

Our Ref: SKT/PJS/J15567

16 February 2024

Selsdon Building Contractors Limited
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For the attention of Tom Barker
(email: Tom.Barker@selsdonpm.co.uk)

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Co. Secretary P L Noble
Consultant D Illingworth BSc FGS

Dear Sirs,

Re: Ground Gas Risk Assessment Report: Kerswell Close, London, N15 5HT
National Grid Reference: TQ 33096 88526
Geology: London Clay

1 Authority

Our authority for carrying out this work is contained in your project order form (Ref PO-050-019 dated 4 August 2023).

2 Background and Objectives

The site has been the subject of two previous intrusive site investigations; one in 2021, which comprised a Geotechnical Design Report by Pell Frischmann (ref. 105079-PEF-xx-xx-RP-GT-10001 P02) dated December 2021, using information contained in a Factual Ground Investigation Report by Land Science (ref. LS5646) dated October 2021, and a Supplementary Site Investigation & Risk Assessment Report (ref. J15567 dated November 2023) undertaken by ourselves. A Phase 1 Environmental Study has previously been undertaken for the site by RSK in 2017 their Phase 1 Environmental Study (report ref. 29435 (R01 (00)).

The report by Pell Frischmann/Land Science included ground gas monitoring of a well installed on the southwest of the site. Significantly elevated concentrations of both methane and carbon dioxide were recorded during the six return monitoring visits.

As part of our supplementary site investigation works, further monitoring wells were installed, and a program of ground gas monitoring was undertaken. This letter report presents the findings of this monitoring.



3 Scope

This letter report presents our Desk Study findings, exploratory hole logs and test results and our interpretation of these data. As with any site there may be differences in soil conditions between exploratory hole positions.

The findings and opinions conveyed via this Site Investigation Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Limited believes are reliable. Nevertheless, Southern Testing Laboratories Limited cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The site investigation was conducted and this report has been prepared for the sole internal use and reliance of Selsdon Building Contractors Ltd. and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

Recommendations contained in this report may not be appropriate to alternative development schemes.

4 Desk Study

4.1 Geology

The British Geological Survey Map No 256 North London (2006) indicates that the site geology consists of London Clay.

London Clay

The London Clay mainly comprises blue-grey or grey-brown fissured clay and silty clay, which weathers to brown near the surface. It commonly contains thin courses of carbonate concretions ('cementstone nodules'), selenite crystals 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.

4.2 Site History

RSK's Desk Study Report indicated that the site comprised undeveloped land to circa 1896, at which time it was largely covered by houses, with Russell Road crossing the south western corner. In the late 1970's/early 1980's the site was extensively redeveloped, as per the present day layout, with the exception of what are possibly lock-up garages located in the existing car park between 1982-2014.

The surrounding area has a similar history to the site itself, comprising farmland up until circa 1896, when extensive development with high-density housing took place. The area then remained significantly unchanged, until the late 1970's when the area underwent significant redevelopment, including the construction of Kerswell Close.

4.3 Ground Gas Risk

The Desk Study did not identify any potential gas sources, either on or in the vicinity of the site. However, ground gas monitoring undertaken by Land Science recorded elevated concentrations of both methane and carbon dioxide throughout the monitoring period, in an installation within the borehole on the southwest of the site.

Consultation by the client with the gas supplier identified a leaking gas main within the vicinity of this installation. It was considered likely that this was the source of the elevated concentrations of ground gases recorded. However, to confirm this, additional ground gas monitoring wells were constructed across the site, with a program of six fortnightly monitoring visits undertaken.

4.4 Pell Frischmann – Geotechnical Design Report

The intrusive site works comprised 1 no. 30m and 2 no. 25m cable percussive boreholes, 4 no. 2m deep machine dug trial pits and 4 no. foundation inspection pits. One of the cable percussive boreholes was installed with gas and groundwater monitoring wells, and one of the machine dug trial pits was used for undertaking soakage testing.

The soils found in the trial holes comprised Made Ground to depths of between 0.5m and 1.8m bgl, over River Terrace Deposits to depths of between 0.55m and 0.6m (within the car park only), with the London Clay below both the Made Ground and River Terrace Deposits, to a depth of 30m+. The Made Ground comprised dark brown sandy, gravelly clay with flint, brick, tile, plastic and metal. The River Terrace Deposits comprised dark grey to orange fine to medium sand and fine to coarse flint gravel.

With the exception of the Made Ground, no visual or olfactory evidence of potential contamination was observed within the Made Ground.

Groundwater was not encountered in any of the exploratory hole locations.

Whilst this was a geotechnical design report, laboratory analysis for a range of potential common contaminants was undertaken. This identified concentrations of lead above the screening value for a residential without home-grown produce land use in three samples of Made Ground. Loose fibres of chrysotile (white) asbestos were also identified in one sample of Made Ground, with a quantification of <0.001%, which is the laboratory limit of detection.

Combined groundwater and ground gas monitoring wells were installed in BH02 (on the southwest of the site) with response zones at depths of 1–2m bgl in the Made Ground, and 3–10m bgl in the London Clay. Six return monitoring visits were made. Significantly elevated concentrations of both methane and carbon dioxide were recorded throughout the monitoring period, within both of the installations.

The report recommended that as only limited geoenvironmental assessment had been undertaken, further investigation was required. With respect to the elevated concentrations of ground gases, it was recommended that consultation be had with the gas utilities providers, and that additional ground gas monitoring be undertaken. It was also recommended that further risk assessment, and potentially verification sampling be undertaken, following the removal of the bund of Made Ground.

