



AT/M4993/11821 REV A

17 May 2023

Shurgard UK Ltd
Ground Floor
Egerton House
Baker Street
Weybridge
KT13 8AL

For the attention of Mr David Ross

Dear David

Re: Garman Road, Tottenham-Ground Gas Risk Assessment.

We write to report on the gas monitoring and risk assessment at the above site. The site is currently occupied by a warehouse/ factory building, with a vegetated area along the eastern boundary. There is a small yard along the northern boundary of the site.

A Desk Study was initially undertaken by BSL (SRP/M4993/10841) issued in March 2022, which highlighted a moderate risk from ground gas due to the anticipated presence of made ground on-site in addition to Alluvium deposits underlying the made ground.

BSL completed a site investigation between the dates of 21st and 22nd March 2022 to confirm or otherwise the presence and risk of ground gas sources at the site. A Geo-Environmental Assessment report (Ref: SRP/M4993/10981) was issued in May 2022. A supplementary investigation was undertaken between the dates of 27th March and 30th March 2023. Revision A of the Geo-Environmental Assessment Report was issued in May 2023.

Site Investigation

Concrete surfacing was present across the site. This concrete was cored inside the building and was observed from ground level to between 0.14m and 0.21m bgl. Concrete was also observed in the yard and was encountered from ground level to between 0.12m and 0.15m bgl in this area.

General made ground was encountered within all the exploratory holes across the site and was observed from ground level to depths between 0.90m and 1.20m bgl. The base of the made ground was not observed in HP01 as the hole was terminated due to a possible service. The composition of the made ground was fairly consistent across the site. The majority comprised dark brown gravelly clay. The gravel generally consisted of brick, chert, concrete, pottery with occasional coal and rare slate. In WS03, made ground of light brown and grey sandy gravel with medium cobble content was encountered between 0.12m and 0.32m bgl between the concrete and clay made ground.

Two layers of natural superficial strata were encountered beneath the made ground. The first layer encountered was generally a firm clay with varying amounts of sand and gravel as minor constituents. The second layer consists of a sandy gravel of chert and siltstone. In WS02 the gravel strata was recorded as clayey.

Based on the ground conditions encountered, the gas generation potential of the made ground and natural soils is considered to be very low, and the sensitivity of the building is considered to be low.

Ground gas and ground water monitoring standpipes were installed in five boreholes and subsequently three monitoring visits have been undertaken out of three proposed as part of the current scope, in line with the recommendations of CIRIA C665. All gas monitoring was undertaken using GA 5000 infrared gas meter with integral electronic flow analyser and a Photo Ionisation Detector (PID). The Desk Study completed by Brownfield Solutions Ltd (reference SRP/M4993/10841) suggested six monitoring visits were to be carried out in accordance with CIRIA C665 guidance but also stated that monitoring may be concluded early if the dataset shows consistent data including across periods of falling pressure. A further three visits were carried out between the dates of 12th April and 4th May 2023, through rising, steady and falling pressure trends.

Flow measurements on each standpipe (l/hr) were taken. Measurements of the percentage volume in air (%v/v) of oxygen (O₂), carbon dioxide (CO₂) and methane (CH₄) were recorded in addition to the percentage Lower Explosive Limit (%LEL) of methane (Note: 100% LEL equates to 5% by volume), the atmospheric pressure (mb) and average temperature during the visit (°C). Total volatile organic compounds (TVOCs) were measured with a Photo Ionisation Detector (PID).

Standpipes were constructed in general accordance with the relevant guidance. A summary of the installation construction is presented in the table below:

Location and Depth	Internal Diameter Pipe	Response Zone (m bgl)	Targeted Strata	Purpose
WS01	35mm PVC	1.00 – 3.00	MADE GROUND, CLAY, and GRAVEL	Ground Gas
WS02	35mm PVC	0.75 – 2.00	MADE GROUND and GRAVEL	Ground Gas
WS03	35mm PVC	0.75 – 2.00	MADE GROUND, CLAY, and GRAVEL	Ground Gas
WS04	35mm PVC	0.60 – 3.00	MADE GROUND, CLAY, and GRAVEL	Ground Gas
WS05	35mm PVC	0.60 – 3.00	MADE GROUND, CLAY, and GRAVEL	Ground Gas
BH01	50mm HDPE	1.50 – 5.00	SAND AND GRAVEL	Ground Gas
BH02	50mm HDPE	0.50 – 1.50	MADE GROUND	Ground Gas

The gas monitoring visits recorded peak and steady state conditions. Peak results are those that occur on opening the valve on the borehole tap. Steady state conditions are those that occur a period of time afterwards when the initial (accumulated) gases have been purged from the borehole.

Ground Gas Results

Six ground gas monitoring visits have been carried out between the dates of 7th April 2022 and 4th May 2023. The results are summarised in the table below:

	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)		H ₂ S (ppm)		TVOC (ppm)		Flow (l/h)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Peak	0.1	0.1	0.1	10.0	6.2	19.8	0.0	0.0	0.0	0.0	0.0	78.9	0.1	2.1
Steady	0.1	0.1	0.1	10.0	6.0	20.5							0.1	0.1

Notes: CH₄ = Methane; CO₂= Carbon dioxide; O₂= Oxygen; CO= Carbon Monoxide; H₂S= Hydrogen Sulphide; TVOC (PID)= Total Volatile Organic Compounds (as measured with Photo Ionisation Detector); ppm= Parts Per Million.

Methane was recorded at 0.1%v/v or lower during the monitoring period.

Peak carbon dioxide concentrations ranged between 0.2%v/v and 10.0%v/v and exceeded 5%v/v within two locations on two separate visits. Steady state concentrations ranged between 0.1%v/v and 10.0%v/v. Carbon dioxide concentrations were consistently highest in WS02.

Peak oxygen concentrations ranged between 6.2%v/v and 19.8%v/v, steady state conditions ranged between 6.0%v/v and 20.5%v/v. Depleted oxygen concentrations were observed in all boreholes, primarily WS02 where elevated carbon dioxide was detected.

The recorded flow rates were generally below the limit of detection (0.1l/hr), with one exception being a peak recorded flow of 2.1l/hr within WS04 on the first visit, with the steady state flow returning to the limit of detection value (0.1l/hr). During the following monitoring visits, all locations were less than the limit of detection (0.1l/hr).

The initial peak flow reading in WS04 is not considered to be representative based on the data recorded in other locations on the same date and the fact that no other positive flow rates were detected during subsequent monitoring visits. A pressure differential may have developed in the standpipe following installation which caused the brief spike in flow rate.

Driving Mechanisms

The atmospheric pressure ranged between 981mb and 1018mb over the monitoring period. The gas monitoring visits were undertaken through periods of both rising and falling atmospheric pressure. The gas monitoring data has been collected in conditions that would be representative of worst-case results.

The weather conditions during the monitoring period ranged from cool windy conditions to clear and sunny conditions. No evidence of frost was observed on the ground and none of the areas surrounding the boreholes appeared to be saturated.

The temperatures recorded during the monitoring period ranged between 11 and 19° Celsius.

