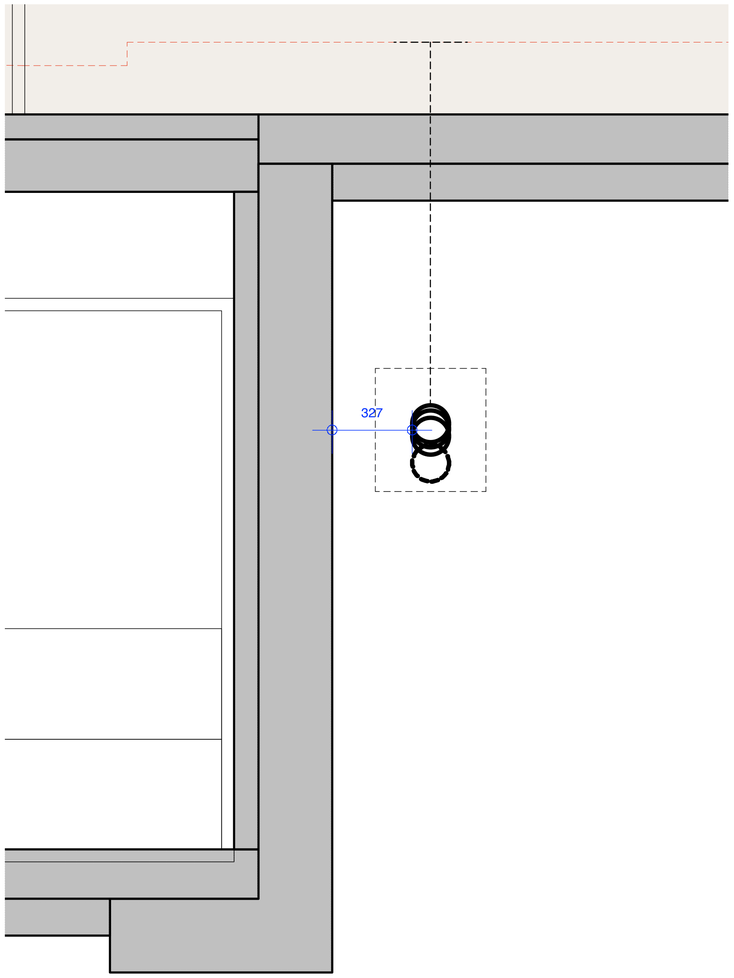
daan

11 Highgate West Hill,
N6 6JR

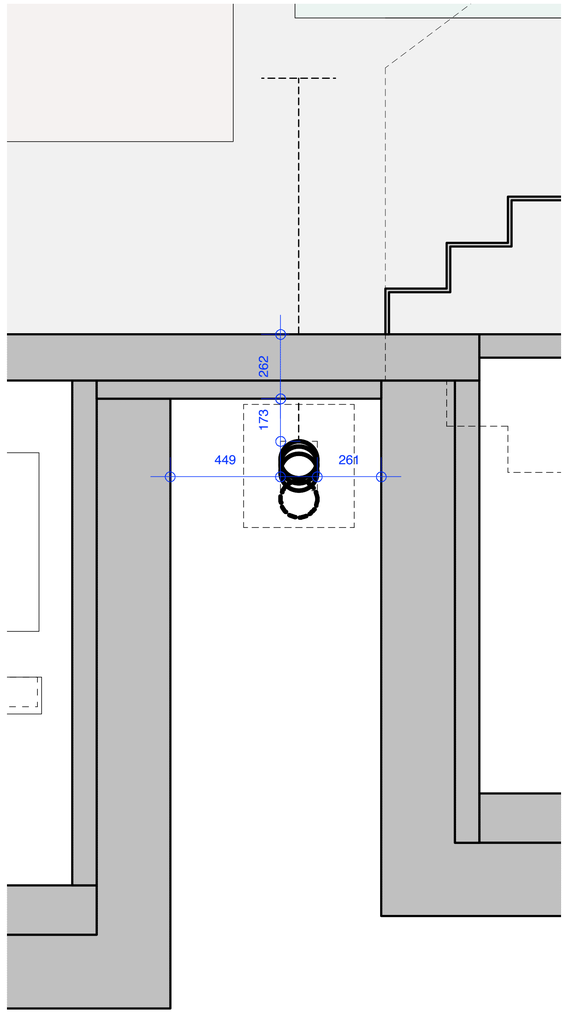
1

Proposed Section FF

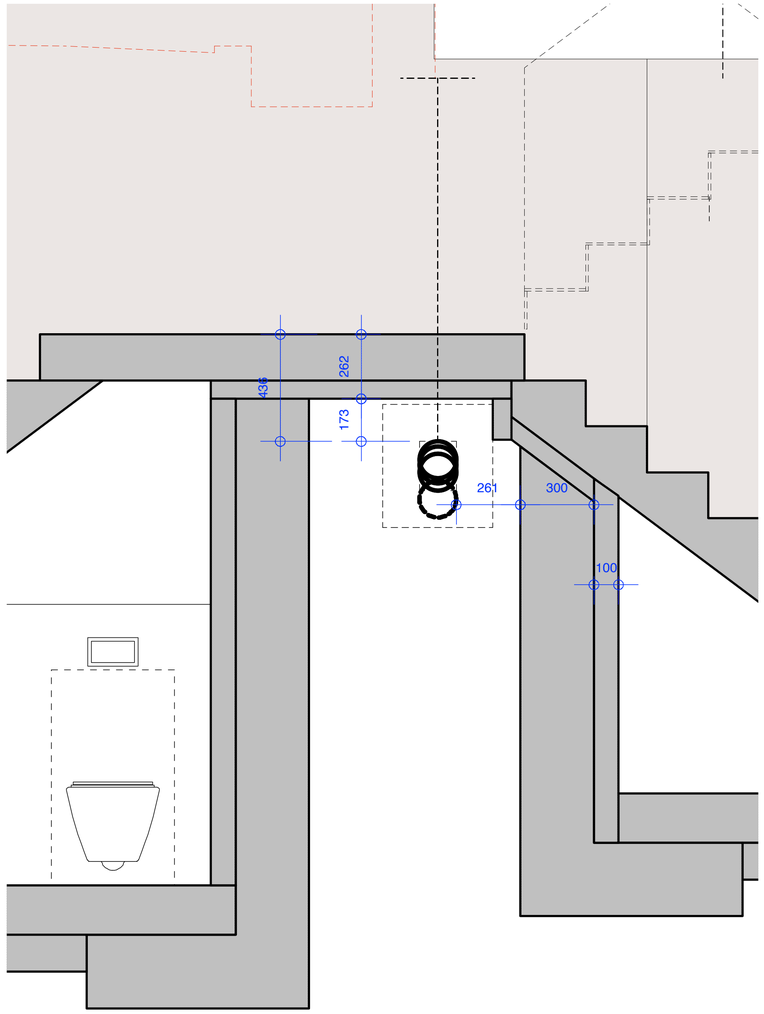
Scale: 1:50



1 Part Section AA
Scale: 1:25



2 Part Section EE
Scale: 1:25



3 Part Section BB
Scale: 1:25

1. THIS DRAWING IS COPYRIGHT
2. DO NOT SCALE: WORK TO FIGURED DIMENSIONS ONLY
3. THE CONTRACTOR MUST CHECK ALL DIMENSIONS AND LEVELS ON SITE AND CONFIRM WITH ARCHITECT BEFORE PROCEEDING .

EXISTING LEVELS NEW LEVELS

4. DISCREPANCIES BETWEEN THE DRAWING AND THE SPECIFICATIONS MUST BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING .
5. FOR DETAILS OF STRUCTURE , REFER TO ENGINEER'S DRAWINGS AND SPECIFICATIONS

REVISIONS / NOTES:

0.0 0.5 1.0 1.5 2.0 M

Scale 1:50 @ A3

Proctor & Shaw

The Studio, 78 Sisters Avenue,
SW11 5SN, London
+44 (0)208 244 6110 www.proctorandshaw.com

PROJECT NO.
2006

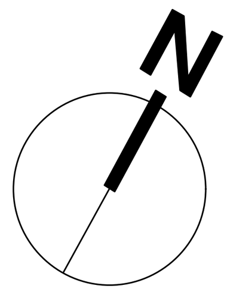
PROJECT
11 Highgate West Hill,
N6 6JR

Sewer Sections

AA	1:25 @ A3
BB	1:50 @ A1
EE	

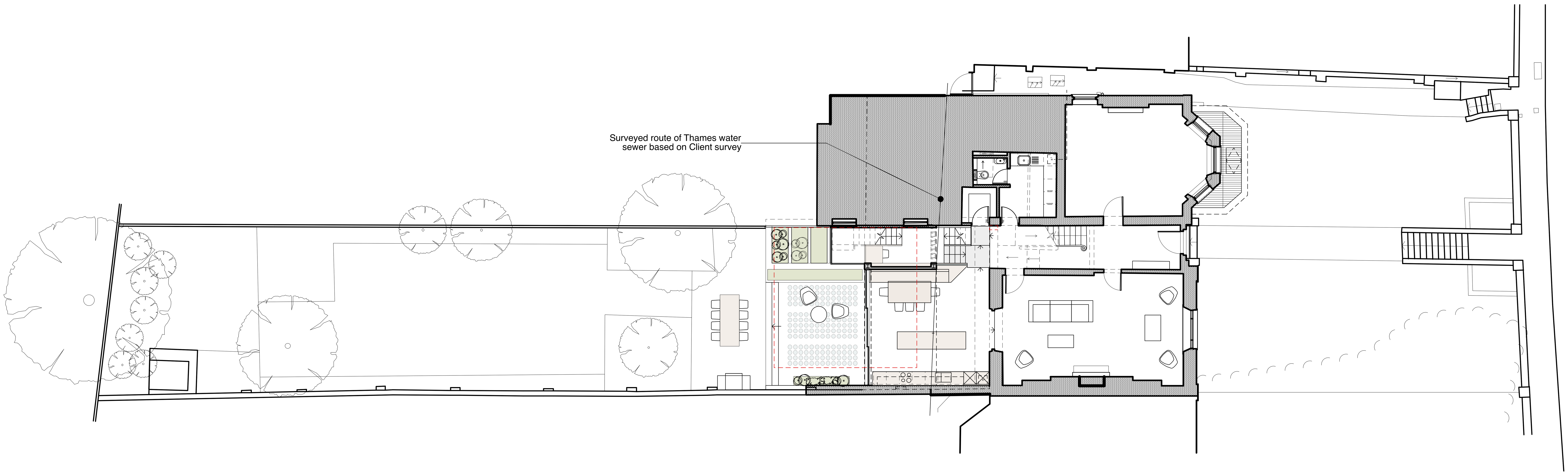
DRWG. NO
SK.01 -

REV.