5 Southern Testing – Supplementary Site Investigation Works

The strategy adopted for the supplementary intrusive investigation comprised the following:

Activity / Method	Purpose	Max Depth Range (bgl)	Installation / Notes
WLS01 – 04 Dynamic Windowless Sampling	Boreholes to investigate the shallow ground conditions within external areas. To allow collection of samples for contamination testing. Installation of shallow land gas and groundwater monitoring wells.	3.0	50mm gas / groundwater monitoring wells installed within all four boreholes
HA01 & HA02 Hand-dug	Hand dug trial holes to sample the shallow soils	1.0	

Please see enclosed site plan for details.

5.1 Soils as found

The soils encountered are described in detail in the enclosed exploratory hole logs, but in general comprised a covering of Made Ground over silty CLAY. A summary is given below.

Depth (m)	Thickness (m)	Soil Type	Description
GL – 0.15	0.15	TOPSOIL	Dark brown silty CLAY (WLS04 only).
GL – 0.6/1.5	0.6 – 1.5	MADE GROUND	Friable mid brown silty sand with variable amounts of fine to coarse gravel of brick, concrete, chalk, clinker, flint, rare glass, ceramic and concrete cobbles.
0.9/1.4 – 2.1/2.5	1.1 – 1.2	Silty CLAY	Desiccated mid brown/orange-brown mottled red-orange silty CLAY with fine rootlets and rare yellow-orange silty partings. (WLS0.1 & WLS02 only)
0.7/2.1 – 3.0	0.9 – 2.3	Silty CLAY	Stiff mid brown with grey-blue mottling and yellow silty patches, silty CLAY. (WLS01, WLS03 & WLS04 only)

The soils found were similar to those found by Land Science, although River Terrace Deposits were not encountered within the trial hole located in the car park (WLS03 & WLS04) during this investigation.

Given its composition, it is considered that the Made Ground likely originates from the demolition of the previous building on the site. It does not appear to contain putrescible material.

6 Gas Monitoring Programme and Results

The number and spacing of the gas monitoring wells was designed to provide general coverage for the proposed development.

It was also planned to include the monitoring well on the southwest of the site (BH02 previously installed by Land Science) in the monitoring program. However, this location had been lost due to works undertaken to repair the leaking gas main. Due to access constraints (the site topography, spoil resulting from the repair of the gas main and the location of the gas main itself, a new monitoring well could not be constructed in this area of the site.

The sensitivity of the proposed development is rated as Moderate and, therefore, 6 No. gas readings over a period of 3 months (CIRIA C665 Ref [3], Table 5.5) was undertaken. The results of the monitoring programme are enclosed and are summarised below.

Borehole Groundwater & Gas Monitoring Results*				
Monitoring Well	WLS01	WLS02	WLS03 [#]	WLS04 ⁺
Response zone / Stratum	1.0 – 3.0m Silty CLAY	0.5 – 2.5m 0.5 – 1.4m Made Ground 1.4 – 2.5m Silty CLAY	1.0 – 3.0m Silty CLAY	1.0 – 1.5m Made Ground 1.5 – 3.0m Silty CLAY
Evidence of contamination	None	Made Ground	None	Made Ground
No. of Monitoring Events	6	6	2	6
Methane range CH ₄ (%)	0.0	0.0	0.0	0.0
Carbon dioxide range CO ₂ (%)	2.4 – 4.1	2.3 – 3.8	0.2 & 0.7	0.0 – 0.6
Oxygen range O ₂ (%)	13.1 – 17.7	15.3 – 18.5	19.9 & 20.1	17.6 – 19.8
Flow rate range l/hr	0.0	0.0	0.0	0.0 – 0.4
BH pressure range (Pa)	0.0	0.0	0.0	0.0 – 0.2
PID measurement (ppm)	0.0 – 0.4	0.0 – 0.9	0.0 – 0.1	0.0 – 0.3
Water level (mbgl)	Dry – 2.50	Dry	1.95 & 1.19	0.90 – 0.83
Atmospheric pressure during monitoring (mb)	992 – 1017	990 – 1016	989 – 1012	993 – 1016

* Maximum readings presented as worst case.

[#] This monitoring well had been lost by the time of the 3rd monitoring visit, due to excavation works having taken place on site.

⁺ Due to high groundwater within the monitoring well, gas concentrations readings could not be taken during the monitoring undertaken on the 26th October (2nd visit).

According to the Met Office¹ southern England was wetter than average throughout the monitoring period (October to December 2023). Groundwater levels in monitoring wells WLS01 and WLS02 remained well below the tops of the response zone. However, the water level in WLS03 rose to above the top of the response zone after the 1st visit, with the water level in WLS04 being above the top of the response zone from the first monitoring visit. Ground gas risk assessment cannot be undertaken using data from flooded monitoring wells, as the ground gas monitoring data would not be considered representative of site conditions. Therefore, only the monitoring data from wells WLS01 and WLS02 is considered to be reliable in terms of the risk assessment.

¹ <https://www.metoffice.gov.uk/research/climate/maps-and-data/summaries/index> – accessed 05/01/2024

No measurable concentrations of methane, or concentrations of carbon dioxide above 5% (at which consideration of the potential need for ground gas protection measures) were recorded during the monitoring.

No flow or differential pressures were recorded in either WLS01 or WLS02.

Monitoring was undertaken during periods of generally falling pressure, at a time when a number of quite deep low pressures systems were crossing the UK. Therefore, in terms of atmospheric pressure changes, the monitoring was undertaken during worst case conditions for potential gas migration.