No groundwater was encountered in WS02 or WS03 on the second and third visits. Where present, groundwater levels on site ranged from 1.91 mbgl and 2.64mbgl and were recorded below the response zone of the monitoring standpipes in all of the holes. The groundwater depths are summarised in the table below:

Location and Response Zone	During Site Works	07/04/22	21/04/22	17/05/22	12/04/23	24/04/23	04/05/23
WS01 1.00-3.00m bgl	NGW	2.09	2.25	2.30	NA	2.00	1.98
WS02 0.75-2.00m bgl	NGW	1.97	NGW	NGW	NA	NA	NA
WS03 0.75-2.00m bgl	NGW	1.91	NGW	NGW	NA	NA	NA
WS04 0.60-3.00m bgl	2.60	2.10	2.26	2.31	1.79	2.00	2.57
WS05 0.60-3.00m bgl	NGW	2.21	2.34	2.37	NA	2.09	2.61
BH01 1.50-5.00	4.50	NA	NA	NA	1.99	2.12	2.03
BH02 0.50-1.50	2.00	NA	NA	NA	NGW	1.58	1.61

Cells highlighted red indicate groundwater recorded above the response zone.

Radon

Having assessed the site from information available to date, the site is not in an area requiring radon precaution measures.

Assessment

The development is a five storey commercial self storage unit. Approximately 30% of the building footprint is taken up with under-croft car parking space at grade, such that the upper floors fly over the parking areas.

The desk study and ground investigation have found no significant credible sources of ground gas. The only potential source of ground gas is the made ground which has been identified as gravelly clay up to 1.20m deep and as not described does not contain significant material likely to give rise to ground gases. Therefore, ground gas monitoring has been undertaken as a precautionary exercise.

In order to assess the ground gas situation and the requirement for ground gas precautionary measures at the site, guidance was taken from CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings' and BS8485:2015+A1:2019 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

As the proposed end-use is for a commercial development, CIRIA C665 dictates that the gas monitoring results should be assessed in accordance with the Wilson and Card methodology.

In accordance with CIRIA C665, the Wilson and Card methodology uses the concept of a Gas Screening Value (GSV) which is based on measured data using the following equation: $(\text{max gas concentration} / 100) \times \text{maximum flow}$.

As the maximum positive flow reading of 2.1l/hr is considered an anomalous result and is not considered to be representative of the gas flow regime at the site, a positive flow of 0.1l/hr has been used to derive the GSVs. The GSV's for the site are presented below.

Gas	Calculated GSV (l/h)	Max Threshold Concentration Exceeded	Classification
Methane	0.0001	No	CS2
Carbon Dioxide	0.01	Not typically	CS1

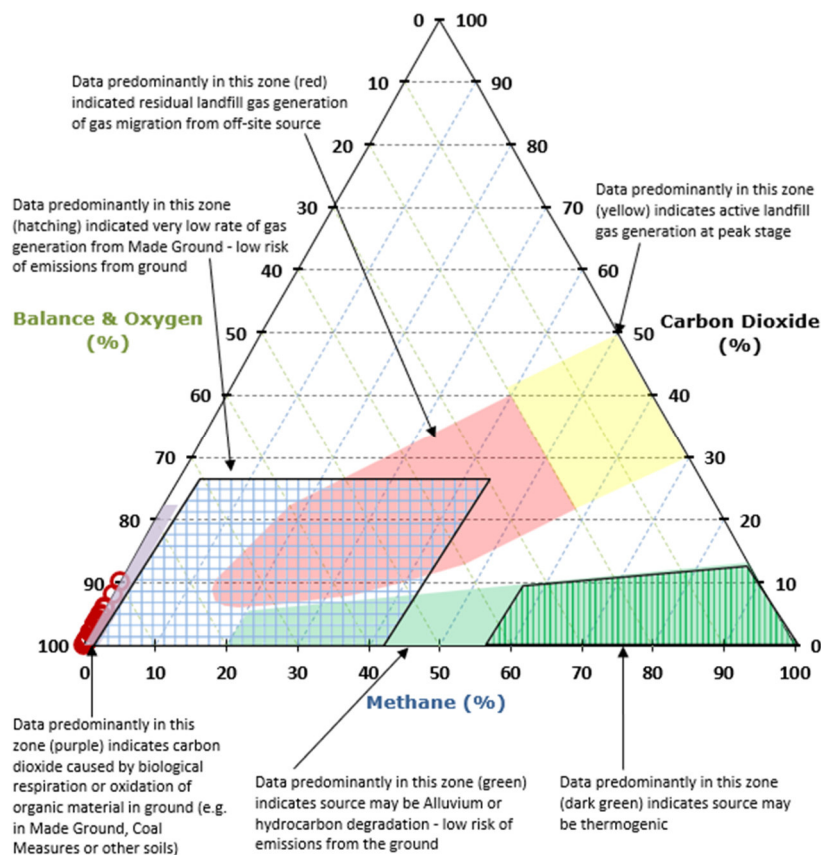
The GSV for carbon dioxide and methane place the site the site into Characteristic Situation 1 (CS1), and although carbon dioxide exceeded 5%v/v in two out of seven locations, this is not considered typical.

The ground gas monitoring has been reinforced by a lines of evidence approach in order to assess the ground gas risk at the site.

The locations where the 5% threshold value was exceeded was in WS01 and WS02, which are in or close to the location of a proposed under croft car park. The under croft will likely provide a preferential pathway for any ground gases to migrate into this area. Adequate ventilation systems will be in place within the under croft area to mitigate the risks from vehicle fumes, which will also prevent any ground gas build up.

Ternary Plots

In order to increase confidence in this assessment, reference has been made to the NHBC 2023 Hazardous Ground Gas Guidance . The data for ground gas concentrations has been presented on the ternary plot displayed below, which aims to interpret the likely source of the ground gas.



The dataset falls within the zone attributed to microbial respiration of organic material in soils and this hypothesis is supported by the low gas flow rates and very low methane concentrations which characterise the gas monitoring data.

The monitoring well installations cross the boundary of the made ground and natural strata, terminating in a clayey gravel, interpreted to be of a river deposit origin such as alluvium or river terrace deposits. As indicated in the paper by Wilson et al, natural soils of river terrace origin can have a carbon dioxide concentration up to 21%. Furthermore, the made ground deposits recorded at the site are predominantly cohesive deposits with no evidence of degradable anthropogenic material being present within the soils.

When monitoring wells are installed in the above materials, the small volumes of organic material are exposed to oxygen which can result in biological respiration or oxidation which results in the production of carbon dioxide. The above process of generating carbon dioxide, occurs very slowly and will not be emitted from the ground surface in quantities or at a rate that will pose a risk to the development. This interpretation is supported by the lack of flows recorded on-site, given that the only flow above limit of detection is thought to have been caused directly as a result of the installation of the monitoring well, and it is not characteristic of the ground gas flow regime on the site.

Oxygen concentrations may be depleted but in this scenario oxygen deficient air is not likely to be emitted quickly from the ground and it does not pose a risk.

Based on the qualitative and quantitative lines of evidence, it is appropriate to classify the site as CS1 and gas protection measures are not considered to be necessary in the development.

Pathway Introduction

The proposed development is a five-storey self-storage centre which will utilise piled foundations. Given the source of the carbon dioxide has been assessed to originate from microbial degradation and is a very low gas generation source, it is considered that piled foundations will not create an elevated risk from ground gas ingress by introducing preferential pathways.

Conclusions and Recommendations

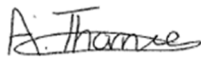
On the basis of the monitoring undertaken, the assessment and guidance, ground gas precautions are not required as the site has been characterised as Characteristic Situation 1 (CS1), and therefore the risk from ground gas is considered to be very low.