0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 M

Scale 1:200 @ A3



1 Proposed Garden Site Plan
Scale: 1:200

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11 Highgate West Hill,
N6 6JR

APPENDIX B

Groundsure report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Order Details

Date: 17/08/2020

Your ref: 11_Highgate_West_Hill_

Our Ref: GS-6973593

Client: Ground and Project Consultants Ltd

Site Details

Location: 528155 186475

Area: 0.1 ha

Authority: London Borough of Camden

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	0	3	17	-
15	1.2	Historical tanks	0	0	5	2	-
16	1.3	Historical energy features	0	0	1	7	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	3	1	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	0	0	3	29	-
20	2.2	Historical tanks	0	0	6	3	-
20	2.3	Historical energy features	0	0	2	17	-
21	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	4	1	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
23	3.1	Active or recent landfill	0	0	0	0	-
23	3.2	Historical landfill (BGS records)	0	0	0	0	-
24	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
24	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
24	3.5	Historical waste sites	0	0	0	0	-
24	3.6	Licensed waste sites	0	0	0	0	-
24	3.7	Waste exemptions	0	0	3	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
26	4.1	Recent industrial land uses	0	0	2	-	-
27	4.2	Current or recent petrol stations	0	0	0	0	-
27	4.3	Electricity cables	0	0	0	0	-
27	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-

27	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
28	4.7	Regulated explosive sites	0	0	0	0	-
28	4.8	Hazardous substance storage/usage	0	0	0	0	-
28	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
28	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
29	4.12	Radioactive Substance Authorisations	0	0	0	0	-
29	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
29	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
29	4.15	Pollutant release to public sewer	0	0	0	0	-
29	4.16	List 1 Dangerous Substances	0	0	0	0	-
30	4.17	List 2 Dangerous Substances	0	0	0	0	-
30	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	0	1	-
30	4.19	Pollution inventory substances	0	0	0	0	-
30	4.20	Pollution inventory waste transfers	0	0	0	0	-
31	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
32	5.1	Superficial aquifer	None (within 500m)				
33	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
34	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
35	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
35	5.5	Groundwater vulnerability- local information	None (within 0m)				
36	**5.6**	**Groundwater abstractions**	0	0	0	0	5
38	5.7	Surface water abstractions	0	0	0	0	0
38	**5.8**	**Potable abstractions**	0	0	0	0	2
39	5.9	Source Protection Zones	0	0	0	0	-
39	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
40	**6.1**	**Water Network (OS MasterMap)**	0	0	3	-	-

41	**6.2**	**Surface water features**	0	0	2	-	-
41	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
42	6.4	WFD Surface water bodies	0	0	0	-	-
42	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
43	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
43	7.2	Historical Flood Events	0	0	0	-	-
43	7.3	Flood Defences	0	0	0	-	-
43	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
44	7.5	Flood Storage Areas	0	0	0	-	-
45	7.6	Flood Zone 2	None (within 50m)				
45	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
46	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding					
47	**9.1**	**Groundwater flooding**	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
48	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	0	2
49	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
49	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
49	10.4	Special Protection Areas (SPA)	0	0	0	0	0
49	10.5	National Nature Reserves (NNR)	0	0	0	0	0
50	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	3
50	**10.7**	**Designated Ancient Woodland**	0	0	0	0	5
51	10.8	Biosphere Reserves	0	0	0	0	0
51	10.9	Forest Parks	0	0	0	0	0
51	10.10	Marine Conservation Zones	0	0	0	0	0
51	10.11	Green Belt	0	0	0	0	0
51	10.12	Proposed Ramsar sites	0	0	0	0	0

52	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
52	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
52	10.15	Nitrate Sensitive Areas	0	0	0	0	0
52	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
53	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
54	**10.18**	**SSSI Units**	0	0	0	0	3
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
56	11.1	World Heritage Sites	0	0	0	-	-
57	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
57	11.3	National Parks	0	0	0	-	-
57	**11.4**	**Listed Buildings**	0	4	8	-	-
58	**11.5**	**Conservation Areas**	1	2	0	-	-
58	11.6	Scheduled Ancient Monuments	0	0	0	-	-
59	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
60	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
61	12.2	Open Access Land	0	0	0	-	-
61	12.3	Tree Felling Licences	0	0	0	-	-
61	12.4	Environmental Stewardship Schemes	0	0	0	-	-
61	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
62	**13.1**	**Priority Habitat Inventory**	0	0	23	-	-
63	**13.2**	**Habitat Networks**	1	0	5	-	-
64	13.3	Open Mosaic Habitat	0	0	0	-	-
64	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
65	**14.1**	**10k Availability**	Identified (within 500m)				
66	**14.2**	**Artificial and made ground (10k)**	0	0	0	1	-
67	14.3	Superficial geology (10k)	0	0	0	0	-

67	14.4	Landslip (10k)	0	0	0	0	-
68	**14.5**	**Bedrock geology (10k)**	1	0	1	0	-
69	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
70	**15.1**	**50k Availability**	Identified (within 500m)				
71	**15.2**	**Artificial and made ground (50k)**	0	0	0	1	-
72	15.3	Artificial ground permeability (50k)	0	0	-	-	-
73	15.4	Superficial geology (50k)	0	0	0	0	-
73	15.5	Superficial permeability (50k)	None (within 50m)				
73	15.6	Landslip (50k)	0	0	0	0	-
73	15.7	Landslip permeability (50k)	None (within 50m)				
74	**15.8**	**Bedrock geology (50k)**	1	0	1	0	-
75	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
75	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
76	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
77	**17.1**	**Shrink swell clays**	Moderate (within 50m)				
78	**17.2**	**Running sands**	Very low (within 50m)				
79	**17.3**	**Compressible deposits**	Negligible (within 50m)				
80	**17.4**	**Collapsible deposits**	Very low (within 50m)				
81	**17.5**	**Landslides**	Very low (within 50m)				
82	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
83	18.1	Natural cavities	0	0	0	0	-
84	18.2	BritPits	0	0	0	0	-
84	**18.3**	**Surface ground workings**	0	0	16	-	-
85	**18.4**	**Underground workings**	0	0	0	0	6
85	18.5	Historical Mineral Planning Areas	0	0	0	0	-

85	18.6	Non-coal mining	0	0	0	0	0
86	18.7	Mining cavities	0	0	0	0	0
86	18.8	JPB mining areas	None (within 0m)				
86	18.9	Coal mining	None (within 0m)				
86	18.10	Brine areas	None (within 0m)				
86	18.11	Gypsum areas	None (within 0m)				
87	18.12	Tin mining	None (within 0m)				
87	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
88	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
89	**20.1**	**BGS Estimated Background Soil Chemistry**	2	0	-	-	-
89	**20.2**	**BGS Estimated Urban Soil Chemistry**	2	4	-	-	-
90	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

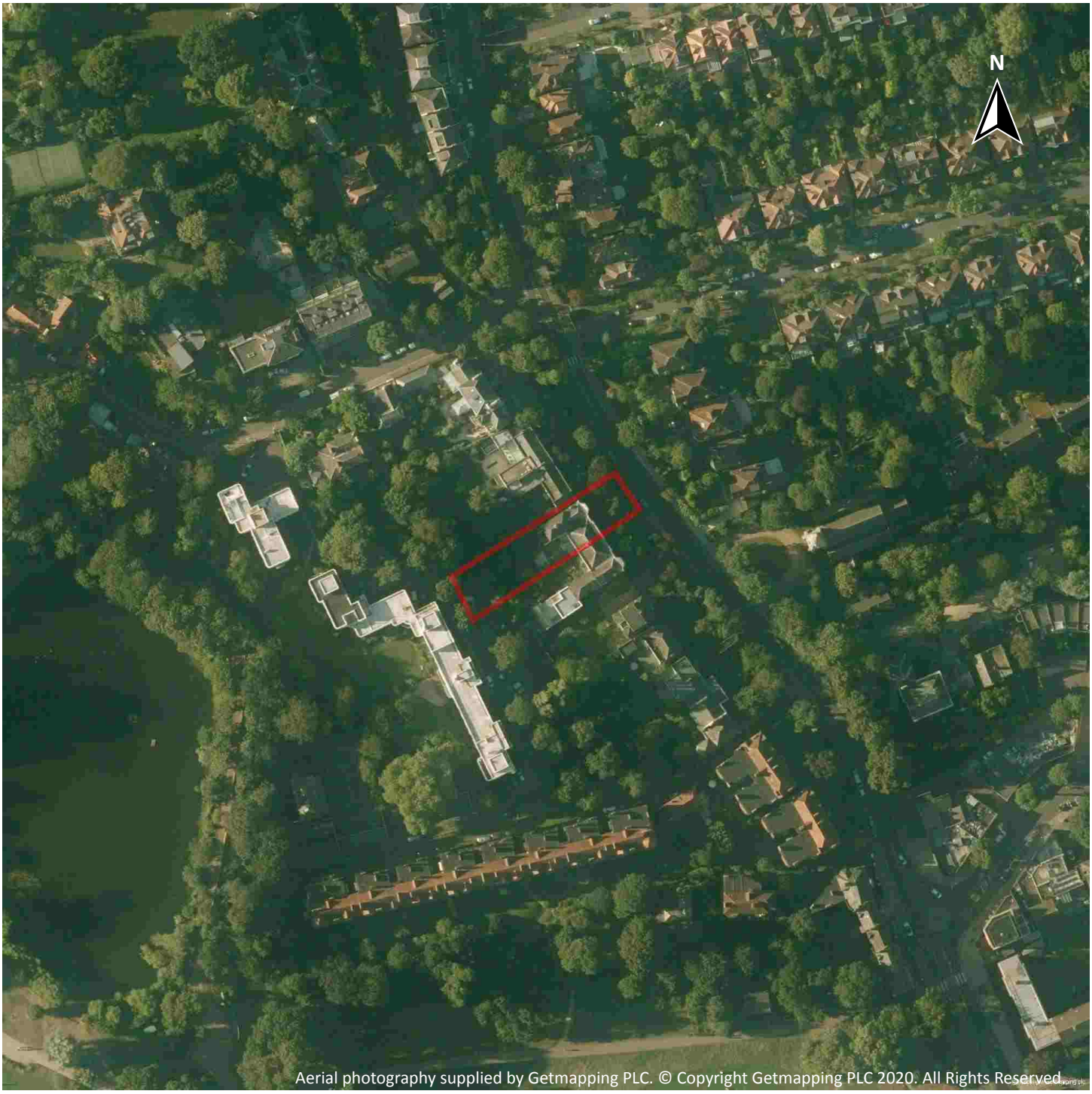
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
91	21.1	Underground railways (London)	0	0	0	-	-
91	21.2	Underground railways (Non-London)	0	0	0	-	-
91	21.3	Railway tunnels	0	0	0	-	-
91	21.4	Historical railway and tunnel features	0	0	0	-	-
91	21.5	Royal Mail tunnels	0	0	0	-	-
92	21.6	Historical railways	0	0	0	-	-
92	21.7	Railways	0	0	0	-	-
92	21.8	Crossrail 1	0	0	0	0	-
92	21.9	Crossrail 2	0	0	0	0	-
92	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 29/06/2019