7 Discussion & Conclusions

The Desk Study did not identify any potential gas sources, either on or in the vicinity of the site. However, previous ground gas monitoring undertaken by Land Science had found significantly elevated concentrations of both methane and carbon dioxide throughout the monitoring period, in an installation within the borehole on the southwest of the site.

Given the significant concentrations of methane and carbon dioxide found, it was considered likely that the source of these gases was a leaking domestic gas supply pipe, particularly given the location of the borehole in relation to the monitoring well. Subsequent consultation by the client with the gas supplier identified a leaking gas main within the vicinity of the installation. It is understood that the leak has now been repaired.

It was planned to include the previously installed monitoring well on the southwest of the site (BH02 installed by Land Science) in the monitoring program, in order to confirm that following the repair of the gas main elevated concentrations of methane and carbon dioxide were no longer present in the monitoring well. However, this location had been lost due to works undertaken to repair the leaking gas main. Due to access constraints (spoil resulting from the repair of the gas main and the location of the gas main itself), a new monitoring well could not be constructed in this area of the site.

Given the lack of any potential on-site or off-site sources of ground gas generation, the previous identification and fixing of a leaking gas main, and the most recent ground gas monitoring results (with no elevated concentrations of methane and carbon dioxide recorded) ground gas protection measures are not considered to be required on this site.

If you have any queries or we can be of further assistance, please do not hesitate to contact us

Yours faithfully,



Sarah Toms MSc MEnvSc PIEMA

For and on behalf of

Southern Testing Laboratories Limited

DDI: 01342 333 129

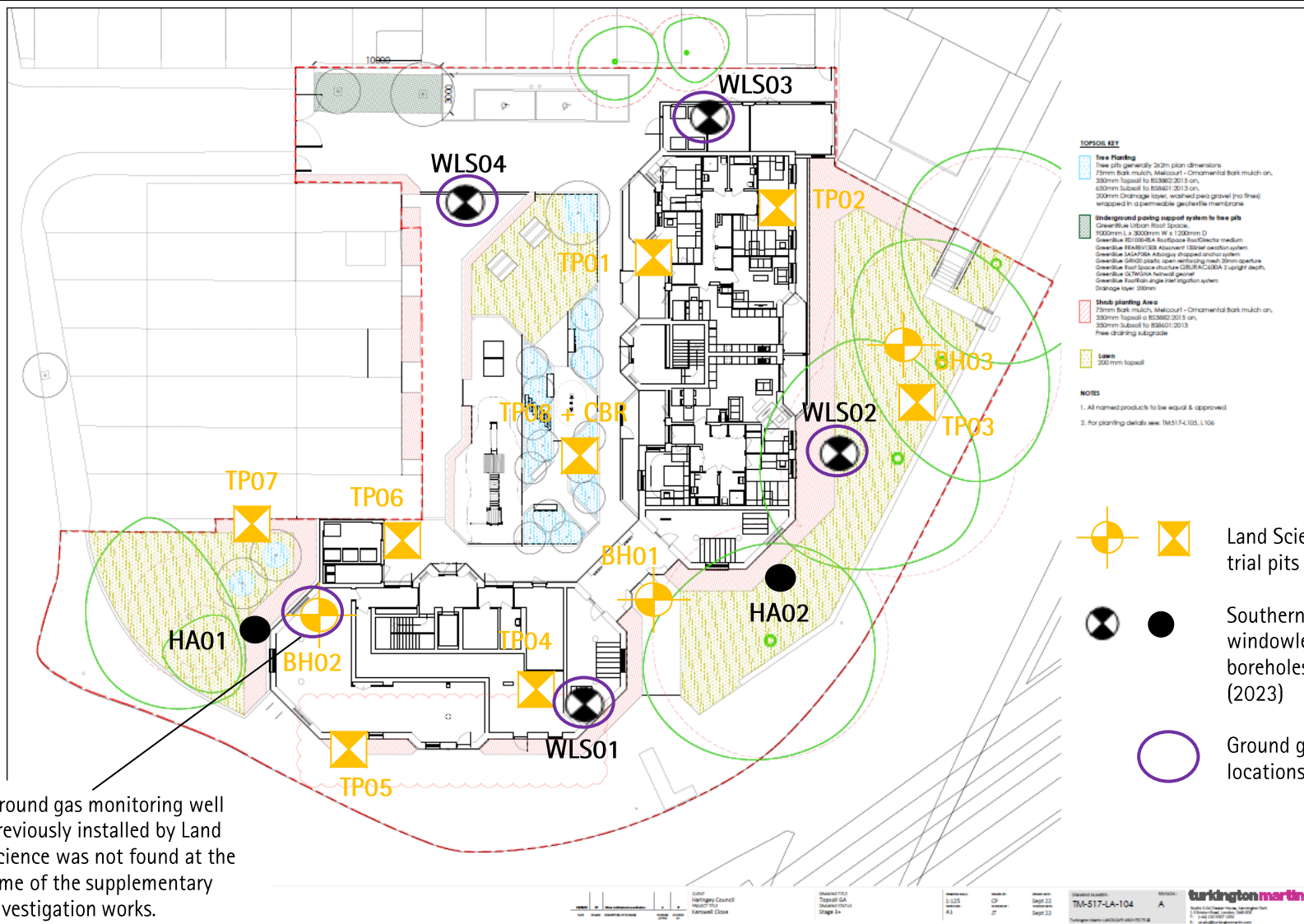
Email: stoms@southerntesting.co.uk

Encs

Site Plan

Windowless sampler borehole logs

Ground gas monitoring data



NB: Positions of Boreholes and/or Trial Pits are only indicative unless dimensioned