Recommendations made within this assessment should be confirmed with the Local Authority prior to any irrevocable action at the site.

We trust the above meets your requirements. If you have any queries then please do not hesitate to contact the undersigned.

Yours sincerely

For Brownfield Solutions Ltd



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Enc Ground Gas Monitoring Results
 Ground Gas Monitor Calibration Certificates
 Borehole Logs
 Exploratory Hole Location Plan



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Ground Gas Monitoring Results



CLIENT:	Date	Operator	Analysar	Weather Observations			Temp (°C)	Pressure Trend	Min Barometric Pressure (mb)	Notes
SHURGARD UK	07/04/2022	PG	GFM	Intermittent cloud	Windy	Cool	11	Falling	981	
JOB NO.	21/04/2022	PG	GFM	Sunny	No wind	Warm	14	Falling	1009	
M4993	17/05/2022	PG	GA5000	Intermittent cloud	No wind	Warm	19	Rising	1018	
SITE:	12/04/2023	AT	GFM	Sunny	Light breeze	Warm	10	Rising	995	
GARMAN ROAD TOTTENHAM	24/042023	SJ	GFM	Intermittent cloud	No wind	Cool	12	Steady	1010	
	04/05/2023	LH	GFM	Overcast	Light breeze	Warm	13	Falling	1016	

Notes: mb = milibars; CH₄ = methane; LEL = lower explosive limit = 5%v/v; CO₂ = carbon dioxide; O₂ = oxygen; CO=carbon monoxide; H₂S = hydrogen sulphide; TVOC= Total volatile organic compounds; PPM = parts per million. Where the flow is less than the limit of detection of the instrument, the detection limit is reported (Highlighted in green). Gas Screening Values (GSVs) are rounded to 3 decimal places. Calibration Records for analysers used available on request.

Date	Time	Location	Response zone (m)	Pressures (mb)		Gas flows (l/hr)		CH ₄ (%v/v)		CH ₄ (%LEL)		CO ₂ (%v/v)		O ₂ (%v/v)		Other Gases (PPM)			Depth to Water (m)	Well Base (m)	Gas Screening Value (CH ₄) (l/hr)	Gas Screening Value (CO ₂) (l/hr)	Notes	
				Atmospheric Pressure	Well Relative Pressure	Initial	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	CO	H ₂ S	TVOC (PID)						
				Summary Statistics																				
Max. values:				1016	0.2	2.1	0.1	0.1	0.1	2.0	2.0	10.0	10.0	20.9	20.5	0.0	0.0	78.9	2.4	21.6	0.000	0.010		
Min. values:				982	-0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	6.2	6.0	0.0	0.0	0.0	1.6	1.6	0.000	0.000		
				Worst-case GSVs based on maximum recorded steady flow and maximum individual peak concentrations:																		0.000	0.010	
07/04/2022	AM	Ambient		982				0.1		2.0		0.1		19.7		0.0	0.0	0.0						
		WS03	0.75-2.00	982.00	0.0	0.1	0.1	0.1	0.1	2.0	2.0	0.2	0.1	19.4	19.7	0.0	0.0	0.0	1.91	2.03	0.000	0.000		
		WS02	0.75-2.00	982.00	0.0	0.1	0.1	0.1	0.1	2.0	2.0	4.6	4.6	13.9	13.2	0.0	0.0	0.0	1.97	2.05	0.000	0.005		
		WS01	1.00-3.00	982.00	0.0	0.1	0.1	0.1	0.1	2.0	2.0	1.0	1.1	18.2	18.5	0.0	0.0	0.0	2.09	2.61	0.000	0.001		
		WS04	0.60-3.00	982.00	0.0	2.1	0.1	0.1	0.1	2.0	2.0	3.1	3.3	16.9	17.0	0.0	0.0	0.0	2.10	2.57	0.000	0.003		
		WS05	0.60-3.00	982.00	0.0	0.1	0.1	0.1	0.1	2.0	2.0	2.0	0.2	17.9	19.4	0.0	0.0	0.0	2.21	2.71	0.000	0.002		
07/04/2022	AM	Ambient		981				0.1		2.0		0.1		19.7		0.0	0.0	0.0						
21/04/2022	AM	Ambient		1009		0.1		0.1		2.0		0.1		19.4		0.0	0.0	0.0						
		WS03	0.75-2.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	0.5	0.2	19.3	19.4	0.0	0.0	0.0	NGW	2.08	0.000	0.001		
		WS02	0.75-2.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	5.8	5.8	9.7	9.7	0.0	0.0	0.0	NGW	2.05	0.000	0.006		
		WS01	1.00-3.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	2.0	0.9	17.8	18.9	0.0	0.0	0.0	2.25	2.53	0.000	0.002		
		WS04	0.60-3.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	2.2	1.8	18.0	18.4	0.0	0.0	0.0	2.26	2.60	0.000	0.002		
		WS05	0.60-3.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	1.9	1.9	18.6	18.7	0.0	0.0	0.0	2.34	2.65	0.000	0.002		
21/04/2022	AM	Ambient		1009		0.1		0.1		2.0		0.1		19.4		0.0	0.0	0.0						
17/05/2022	AM	Ambient		1009		0.1		0.1		2.0		0.1		20.9		NA	0.0	0.0						
		WS03	0.75-2.00		0.05	0.1	0.1	0.1	0.1	2.0	2.0	0.6	0.3	19.8	20.5	NA	0.0	0.0	NGW	2.07	0.000	0.001		
		WS02	0.75-2.00		-0.10	0.1	0.1	0.1	0.1	2.0	2.0	10.0	10.0	6.2	6.0	NA	0.0	0.0	NGW	2.04	0.000	0.010		
		WS01	1.00-3.00		0.05	0.1	0.1	0.1	0.1	2.0	2.0	2.3	2.3	17.9	17.9	NA	0.0	0.0	2.30	2.63	0.000	0.002		
		WS04	0.60-3.00		0.19	0.1	0.1	0.1	0.1	2.0	2.0	3.7	4.0	17.4	17.1	NA	0.0	0.0	2.31	21.58	0.000	0.004		
		WS05	0.60-3.00		0.09	0.1	0.1	0.1	0.1	2.0	2.0	2.5	2.6	18.5	18.3	NA	0.0	0.0	2.37	2.65	0.000	0.003		
17/05/2022	AM	Ambient		1009		0.1		0.1		2.0		0.1		20.9		NA	0.0	0.0						
12/04/2023	AM	Ambient		995				0.0				0.0		20.3		0.0	0.0	0.0				0.000		
		BH01	1.50-5.00		0.0	0.1	0.1	0.0	0.0	0.0	0.0	2.1	1.4	15.2	16.8	0.0	0.0	78.9	1.99	4.74	0.000	0.002		
		BH02	0.50-1.50		0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.0	18.5	20.3	0.0	0.0	0.0	NGW	1.59	0.000	0.001		
		WS01	1.00-3.00																				could not locate	
		WS02	0.75-2.00																				could not locate	
		WS03	0.75-2.00																				could not locate	
		WS04	0.6-3.0		0.0	0.1	0.1	0.0	0.0	0.0	0.0	4.8	4.7	16.4	16.8	0.0	0.0	0.0	1.79	2.53	0.000	0.005		
12/04/2023	AM	Ambient End		998				0.0				0.0		20.3		0.0	0.0	0.0				0.000	could not locate	