Site Area: 0.1ha

Recent site history - 2016 aerial photograph



Capture Date: 12/08/2016

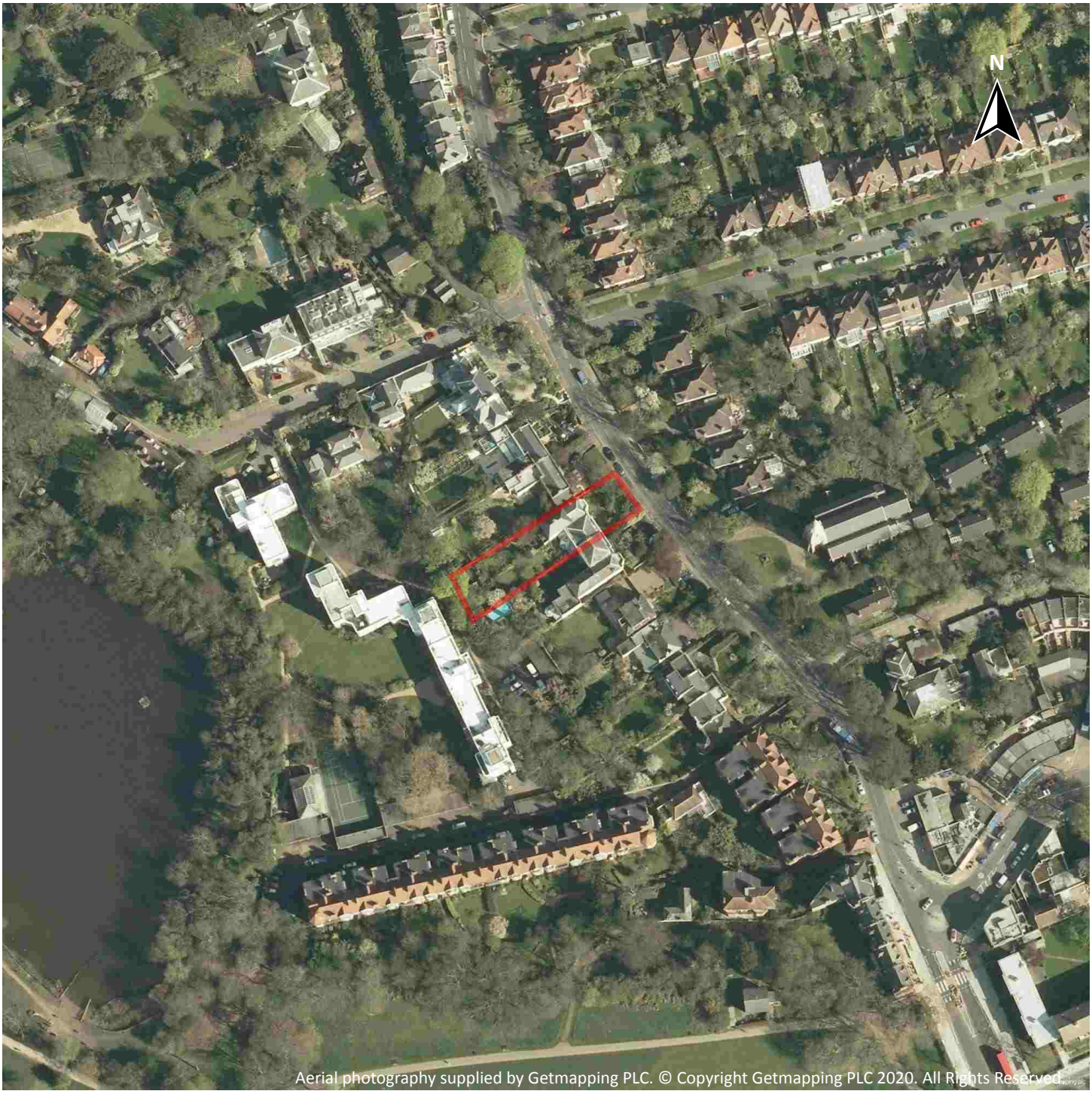
Site Area: 0.1ha

Recent site history - 2014 aerial photograph

Capture Date: 04/05/2014

Site Area: 0.1ha

Recent site history - 2008 aerial photograph



Capture Date: 15/04/2008

Site Area: 0.1ha

Recent site history - 1999 aerial photograph

Capture Date: 04/09/1999

Site Area: 0.1ha

OS MasterMap site plan

Site Area: 0.1ha

1 Past land use

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	20

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	88m E	Unspecified Ground Workings	1949	2133658

ID	Location	Land use	Dates present	Group ID
D	227m N	Unspecified Tank	1894	2154686
2	240m NW	Unspecified Heap	1869	2136552
E	251m W	Bathing Shed	1894	2165382
E	281m W	Boat House	1920 - 1938	2283459
G	367m E	Cemetery	1974 - 1996	2238536
4	372m NE	Unspecified Tank	1869	2154680
G	386m E	Cemetery	1920 - 1949	2193712
G	388m E	Cemetery	1958 - 1965	2281955
G	388m E	Cemetery	1879 - 1894	2179960
G	388m E	Cemetery	1869	2225394
H	409m NE	Cemetery	1920 - 1996	2261094
H	411m NE	Cemetery	1879	2201583
H	411m NE	Cemetery	1869	2288298
H	413m NE	Cemetery	1894	2235187
I	437m N	Nursery	1879	2197280
I	437m N	Nursery	1869	2283506
I	438m N	Nursery	1894	2173239
J	467m NW	Rifle Range	1938	2164794
J	473m NW	Miniature Rifle Range	1920	2158040

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**7**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	69m NW	Unspecified Tank	1896	364744
A	72m NW	Unspecified Tank	1915	364743
B	104m SE	Unspecified Tank	1915	364746
B	104m SE	Unspecified Tank	1936	364745
D	229m N	Unspecified Tank	1896 - 1915	382461
5	432m NE	Unspecified Tank	1951 - 1952	398011
6	457m NW	Unspecified Tank	1870	364759

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**8**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
D	234m N	Electricity Substation	1977 - 1991	279390
F	314m NE	Electricity Substation	1952 - 1968	259425
F	315m NE	Electricity Substation	1951 - 1977	260995
F	323m NE	Electricity Substation	1991	244886
7	461m NW	Electricity Substation	1977 - 1996	262468
K	472m E	Electricity Substation	1951 - 1977	280402
K	473m E	Electricity Substation	1983 - 1991	265814
8	474m SE	Electricity Substation	1975 - 1991	261739

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	4

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
C	157m E	Garage	1968	76028
C	158m E	Garage	1991	80429
C	158m E	Garage	1963	78072
3	307m SE	Garage	1952	73346

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped

2.1 Historical industrial land uses

Records within 500m	32

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	88m E	Unspecified Ground Workings	1949	2133658
D	227m N	Unspecified Tank	1894	2154686
2	240m NW	Unspecified Heap	1869	2136552

ID	Location	Land Use	Date	Group ID
E	251m W	Bathing Shed	1894	2165382
E	281m W	Boat House	1938	2283459
E	286m W	Boat House	1920	2283459
G	367m E	Cemetery	1974	2238536
G	367m E	Cemetery	1996	2238536
4	372m NE	Unspecified Tank	1869	2154680
G	386m E	Cemetery	1920	2193712
G	388m E	Cemetery	1965	2281955
G	388m E	Cemetery	1949	2193712
G	388m E	Cemetery	1958	2281955
G	388m E	Cemetery	1938	2193712
G	388m E	Cemetery	1879	2179960
G	388m E	Cemetery	1869	2225394
G	390m E	Cemetery	1894	2179960
H	409m NE	Cemetery	1920	2261094
H	411m NE	Cemetery	1879	2201583
H	411m NE	Cemetery	1869	2288298
H	413m NE	Cemetery	1894	2235187
H	415m NE	Cemetery	1938	2261094
H	417m NE	Cemetery	1965	2261094
H	417m NE	Cemetery	1974	2261094
H	417m NE	Cemetery	1996	2261094
H	417m NE	Cemetery	1949	2261094
H	417m NE	Cemetery	1958	2261094
J	437m N	Nursery	1869	2283506
J	437m N	Nursery	1879	2197280
J	438m N	Nursery	1894	2173239
L	467m NW	Rifle Range	1938	2164794

ID	Location	Land Use	Date	Group ID
L	473m NW	Miniature Rifle Range	1920	2158040

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**9**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	69m NW	Unspecified Tank	1896	364744
A	72m NW	Unspecified Tank	1915	364743
B	104m SE	Unspecified Tank	1915	364746
B	104m SE	Unspecified Tank	1936	364745
D	229m N	Unspecified Tank	1896	382461
D	232m N	Unspecified Tank	1915	382461
I	432m NE	Unspecified Tank	1952	398011
I	432m NE	Unspecified Tank	1951	398011
5	457m NW	Unspecified Tank	1870	364759

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**19**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
D	234m N	Electricity Substation	1977	279390

ID	Location	Land Use	Date	Group ID
D	235m N	Electricity Substation	1991	279390
F	314m NE	Electricity Substation	1952	259425
F	314m NE	Electricity Substation	1968	259425
F	315m NE	Electricity Substation	1977	260995
F	315m NE	Electricity Substation	1951	260995
F	315m NE	Electricity Substation	1951	260995
F	323m NE	Electricity Substation	1991	244886
K	461m NW	Electricity Substation	1977	262468
K	462m NW	Electricity Substation	1991	262468
K	462m NW	Electricity Substation	1996	262468
M	472m E	Electricity Substation	1952	280402
M	472m E	Electricity Substation	1968	280402
M	473m E	Electricity Substation	1983	265814
M	473m E	Electricity Substation	1991	265814
M	473m E	Electricity Substation	1977	280402
M	473m E	Electricity Substation	1951	280402
N	474m SE	Electricity Substation	1991	261739
N	475m SE	Electricity Substation	1975	261739

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**5**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	157m E	Garage	1968	76028
C	158m E	Garage	1991	80429
C	158m E	Garage	1991	80429
C	158m E	Garage	1963	78072
3	307m SE	Garage	1952	73346

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	4

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 23**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	181m SE	M Simmonds Chemist 4 Swains Lane London N6 6QS	EPR/UE5286WL/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
A	184m SE	4, SWAINS LANE, LONDON, N6 6QS	WEX128770	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	200m SE	M Simmonds Chemist 4 Swains Lane London N6 6QS	EPR/SF0505GS /A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
1	493m SE	Parliament hill school, highgate road london, london, nw5 1rl	WEX127734	Using waste exemption	Not on a farm	Use of waste in construction

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use

4.1 Recent industrial land uses

Records within 250m	2

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Activity	Category
1	193m SE	West Hill House	6a, Swains Lane, London, Greater London, N6 6QS	Business Parks and Industrial Estates	Industrial Features
2	235m N	Electricity Sub Station	Greater London, N6	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	0

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	1

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Details	
3	286m W	Incident Date: 22/07/2004 Incident Identification: 252851 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Algae	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer

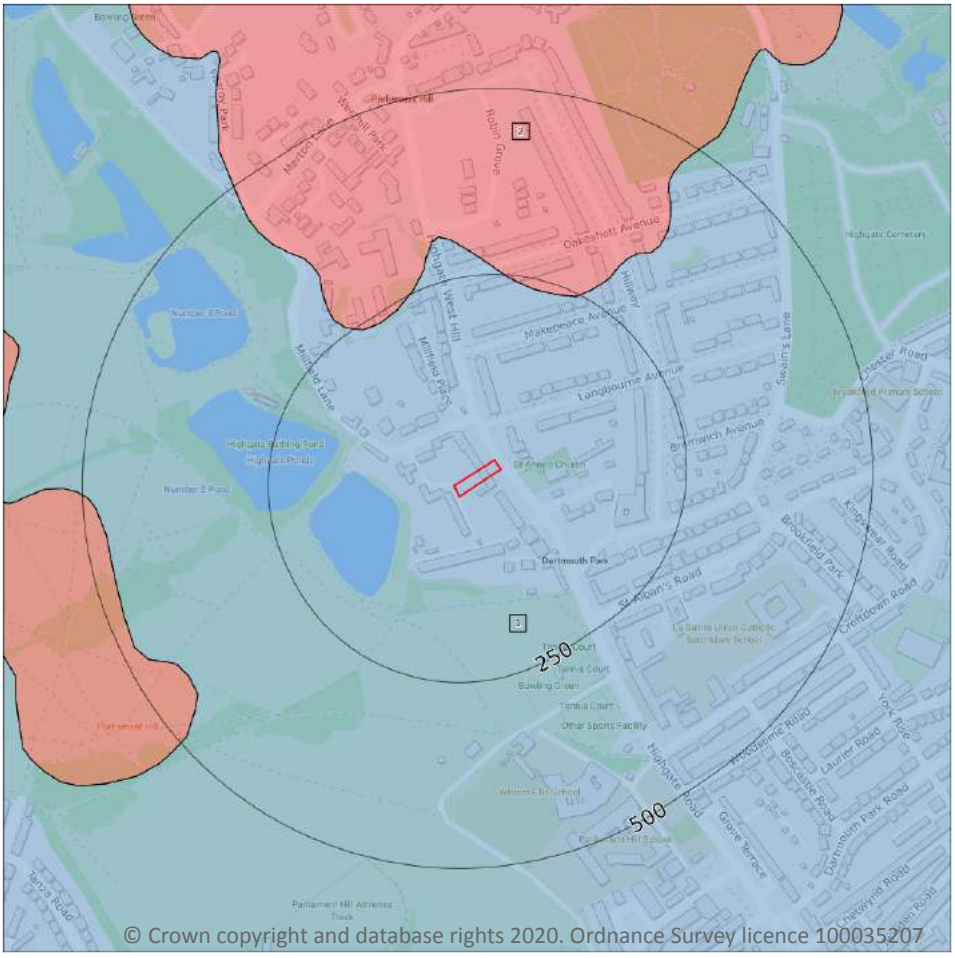
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