Site: Kerswell Close, London, N15 5HT

Date: 05 January 2024

Southern Testing

Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
ST Consult: Twigden Barns, Brixworth Road, Creton, Northampton NN6 8NN

ST Consult

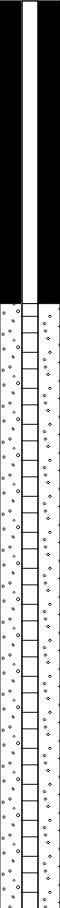
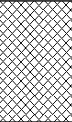
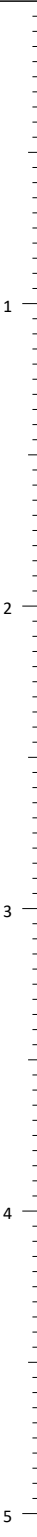
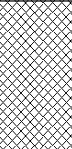
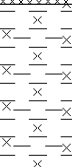
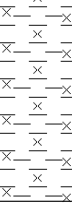
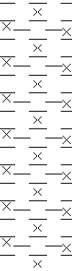
STL: J15567

Fig No: 1

Trial Hole Locations – Proposed Site Layout

						Start - End Date:		Project ID:		Hole Type:		HA01	
						03/10/2023		J15567		HA		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/Fl	Results	Window Run								
		0.00	ES							Friable mid-brown silty sand with fine to coarse gravel of brick, concrete, chalk, clinker, flint, glass and ceramic. MADE GROUND			
						0.60	(0.60)			End of Borehole at 0.60m			
												1	
												2	
Remarks:													
Stable. Terminated on concrete obstruction at 0.6m													
Status:		FINAL			Log Print Date and Time:		05/10/2023 03:25		Log Approved By:				

						Start - End Date:		Project ID:		Hole Type:		HA02	
						03/10/2023		J15567		HA		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/Fl	Results	Window Run								
		0.30	ES				(1.00)			Friable brown silty sand with frequent medium to coarse gravel of flint, brick, concrete, mortar and rare textile. MADE GROUND			
						1.00				End of Borehole at 1.00m		1	
												2	
Remarks:													
Stable													
Status:		FINAL			Log Print Date and Time:		05/10/2023 03:25		Log Approved By:				

						Start - End Date:		Project ID:		Hole Type:		WLS01	
						03/10/2023		J15567		WLS		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/Fl	Results	Window Run								
		0.50	ES			0.40	(0.40)		Mid grey-brown silty sand with fine to medium, occasionally coarse flint, concrete and rare brick. MADE GROUND				
							(0.50)		Desiccated mid brown silty clay with rare medium brick, flint and concrete cobbles. REWORKED GROUND				
		1.00	SPT	N=8 (1,2/1,2,2,3)		0.90			Desiccated mid brown silty CLAY with fine rootlets and rare yellow-orange silty partings.				
		1.50	HP	UCS(kPa)=600		(1.20)							
		2.00	HP SPT	UCS(kPa)=250 N=11 (1,1/2,2,3,4)		2.10			Stiff mid brown with grey-blue mottling, silty CLAY.				
							(0.90)		Selenite crystals at 2.7m				
						3.00			End of Borehole at 3.00m		3		
											4		
											5		
Remarks:													
Stable													
Status:		FINAL			Log Print Date and Time:		05/10/2023 03:25		Log Approved By:				

	Start - End Date:	Project ID:	Hole Type:	WLS01
	03/10/2023	J15567	WLS	Sheet 1 of 1

Depth Related Hole Information									
Top Depth (m)	Base Depth (m)	Hole Type	Start Date	End Date	Crew	Plant Used	Contractor	Logged By	Remarks
0.00	3.00	WLS				Premier Rig		SKT	

Hole Diameter			Casing Diameter		
Hole Diameter (mm)	Depth to Base (m)	Remarks	Casing Diameter (mm)	Depth to Base (m)	Remarks

Dynamic Sample Drill Run Information						
Run No.	Top Depth (m)	Base Depth (m)	Duration	Hole Diameter (mm)	Sample Recovery (%)	Remarks

Project Specific Time Related Remarks				Drilling Progress by Time				
Date Time Start	Date Time End	Duration	Remarks	Date Time	Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks

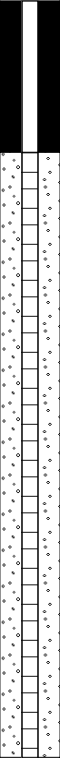
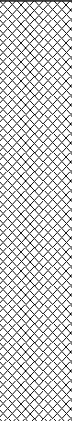
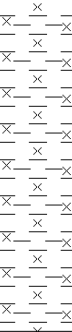
SPT								
Top Depth (m)	Test Type	Casing Depth (m)	Water Depth (m)	Self Weight Penetration (mm)	Reported Result (N Value)	Hammer Serial No.	Energy Ratio %	Remarks
1.00 2.00	S S				N=8 (1,2/1,2,2,3) N=11 (1,1/2,2,3,4)			

Water Strikes and Details							
Depth Strike (m)	Date Time	Depth Casing (m)	Depth Sealed (m)	Remarks	Time Elapsed (mins)	Water Depth (m)	Remarks

