

# 11 Highgate West Hill

# Basement Impact Assessment –

# Land Stability

# September 2020

Myles Payne 68-72 Redchurch Street London E2 7DP

**Draft Report** 

Report No. 60517

### **Document Verification**

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### 1 Introduction

Ground and Project Consultants Ltd (GPCL) has been instructed by Myles Payne to undertake a Basement Impact Assessment in regard to land stability for 11 Highgate West Hill, London. The proposals for the site comprise the demolition of the existing conservatory to the rear of the property and construction of a ground floor extension and basement beneath this extended area. In addition, the existing stairwell and the cellar beneath the front end of the existing property is proposed to be deepened by 0.6m.

The scope of this report and approach are as follows:

- A review of the data supplied by the Client, including the existing and proposed drawings produced to date and other freely available data such as BGS geological information and environmental data.
- Following the methodology set out in the London Borough of Camden guidance, CPG4:
  - An assessment of the published and encountered geology.
  - Screening of the information to identify any geological, hydrological or hydrogeological risks.
  - Scoping to identify the potential impacts.
  - Interpretation of the ground investigation.
  - Land stability impact assessment.

This report and the work to support it, have been carried out by Jon Smithson who is a Director of Ground and Project Consultants Ltd and is a Chartered Geologist (CGeol) with over 35 years' experience.



### 2 Site Information

The information on the site and surrounding area has been obtained from freely available sources included in the references in Section 5. Where appropriate, figures and tables have been provided throughout the report for ease of assessment.

#### 2.1 Site Location

The site is located at 11 Highgate West Hill, London, N6 6JR. The site is in the London Borough of Camden. The National Grid Reference for the site is 528155 186475. The site is approximately 825m to the north of Gospel Oak station. The location of the site is indicated on Figure 1 below.



Figure 1: Site Location (Ordnance Survey Data © Crown copyright and database right 2020)

#### 2.2 Proposals

The proposals for the site comprise removal of the existing conservatory and construction of a ground floor and basement extension. The proposed finished floor level of the basement is at 3.2m bgl to the rear of the property and deepening the existing stairwell and cellar to the front of the property to 2.8m bgl.

The basement extension to the rear of the property is to house a WC, shower room and sauna. The stairwell area is proposed to house the water system including boiler and hot water cylinder. It is understood that most of the walls are being underpinned in two phases with three levels of horizontal propping down to raft level.

#### 2.3 Site Description and Topography

The site is currently a two-storey semi-detached property with front and rear garden. The proposed basement site is currently occupied by the conservatory and patio of 11 Highgate West Hill, comprising predominantly hardstanding.

A basement/ cellar already exists to the front of the property with its floor level at around 2.2m bgl.

Trees are present on the site, towards the front and rear of the property. No trees are underneath the footprint of the proposed basement. It is not known if any Tree Preservation Orders are applicable to the site, however, the site is in a conservation area and therefore the council must be notified of any work to trees.

The site is bound by Highgate West Hill to the east of the site, the attached No. 10 Highgate West Hill property to the south, West Hill Court apartments to the west and No. 12 Highgate West Hill property to the north. No 11a is part of the property being the north-western limb of the building. Hampstead Heath is located 75m to the west of the site.

No underground railways are anticipated beneath the site. The closest underground line is the northern line located over 1 kilometre to the southeast of the site.

A Thames water sewer crosses beneath the building. The basement extension has been designed to avoid this.

The Ordnance Survey drawing indicates the site is at approximately 65m AOD. The site is elevated from the road with a retaining wall at the site boundary, approximately 1m in height. The front garden slopes gently to the east. The rear garden appears relatively flat. The wider area slopes gently to the southeast at less than 3 degrees.

#### 2.4 Geology

The available geological maps indicate the site is underlain by the London Clay Formation with no overlying superficial deposits. The propensity for Head is indicated on the BGS map beneath the site. The London Clay Formation typically comprises stiff silty clay. Head is described as poorly sorted and poorly stratified, clayey hillwash and soil creep. The geological plan is included below.



Figure 2: Drift and Bedrock Geology (BGS copyright and database rights 2020)

There are no BGS boreholes in proximity of the site.

The site is not in a radon risk zone, with less than 1% of properties above the action level.