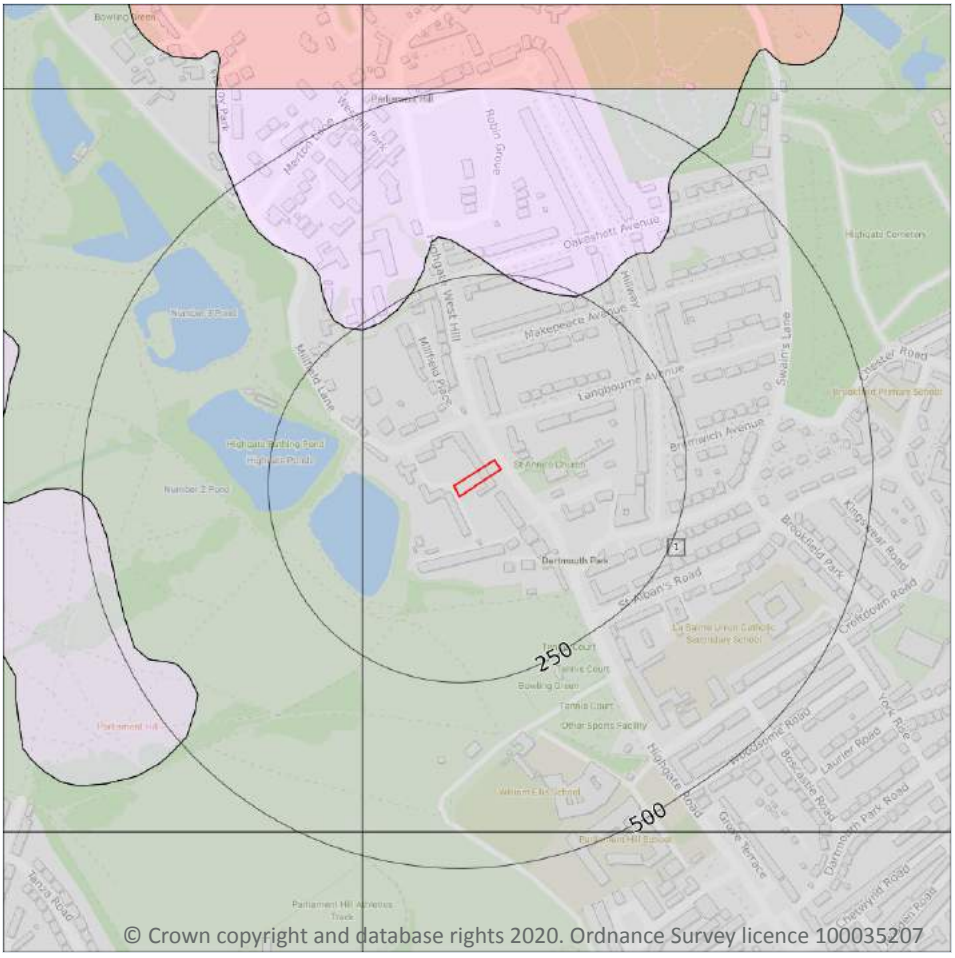
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 33**

ID	Location	Designation	Description
1	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
2	236m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 34**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Unproductive aquifer (may have productive aquifer beneath) Combined classification: Unproductive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: 40-70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Unproductive Aquifer type: Unproductive Flow mechanism: Mixed**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	5

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 36**

ID	Location	Details	
-	1874m S	Status: Historical Licence No: 28/39/39/0091 Details: Laundry Use Direct Source: THAMES GROUNDWATER Point: TWO BORES AT KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LTD Easting: 528800 Northing: 184700	Annual Volume (m^3): 94506 Max Daily Volume (m^3): 1813.8 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/04/2012 Version End Date: -
-	1874m S	Status: Historical Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: TWO BORES AT KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LTD Easting: 528800 Northing: 184700	Annual Volume (m^3): 94506 Max Daily Volume (m^3): 1813.8 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/04/2012 Version End Date: -
-	1874m S	Status: Historical Licence No: 28/39/39/0091 Details: Process Water Direct Source: THAMES GROUNDWATER Point: TWO BORES AT KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LTD Easting: 528800 Northing: 184700	Annual Volume (m^3): 94506 Max Daily Volume (m^3): 1813.8 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/04/2012 Version End Date: -
-	1874m S	Status: Active Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LIMITED Easting: 528800 Northing: 184700	Annual Volume (m^3): 17,997 Max Daily Volume (m^3): 604.60 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/05/2012 Version End Date: -

ID	Location	Details	
-	1874m S	Status: Active Licence No: 28/39/39/0091 Details: Process Water Direct Source: THAMES GROUNDWATER Point: KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LIMITED Easting: 528800 Northing: 184700	Annual Volume (m^3): 17,997 Max Daily Volume (m^3): 604.60 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/05/2012 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**0**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	**2**

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 36**

ID	Location	Details	
-	1874m S	Status: Historical Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: TWO BORES AT KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LTD Easting: 528800 Northing: 184700	Annual Volume (m^3): 94506 Max Daily Volume (m^3): 1813.8 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/04/2012 Version End Date: -

ID	Location	Details	
-	1874m S	Status: Active Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: KENTISH TOWN SPORTS CENTRE, PRINCE OF WALES ST Data Type: Point Name: GREENWICH LEISURE LIMITED Easting: 528800 Northing: 184700	Annual Volume (m^3): 17,997 Max Daily Volume (m^3): 604.60 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/05/2012 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	3

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 40**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	141m W	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	Highgate Ponds

ID	Location	Type of water feature	Ground level	Permanence	Name
2	160m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Highgate Ponds
B	183m W	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	Highgate Ponds

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**2**

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 40**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 40**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**128**	**Land area part of London Management Catchment draining to the Tidal Thames**	**London**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	0

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	0

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding

8.1 Surface water flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding

Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

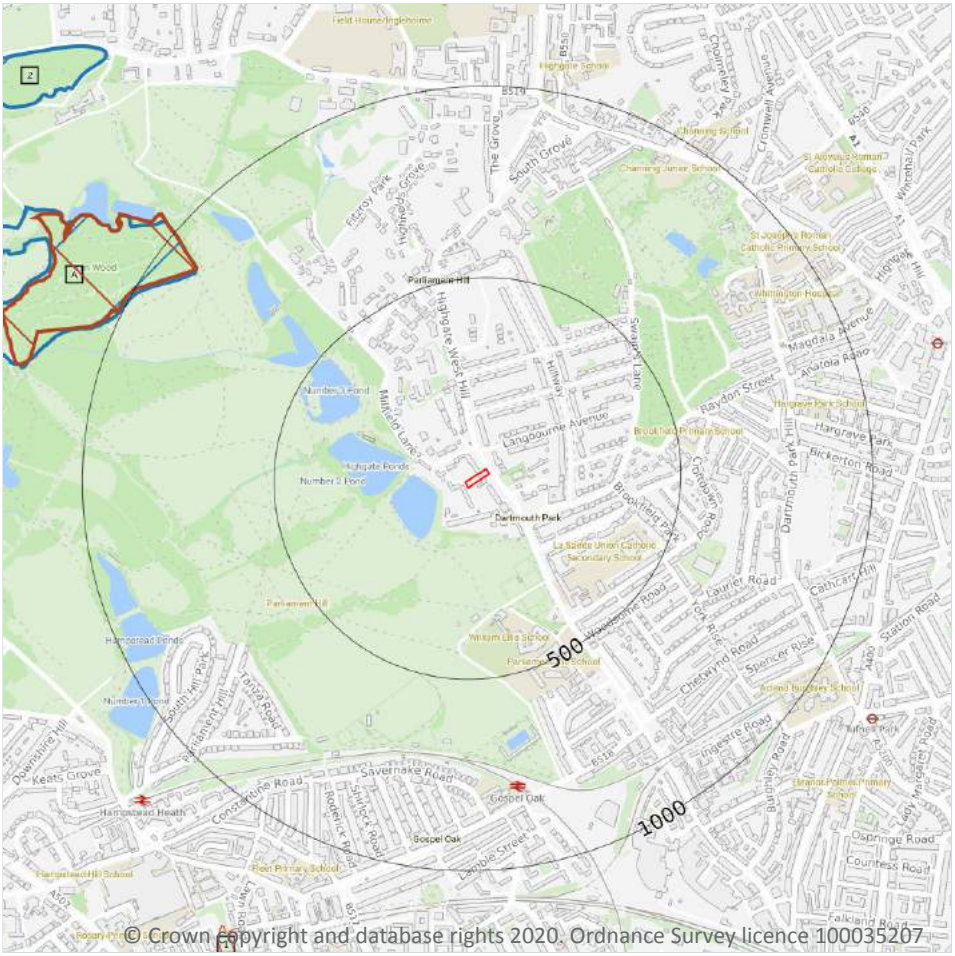
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 47**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Local Nature Reserves (LNR)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	**2**

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 48**

ID	Location	Name	Data source
A	893m NW	Hampstead Heath Woods	Natural England

ID	Location	Name	Data source
2	1452m NW	Hampstead Heath Woods	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	3

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 48**

ID	Location	Name	Data source
1	1298m SW	Belsize Wood	Natural England
-	1602m NE	Parkland Walk	Natural England
-	1869m N	Queen's Wood	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	5

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 48**

ID	Location	Name	Woodland Type
A	897m NW	KEN WOOD	Ancient & Semi-Natural Woodland
-	1681m NW	BISHOPS WOOD	Ancient & Semi-Natural Woodland
-	1767m N	QUEENS WOOD	Ancient & Semi-Natural Woodland
-	1869m N	QUEENS WOOD	Ancient & Semi-Natural Woodland
-	1979m NW	Unknown	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

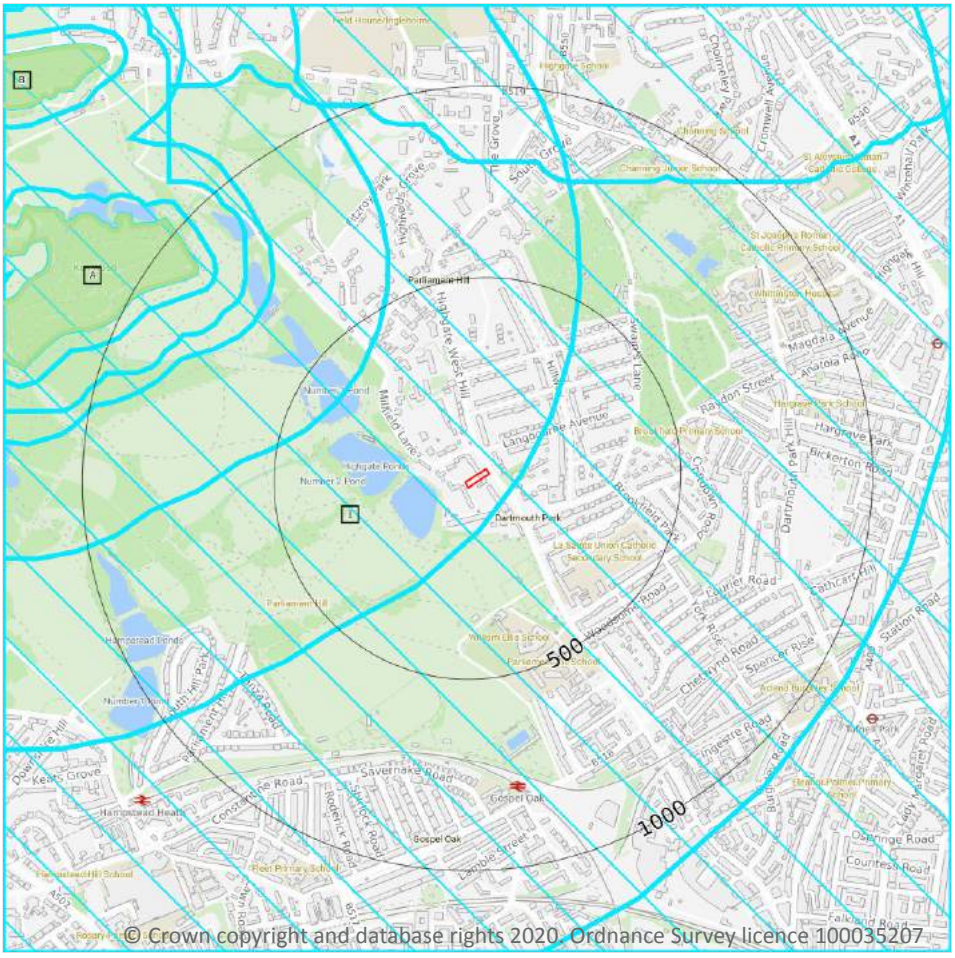
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