Ground Gas Monitoring Results



Date	Time	Location	Response zone (m)	Pressures (mb)		Gas flows (l/hr)		CH ₄ (%v/v)		CH ₄ (%LEL)		CO ₂ (%v/v)		O ₂ (%v/v)		Other Gases (PPM)			Depth to Water (m)	Well Base (m)	Gas Screening Value (CH ₄) (l/hr)	Gas Screening Value (CO ₂) (l/hr)	Notes
				Atmospheric Pressure	Relative Well Pressure	Initial	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	CO	H ₂ S	TVOC (PID)					
24/04/2023	PM	Ambient		1011				0.0		0.0		0.0		20.1									
		BH01	1.50-5.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	3.0	1.2	17.1	19.3	0.0	0.0		2.12	4.75	0.000	0.003	
		BH02	0.50-1.50		0.0	0.1	0.1	0.1	0.1	2.0	2.0	0.6	0.1	19.7	20.5	0.0	0.0		1.58	1.63	0.000	0.001	
		WS01	1.00-3.00		0.0	0.1	0.1	0.1	0.1	2.0	2.0	5.9	4.6	10.9	13.0	0.0	0.0		2.00	2.55	0.000	0.006	
		WS02	0.75-2.00																				BOREHOLE DESTROYED
		WS03	0.75-2.00																				BOREHOLE DESTROYED
		WS04	0.6-3.0		0.0	0.1	0.1	0.1	0.1	2.0	2.0	2.1	0.6	19.0	20.2	0.0	0.0		2.00	2.56	0.000	0.002	
		WS05	0.6-3.0		0.0	0.1	0.1	0.1	0.1	2.0	2.0	3.2	2.3	18.0	18.8	0.0	0.0		2.09	2.62	0.000	0.003	
		Ambient End		1012				0.0		0.0		0.0		20.2									
04/05/2023	PM	Ambient		1016				0.0		0.0		0.0		20.1		0.0	0.0	0.0					
		BH01	1.50-5.00		0.0	0.1	0.1	0.0	0.0	0.0	0.0	4.0	3.9	16.1	17.1	0.0	0.0	0.0	2.03	4.70	0.000	0.004	
		BH02	0.50-1.50		0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.7	0.6	19.2	19.4	0.0	0.0	0.0	1.61	1.64	0.000	0.001	
		WS01	1.00-3.00		0.0	0.1	0.1	0.0	0.0	0.0	0.0	8.1	7.1	8.8	9.7	0.0	0.0	0.0	1.98	2.57	0.000	0.008	
		WS02	0.75-2.00																				UNDER WELFARE UNIT
		WS03	0.75-2.00																				UNDER WELFARE UNIT
		WS04	0.6-3.0		0.0	0.1	0.1	0.0	0.0	0.0	0.0	3.9	3.5	17.3	17.7	0.0	0.0	0.0	1.97	2.57	0.000	0.004	
		WS05	0.6-3.0		0.0	0.1	0.1	0.0	0.0	0.0	0.0	3.1	3.0	17.5	17.5	0.0	0.0	0.0	2.03	2.61	0.000	0.003	
		Ambient End		1015				0.0		0.0		0.0		20.3		0.0	0.0	0.0					

TEST DATE AND CONDITIONS			
Date	15.7.22		
Atmospheric Pressure	1005	mB	
Ambient Temperature	21.9	°C	
EnviroNics Serial No.	3039		

GAS DATA LTD
Unit 4
Fairfield Court
Seven Stars Estate
Coventry
CV3 4LJ
UK
+44 (0)24 7630 3311



GFM436-1 OUTWARD INSPECTION & QUALITY CHECK SHEET

INSTRUMENT DETAILS			
SO Number	Instrument Type	Instrument Serial Number + SW Version	Job Number(s)
331630	GFM436	13361 G436-27/10	123351

Calibration Technician *[Signature]*

Date 15.7.22

Inspection Technician *[Signature]*

Date 18.7.22

INSTRUMENT CHECKS		Pass (P), Fail (F) or not applicable (NA)		INSTRUMENT PACKING LIST		Tick if included
Function Tests	Dust Caps Fitted	P		Instrument		✓
	Keyboard Test (All Keys)	P		Leather Case		✓
	Backlight	P		Instrument Strap		✓
	Clock Set / Running	P		AC Battery Charger (UK)		✓
	Comms Test	P		AC Battery Charger (EURO)		X
	Pump Flow Test (In & Out)	P		AC Battery Charger (US)		X
	Overall Leak Test (30mB)	n/a		AC Battery Charger (AUS)		X
	Battery Charge Test	P		Gas Sample Pipe - (new issue)		✓
	Service Date set to?	15-7-23		Flow Sample Pipe - (new issue)		✓
Channel Tests	Data Logging Enabled?	P		Hard Carry Case		✓
	Verify CH4/LEL/Hexane/PID	P		Spares Pot		✓
	Verify CO2	P		Allen Key		✓
	Verify O2	P		Temperature Probe		X
	Verify H2S	P		Vane Anemometer		X
	Verify CO	P		USB Cable		✓
	Verify LEL	P		USB Memory stick		✓
	Verify 1 st Option Gas	N/A		SM V5 Software	Ver 6.05	✓
	Verify Atmospheric pressure	P		Internal Filter Pack	Qty	X
	Verify differential pressure	P		External Filter Pack	Qty	X
	Verify flow	P		Field Guide		X
	Verify temperature probe input	P		Extra Items: Sample Tubes		
	Verify vane anemometer input	P				
DataBase Checks	Jobcard(s) completed and signed	P		Comments:		
	Jobcard(s) booked off database	P				
	Calibration certificate completed	P				
	Complete & print QI record	n/a				
Label Checks	No. of Calibration label fitted	GDC	11502			
	MCERTS label displayed	n/a				
	Warranty label fitted	P				
H2S Range	H2S Range from Sales Order	5000	ppm			
	H2S Range from Cal Cert	5000	ppm			
	Over-range value correct?	P				

TEST DATE AND CONDITIONS			
Date		15/07/2022	
Atmospheric Pressure		1005	mB
Ambient Temperature		21.9	°C
Envionics Serial No.		5089	

**GFM436 Final Inspection & Calibration
Check Certificate**

GAS DATA LTD

Unit 4, Fairfield Court

Seven Stars Estate

Wheler Rd

Coventry

CV3 4LJ

Tel 02476303311



Fax 02476307711

Customer	Brownfield Solutions
Certificate Number	123351
Order Number	331630

Serial Number	13361
Software Version	G436-00.0027/0010

Recalibration DUE Date
15/07/23

Instrument Checks					
Keyboard	✓		Display Contrast	✓	
Pump Flow In	500	Accept > 200 cc/min	Pump Flow @ -200mB	250	Accept > 200 cc/min
Clock Set / Running	✓		Labels Fitted	✓	

Gas Checks						
Sensor	CH ₄		CO ₂		O ₂	
	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %
	Readings %	Readings %	Readings %	Readings %	Readings %	Readings %
	59.8	60	39.5	40	20.9	20.9
	Accept ±3.0		Accept ±3.0		Accept ±0.5	
	5.0	5	5.0	5	6.0	6
	Accept ±0.3		Accept ±0.3		Accept ±0.3	
Zero Reading 100% N2	0.0	0	0.0	0	0.0	0
	Accept ±0.0		Accept ±0.0		Accept ±0.1	