#### 2.5 Hydrology and Hydrogeology

The closest surface watercourse the Hampstead Heath Highgate No. 1 pond located 75m to the west of the site and 120m to the west of the proposed basement. The site is not in a flood risk area. Figure 11 from the Arup study which is an adaptation of the 'Lost Rivers of London' map, suggests that a tributary of the River Fleet flows approximately 150m to the southwest, flowing out of Highgate No. 1 Pond to the southeast.

The London Clay Formation is an unproductive aquifer. Shallow groundwater is not anticipated.

#### 2.6 Site History

The Groundsure historical maps show that the site and neighbouring properties were developed since before the first available maps in 1871. Residential properties to the east and west of the



site were developed between 1912 and 1936. The historical maps are included in the Appendices.

#### 2.7 Planning Records

The only recorded planning applications for the site are for the current proposals.

No other planning applications are relevant to the site.



# 3 Land Stability Screening and Scoping

The purpose of the screening stage is to identify any matters of concern via key questions in the CPG4 report and the scoping stage identifies the potential impacts of these.

Impact Question	Answer and Justification	Impact and Action
	(Screening)	(Scoping)
Question 1: Does the existing site	No. The ground surface within the	None
include slopes, natural or	development area is relatively level.	
manmade, greater than 7		
degrees?		
Question 2: Will the proposed re-	No.	None
profiling of landscaping at site		
change slopes at the property		
boundary to more than 7		
degrees?		
Question 3: Does the	No. The wider area slopes	None
development neighbour land,	approximately 3 degrees.	
including railway cuttings and the		
like, with a slope greater than 7		
degrees?		
Question 4: Is the site within a	No.	None
wider hillside setting in which the		
general slope is greater than 7		
degrees?		
Question 5: Is the London Clay	Yes	The London Clay Formation can
the shallowest strata at the site?		have a high plasticity.
Question 6: Will any tree/s be	Unknown. No trees are beneath the	Damage to any trees and their roots
felled as part of the proposed	footprint of the proposed basement.	with TPOs or in a conservation area
development and/or are any	However, trees are present on the	should be avoided. A tree survey is
works proposed within any tree	site and are in a conservation area.	recommended. Construction
protection zones where trees are		techniques and processes will need
to be retained?		to avoid damage to tree roots.
Question 7: Is there a history of	No. None recorded.	A ground investigation should be
seasonal shrink-swell subsidence		carried out to determine the ground
in the local area, and/or evidence		conditions. Atterberg tests should
of such effects at the site?		be carried out to determine the

Table 1: Land Stability Screening and Scoping Summary



		plasticity of the London Cay
		Formation.
Question 8: Is the site within	No. Highgate No. 1 Pond is located	Risks from flooding are discussed in
100m of a watercourse or a	approximately 120m to the west of	a separate hydrogeological report.
potential spring line?	the proposed basement. A buried	
	watercourse is located	
	approximately 150m to the	
	southwest.	
Question 9: Is the site within an	No.	None
area of previously worked		
ground?		
Question 10: Is the site within an	No. The London Clay Formation is	Significant groundwater inflows are
aquifer? If so, will the proposed	unproductive	not anticipated within the basement
basement extend beneath the		development, however, localised
water table such that dewatering		seepages may occur within the
may be required during		strata.
construction?		
Question 11: Is the site within	No. Highgate No. 1 Pond is located	None
50m of the Hampstead Heath	approximately 120m to the west of	
Ponds?	the proposed basement	
Question 12: Is the site within	No. The proposed basement is to	None
5m of a highway or pedestrian	the rear of the property.	
right of way?		
Question 13: Will the proposed	Yes. Cellars are anticipated beneath	Potential for ground movement
basement significantly increase	part of the neighbouring properties	affecting neighbouring properties.
the differential depth of	but not adjacent to the proposed	Boreholes should be carried out to
foundations relative to	basement. The differential depth is	determine the engineering
neighbouring properties?	anticipated to be over 3.2m bgl to	parameters of the underlying
	the adjacent No. 12 and less than	geology. A ground movement
	3.2m to No. 10 Highgate West Hill.	assessment should be carried out to
		assess the impact on the adjacent
		properties. Further information
		should be gained on the depths,
		diameter and construction of the
		Thames Water sewer.
Question 14: Is the site over (or	No.	None
within the exclusion zone of) any		
tunnels, e.g. railway lines?		