Not recorded

Favourable

Unfavourable - Recovering

Unfavourable - No change

Unfavourable - Declining

Partially destroyed

Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 53**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**3**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 53**

ID: A
Location: 893m NW
SSSI name: Hampstead Heath Woods
Unit name: 2
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	18/05/2018

ID: 13
Location: 1298m NW
SSSI name: Hampstead Heath Woods
Unit name: 1
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Favourable
Reportable features:

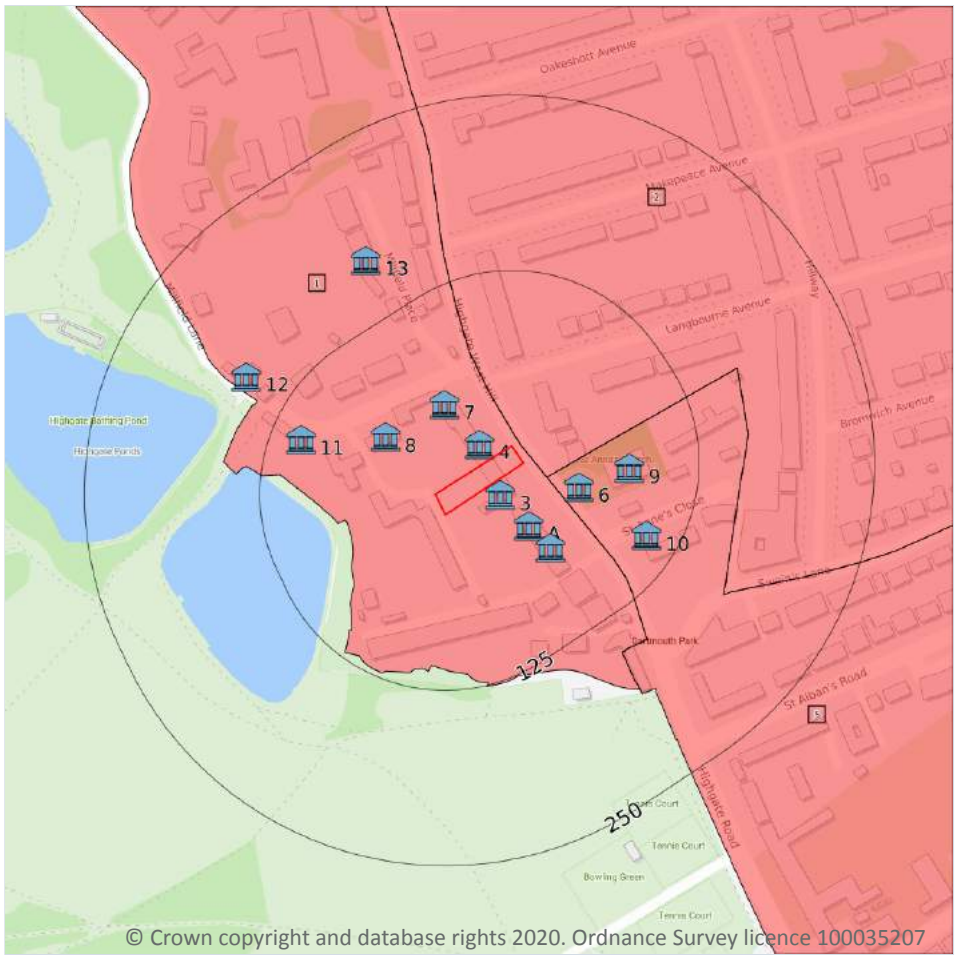
Feature name	Feature condition	Date of assessment
Spring/flush fen (lowland)	Favourable	18/05/2018

ID: B
Location: 1452m NW
SSSI name: Hampstead Heath Woods
Unit name: 2
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	18/05/2018

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	12

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 56**

ID	Location	Name	Grade	Reference Number	Listed date
3	10m SE	10 And 11, Highgate West Hill, Camden, London, N6	II	1379022	14/05/1974
4	13m NW	12 And 13, Highgate West Hill, Camden, London, N6	II	1379024	14/05/1974
A	39m SE	8, Highgate West Hill, Camden, London, N6	II	1379021	14/05/1974
6	43m SE	War Memorial At The Church Of St Anne, Camden, London, N6	II	1431821	05/01/2016
7	50m NW	14, Highgate West Hill, Camden, London, N6	II	1379025	14/05/1974

ID	Location	Name	Grade	Reference Number	Listed date
8	54m NW	5, Millfield Lane, Camden, London, N6	II	1322112	14/05/1974
A	61m SE	6 And 7, Highgate West Hill, Camden, London, N6	II	1379020	14/05/1974
9	76m E	Church Of St Anne, Camden, London, N6	II	1379061	10/06/1954
10	102m SE	107-108, Highgate West Hill, Camden, London, N6	II	1379059	14/05/1974
11	103m W	Millfield Cottage, Camden, London, N6	II	1322114	14/05/1974
12	159m NW	Kenwood Cottage, Camden, London, N6	II	1322113	14/05/1974
13	167m NW	The White House, Camden, London, N6	II	1322115	14/05/1974

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	**3**

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

Features are displayed on the Visual and cultural designations map on **page 56**

ID	Location	Name	District	Date of designation
1	**On site**	**Highgate Village**	**Camden**	**01/05/1968**
2	6m NE	Holly Lodge Estate	Camden	01/06/1992
5	20m SE	Dartmouth Park	Camden	01/04/1978

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	**0**

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

12 Agricultural designations

Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 60**

ID	Location	Classification	Description
1	**On site**	**Non Agricultural**	-
2	**On site**	**Urban**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.

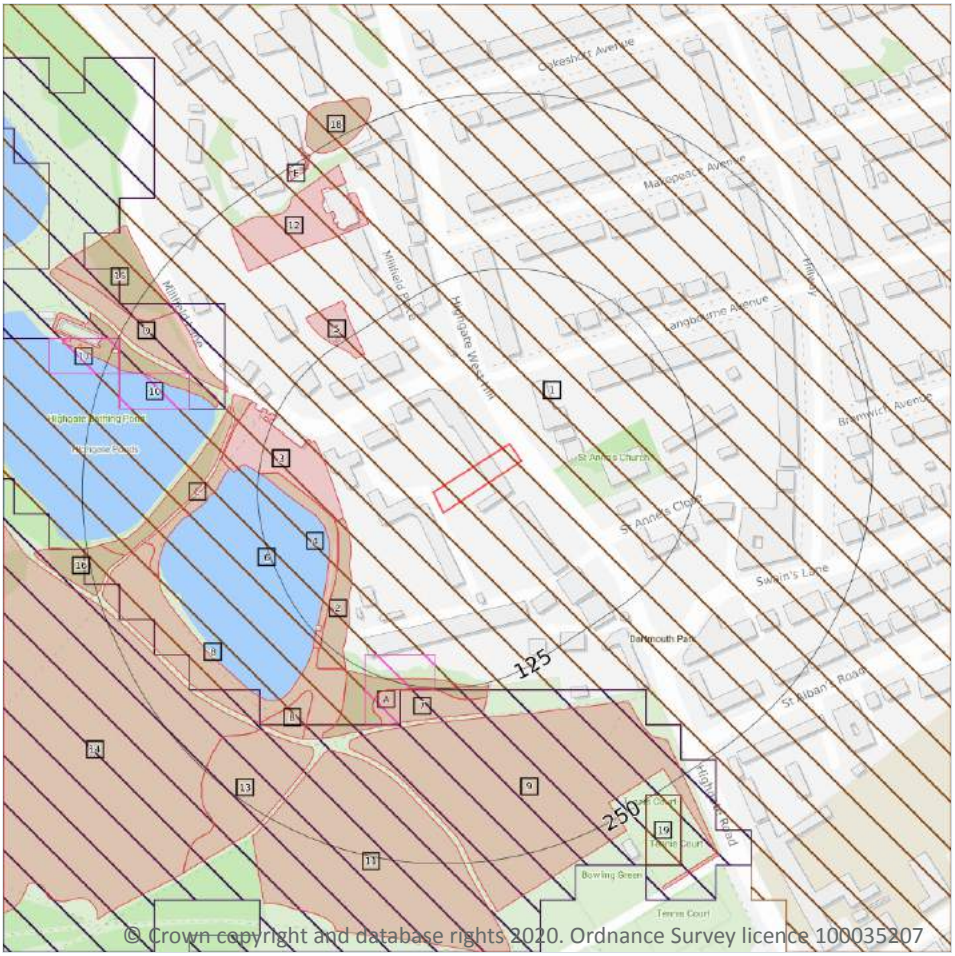
12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	23

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 62**

ID	Location	Main Habitat	Other habitats
2	66m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
3	67m W	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
4	73m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)

ID	Location	Main Habitat	Other habitats
5	109m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	119m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
6	125m W	Good quality semi-improved grassland	Main habitat: GQSIG (INV > 50%)
7	126m S	Good quality semi-improved grassland	Main habitat: GQSIG (INV > 50%)
8	131m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
C	144m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
9	148m S	Lowland heathland	Main habitat: LHEAT (INV > 50%); GQSIG (INV > 50%)
C	152m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
B	158m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
D	163m NW	Lowland heathland	Main habitat: LHEAT (INV > 50%); GQSIG (INV > 50%)
D	166m W	Good quality semi-improved grassland	Main habitat: GQSIG (INV > 50%)
11	185m S	Lowland heathland	Main habitat: LHEAT (INV > 50%); GQSIG (INV > 50%)
12	186m NW	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%)
13	192m SW	Lowland heathland	Main habitat: LHEAT (INV > 50%); GQSIG (INV > 50%)
14	202m SW	Lowland heathland	Main habitat: LHEAT (INV > 50%); GQSIG (INV > 50%)
15	224m NW	Deciduous woodland	Main habitat: LHEAT (INV > 50%); DWOOD (INV > 50%); GQSIG (INV > 50%)
16	225m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)
E	242m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
E	243m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
18	243m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	**6**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 62**

ID	Location	Type	Habitat
1	**On site**	**Network Enhancement Zone 2**	**Not specified**
A	101m S	Associated Habitats	Other associated habitats
B	126m S	Primary Habitat	Lowland heathland
10	184m W	Associated Habitats	Other associated habitats
17	239m W	Associated Habitats	Other associated habitats
19	247m SE	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