Optional Gas Checks						
Applied Gas & Range		Concentration Tested @ (ppm)	Instrument Readings (ppm)			
Gas Type	Range (ppm)		Zero Reading		Instrument Gas Reading	
H2S	5000	1500	0	Accept ±0.0	1500	Accept ±5.0
CO	2000	1000	0	Accept ±0.0	998	Accept ±5.0
Hexane	2.0%	2.0%	0	Accept ±0.0	1.99	Accept ±10.0

Cross Gas Effects									
Applied Gas (ppm)		Instrument Readings (ppm)							
Gas Type	Concentration	Toxic 1:	H2S	Toxic 2:	CO	Toxic 3:	HEX		
H2S	1500	1500		0		0			
CO	1000	90		998		0			
Hexane	2.0%	0		0		1.99			

Pressure Checks			
Atmospheric Pressure [AP] (mB)			
Current Atmospheric Pressure (mB)		Instrument Atmospheric Pressure Reading (mB)	
AP Open Ports		1005	Accept ± 2.0
AP Port (Internal)	+800 mB	800	Accept ± 5.0
	+1200mb	1200	Accept ± 5.0

Flow Checks					
Borehole Flow			Differential Pressure		
Applied Reading (l/h)	Instrument Reading (l/h)		Applied Pressure (Pa)	Instrument Reading (Pa)	
-30	-30.3	Accept ± 3.0	-325	-329	Accept ± 50
-3	-3.0	Accept ± 1.0	-16	-16	Accept ± 6.0
0	0.0	Accept ± 0.0	0	0	Accept ± 0.5
3	3.0	Accept ± 0.5	15	15	Accept ± 3.0
30	30.5	Accept ± 3.0	314	324	Accept ± 50
60	60.2	Accept ± 6.0	941	947	Accept ± 130
90	90.3	Accept ± 9.0	1846	1884	Accept ± 250

Temperature Checks		
Calibration Temperature	Instrument Temperature Reading $^{\circ}\text{C}$	
Applied Temperature $^{\circ}\text{C}$		
-10	-10.0	Accept ± 2.0
0	0.0	Accept ± 1.0
30	30.0	Accept ± 1.0
60	60.0	Accept ± 1.0
100	100.0	Accept ± 1.0

Technician:
<i>Jack Rutland</i>

Date Tested:
<i>15/07/2022</i>

The instrument identified by the serial number stated above has been tested by Gas Data personnel for calibration accuracy on the date and under the ambient conditions stated. Gas Data Ltd internal BS EN ISO9001:2015, BS EN ISO14001:2015, BS EN ISO45001:2018 compliant workshop procedures were followed to apply known calibration test gases, gas flow rates, pressures and temperatures of the values stated.

The results displayed on the instrument at each stage are recorded above.

Gas Data Ltd is certified to BS EN ISO9001:2015, BS EN ISO14001:2015, BS EN ISO45001:2018.



No.	
HP01	
Sheet 1 of 1	
Hole Type	
BH	
Scale	
1:50	
Prepared	Checked
P	JW

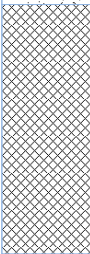
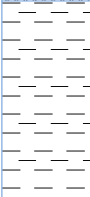
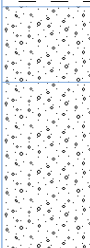
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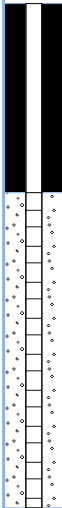
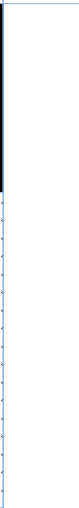
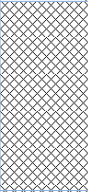
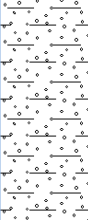
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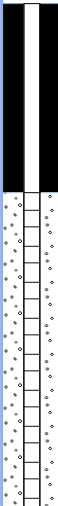
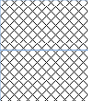
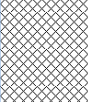
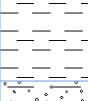
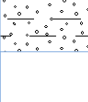
DATES: 21/03/22

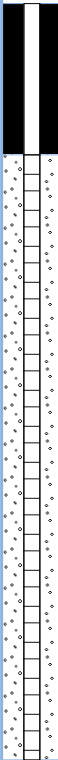
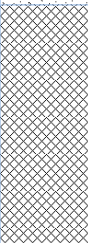
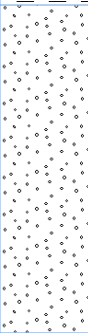
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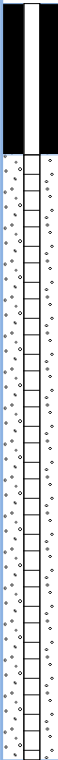
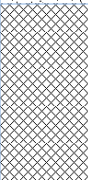
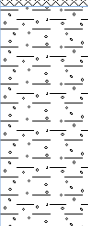
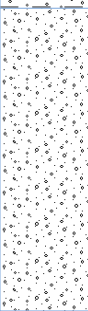
ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

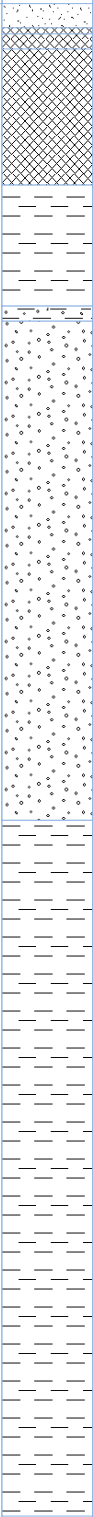
BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.	
								WS01	
PROJECT NO: M4993						CO-ORDS:		Sheet 1 of 1	
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Hole Type	
								WS	
CLIENT: SHURGARD UK						DATES: 21/03/22		Scale	
								1:30	
								Logged	Checked
								SRP	JW
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.21			MADE GROUND: CONCRETE.	
		0.40	ES PID	0.0PPM				MADE GROUND: Firm to stiff dark brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of brick, limestone and chert with occasional pottery and slate.	
		1.00	ES PID	0.0PPM				Occasional coal gravel between 1.10m and 1.20m bgl.	
		1.20	SPT	N=4 (1,1/1,1,1,1)	1.20			Firm brown slightly sandy CLAY. Sand is fine to coarse.	
		1.50	ES PID	0.0PPM					
		2.00	SPT	N=34 (3,4/6,8,10,10)	2.00			Brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is sub-rounded to rounded fine to medium of chert and siltstone.	
					2.30			Brown sandy GRAVEL. Sand is medium to coarse. Gravel is sub-angular to rounded fine to coarse of chert.	
		2.60	ES PID	0.0PPM					
		3.00	SPT	N=41 (8,10/11,11,11,8)				Collapse from 3.60m bgl up to 3.00m bgl.	
		3.50	ES PID	0.0PPM				Black slightly clayey gravel with slight hydrocarbon odour between 3.50m and 3.60m bgl.	
		3.60	SPT	N≥50 (25 for 120mm/50 for 165mm)					
				3.90			End of Borehole at 3.90m		
Remarks		1. Location scanned and cleared with CAT and Genny. 2. Hand-dug inspection pit excavated to 1.20m bgl. 3. No groundwater encountered. 4. Borehole installed; GL to 1.00m bgl plain, 1.00m to 3.00m bgl slotted.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.		
								WS02		
								Sheet 1 of 1		
PROJECT NO: M4993						CO-ORDS:		Hole Type		
								WS		
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Scale		
								1:30		
CLIENT: SHURGARD UK						DATES: 21/03/22 - 22/03/22		Logged	Checked	
								SRP	JW	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.15			MADE GROUND: CONCRETE.		
		0.30	ES PID	0.0PPM				MADE GROUND: Firm dark brown gravelly clay. Gravel is angular to sub-angular fine to coarse of concrete, brick, chert and siltstone.		
		1.00	ES PID	0.0PPM	0.90			MADE GROUND: Firm brown gravelly clay. Gravel is sub-angular fine to coarse of brick and chert with rare pottery.	1.0	
		1.20	SPT	N=16 (1,1/4,4,4,4)	1.10		Orange and brown clayey GRAVEL. Gravel is sub-angular fine to coarse of chert.			
		1.60	ES PID	0.0PPM						
		2.00	SPT	N≥50 (6,9/50 for 250mm)	2.00			End of Borehole at 2.00m	2.0	
									3.0	
									4.0	
									5.0	
									6.0	
Remarks		1. Location scanned and cleared with CAT and Genny. 2. Hand-dug inspection pit excavated to 1.20m bgl. 3. No groundwater encountered. 4. Borehole installed; GL to 0.75m bgl plain, 0.75m to 2.00m bgl slotted.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane		