Installation Details						Pipe Construction				
Distance	Point Ref.	Type	Top of Response Zone (m)	Base of Response Zone (m)	Pipe Ref.	Pipe Reference	Depth Top (m)	Depth Base (m)	Diameter (mm)	Pipe Type
3.00	1	SP			1	1 1	0.00 1.00	1.00 3.00		PLAIN SLOTTED

Backfill Details			
Depth Top	Depth Base	Material	Remarks
0.00 1.00	1.00 3.00	Bentonite Gravel Backfill	

Status:	FINAL	Log Print Date and Time:	05/10/2023 03:25	Log Approved By:	
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						Start - End Date:		Project ID:		Hole Type:		WLS02	
						03/10/2023		J15567		WLS		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/Fl	Results	Window Run								
		0.60	ES				(1.40)		Grey-brown silty sandy gravel of medium to coarse concrete, brick, flint, rare clinker and cobbles of concrete. MADE GROUND	1			
		1.50	ES			1.40	(1.10)		Hard orange-brown mottled red-orange and dark brown silty CLAY.		2		
		1.80	HP	UCS(kPa)=600								3	
		2.00	SPT	N=11 (2,3/2,2,3,4)			2.50			End of Borehole at 2.50m	4		
										5			
Remarks:													
Stable													
Status:		FINAL		Log Print Date and Time:		05/10/2023 03:25		Log Approved By:					

	Start - End Date:	Project ID:	Hole Type:	WLS02
	03/10/2023	J15567	WLS	Sheet 1 of 1

Depth Related Hole Information									
Top Depth (m)	Base Depth (m)	Hole Type	Start Date	End Date	Crew	Plant Used	Contractor	Logged By	Remarks
0.00	2.50	WLS				Premier Rig		SKT	

Hole Diameter			Casing Diameter		
Hole Diameter (mm)	Depth to Base (m)	Remarks	Casing Diameter (mm)	Depth to Base (m)	Remarks

Dynamic Sample Drill Run Information						
Run No.	Top Depth (m)	Base Depth (m)	Duration	Hole Diameter (mm)	Sample Recovery (%)	Remarks

Project Specific Time Related Remarks				Drilling Progress by Time				
Date Time Start	Date Time End	Duration	Remarks	Date Time	Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks

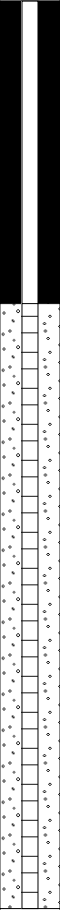
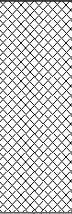
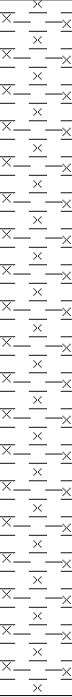
SPT								
Top Depth (m)	Test Type	Casing Depth (m)	Water Depth (m)	Self Weight Penetration (mm)	Reported Result (N Value)	Hammer Serial No.	Energy Ratio %	Remarks
2.00	S				N=11 (2,3/2,2,3,4)			

Water Strikes and Details							
Depth Strike (m)	Date Time	Depth Casing (m)	Depth Sealed (m)	Remarks	Time Elapsed (mins)	Water Depth (m)	Remarks

Installation Details						Pipe Construction				
Distance	Point Ref.	Type	Top of Response Zone (m)	Base of Response Zone (m)	Pipe Ref.	Pipe Reference	Depth Top (m)	Depth Base (m)	Diameter (mm)	Pipe Type
3.00	1	SP			1	1	0.00 0.50	0.50 2.50		PLAIN SLOTTED

Backfill Details			
Depth Top	Depth Base	Material	Remarks
0.00 0.50	0.50 2.50	Bentonite Gravel Backfill	

Status:	FINAL	Log Print Date and Time:	05/10/2023 03:25	Log Approved By:	
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						Start - End Date:		Project ID:		Hole Type:		WLS03	
						03/10/2023		J15567		WLS		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/FI	Results	Window Run								
		0.50	ES			0.70	(0.70)		Friable brown silty clay with frequent fine to occasional coarse gravel of brick, flint, concrete, rare glass, clinker and brick cobbles. MADE GROUND	1			
	0.80	ES						Stiff brown silty CLAY with occasional yellow silty mottling and blue-grey patches.					
	1.00	SPT	N=4 (1,0/1,1,1,1)			(2.30)			2				
	1.50	HP	UCS(kPa)=200										
	2.50	HP	UCS(kPa)=300										
		3.00	SPT	N=10 (1,0/1,2,3,4)		3.00			End of Borehole at 3.00m	3			
										4			
										5			
Remarks:													
Stable													
Status:		FINAL		Log Print Date and Time:		05/10/2023 03:25		Log Approved By:					

	Start - End Date:	Project ID:	Hole Type:	WLS03
	03/10/2023	J15567	WLS	Sheet 1 of 1

Depth Related Hole Information									
Top Depth (m)	Base Depth (m)	Hole Type	Start Date	End Date	Crew	Plant Used	Contractor	Logged By	Remarks
0.00	3.00	WLS				Premier Rig		SKT	

Hole Diameter			Casing Diameter		
Hole Diameter (mm)	Depth to Base (m)	Remarks	Casing Diameter (mm)	Depth to Base (m)	Remarks

Dynamic Sample Drill Run Information						
Run No.	Top Depth (m)	Base Depth (m)	Duration	Hole Diameter (mm)	Sample Recovery (%)	Remarks

Project Specific Time Related Remarks				Drilling Progress by Time				
Date Time Start	Date Time End	Duration	Remarks	Date Time	Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks

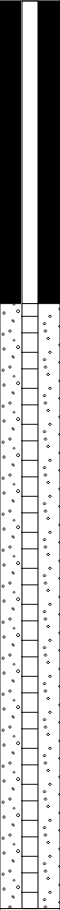
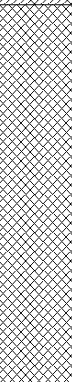
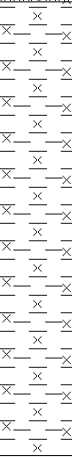
SPT								
Top Depth (m)	Test Type	Casing Depth (m)	Water Depth (m)	Self Weight Penetration (mm)	Reported Result (N Value)	Hammer Serial No.	Energy Ratio %	Remarks
1.00 3.00	S S				N=4 (1,0/1,1,1,1) N=10 (1,0/1,2,3,4)			

Water Strikes and Details							
Depth Strike (m)	Date Time	Depth Casing (m)	Depth Sealed (m)	Remarks	Time Elapsed (mins)	Water Depth (m)	Remarks

Installation Details						Pipe Construction				
Distance	Point Ref.	Type	Top of Response Zone (m)	Base of Response Zone (m)	Pipe Ref.	Pipe Reference	Depth Top (m)	Depth Base (m)	Diameter (mm)	Pipe Type
0.00	1	SP			1	1 1	0.00 1.00	1.00 3.00		PLAIN SLOTTED

Backfill Details			
Depth Top	Depth Base	Material	Remarks
0.00 1.00	1.00 3.00	Bentonite Gravel Backfill	

Status:	FINAL	Log Print Date and Time:	05/10/2023 03:25	Log Approved By:	
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						Start - End Date:		Project ID:		Hole Type:		WLS04	
						03/10/2023		J15567		WLS		Sheet 1 of 1	
Client:		Selsdon Building Contractors Limited					Co-ordinates:		Level (m AOD)		Logger:		
											SKT		
Project Name:		Kerswell Close					Location:		Tottenham, London, N15 5HT				
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description			
		Depth (m)	Type/Fl	Results	Window Run								
		0.50	ES			0.25	(0.25)		Dark brown silty CLAY (Topsoil).		1		
	Cobbles and gravel of brick and concrete in a dark brown silty clay matrix. MADE GROUND												
		1.80	HP	UCS(kPa)=230		1.50	(1.25)		Stiff mid brown silty CLAY with rare blue-grey mottling.		2		
									SPT	N=6 (1,0/1,1,2,2)			
												2.50	HP
	3.00	HP	UCS(kPa)=250	3.00	(1.50)		Yellow-orange silty partings from 2.2-3.0m.		3				
									End of Borehole at 3.00m		5		
Remarks:													
Made Ground was unstable. Backfilled to 2.65m bgl. on completion.													
Status:		FINAL			Log Print Date and Time:		05/10/2023 03:25		Log Approved By:				

	Start - End Date:	Project ID:	Hole Type:	WLS04
	03/10/2023	J15567	WLS	Sheet 1 of 1

Depth Related Hole Information									
Top Depth (m)	Base Depth (m)	Hole Type	Start Date	End Date	Crew	Plant Used	Contractor	Logged By	Remarks
0.00	3.00	WLS				Premier Rig		SKT	

Hole Diameter			Casing Diameter		
Hole Diameter (mm)	Depth to Base (m)	Remarks	Casing Diameter (mm)	Depth to Base (m)	Remarks

Dynamic Sample Drill Run Information						
Run No.	Top Depth (m)	Base Depth (m)	Duration	Hole Diameter (mm)	Sample Recovery (%)	Remarks

Project Specific Time Related Remarks				Drilling Progress by Time				
Date Time Start	Date Time End	Duration	Remarks	Date Time	Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks

SPT								
Top Depth (m)	Test Type	Casing Depth (m)	Water Depth (m)	Self Weight Penetration (mm)	Reported Result (N Value)	Hammer Serial No.	Energy Ratio %	Remarks
2.00	S				N=6 (1,0/1,1,2,2)			

Water Strikes and Details							
Depth Strike (m)	Date Time	Depth Casing (m)	Depth Sealed (m)	Remarks	Time Elapsed (mins)	Water Depth (m)	Remarks

Installation Details						Pipe Construction				
Distance	Point Ref.	Type	Top of Response Zone (m)	Base of Response Zone (m)	Pipe Ref.	Pipe Reference	Depth Top (m)	Depth Base (m)	Diameter (mm)	Pipe Type
0.00	1	SP			1	1	0.00 1.00	1.00 3.00		PLAIN SLOTTED

Backfill Details			
Depth Top	Depth Base	Material	Remarks
0.00 1.00	1.00 3.00	Bentonite Gravel Backfill	

