

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING,
CONTAMINATED LAND SURVEYS, DESK
STUDIES, RISK ASSESSMENT.



GROUNDWATER MONITORING

AT

10 ABBOT'S PLACE

LONDON

NW6 4NP.

DATE: July 2024

REPORT NO: 231779/gw



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- A Borehole & Trial Pit Location Plan.**
- B Borehole & Trial Pit Logs.**

1. INTRODUCTION.

- 1.1 Following an original Ground Investigation prepared following instructions from;

Qaim Structures Limited
Arena Business Centre
100 Berkshire Place
Wokingham
RG41 5RD

- 1.2 MRH Geotechnical Limited were requested to visit site and carry out monitoring of the Groundwater Level within the previously installed Standpipe.
- 1.3 The site is located to the northern side of Abbot's Place to the rear of 41 Priory Road of which it was once part of the grounds.

2. DETAILS OF ORIGINAL FIELDWORK.

2.1 Site Work.

- 2.1.1 Two Borehole (BH1 & BH2) were sunk within the garden area of the property.
- 2.1.2 Four Trial Pits (TP1-4) were excavated across the site, with two (TPs 1 and 3) excavated adjacent to the house, while the remaining excavations were carried out on the boundary walls.
- 2.1.3 Samples were recovered and sealed in airtight containers before being forwarded to the laboratory for testing and detailed descriptions.

Additional Contamination Samples were sealed in Glass and Polypropylene containers appropriate to the proposed testing suite.

- 2.1.4 The Borehole and Trial Pit Location Plan is presented in Appendix A.
- 2.1.5 The site works were carried out on 23rd November 2023.

2.2 Revealed Strata.

- 2.2.1 Borehole 1 was sunk in the garden area to the east of the building in a small flower bed.

Topsoil was found to extend to a depth of 0.3m below ground level where firm brown silty CLAY was encountered. The clay became stiff at a depth of 1.2m and stiff to very stiff at 2.4m.

At a depth of 4.6m the strata became very stiff dark brown silty CLAY with traces of Selenite noted from 6.0m depth.

The Borehole was completed at a depth of 8.0m and a Groundwater Monitoring Standpipe was installed.

The Borehole was dry on completion.

- 2.2.2 Borehole 2 was sunk in the western portion of the site in the narrow, paved garden area between the building and the front boundary wall.

A ground surface of Paving onto a mortar and concrete bed extended to a depth of 0.2m below ground level where firm brown and grey mottled silty CLAY was encountered. The clay became firm to stiff with a little gravel at a depth of 1.2m and stiff at 2.1m.

A thin claystone bed was encountered between 3.2m and 3.4m and a slight seepage was noted at this point.

Beneath the claystone stiff to very stiff brown silty CLAY was encountered which became very stiff dark brown silty CLAY with traces of Selenite at 5.6m depth.

The Borehole was completed at a depth of 8.0m and was dry on completion.

An Infiltration Test was attempted but no discernible infiltration was observed within 30mins and the test was abandoned.

- 2.2.3 The British Geological Survey map of the area shows the client site to be located upon Bedrock Deposits of the London Clay Formation.

- 2.2.4 The Bedrock Deposits of the London Clay Formation comprise '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. It commonly contains thin courses of carbonate concretions ('cementstone nodules') and disseminated pyrite. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the base and towards the top of the formation. At the base, and at some other levels, thin beds of black rounded flint gravel occurs in places. Glauconite is present in some of the sands and in some clay beds, and white mica occurs at some levels.' (BGS Lexicon of Named Rock Units).

- 2.2.5 The Natural Strata encountered is indicative of the London Clay Formation.

2.3 Groundwater.

- 2.3.1 No Groundwater Seepages were encountered in Borehole 1. A small seepage was observed from the Claystone Band in Borehole 2 but the Borehole was found to be dry on completion.

- 2.3.2 No Groundwater Seepages were encountered in the Trial Pits.

3. FOLLOW-UP GROUNDWATER MONITORING.

- 3.1 MRH Geotechnical Ltd were requested to visit the above site and monitor the Groundwater Level in the standpipe installed in Borehole 1 during site investigation works in November 2023.
- 3.2 On visiting the site on 14th June 2024 Groundwater was found to be resting at 3.80m below ground level (bgl) although due to the wet winter and spring between the installation of the Standpipe and the monitoring visit, it was suspected that the measured water level was due to seepage passed the concrete and clay seal at the top of the borehole.
- 3.3 8 litres of water were bailed from the Borehole which reduced the level to 7.20m bgl and after 1 hour there was no discernible recharge of the water level within the standpipe which also indicated no flow into the Borehole from the London Clay strata.
- 3.4 On 24th June 2024 the site was revisited and Groundwater was found to rest at 6.24m.
- 3.5 The rise in the water level within the Standpipe would equate to approximately 2 litres of inflow into the Borehole in the 10-days between visits.