#### 4 Ground Investigation

#### 4.1 Fieldwork and Laboratory Testing

The ground investigation was undertaken by Ground & Water on 9 September 2020. The works comprised one borehole to 8.45m bgl and six hand dug foundation inspection pits. The results of the investigation are included as Appendix C.

Laboratory tests have been carried out on the samples collected from the borehole. Testing consists of the following:

- 5 No. Atterberg Limit test to determine the plasticity of the strata;
- 5 No. moisture content determination;
- 3 No. Soluble Sulphate, pH and related tests for Concrete Classification on soil samples.

#### 4.2 Ground Model

The ground investigation revealed that the geology comprises Topsoil or Hardstanding, overlying Made Ground up to 2.7m bgl, overlying Head deposits, overlying the London Clay Formation. Roots were encountered up to 1.7m bgl. Groundwater was recorded between 1.5m and 3.0m bgl.

A ground model has been developed by assessing the available data and is summarised below.

Strata	Description	Depth to base
		of strata
		(m bgl)
Hard standing / Cellar Floor	Concrete flags and sharp sand (TP3, TP4 and TP5)	0.1m below
		floor level
		(2.3m bgl)
Made Ground	Reworked topsoil or concrete tiles, overlying slightly	0.60 - 0.84
	silty sandy gravelly clay. Gravel is flint to medium	
	brick, concrete and flint. (TPO, TP1 and TP2)	
Topsoil	Silty sandy slightly gravelly clay. Gravel is fine to	1.2
	coarse flint. (BH1 only)	
Head	Dark orangish brown mottled grey gravelly clay.	>1.0
	Gravel is fine grained flint. (TPO and TP1 only)	

#### Table 2: Summary of Ground Conditions



London Clay Formation	Light brown mottled bluish grey sandy/ silty fissured	>8.45
	clay with rare to frequent gypsum crystals and rare	
	claystone bands.	
	Becoming dark greyish brown with frequent gypsum	
	crystals from 7.0m bgl.	

#### 4.2.1 Made Ground and Topsoil

Made Ground was encountered up to 0.84m thick, described as Topsoil or paving slabs over dark brown slightly silty sandy gravelly clay. The gravel comprised brick, concrete, and flint. It likely represents reworked natural ground with some man-made material associated with the property construction.

#### 4.2.2 Head Deposits

The underlying natural Head Deposits were encountered to depths of 1.0m bgl to the base of the trial pits TPO and TP1. The Head Deposits were described as orangish brown mottled grey gravelly clay. The gravel comprised fine grained flint.

#### 4.2.3 London Clay Formation

The London Clay Formation was encountered to the base of the borehole. The London Clay Formation was described as light brown mottles bluish grey sandy/silty fissured clay.

SPT tests were carried out at 1m intervals and gave 'N' values of between 6 and 20, generally increasing with depth. An 'N' value of 21 was encountered at 3m bgl which penetrated a claystone band.

Five Atterberg test were carried out on the London Clay Formation which gave liquid limits of between 65% and 69%, plastic limits of between 28% and 30%, a plasticity index of between 35% and 40% and moisture contents of between 29% and 32%. The results indicate the London Clay Formation is clay of high plasticity and medium volume change potential. The consistency corresponds to stiff clay.

Three sulphate tests were carried out on the London Clay Formation which indicate characteristic water soluble sulphate of 3310mg/l, a total potential sulphate of 2.52% and a pH of 7.2, corresponding to an aggressive chemical environment for concrete of DS-5 / AC-4s.



#### 4.3 Groundwater

Groundwater was encountered at 3m bgl in the borehole and 0.25m below floor level in TP4 to TP6 carried out within the cellar which correlates with groundwater levels at approximately 2.5m bgl. In addition, a groundwater seepage was recorded from the wall above slab level in TP5. Monitoring carried out on 30 September 2020 recorded groundwater levels at 1.5m bgl.

#### 4.4 Foundation Inspection Pits

Six foundation inspection pits were carried out at the site. Three trial pits were carried out to the rear of the property and three trial pits were carried out in the cellar.

The foundation inspection pits to the rear of the property indicate foundations of the property are at 0.84m bgl, the foundations for the conservatory at 0.68m bgl, and the base of the party wall to the south of the site being at 0.9m bgl.