Status:	FINAL	Log Print Date and Time:	05/10/2023 03:25	Log Approved By:	
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Project Name		Project No		Tech		Date		Equipment Used				
Kerswell Close, Tottenham		J15567		DT		19 December 2023		GFM436: S/N 13763				
								TIGER: S/N A-861240				
Well No	WLS01	Atm Press	mb temp	1017	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				10°C			0.0			Min:	0	
Well Depth (m)	3.00	Groundwater level from GL (m)	2.65	VOC ppm	Max:	0.1	LEL %	Max:	0.0			
						0.0			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	14.8	17.1	18.2	18.9	19.4	19.9	20.2	20.4	20.4	/	/	/
CO ₂	2.4	1.6	1.1	0.8	0.6	0.4	0.3	0.2	0.2	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/
Remarks/Weather Raining						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS02	Atm Press	mb temp	1016	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				10°C			0.0			Min:	0	
Well Depth (m)	2.50	Groundwater level from GL (m)	Dry	VOC ppm	Max:	0.0	LEL %	Max:	0.0			
						0.0			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	18.5	18.2	18.0	17.8	17.5	17.2	17.0	17.0	/	/	/	/
CO ₂	1.9	2.0	2.1	2.2	2.4	2.8	2.9	2.9	/	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/
Remarks/Weather Raining						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS04	Atm Press	mb temp	1016	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				10			0.0			Min:	0	
Well Depth (m)	3.00	Groundwater level from GL (m)	0.80	VOC ppm	Max:	0.2	LEL %	Max:	0.0			
						0.1			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	20.6	20.1	19.7	19.2	18.6	/	/	/	/	/	/	/
CO ₂	0.1	0.3	0.4	0.5	0.6	/	/	/	/	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/	/	/
Remarks/Weather Raining (pump started sucking up water so test had to be stopped early)						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Pressure Trend Before Visit: Falling												

Project Name		Project No		Tech		Date		Equipment Used				
Kerswell Close, Tottenham		J15567		JB		07 December 2023		GFM436: S/N 13763				
								TIGER: S/N A-861240				
Well No	WLS01	Atm Press	mb temp	1009	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				8°C			0.0			Min:	0	
Well Depth (m)	3.00	Groundwater level from GL (m)	2.50	VOC ppm	Max:	0.4	LEL %	Max:	0.0			
						0.0			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	21.0	19.8	14.1	139.0	13.7	13.1	13.1	13.1	13.1	/	/	/
CO ₂	3.7	3.9	4.0	3.9	4.1	4.1	4.1	4.1	4.1	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/
Remarks/Weather Cold and overcast						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS02	Atm Press	mb temp	1008	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				8°C			0.0			Min:	0	
Well Depth (m)	2.50	Groundwater level from GL (m)	Dry	VOC ppm	Max:	0.4	LEL %	Max:	0.0			
						0.0			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	20.3	18.7	18.5	17.4	17.2	16.9	16.8	16.8	16.8	/	/	/
CO ₂	1.6	2.0	2.3	2.6	2.9	3.2	3.2	3.2	3.2	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/
Remarks/Weather Raining						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS04	Atm Press	mb temp	1008	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				8°C			0.0			Min:	0	
Well Depth (m)	3.00	Groundwater level from GL (m)	0.70	VOC ppm	Max:	0.2	LEL %	Max:	0.0			
						0.0			Min:	0.0		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	20.6	20.4	20.1	18.5	18.3	17.6	/	/	/	/	/	/
CO ₂	0.1	0.1	0.0	0.0	0.0	0.0	/	/	/	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/	/
Remarks/Weather Raining						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Pressure Trend Before Visit: Falling												

Project Name		Project No		Tech		Date		Equipment Used					
Kerswell Close, Tottenham		J15567		JB		28 November 2023		GFM436: S/N 13763					
								TIGER: S/N A-861240					
Well No	WLS01	Atm Press	mb temp	992	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0			
				5°C		Min:	0.0		Min:	0			
Well Depth (m)	3.00	Groundwater level from GL (m)	2.80	VOC ppm	Max:	0.2	LEL %	Max:	0.0				
					Min:	0.0		Min:	0.0				
Time (Seconds)													
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	15.1	14.0	13.5	13.5	13.4	13.6	13.7	/	/	/	/	/	
CO ₂	3.6	3.8	3.9	3.9	3.9	3.9	3.8	/	/	/	/	/	
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/	
Remarks/Weather					Clear, cold and sunny.			CO ppm	Max: 0	H ₂ S ppm	Max: 0		
								Min: 0		Min: 0			
Well No	WLS02	Atm Press	mb temp	1009	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0			
				50c		Min:	0.0		Min:	0			
Well Depth (m)	2.50	Groundwater level from GL (m)	Dry	VOC ppm	Max:	0.2	LEL %	Max:	0.0				
					Min:	0.0		Min:	0.0				
Time (Seconds)													
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	15.5	15.6	15.6	15.5	15.5	15.4	/	/	/	/	/	/	
CO ₂	3.5	3.6	3.7	3.7	3.7	3.8	/	/	/	/	/	/	
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/	/	
Remarks/Weather					Clear, cold and sunny.			CO ppm	Max: 0	H ₂ S ppm	Max: 0		
								Min: 0		Min: 0			
Well No	WLS04	Atm Press	mb temp	1010	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0			
				50c		Min:	0.0		Min:	0			
Well Depth (m)	3.00	Groundwater level from GL (m)	0.85	VOC ppm	Max:	0.3	LEL %	Max:	0.0				
					Min:	0.0		Min:	0.0				
Time (Seconds)													
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	20.6	20.2	19.5	/	/	/	/	/	/	/	/	/	
CO ₂	0.0	0.0	0.0	/	/	/	/	/	/	/	/	/	
CH ₄	0.0	0.0	0.0	/	/	/	/	/	/	/	/	/	
Remarks/Weather					Clear, cold and sunny.			CO ppm	Max: 0	H ₂ S ppm	Max: 0		
								Min: 0		Min: 0			
Pressure Trend Before Visit: Falling													