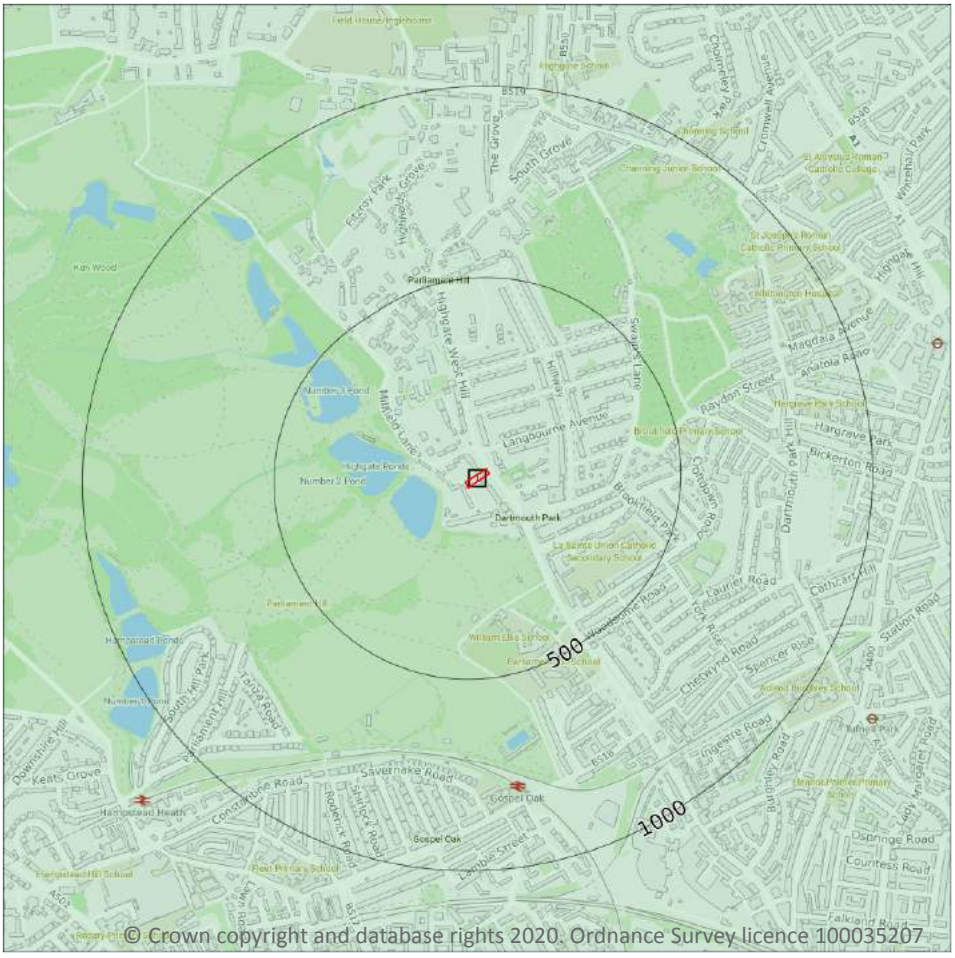
13.4 Limestone Pavement Orders

Records within 250m	**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

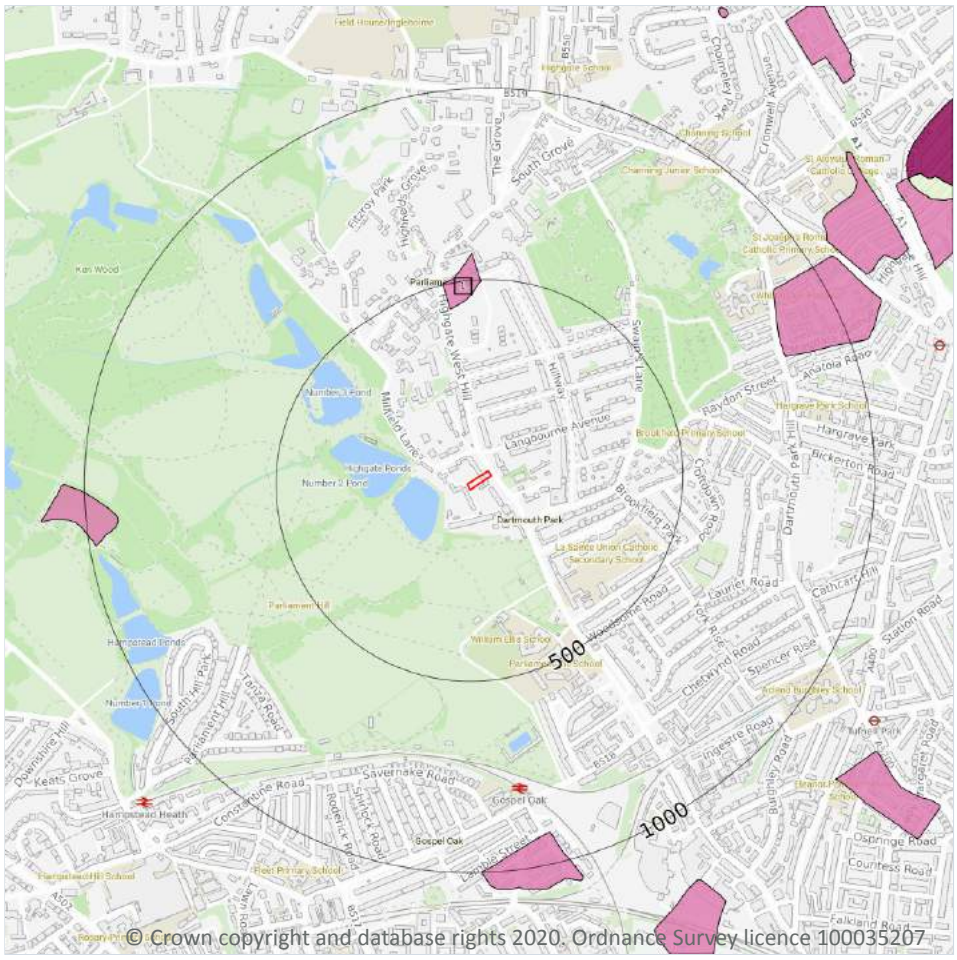
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 65**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ28NE**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



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Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	1

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 66**

ID	Location	LEX Code	Description	Rock description
1	434m N	WGR-UKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

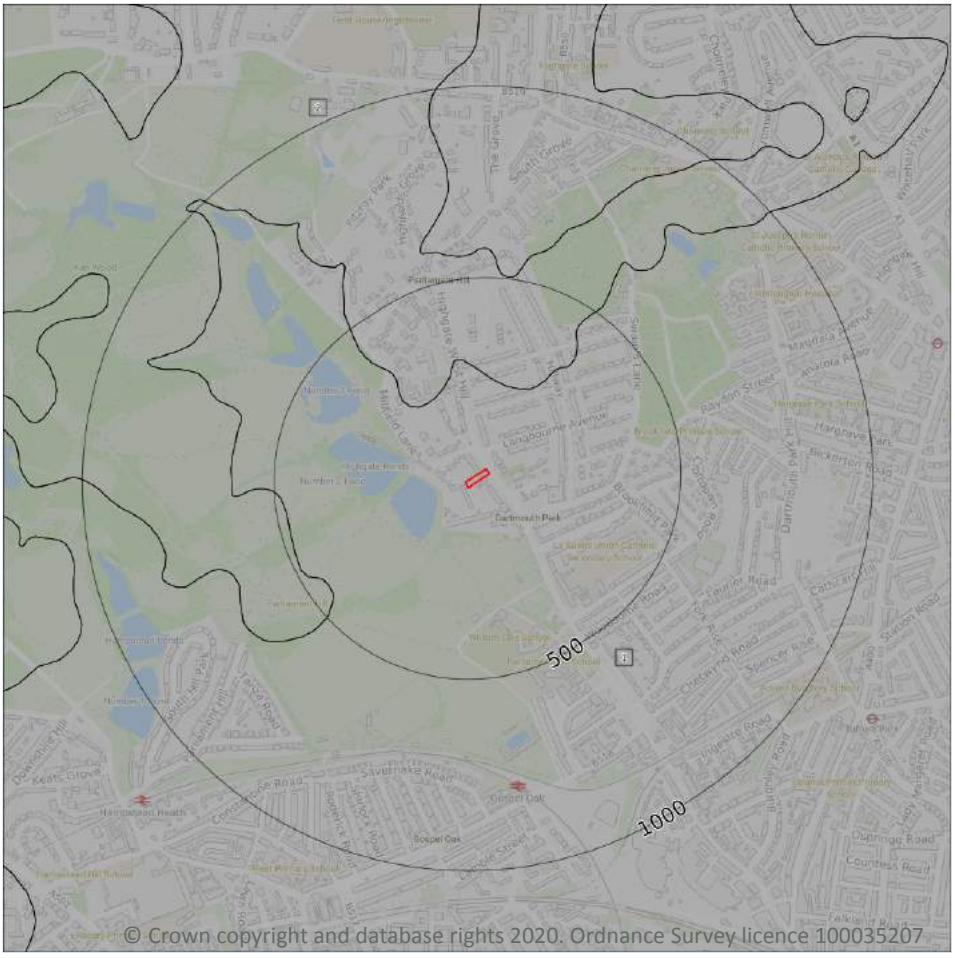
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	2

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 68**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-CLAY**	**London Clay Formation - Clay**	**Eocene Epoch**
2	223m N	CLGB-SDST	Claygate Member - Sandstone	Eocene Epoch

This data is sourced from the British Geological Survey.

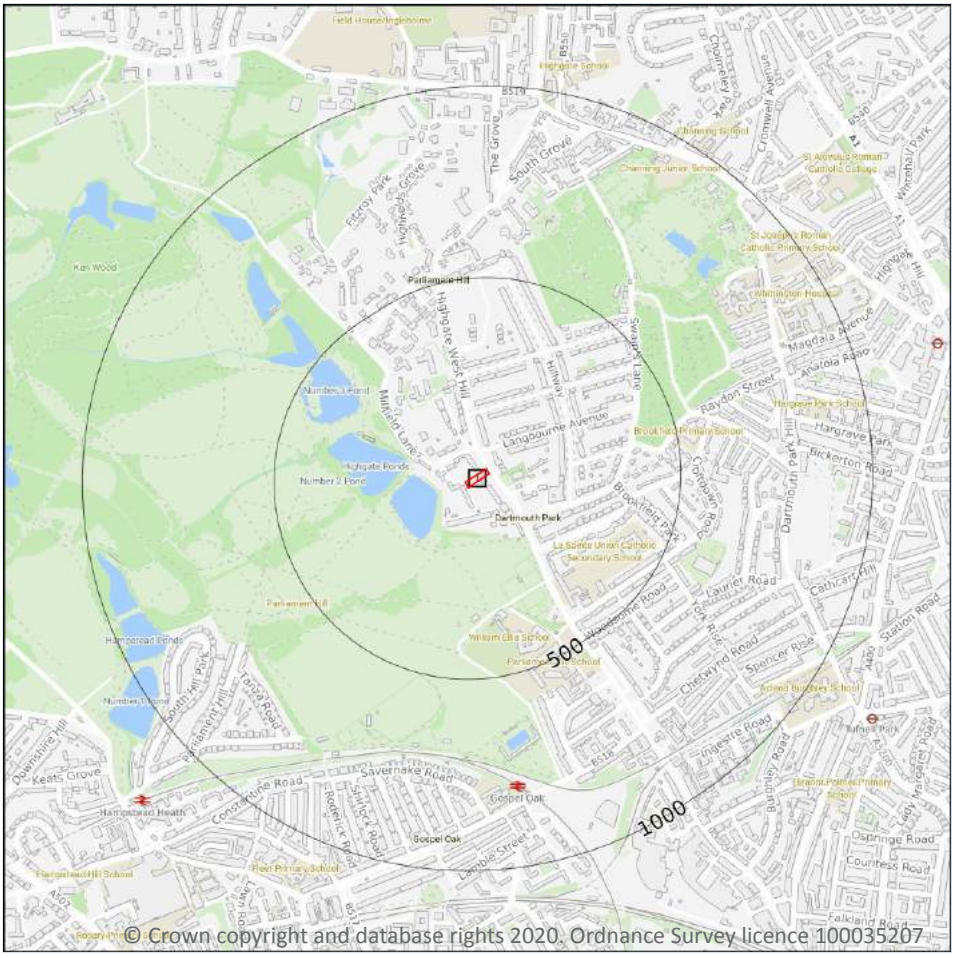
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