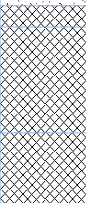
 BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.		
								WS03		
								Sheet 1 of 1		
PROJECT NO: M4993						CO-ORDS:		Hole Type		
								WS		
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Scale		
								1:30		
CLIENT: SHURGARD UK						DATES: 21/03/22 - 22/03/22		Logged	Checked	
								SRP	JW	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	ES PID	0.0PPM	0.12 0.32			MADE GROUND: CONCRETE.		
								MADE GROUND: Light brown and grey sandy gravel with medium cobble content. Gravel is angular to sub-angular fine to coarse of brick, concrete, pottery and chert. Cobble are angular of brick and concrete.		
								MADE GROUND: Firm dark brown gravelly clay. Gravel is sub-angular fine to coarse of brick and chert.		
		0.80	ES PID	0.0PPM	0.95			Firm brown CLAY.	1.0	
		1.20	SPT	N=4 (0,0/1,1,1,1)						
		1.30	ES PID	0.0PPM						
					1.70			Brown clayey GRAVEL. Gravel is sub-rounded fine to coarse of chert.		
		1.90	ES PID	0.0PPM	2.00				2.0	
		2.00	SPT	N≥50 (5,7/50 for 290mm)				End of Borehole at 2.00m		
									3.0	
									4.0	
									5.0	
									6.0	
Remarks		1. Location scanned and cleared with CAT and Genny. 2. Hand-dug inspection pit excavated to 1.20m bgl. 3. No groundwater encountered. 4. Borehole installed; GL to 0.75m bgl plain, 0.75m to 2.00m bgl slotted.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane		

BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.	
PROJECT NO: M4993						CO-ORDS:		WS04	
								Sheet 1 of 1	
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Hole Type	
								WS	
CLIENT: SHURGARD UK						DATES: 22/03/22		Scale	
								1:30	
								Logged	Checked
								SRP	JW
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.14			MADE GROUND: CONCRETE.	1.0
								MADE GROUND: Firm dark brown gravelly clay. Gravel is sub-angular fine to coarse of brick, pottery and chert.	
		0.60	ES PID	0.0PPM					
		1.20	SPT	N=7 (1,2/2,2,1,2)		1.10		Firm brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular fine to medium of chert.	
		1.60	ES PID	0.0PPM		1.70			
		2.00	SPT	N=36 (5,7/8,9,9,10)				Orange and brown GRAVEL. Gravel is sub-rounded fine to coarse of chert.	2.0
		2.80	ES PID	0.0PPM				Slow seepage of groundwater below 2.60m bgl.	
3.00	SPT	N≥50 (8,11/50 for 215mm)		3.00		End of Borehole at 3.00m	3.0		
								4.0	
								5.0	
								6.0	
Remarks		1. Location scanned and cleared with CAT and Genny. 2. Hand-dug inspection pit excavated to 1.20m bgl. 3. Groundwater encountered at 2.60m bgl. 4. Borehole installed; GL to 1.00m bgl plain, 1.00m to 3.00m bgl slotted.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.			
								WS05			
								Sheet 1 of 1			
								Hole Type			
PROJECT NO: M4993						CO-ORDS:		WS			
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Scale			
								1:30			
CLIENT: SHURGARD UK						DATES: 22/03/22		Logged	Checked		
								SRP			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.18			MADE GROUND: CONCRETE.			
		0.40	ES PID	0.0PPM				MADE GROUND: Firm dark brown gravelly clay. Gravel is angular fine to coarse of chert, siltstone, brick and concrete with occasional pottery.			
					0.90			Firm brown slightly gravelly CLAY. Gravel is sub-angular fine to coarse of chert.			
		1.20	SPT	N=5 (1,1/1,1,1,2)							
		1.30	ES PID	0.0PPM							
					1.80			Brown sandy GRAVEL. Sand is medium to coarse. Gravel is sub-rounded fine to medium of chert and siltstone.			
		2.00	SPT	N=25 (7,7/5,5,6,9)							
		2.90	ES PID	0.0PPM							
		3.00	SPT	N≥50 (7,8/50 for 280mm)	3.00			End of Borehole at 3.00m			
Remarks		1. Location scanned and cleared with CAT and Genny. 2. Hand-dug inspection pit excavated to 1.20m bgl. 3. No groundwater encountered. 4. Borehole installed; GL to 0.60m bgl plain, 0.60m to 3.00m bgl slotted.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			

Borehole Log						Borehole No.				
						BH01				
						Sheet 1 of 2				
PROJECT NO: M4993						CO-ORDS:				
PROJECT NAME: GARMAN ROAD, TOTTENHAM						Hole Type				
						CP				
CLIENT: SHURGARD UK LTD						Scale				
						1:50				
DATES: 27/03/23 - 28/03/23						Logged	Checked			
						HW	AT			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.16-0.20	ES		0.16 0.20 0.30			MADE GROUND: Concrete reinforced with crossing metal rebar. MADE GROUND: Dark greyish brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of concrete, glass and brick. MADE GROUND: Brown slightly gravelly sandy clay. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of concrete and brick. MADE GROUND: Dark greyish brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of concrete and brick. Soft bluish grey CLAY. <i>Becoming brown slightly sandy slightly gravelly CLAY at 1.90m bgl. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and mudstone.</i> Soft bluish grey and orangish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-rounded to rounded fine to coarse of sandstone and mudstone. Dense slightly sandy slightly silty sub-angular to rounded fine to coarse GRAVEL of sandstone, mudstone, and quartz. Sand is fine to coarse. <i>Gravel becoming black with moderate organic odour at 3.60m bgl.</i> <i>Groundwater encountered at 4.50m bgl.</i> Firm bluish grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and mudstone. (LONDON CLAY). <i>No gravel from 6.00m bgl.</i> <i>Becoming stiff from 7.50m bgl.</i>		
		0.90	ES		1.20				1.0	
		1.50-2.00 1.50	D SPT	N=8 (1,0/1,1,3,3)	2.00 2.10				2.0	
		2.50	SPT	N=35 (4,5/6,8,9,12)						
		3.50	SPT	N≥50 (4,7/9,13,14,14)						
		3.60	B ES						4.0	
		4.50	SPT	N=36 (5,5/7,8,9,12)					5.0	
		5.40	D		5.40					
		6.00-6.45 6.00	D SPT	N=11 (1,2/2,3,3,3)					6.0	
		7.50	SPT	N=16 (2,2/3,4,4,5)					7.0	
		9.00-9.45 9.00-9.50	U D						9.0	
									10.0	
		Remarks								
		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 4.50m and 18.00m bgl. 4. Borehole terminated at 20.0m in natural strata. 5. Borehole installed with 1.50m plain pipe, 3.50m slotted pipe.								
ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane										