The foundations within the cellar indicate foundations at 0.33m below floor level (2.52m bgl).



#### 5 Geotechnical Assessment

The general ground conditions beneath the proposed basement footprint comprise Made Ground to 0.84m bgl, overlying Head deposits in the very south of the site of unknown thicknesses, overlying stiff London Clay Formation. Groundwater is anticipated from 1.5m bgl.

#### 5.1 Foundations

Conventional shallow strip foundations bearing within the London Clay Formation should be possible for lightly loaded structures (<60kN/m<sup>2</sup>) at a minimum depth of 0.9m bgl. The basement foundation level is given as 3.2m bgl and a provisional bearing capacity of 130kN/m<sup>2</sup> is calculated, based on a minimum SPT N Value of 13 below this depth.

#### 5.2 Floor Slab

A ground bearing floor slab is viable at the site. Possible shrink and swell could occur and the design of any ground bearing slab will need to account for this.

#### 5.3 Excavations

Excavations will be required for the basement. Due to the existing properties temporary shoring will be required to minimise any ground loss. Horizontal support will also be required.

Groundwater seepage and ingress is anticipated and a provision of a sump pump and waterproofing measures will be required for the basement.

#### 5.4 Soakaways

Due to the cohesive deposits at the site, soakaways are not considered viable at the site.

#### 5.5 Aggressive Chemical Environment

Frequent gypsum crystals were encountered from shallow depths within the London Clay Formation. The BRE sulphate tests have identified the site as Design Sulphate Class DS-5 and the Aggressive Chemical Environment for Concrete being AC-4s. Therefore, special precautions are required for buried concrete at the site.

#### 6 Impact Assessment

There are no apparent major issues which should significantly impact the viability of the construction of the new basement. However, a detailed ground movement assessment is likely to be required to assess the potential impact on the neighbouring properties. In addition, the screening exercise and subsequent assessment of the geological environment of 11 Highgate West Hill indicate some areas for further discussion in this report with suggested mitigation where appropriate.

Question 5: Is the London Clay the shallowest strata at the site?Yes. Head deposits and London Clay are the shallowest strata at the site.The test results indicate the London Clay Formation is of high plasticity and medium volume- change potential.Question 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any treeUnknown. No trees are beneath basement. However, trees are present on the site and are in a conservation area.Damage to any trees and their roots with TPOs or in a conservation area.
shallowest strata at the site?Clay are the shallowest strata at the site.London Clay Formation is of high plasticity and medium volume- change potential.Question 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any treeUnknown. No trees are beneath the footprint of the proposed basement. However, trees are present on the site and are in a avoided. A tree survey is recommended. Construction
the site.plasticity and medium volume- change potential.Question 6: Will any tree/s beUnknown. No trees are beneathDamage to any trees and theirfelled as part of the proposedthe footprint of the proposedroots with TPOs or in adevelopment and/or are any worksbasement. However, trees areconservation area must beproposed within any treepresent on the site and are in aavoided. A tree survey isprotection zones where trees areconservation area.recommended. Construction
Question 6: Will any tree/s beUnknown. No trees are beneathDamage to any trees and theirfelled as part of the proposedthe footprint of the proposedroots with TPOs or in adevelopment and/or are any worksbasement. However, trees areconservation area must beproposed within any treepresent on the site and are in aavoided. A tree survey isprotection zones where trees areconservation area.recommended. Construction
Question 6: Will any tree/s beUnknown. No trees are beneathDamage to any trees and theirfelled as part of the proposedthe footprint of the proposedroots with TPOs or in adevelopment and/or are any worksbasement. However, trees areconservation area must beproposed within any treepresent on the site and are in aavoided. A tree survey isprotection zones where trees areconservation area.recommended. Construction
felled as part of the proposedthe footprint of the proposedroots with TPOs or in adevelopment and/or are any worksbasement. However, trees areconservation area must beproposed within any treepresent on the site and are in aavoided. A tree survey isprotection zones where trees areconservation area.recommended. Construction
development and/or are any worksbasement. However, trees areconservation area must beproposed within any treepresent on the site and are in aavoided. A tree survey isprotection zones where trees areconservation area.recommended. Construction
proposed within any tree present on the site and are in a avoided. A tree survey is recommended. Construction
protection zones where trees are conservation area.
to be retained? techniques and processes will need
to avoid damage to tree roots.
Question 7: Is there a history of         No. None recorded.         Atterberg tests have shown that
seasonal shrink-swell subsidence in the Head deposits and London Clay
the local area, and/or evidence of Formation have high plasticity and
such effects at the site? medium volume change potential.
Question 10: Is the site within an         No. The London Clay Formation is         Groundwater control and
aquifer? If so, will the proposed unproductive. However, management will need to be
basement extend beneath the groundwater was encountered considered in the temporary and
water table such that dewatering between 3.0m and 2.5m and permanent design.
may be required during monitored up to 1.5m bgl.
construction?
Question 13: Will the proposed         Yes. Cellars are anticipated to be         The proposed construction
basement significantly increase the present at the adjacent buildings, methods of the basement are
differential depth of foundations however, not within immediate understood to comprise
relative to neighbouring proximity of the full extent of the underpinning. The design,
properties? buildings. sequencing and execution of the