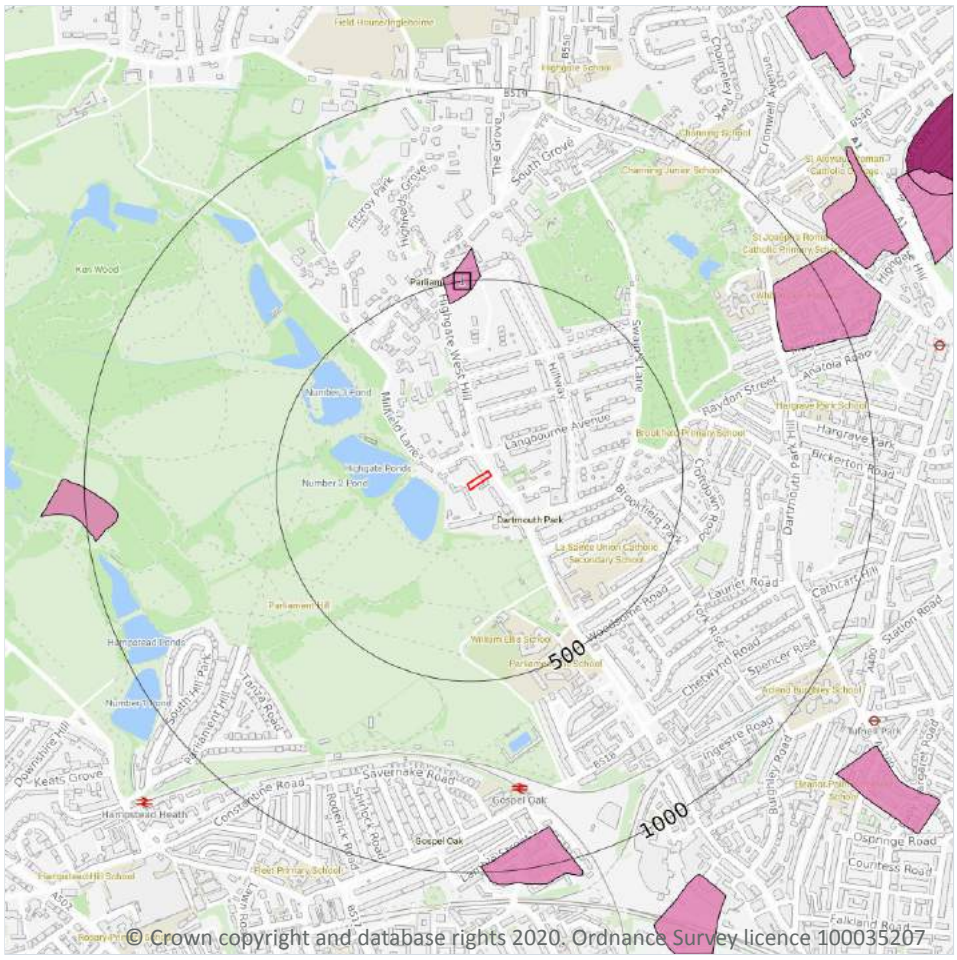
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 70**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW256_north_london_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	1

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 71**

ID	Location	LEX Code	Description	Rock description
1	447m N	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

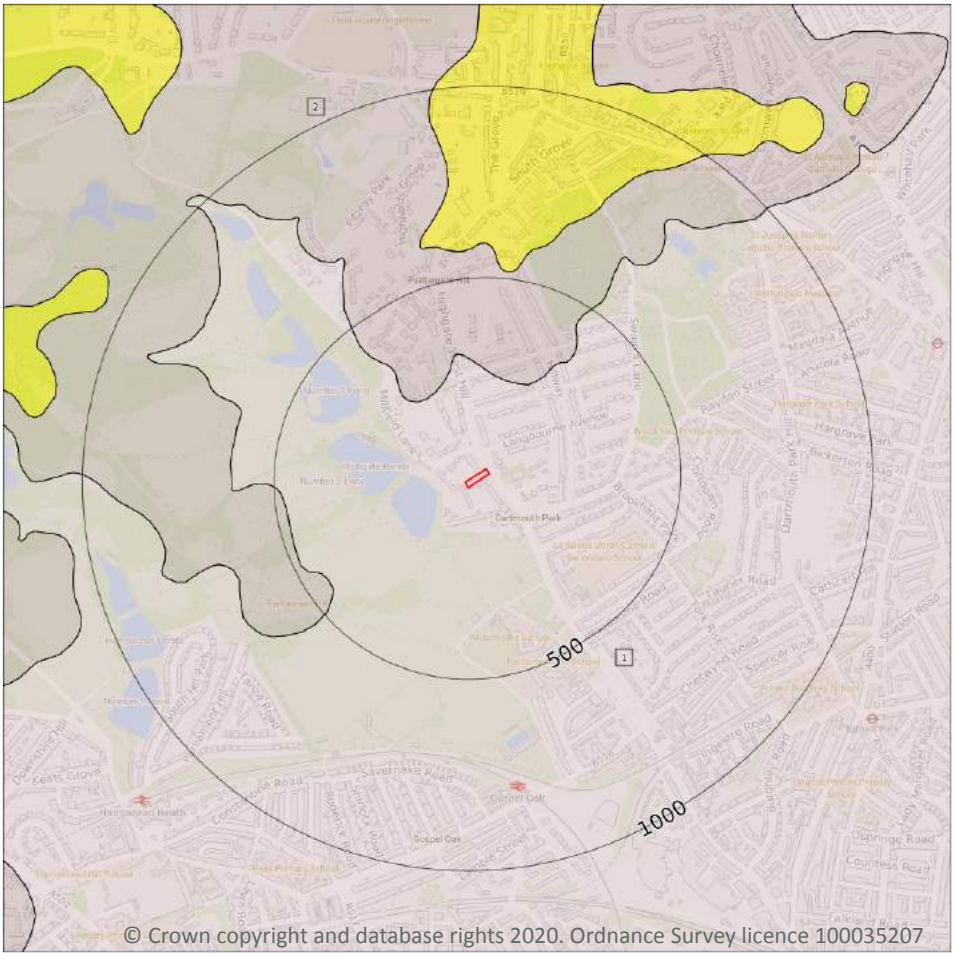
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m **2**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 74**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-XCZS**	**LONDON CLAY FORMATION - CLAY, SILT AND SAND**	**YPRESIAN**
2	236m N	CLGB-XCZS	CLAYGATE MEMBER - CLAY, SILT AND SAND	YPRESIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Moderate**	**Very Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

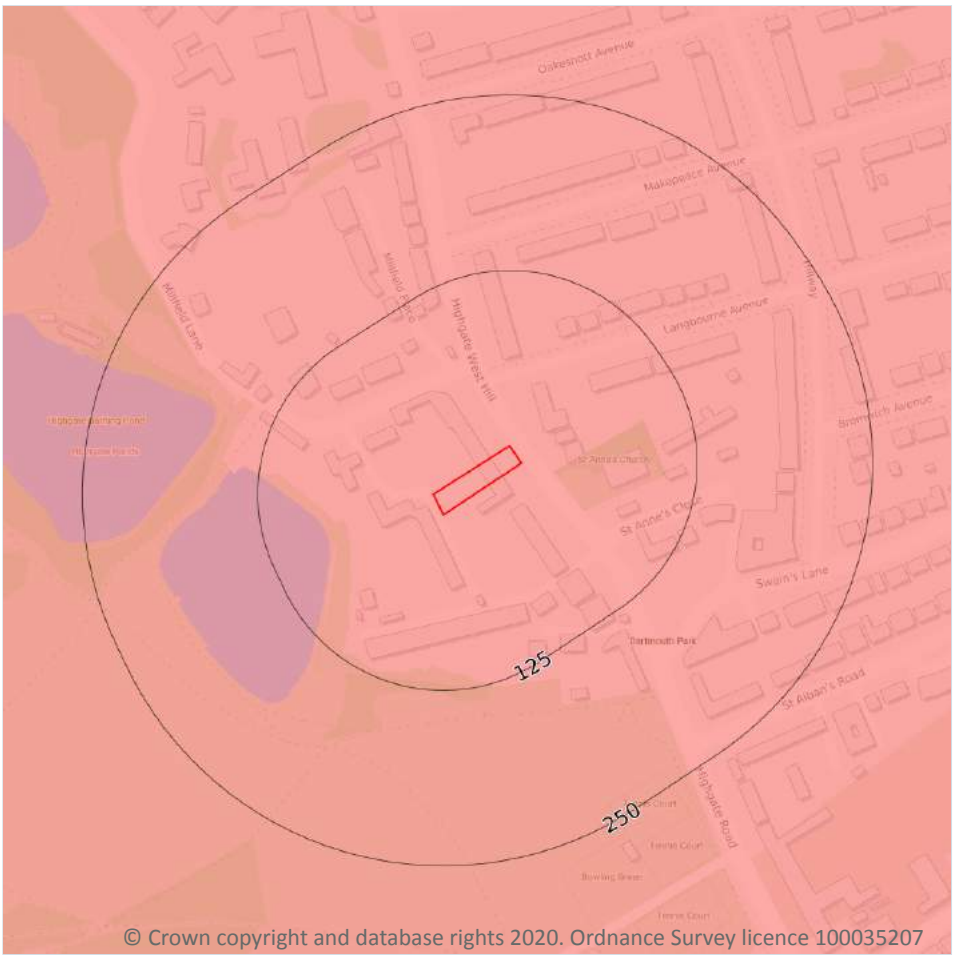
16.1 BGS Boreholes

Records within 250m	0

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

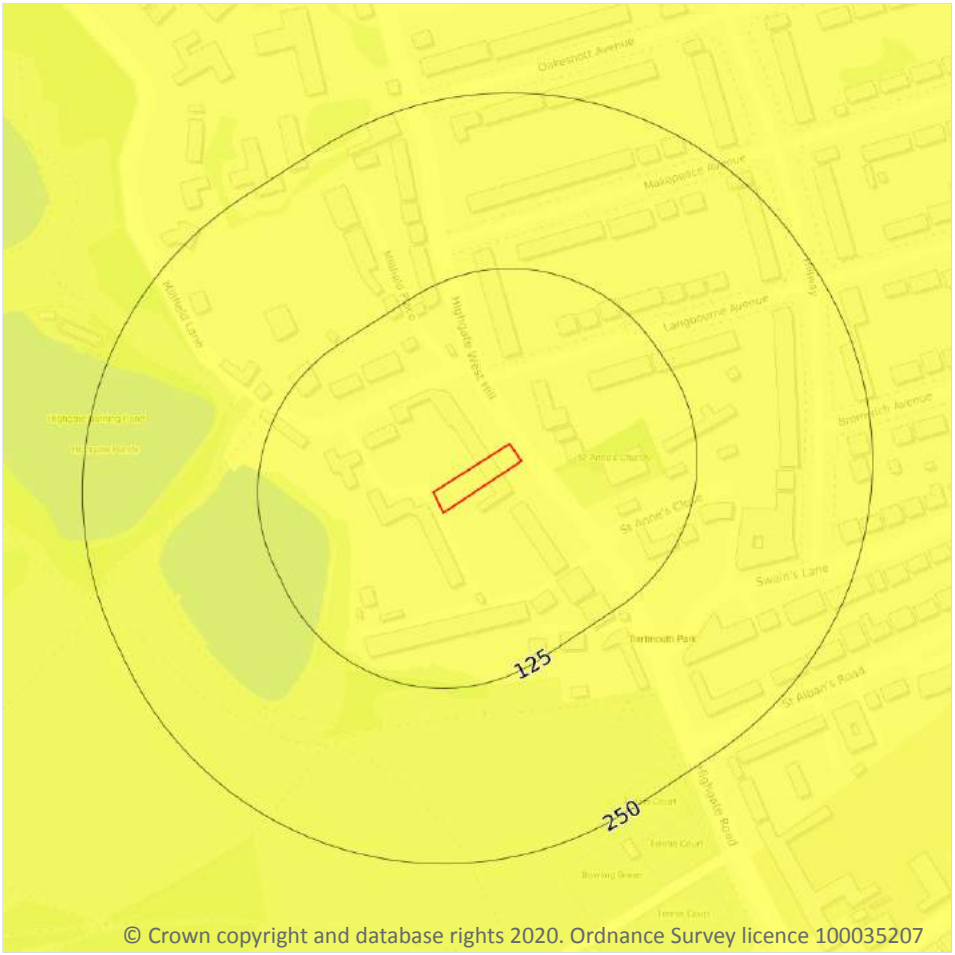
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 77**