4. CONCLUSIONS.

- 4.1 The strata of the London Clay Formation are classified by the Environment Agency as an Unproductive Strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
- 4.2 According to British Geological Survey data the site is at Negligible Risk of Groundwater Flooding.
- 4.3 The Monitoring Borehole (BH1) was sunk in a small flower bed area surrounded by a concrete hardstanding. This has meant there is no flush concrete seal with the surrounding hardstanding and in addition the area is likely to concentrate run-off from the hardstanding.
- 4.4 No Groundwater seepages were encountered during the sinking of the Borehole 1 and the Monitoring Standpipe was dry on completion of the installation.

Furthermore there was no discernible recharge of the water in the standpipe after bailing out the water on 14th June and monitoring the level for an hour.

- 4.5 The water observed in Borehole 1 is considered to be surface run-off seeping passed a compromised seal at the top of the borehole and hence collecting in void within the clay with no infiltration into the strata which is of negligible permeability.

- 4.6 While, in Borehole 2, a slight seepage was observed on encountering a thin claystone bed between 3.2m and 3.4m the Borehole was again found to be dry on completion at 8m depth.

An Infiltration Tests carried out in Borehole 2 was attempted but no discernible infiltration was observed within 30mins and the test was abandoned.

- 4.7 There is no evidence of any significant flow of Groundwater through the London Clay strata present beneath the site.