#### Table 3: Updated Screening and Scoping Summary



	works will need to ensure that
	ground loss is minimised. A
	Ground Movement Assessment
	(GMA) with respect to the adjacent
	and adjoining properties is
	recommended. Further
	information should be gained
	regarding the location and nature
	of the Thames Water sewer and
	the impact of the basement
	assessed in the GMA if appropriate.

#### 6.1 Basement Depth and Foundations

The proposals for the site include the construction of a basement and a new extension to the rear of the property and deepening of the existing cellar and stairwell. Cellars are understood to be present at the adjacent buildings, however, not beneath the entire footprint. It will be critical to prevent exposed faces from collapse or significant ground loss into the excavation and temporary face support should be provided as appropriate.

#### 6.2 Founding strata

The anticipated ground conditions at the basement founding level is anticipated to be within the London Clay Formation. The London Clay Formation is a high plasticity clay and as such will have potential to heave. This will need to be accounted for in the design of the retaining walls and base slab. The design should also account for the influence of trees and seasonal variations in moisture content.

The London Clay soils are known for their high levels of soluble sulphate with the results indicating a design sulphate class of DS-5 and an ACEC class of AC4s. The concrete mix design should take appropriate account of sulphate levels in accordance with BRE Special Digest 1.

#### 6.3 Trees

Mature trees are located on and in the vicinity of the property. The foundations will need to be deepened to avoid the effects of water uptake. Should trees be removed there is potential for the soils to swell as a result and this should be accounted for in design. Care should be taken to



minimise root damage during construction works. Advice should be sought from an arboricultural expert.

#### 6.4 Groundwater

Groundwater was encountered during the ground investigation from 1.5m bgl. Therefore, significant groundwater ingress may be expected within the basement excavation. Allowances for a sump pump for any superficial runoff during high rainfall is recommended during construction. Care should be taken to minimise disturbance to the formation and to avoid softening of the soils due to any rainwater. Softened soils should be excavated and replaced where practicable.

#### 6.5 Ground Movement

A number of factors will assist in limiting ground movements:

- Detailed foundation design to take into account the findings of the ground investigation data including the high plasticity clays;
- Good workmanship during construction;
- Ensuring that adequate support is in place where required at all times during construction;
- Minimise deterioration of the central soil mass by the use of blinding/ covering with a waterproof membrane;
- The underpinning method should use hit and miss panels with significant gaps between working panels;
- The process should be such as to keep ground loss to an absolute minimum.

A detailed ground movement assessment recommended to address the risk to neighbouring properties.

#### 6.6 Construction near footpath and highway

The property is set back from the road with a front garden. No significant risks to services or the public are anticipated. The design of the basement has considered the presence of a Thames Water sewer, however, further details are required to ascertain if ground movement could impact the sewer. The hazards and risks should be considered in the Principal Constructors'



method statement and mitigation measures put in place where risks cannot be eliminated or managed appropriately.



## 7 Conclusions and Recommendations

The methodology and approach of CPG4 has been followed in developing this Basement Impact Assessment. The site investigation has identified a suitable founding stratum of the London Clay Formation. Head deposits were encountered in the very south of the site only.