Location	Hazard rating	Details
On site	**Moderate**	**Ground conditions predominantly high plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 78**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

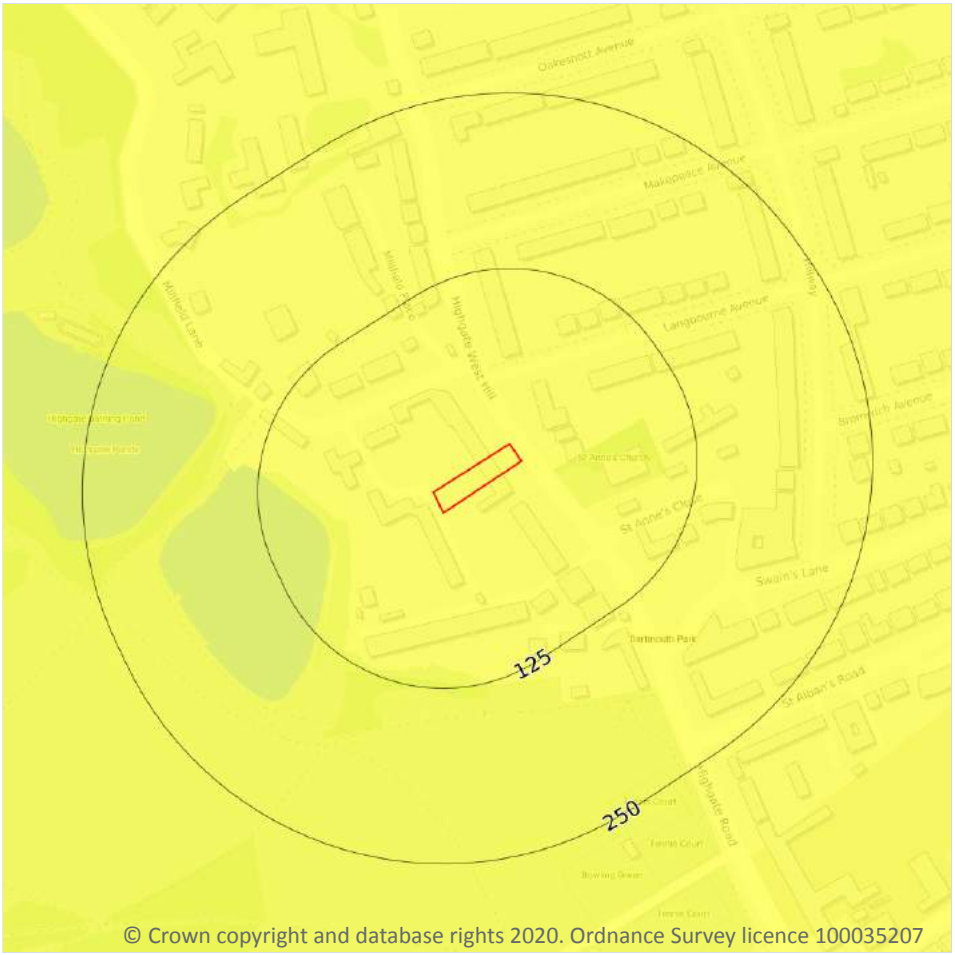
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 79**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

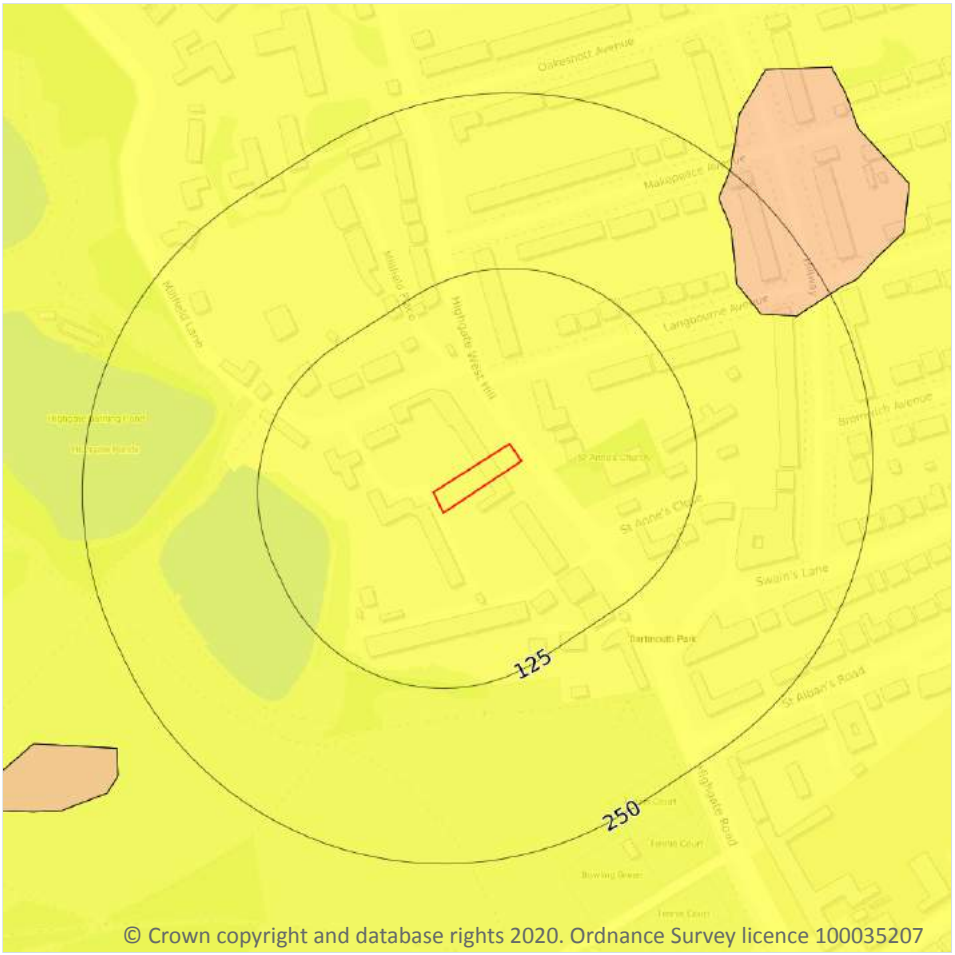
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 80**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 81**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 82**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities

Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Peter Brett Associates (PBA).

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	16

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 83**

ID	Location	Land Use	Year of mapping	Mapping scale
A	77m SW	Ponds	1869	1:10560
A	77m SW	Ponds	1879	1:10560
A	80m W	Pond	1894	1:10560
B	80m W	Ponds	1938	1:10560
B	81m W	Ponds	1965	1:10560
B	81m W	Ponds	1974	1:10000
B	81m W	Ponds	1996	1:10000
B	81m W	Ponds	1958	1:10560
B	85m W	Ponds	1949	1:10560
1	88m E	Unspecified Ground Workings	1949	1:10560
A	88m W	Ponds	1920	1:10560
C	159m W	Ponds	1869	1:10560
C	159m W	Ponds	1879	1:10560
C	165m W	Ponds	1894	1:10560
2	172m W	Ponds	1920	1:10560
3	240m NW	Unspecified Heap	1869	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	6

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 83**

ID	Location	Land Use	Year of mapping	Mapping scale
-	882m SE	Tunnel	1965	1:10560
-	882m SE	Tunnel	1974	1:10000
-	882m SE	Tunnel	1958	1:10560
-	896m SE	Tunnel	1965	1:10560
-	896m SE	Tunnel	1974	1:10000
-	896m SE	Tunnel	1958	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

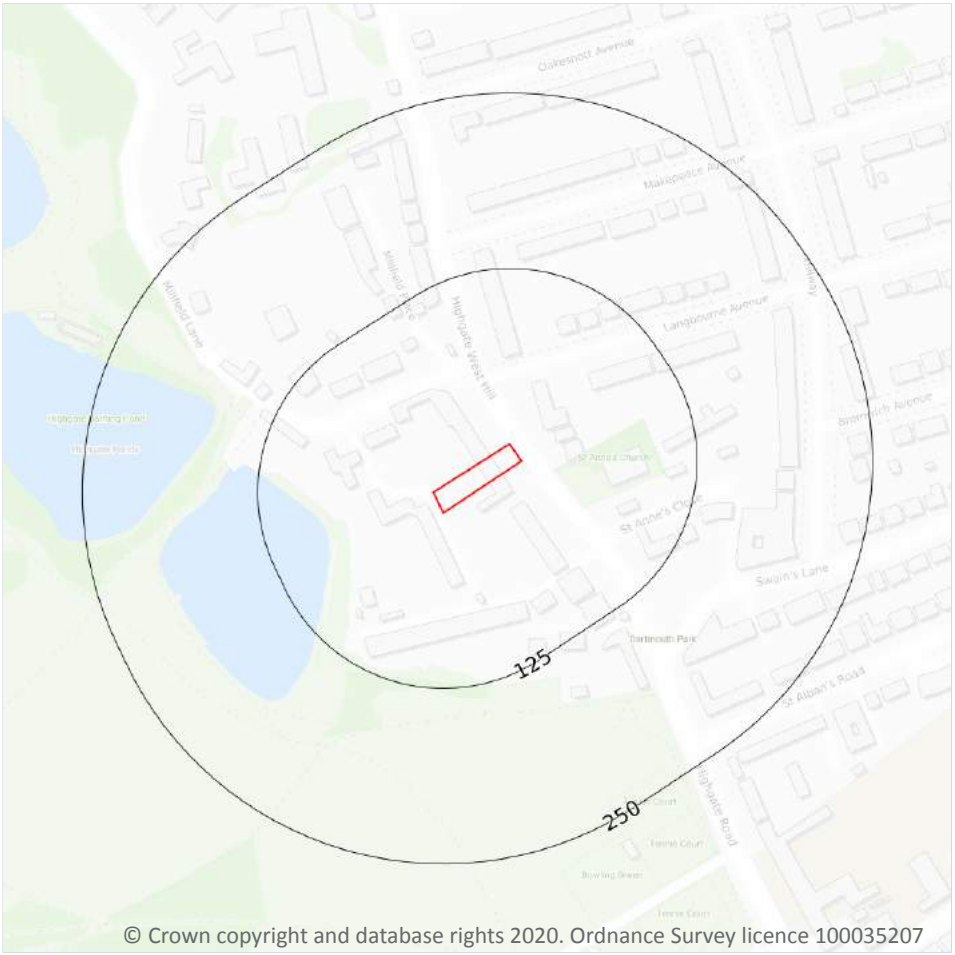
18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 88**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	6

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**15**	**2.6**	**208**	**143**	**0.4**	**95**	**55**	**22**	**19**
On site	**15**	**2.6**	**210**	**144**	**0.4**	**101**	**54**	**22**	**20**
14m E	15	2.6	210	144	0.5	92	53	23	19
18m NE	16	2.8	198	136	0.4	100	53	23	21
24m W	15	2.6	213	146	0.4	97	55	22	20
42m NW	15	2.6	214	147	0.4	100	55	22	20

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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