Pressure Trend Before Visit: Generally falling

Project Name		Project No		Operative		Date		Equipment Used					
Kerswell close, Tottenham		J15567		JB		26 October 2023		GFM436: S/N 10743 TIGER: S/N A-861240					
Well No	WLS01	Atm Press	mb temp	992	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				16C			Min:	0.0		Min:	0		
Well Depth (m)	3.00	Groundwater level from GL (m)	Dry	11:20	VOC ppm	Max:	0.1	LEL %	Max:	0.0			
						Min:	0.1		Min:	0.0			
	Time (Seconds)												
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	19.7	18.0	18.1	17.5	17.0	16.8	16.8	16.8	16.8	16.7	16.7	16.7	
CO ₂	0.0	1.9	2.0	2.7	2.9	2.9	3.0	3.0	3.1	3.1	3.1	3.1	
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Remarks/Weather						CO		Max:	0	H ₂ s		Max:	0
DRY/SUNNY GROUND WET						ppm		Min:	0	ppm		Min:	0
Well No	WLS02	Atm Press	mb temp	990	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				16C			Min:	0.0		Min:	0		
Well Depth (m)	2.90	Groundwater level from GL (m)	Dry	11:35	VOC ppm	Max:	0.9	LEL %	Max:	0.0			
						Min:	0.7		Min:	0.0			
	Time (Seconds)												
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	19.6	18.4	17.5	17.4	17.5	17.5	17.3	17.3	17.3	17.2	17.2	17.2	
CO ₂	2.1	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.7	2.7	2.7	
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Remarks/Weather						CO		Max:	0	H ₂ s		Max:	0
DRY/SUNNY GROUND WET						ppm		Min:	0	ppm		Min:	0
Well No	WLS03	Atm Press	mb temp	989	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
				16C			Min:	0.0		Min:	0		
Well Depth (m)	2.90	Groundwater level from GL (m)	1.19	11:50	VOC ppm	Max:	0.1	LEL %	Max:	0.0			
						Min:	0.0		Min:	0.0			
	Time (Seconds)												
	30	60	90	120	180	240	300	360	420	480	540	600	
O ₂	20.9	20.3	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	
CO ₂	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Remarks/Weather						CO		Max:	0	H ₂ s		Max:	0
OVERCAST/ GROUND WET						ppm		Min:	0	ppm		Min:	0
Pressure Trend Before Visit: Falling.													

Project Name		Project No		Operative		Date		Equipment Used				
Kerswell Close, Tottenham		J15567		SKT		12 October 2023		GFM436: S/N 10743 TIGER: S/N A-861240				
Well No	WLS01	Atm Press mb temp °C	1011	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
			17			Min:	0.0		Min:	0		
Well Depth (m)	3.10	Groundwater level from GL (m)	Dry	1205	VOC ppm	Max:	0.0	LEL %	Max:	/		
						Min:	0.0		Min:	/		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	18.5	18.3	18.2	18.1	18.0	17.8	17.7	/	/	/	/	18.0
CO ₂	2.6	2.7	2.8	3.0	3.2	3.4	3.5	/	/	/	/	3.0
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	0.0
Remarks/Weather Overcast with drizzle and occasional light rain. Still and mild.						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS02	Atm Press mb temp °C	1011	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
			17			Min:	0.0		Min:	0		
Well Depth (m)	2.53	Groundwater level from GL (m)	Dry	1150	VOC ppm	Max:	0.0	LEL %	Max:	/		
						Min:	0.0		Min:	/		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	19.1	19.0	18.9	18.8	18.7	18.6	18.5	18.5	18.5	18.5	/	/
CO ₂	1.8	1.8	1.9	1.9	2.1	2.2	2.3	2.3	2.3	2.3	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/
Remarks/Weather Overcast with drizzle and occasional light rain. Still and mild.						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	
Well No	WLS03	Atm Press mb temp °C	1012	Time of Reading	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0		
			17			Min:	0.0		Min:	0		
Well Depth (m)	3.05	Groundwater level from GL (m)	1.95	1140	VOC ppm	Max:	0.0	LEL %	Max:	/		
						Min:	0.0		Min:	/		
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	20.5	20.0	20.0	20.0	19.9	19.9	19.9	/	/	/	/	/
CO ₂	0.5	0.5	0.5	0.5	0.6	0.6	0.7	/	/	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/
Remarks/Weather Overcast with drizzle and occasional light rain. Still and mild.						CO ppm	Max:	0	H ₂ s ppm	Max:	0	
							Min:	0		Min:	0	



Project Name	Project No	Tech	Date	Equipment Used
Kerswell Close, Tottenham	J15567	SKT	12 October 2023	GFM436: S/N 10743 TIGER: S/N A-861240

Well No	WLS04	Atm Press mb temp	1013	Flow l/hr	Max:	0.0	Diff Pressure (Pa)	Max:	0			
			17			Min:			0.0	Min:	0	
Well Depth (m)	3.05	Groundwater level from GL (m)	0.83	VOC ppm	Max:	0.0	LEL %	Max:	/			
						Min:			0.0	Min:	/	
	Time (Seconds)											
	30	60	90	120	180	240	300	360	420	480	540	600
O ₂	20.0	19.8	20.0	20.1	20.1	20.2	20.3	/	/	/	/	/
CO ₂	0.4	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/
CH ₄	0.0	0.0	0.0	0.0	0.0	0.0	0.0	/	/	/	/	/
Remarks/Weather	Overcast with drizzle and occasional light rain. Still and mild.						CO ppm	Max:	0	H ₂ s ppm	Max:	0
								Min:	0		Min:	0
Pressure Trend Before Visit: Stable/falling slightly.												