It is concluded that the construction of a basement at the site should not have significant impacts on land stability. However, there is a risk of movement and damage due to the volume change potential of the clays and shallow groundwater beneath the site as well as the differential depth of neighbouring foundations. The design of the basement should consider the high plasticity and medium volume change potential of the London Clay and shallow groundwater anticipated at depths from 1.5m bgl. A Ground Movement Assessment should be carried out for the neighbouring properties and the sewer as appropriate.



#### 8 References

- Ordnance Survey mapping. <u>https://osmaps.ordnancesurvey.co.uk/</u>
- Grid Reference Finder. <u>https://gridreferencefinder.com/</u>
- BGS Sheet 1:50000 scale Sheet 256 North London. 2006.
- BGS Borehole Records. <u>http://mapapps.bgs.ac.uk/geologyofbritain/home.html</u>
- Historical Plans. <u>https://www.old-maps.co.uk/#/</u>
- UK maps of radon. <u>https://www.ukradon.org/information/ukmaps</u>
- Natural England Aquifer Designations. MAGIC. <u>https://magic.defra.gov.uk/</u>
- Camden Planning Guidance: Basements and lightwells CPG4: Basements and Lightwells.



Appendix A

Drawings











BUILDING SURVEYS', DATED APRIL 2020

Proctor & Shaw

The Studio 78 Sisters Avenue SW11 5S ondon 44 0 208 244 110 proctorandsha co

PRO ECT O

PRO ECT 11 Highgate West Hill, N6 6JR

**E i ing i e Plan** Garden Site Plan

1:200 @ A 1:100 @ A1

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SURVEY NOT REQUESTED



DOTTED LINE HERE INDICATE WALL AT GROUND FLOOR LEVEL





LIMITED ACCESS / VISIBILITY TO ROOF AT TIME OF SURVEY. DETAIL HAS BEEN	1 T IS DRAWI G IS COPYRIG 2 DO OT SCA E: WOR TO F T E CO TRACTOR UST C A D CO FIR WIT ARC ITE EXISTI G EVE S 4 DISCREPA CIES BETWEE UST BE REPORTED TO T E / 5 FOR DETAI S OF STRUCTUR SPECIFICATIO S	T IGURED DI E SIO SO Y EC A DI E SIO SA D EVE SO SITE CT BEFORE PROCEEDI G EW EVE S • • • T E DRAWI G A D T E SPECIFICATIO S ARC ITECT BEFORE PROCEEDI G RE REFER TO E GI EER'S DRAWI GS A D
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	Procto The Studio 78 Sister	or & Shaw ers Avenue
	SW11 5S ondon 44 0 208 244 1 <sup>-</sup> PRO ECT 0	10 proctorandsha co PRO ECT 11 Highgate West Hill, N6 6JR
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Scale	1:50	@	A3

NOTE: EXISTING DRAWINGS ARE AS PER MEASURED SURVEY PREPARED BY 'MICTEC MEASURED BUILDING SURVEYS', DATED APRIL 2020



Proctor & Shaw

The Studio 78 Sisters Avenue SW115S ondon 44 0 208 244 110 proctorandsha co

PRO ECT O

PRO ECT 11 Highgate West Hill, N6 6JR

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NOTE: EXISTING DRAWINGS ARE AS PER MEASURED SURVEY PREPARED BY 'MICTEC MEASURED BUILDING SURVEYS', DATED APRIL 2020



BRICKWORK



The Studio 78 Sisters Avenue SW115S ondon 44 0 208 244 110 proctorandsha co

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PRO ECT 11 Highgate West Hill, N6 6JR

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AREA HERE \_\_\_\_\_SHOWN INDICATIVELY DUE TO LACK OF ACCESS AND POOR VISIBILITY ON SITE

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NOTE:

EXISTING DRAWINGS ARE AS PER MEASURED SURVEY PREPARED BY 'MICTEC MEASURED BUILDING SURVEYS', DATED APRIL 2020





The Studio 78 Sisters AvenueSW11 5Sondon440208244110proctorandsha

PRO ECT O

PRO ECT 11 Highgate West Hill, N6 6JR

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# NOTES

- I. 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



P1	xx.xx.20	PRELIMINARY ISSUE
Re∨	Date	Amendments

# CONSTANT

constantsd.com

Project 20052 - 11 HIGHGATE WEST HILL

Drawing **BASEMENT LEVEL** 













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The Studio 78 Sisters Avenue SW115S ondon proctorandsha co