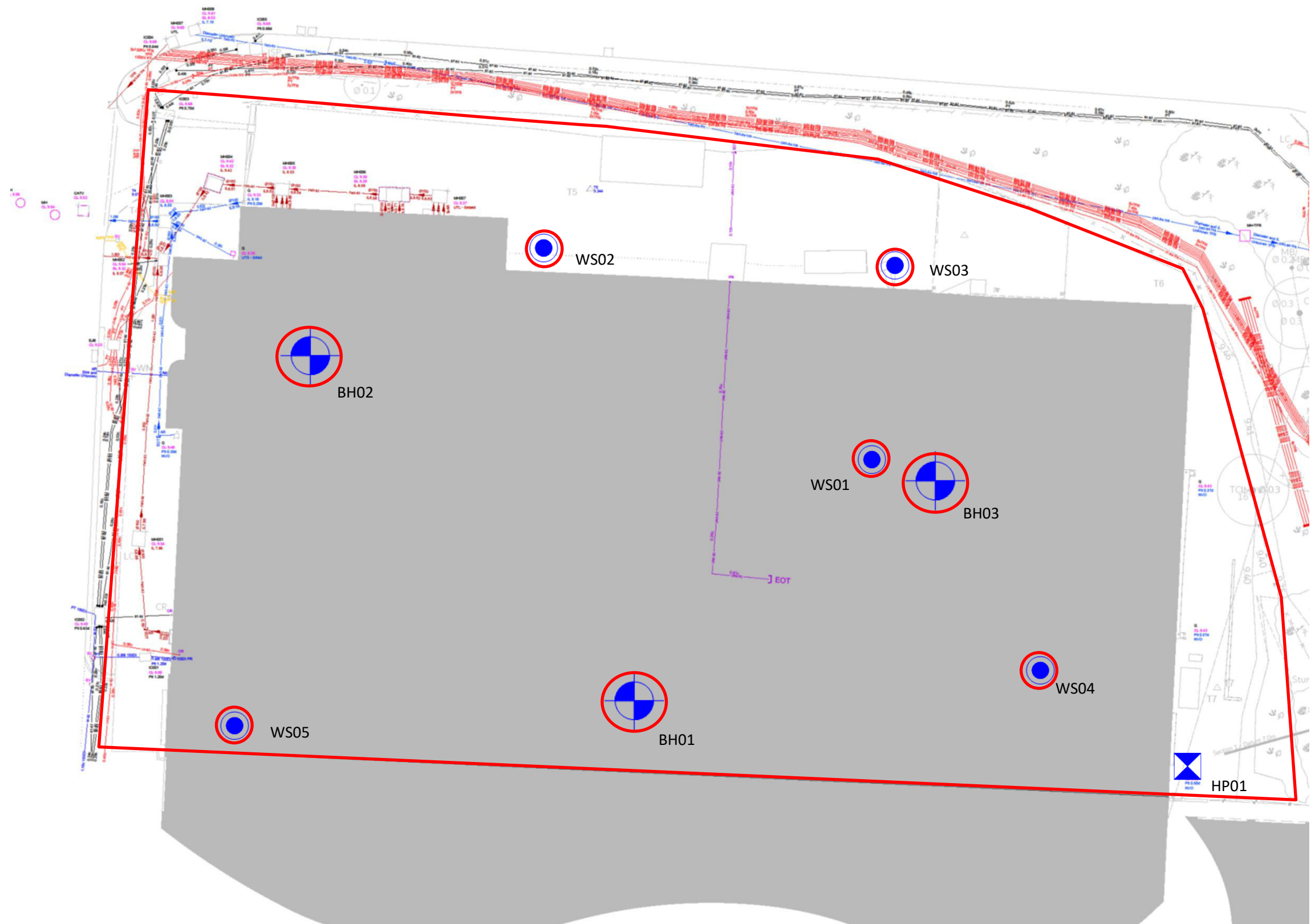
 BROWNFIELD SOLUTIONS LTD							Borehole Log		Borehole No.
									BH01
									Sheet 2 of 2
PROJECT NO: M4993							CO-ORDS:		Hole Type
									CP
PROJECT NAME: GARMAN ROAD, TOTTENHAM							LEVEL:		Scale
									1:50
CLIENT: SHURGARD UK LTD							DATES: 27/03/23 - 28/03/23		Logged
									Checked
									HW
									AT
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
Depth (m)	Type	Results							
10.50	SPT	N=27 (3,5/6,6,7,8)							11.0
12.00	SPT	N=28 (4,5/6,7,7,8)							12.0
13.50-13.95 13.50	D SPT	N=27 (3,5/7,6,7,7)						Lens of black fine to coarse sand between 13.50m and 13.55m bgl.	13.0
15.00	SPT	N=29 (4,6/6,7,8,8)							14.0
16.50-16.95	U								15.0
16.95	D								16.0
18.50	SPT	N=39 (4,7/9,8,10,12)						Groundwater encountered at 18.00m bgl. Lenses of grey fine to coarse sand between 18.20 and 20.00m bgl. Becoming very stiff from 18.50m bgl.	17.0
19.50-19.95 19.50	D SPT	N=41 (3,8/8,10,10,13)							18.0
20.00								End of Borehole at 20.00m	19.0
									20.0
Remarks		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 4.50m and 18.00m bgl. 4. Borehole terminated at 20.0m in natural strata. 5. Borehole installed with 1.50m plain pipe, 3.50m slotted pipe.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD						Borehole Log		Borehole No.	
PROJECT NO: M4993						CO-ORDS:		BH02	
								Sheet 1 of 2	
PROJECT NAME: GARMAN ROAD, TOTTENHAM						LEVEL:		Hole Type	
								CP	
CLIENT: SHURGARD UK LTD						DATES: 28/08/23 - 29/03/23		Scale	
								1:50	
						Logged		Checked	
						HW		AT	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.16 0.30			MADE GROUND: Concrete reinforced with crossing metal rebar. MADE GROUND: Greyish brown slightly gravelly sandy clay. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of brick and concrete. MADE GROUND: Yellowish brown and greyish brown slightly clayey gravelly fine to coarse sand with a moderate cobble content. Gravel is angular to subangular fine to coarse of concrete, ceramic, and brick. Cobbles are angular up to 250mm of brick. MADE GROUND: Light brown slightly gravelly sandy clay with low cobble content. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of brick, slate, and concrete. Cobbles are angular up to 250mm of brick. Medium dense yellowish brown slightly clayey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of sandstone and mudstone. Medium dense to dense yellowish brown slightly silty slightly sandy sub-angular to rounded fine to coarse GRAVEL of mudstone, sandstone, and quartz. Sand is fine to coarse. Groundwater encountered at 2.00m bgl. Moderate organic odour encountered from 4.30m bgl to 7.00m bgl.	1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
		1.00	D		1.00				
		1.50	D SPT	N=18 (3,4/5,4,5,4)	1.50				
		2.50	SPT	N=29 (5,4/5,7,9,8)	1.90				
		3.50	SPT	N=48 (7,9/11,10,12,15)					
		4.50	B ES SPT	N=32 (4,5/6,8,8,10)					
		5.10	B D						
		6.00-6.45 6.00	D SPT	N=10 (1,2/1,2,3,4)	5.60				
		7.50	U						
		8.00	D						
		9.00	D SPT	N=19 (3,3/4,5,5,5)					
Remarks		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.00m and 16.80m. bgl. 4. Borehole terminated at 20.0m. 5. Borehole installed 0.50m plain pipe and 1.00m slotted pipe.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