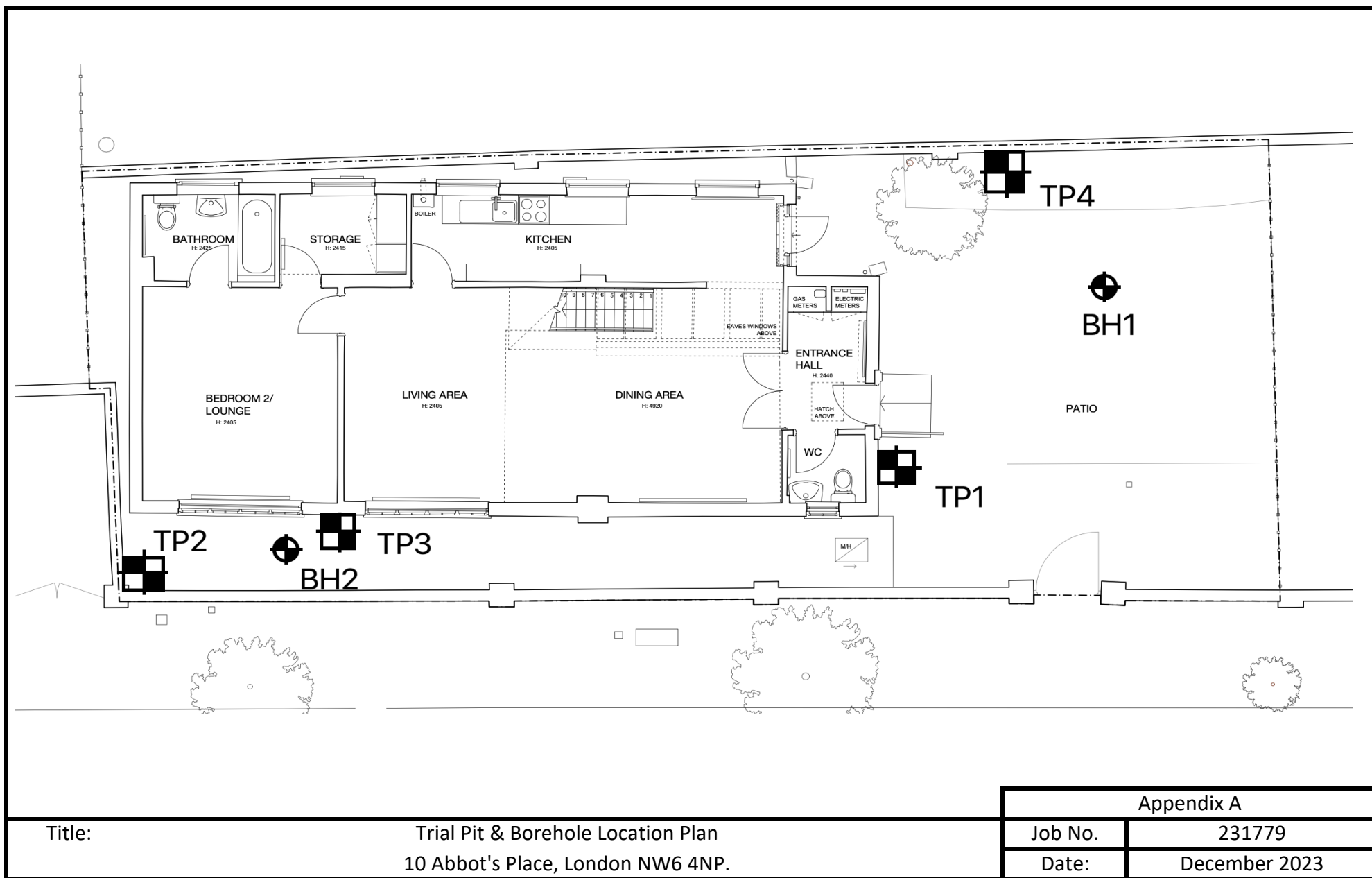


Steven Brooks BEng.(Hons)
MRH Geotechnical Limited

5. REFERENCES:

1. 'Code of Practice for Ground Investigations', BS 5930:2015, British Standards Institution, 2015.
2. 'Methods of Test for Soils for Civil Engineering Purposes', BS 1377-2:1990, British Standards Institution, 1990.
3. 'NHBC Standards – Chapter 4.2 – Building Near Trees', NHBC, 2021.
4. 'Concrete in Aggressive Ground', Special Digest 1, BRE, 2005.
5. 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination' SP1010 + Appendices A-I, Defra, 2013.
6. 'The LQM/CIEH S4ULs for Human Health Risk Assessment', Land Quality Management Ltd & The Chartered Institute of Environmental Health, Land Quality Press, 2015.

Appendix A
Borehole & Trial Pit Location Plan



Appendix A

Title: Trial Pit & Borehole Location Plan
10 Abbot's Place, London NW6 4NP.

Job No.	231779
Date:	December 2023

Appendix B
Borehole & Trial Pit Logs

BOREHOLE LOG - M R H GEOTECHNICAL							HOLE NO. BH 1 Sheet 1 of 1	
CLIENT Qaim Structures Ltd					SITE 10 Abbotts Place, London NW6 4NP			
DATE OF FIELDWORK 23/11/23-23/11/23			SCALE 1:50	LEVEL/POSITION GROUND / AS APPENDIX A		OPERATOR PA	LOGGED BY SB	JOB NO. 231779
SAMPLE DEPTH	RECORD TYPE	SPT N (Cu-kN/m ²)	Standp/ Piezo	DESCRIPTION OF STRATUM (thickness)			DEPTH	LEGEND
			[Hatched Box]	TOPSOIL (0.30)				[Hatched Box]
0.50	D1			Firm brown silty CLAY (0.90)			0.30	x — x
1.00	D2	(70)						x — x
1.50	D3	(100)		Stiff brown silty CLAY (1.20)			1.20	x — x
2.00	D4	(100)						x — x
2.50	D5	(120)		Stiff to very stiff brown silty CLAY (2.20)			2.40	x — x
3.00	D6	(120)						x — x
3.50	D7	(120)						x — x
4.00	D8	(120)						x — x
4.50	D9	(130)						x — x
5.00	D10	(140)		Very stiff dark brown silty CLAY with traces of selenite from 6.0m (3.40)			4.60	x — x
5.50	D11	(150)						x — x
6.00	D12	(170)						x — x
7.00	D13	(170)						x — x
8.00	D14	(170)	[Solid Black Box]	Standpipe installed Borehole ends			8.00	x — x

GROUNDWATER AND CASING INFORMATION					BORING METHOD AND REMARKS	
DEPTH STRUCK	DEPTH CASED	ELAPSED TIME	WATER LEVEL	DEPTH SEALED	REMARKS ON GROUNDWATER AND CASING	REMARKS
-	-	-	-	-	Dry on completion. Standpipe installed	Mechanical auger Standpipe installed

KEY: D = Disturbed Sample B = Bulk Sample
 U = Undisturbed Sample W = Water Sample
 All dimensions are in metres unless otherwise stated

HOLE NO. BH 2
Sheet 1 of 1

Qaim Structures Ltd

10 Abbotts Place, London NW6 4NP

JOB NO.
231779

SAMPLE DEPTH	RECORD TYPE	SPT N (Cu-kN/m ²)	Standp/ Piezo	DESCRIPTION OF STRATUM (thickness)	DEPTH	LEGEND
				Slab over mortar / CONCRETE (0.20)		
0.50	D1			Firm brown and grey mottled silty CLAY (1.00)	0.20	
1.00	D2	(70)				
1.50	D3			Firm to stiff dark brown CLAY with a little gravel (0.90)	1.20	
2.00	D4					
2.50	D5	(110)		Stiff brown silty CLAY (1.10)	2.10	
3.00	D6	(130)				
3.50	D7	(110)		CLAYSTONE (0.20) Slight water seepage	3.20	
4.00	D8	(130)		Stiff to very stiff brown silty CLAY (2.20)	3.40	
4.50	D9	(120)				
5.00	D10	(120)				
5.50	D11	(120)				
6.00	D12	(130)		Very stiff dark brown silty CLAY with traces of selenite (2.40)	5.60	
7.00	D13	(140)				
8.00	D14	(150)		Borehole ends	8.00	

BORING METHOD AND REMARKS

MECHANICAL auger

KEY: D = Disturbed Sample B = Bulk Sample
U = Undisturbed Sample W = Water Sample

All dimensions are in metres unless otherwise stated