44 0 208 244 110 PRO ECT O

PRO ECT 11 Highgate West Hill, N6 6JR

**Pooed Plan** Base ent Floor

1:50 @ A 1:25 @ A1

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![](_page_37_Figure_1.jpeg)

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![](_page_39_Figure_0.jpeg)

![](_page_40_Figure_0.jpeg)

![](_page_40_Figure_3.jpeg)

![](_page_41_Figure_0.jpeg)

![](_page_41_Figure_1.jpeg)

![](_page_42_Figure_0.jpeg)

![](_page_42_Figure_1.jpeg)

![](_page_42_Picture_2.jpeg)

![](_page_42_Figure_4.jpeg)

BRICKWORK

![](_page_43_Figure_0.jpeg)

![](_page_43_Figure_4.jpeg)

![](_page_43_Figure_6.jpeg)

![](_page_44_Figure_0.jpeg)

Proposed Section EE Scale: 1:50

![](_page_44_Figure_3.jpeg)

TIMBER FENCE

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![](_page_45_Figure_0.jpeg)

![](_page_45_Picture_1.jpeg)

![](_page_45_Figure_4.jpeg)

![](_page_45_Figure_6.jpeg)

![](_page_46_Figure_0.jpeg)

![](_page_46_Figure_1.jpeg)

![](_page_46_Figure_2.jpeg)

![](_page_46_Picture_3.jpeg)

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

**SK.01** -

![](_page_46_Picture_5.jpeg)

PROJECT 11 Highgate West Hill, N6 6JR

Sewer Sections AA BB EE

1:25 @ A3 1:50 @ A1

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& Shaw
venue proctorandsha co
PRO ECT 11 Highgate West Hill, N6 6JR
1:200 @ A 1:100 @ A <sup>-</sup>
REV

![](_page_48_Figure_0.jpeg)

![](_page_48_Figure_1.jpeg)

![](_page_48_Figure_4.jpeg)

BRICKWORK

# Appendix B

# **Groundsure Report**

![](_page_49_Picture_3.jpeg)

![](_page_50_Figure_0.jpeg)

![](_page_50_Picture_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	1056 Scale Town Plan	Ν
Map date:	1871	
Scale:	1:1,056	
Printed at:	1:1,056	S

![](_page_50_Figure_6.jpeg)

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![](_page_51_Figure_0.jpeg)

![](_page_51_Picture_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	1056 Scale Town Plan	Ν
Map date:	1871	
Scale:	1:1,056	
Printed at:	1:1,056	S

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![](_page_51_Picture_7.jpeg)

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![](_page_52_Figure_0.jpeg)

![](_page_52_Picture_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	1056 Scale Town Plan	Ν
Map date:	1871	
Scale:	1:1,056	
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![](_page_53_Figure_0.jpeg)

![](_page_53_Figure_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	1056 Scale Town Plan	Ν
Map date:	1896	
Scale:	1:1,056	ΨΨ Έ
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![](_page_53_Figure_6.jpeg)

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![](_page_54_Figure_0.jpeg)

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	County Series	Ν
Map date:	1896	
Scale:	1:2,500	
Printed at:	1:2,500	S

Surveyed 1896 Revised 1896 Edition N/A Copyright N/A Levelled N/A

![](_page_54_Picture_7.jpeg)

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![](_page_55_Figure_0.jpeg)

![](_page_55_Figure_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	County Series	Ν
Map date:	1915	w <b>f</b> -
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![](_page_56_Figure_0.jpeg)

![](_page_56_Figure_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

Client Ref: Report Ref: Grid Ref:	11_Highgate_West_Hill_ GS-6973592 528155, 186475	
Map Name:	County Series	Ν
Map date:	1936	
Scale:	1:2,500	
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![](_page_57_Figure_0.jpeg)

![](_page_57_Figure_2.jpeg)

11, HIGHGATE WEST HILL, LONDON, N6 6JR

![](_page_57_Figure_5.jpeg)

![](_page_57_Picture_6.jpeg)

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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![](_page_59_Figure_0.jpeg)

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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![](_page_60_Figure_0.jpeg)

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![](_page_61_Figure_0.jpeg)

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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Production date: 17 August 2020

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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![](_page_63_Figure_0.jpeg)

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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11, HIGHGATE WEST HILL, LONDON, N6 6JR

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