BROWNFIELD SOLUTIONS LTD							Borehole Log		Borehole No.
									BH02
									Sheet 2 of 2
PROJECT NO: M4993							CO-ORDS:		Hole Type
									CP
PROJECT NAME: GARMAN ROAD, TOTTENHAM							LEVEL:		Scale
									1:50
CLIENT: SHURGARD UK LTD							DATES: 28/08/23 - 29/03/23		Logged
									Checked
									HW
									AT
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
Depth (m)	Type	Results							
10.50	D SPT	N=28 (3,3/5,7,8,8)						Becoming sandy from 10.50m bgl.	11.0
12.00	D SPT	N=18 (2,3/3,4,5,6)						Becoming slightly sandy from 12.40m bgl.	12.0
13.50	U								13.0
14.00	D								14.0
15.00	SPT	N=26 (3,4/5,6,7,8)							15.0
15.40	D								16.0
16.50	D SPT	N=12 (9,14/2,2,4,4)						Becoming sandy from 16.70m bgl. Groundwater encountered at 16.80m bgl.	17.0
18.00-18.45 18.00	D SPT	N=37 (5,7/10,7,9,11)						Becoming mottled with light grey clay from 18.00m bgl.	18.0
19.50-19.95 19.50	D SPT	N=41 (4,8/9,9,11,12)							19.0
					20.00			End of Borehole at 20.00m	20.0
Remarks		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 2.00m and 16.80m. bgl. 4. Borehole terminated at 20.0m. 5. Borehole installed 0.50m plain pipe and 1.00m slotted pipe.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane

Borehole Log						Borehole No.			
						BH03			
						Sheet 1 of 2			
PROJECT NO: M4993						CO-ORDS:			
PROJECT NAME: GARMAN ROAD, TOTTENHAM						Hole Type			
						CP			
CLIENT: SHURGARD UK LTD						Scale			
						1:50			
DATES: 30/03/23 - 31/03/12						Logged	Checked		
						HW	AT		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20-0.30	ES		0.20 0.30			MADE GROUND: Concrete reinforced with crossing metal rebar.	
		0.70-0.80	ES		0.70			MADE GROUND: Greyish brown slightly gravelly clayey fine to coarse sand. Gravel is angular to sub-angular fine to coarse of concrete and brick.	
		1.50	SPT	N=3 (1,0/0,1,1,1)	1.60			MADE GROUND: Yellowish brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of concrete, brick, and slate.	1.0
		2.50	SPT	N=42 (5,7/9,9,11,13)				MADE GROUND: Dark brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of brick, chalk, sandstone, and concrete.	
		3.00	D					Becoming slightly gravelly from 1.40m bgl.	
		3.50	SPT	N=49 (6,9/11,13,13,12)	3.30			Very stiff greyish brown slightly sandy CLAY. Sand is fine to coarse.	2.0
		3.60	B					Becoming sandy and gravelly from 3.00m bgl. Gravel is sub-angular to rounded fine to coarse of sandstone and mudstone.	3.0
		4.50	SPT	N=43 (4,5/9,9,12,13)				Dense yellowish brown slightly silty sandy sub-angular to rounded fine to coarse GRAVEL of sandstone, mudstone and quartz. Sand is fine to coarse.	4.0
		4.60	B					Moderate organic odour from 3.60m bgl.	
		4.80	ES						5.0
					5.60			Firm to very stiff greyish blue CLAY. (LONDON CLAY).	6.0
		6.00	D SPT	N=14 (1,3/2,3,4,5)					7.0
		7.50	D SPT	N=14 (1,3/3,3,4,4)					8.0
		9.00	SPT	N=23 (3,3/4,5,7,7)					9.0
									10.0
Remarks		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 3.60m and 18.80m bgl. 4. Borehole terminated at 20.00m bgl. 5. Borehole installed with 0.50m plain pipe and 1.00m slotted pipe.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Borehole No.
									BH03
									Sheet 2 of 2
PROJECT NO: M4993							CO-ORDS:		Hole Type
									CP
PROJECT NAME: GARMAN ROAD, TOTTENHAM							LEVEL:		Scale
									1:50
CLIENT: SHURGARD UK LTD							DATES: 30/03/23 - 31/03/12		Logged
									Checked
									HW
									AT
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	U						
		11.00	D					Becoming slightly sandy from 11.00m bgl.	11.0
		12.00	SPT	N=24 (2,3/5,6,6,7)					12.0
								No sand from 13.00m bgl.	13.0
		13.50	D SPT	N=24 (2,3/4,6,7,7)					14.0
		15.00-15.45	U					Becoming slightly sandy from 15.50m bgl.	15.0
		16.50	D SPT	N=32 (3,4/7,8,9,8)				Fine quartz gravel encountered from 16.50m bgl.	17.0
					17.70			Very dense grey slightly gravelly clayey fine to coarse SAND. Gravel is sub-rounded to rounded fine to medium of sandstone. Becoming sandy from 17.90m bgl.	18.0
					19.00			Groundwater encountered from 18.80m bgl.	19.0
		19.50	D SPT	N=28 (5,5/5,7,8,8)				Stiff bluish grey and light grey CLAY.	19.0
					20.00			End of Borehole at 20.00m	20.0
Remarks		1. Clearance of services by BSL engineer using CAT and Genny. 2. Hand dug inspection pit to 1.20m bgl. 3. Groundwater encountered at 3.60m and 18.80m bgl. 4. Borehole terminated at 20.00m bgl. 5. Borehole installed with 0.50m plain pipe and 1.00m slotted pipe.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane



KEY

- APPROXIMATE SITE BOUNDARY
- WSXX WINDOW SAMPLE BOREHOLE (MARCH 2022)
- HP01 HAND EXCAVATED TRIAL PIT (MARCH 2022)
- BOREHOLE INSTALLATION
- BHXX CABLE PERCUSSIVE BOREHOLE (MARCH 2023)
- BUILDING OUTLINE

REV	DATE	DESCRIPTION	BY	CKD



CLIENT
SHURGARD UK

PROJECT TITLE
GARMAN ROAD, TOTTENHAM

DRAWING TITLE
EXPLORATORY HOLE LOCATION PLAN

DRAWING No. M4993/03	REVISION B	SCALE NTS	DATE 18/04/23
DRAWN BY HW		CHECKED BY AT	