Our Ref: C5066/25/E/7718
29th April 2025

Pegg Ellison Electrical Ltd,
C/O Hinchliffe Architecture & Design Ltd.
24 Carr View Road,
Hepworth,
Holmfirth,
HD9 1HX

For the attention of Joe Hinchliffe,

Dear Sir,

Ref: 20 Stafford Hill Lane, Kirkheaton, HD5 0EF.

Introduction

A Phase One Desk Study was completed by Rogers Geotechnical Services Ltd in March 2025 (report no: C5066/25/E/7717). This report concluded that whilst limited on or off-site sources of soil contamination exist, a source of potential ground gas associated with historical landfill and quarrying activities was identified. It was considered that this feature could pose a risk to the development.

Fieldworks

In view of the above and further to the recommendations of the desk study, a site investigation was undertaken on the 11th March 2025. The fieldworks comprised four windowless sample boreholes, with gas monitoring standpipes being installed in two of the boreholes.

The boreholes were sunk using hand-held windowless sampling equipment. The cores were undertaken in 1m lengths with diameters of 57mm and 47mm. The soils were described in general accordance with BS5930: 2015 and full descriptions are given on the windowless sample records which are appended to this letter. Also included on these records are the core diameters and percentages of core recovered.

Gas monitoring standpipes were installed to 2.0m in WS01 and 1.8m in WS03. The installation details are shown on the appropriate borehole records. In both cases, the monitoring standpipe consisted of a perforated pipe from the base of the borehole to 1.0m below surface, with a non-perforated pipe to ground level. The response zone was filled with pea gravel, with a bentonite seal above, and the installation was capped with a stop box cover in a concrete surround.

Strata Conditions

Topsoil was identified in all boreholes, varying in thickness between 0.15m and 0.35m. A thin re-worked layer of made ground was identified at WS02 only, otherwise beneath the topsoil and thin made ground, natural clay representative of the weathered fraction of the underlying rock was revealed to the base of the boreholes.

Monitoring

Visits were made to the site between the 18th March and 23rd April 2025. The results of this work are tabulated below:

Table 1: Gas Monitoring

Location	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Flow (l/hr)	Barometric Pressure (mb)	Water Level (m)	Standpipe Depth (m)
WS01	18/03/25	0.0	0.1	20.0	0.0	1014↓	DRY	1.80
	25/03/25	0.0	0.1	20.8	0.0	1011↑	DRY	
	01/04/25	0.0	0.1	21.3	0.0	1018→	DRY	
	08/04/25	0.0	0.1	20.9	0.0	1017↑	DRY	
	16/04/25	0.0	0.1	22.0	0.0	995→	DRY	
	23/04/25	0.0	0.1	21.0	0.0	1005↑	DRY	
WS03	18/03/25	0.0	0.1	21.2	0.0	1014↓	DRY	2.00
	25/03/25	0.0	0.2	20.8	0.0	1011↑	1.70	
	01/04/25	0.1	0.2	21.3	0.0	1018→	DRY	
	08/04/25	0.0	0.2	20.8	0.0	1017↑	DRY	
	16/04/25	0.1	0.2	21.2	0.0	995→	DRY	
	23/04/25	0.0	0.1	20.8	0.0	1005↑	DRY	

↑ rising pressure ↓ falling pressure → steady pressure

The monitoring visits were undertaken using a Geotechnical Instruments (UK) Ltd. GA5000 (serial No G503524) which was last calibrated on the 25th October 2024.

Gas Concentrations

With respect to ground gas, the results of the monitoring regime indicated a maximum concentration of 0.1% methane, with concentrations of carbon dioxide ranging between 0.1% and 0.2% in association with oxygen levels of between 20.0% and 21.3%. It should be appreciated that on non-contaminated sites there is generally about 20% by volume of oxygen, associated with low levels of carbon dioxide. In addition, zero flow was recorded, therefore a flowrate of 0.1 litres per hour will be employed in any calculations.

The principal driving force for initiating the movement of gas in the ground is a change in barometric pressure. The most onerous gas condition on a site is usually observed on days of low or falling barometric pressure, preferably below 1000mb. It has been noted that measurements undertaken solely during high pressure conditions may be of lesser value. At this site the readings undertaken to date were at atmospheric pressures of between 995mb and 1018mb.

Risk Assessment

In order to establish the gas screening value (GSV) for carbon dioxide or methane, the maximum gas concentration (expressed as a decimal) is multiplied by the borehole flow rate (l/hr). In this case 0.1% (0.001) methane was recorded along with 0.2% (0.002) carbon dioxide, in association with a maximum flow rate of 0.1 l/hr. This results in a GSV of 0.0001 l/hr for methane and a GSV of 0.0002 l/hr for carbon dioxide.

With regard to the number of monitoring visits required reference is made to Tables 5.5a and 5.5b of CIRIA report C665 (2007)[1]. Accepting that the proposed development is of high sensitivity (residential with gardens) and that the generation potential is very low, these tables suggest that 6 readings could be undertaken over a period of 3 months. However, in this case a total of 6 monitoring visits were undertaken over a 2-month time period, at which point monitoring was terminated as it was deemed that sufficient atmospheric pressure trends had existed. Indeed, it should be appreciated that monitoring has been carried out during peaks and troughs of atmospheric pressure. For instance, the pressure in the West Yorkshire region varied between 997mb and 1030mb through April[2]. As such, it is considered that the atmospheric conditions have been fully distinguished across the site. In addition, all GSVs calculated were noted to fall beneath screening levels.

In accordance with Table 8.5, *Modified Wilson and Card classification* of the CIRIA report C665, *Assessing risks posed by ground gasses to building,* the site may be characterised as *Characteristic Situation Level 1*. It is therefore considered that there is a very low risk of harm to end users and site operatives and no special precautionary measures are required in accordance to Table 8.6, *Typical scope of gas protection measures,* of CIRIA report C665.

In view of the above it is considered that with respect to gas monitoring, the site is fully characterised.

Remediation Strategy for Ground Gas

As a consequence of the above, the site may be characterised as *Characteristic Situation Level 1*. As such, no specific remediation will be required to protect against bulk ground gases.

References

- British Standards Institution (2013), BS 8576 Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds.
- British Standards Institution (2015 +A1:2019) BS8485: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings,* B.S.I., London.
- CIRIA Report C665, *Assessing risks posed by ground gasses to building.*

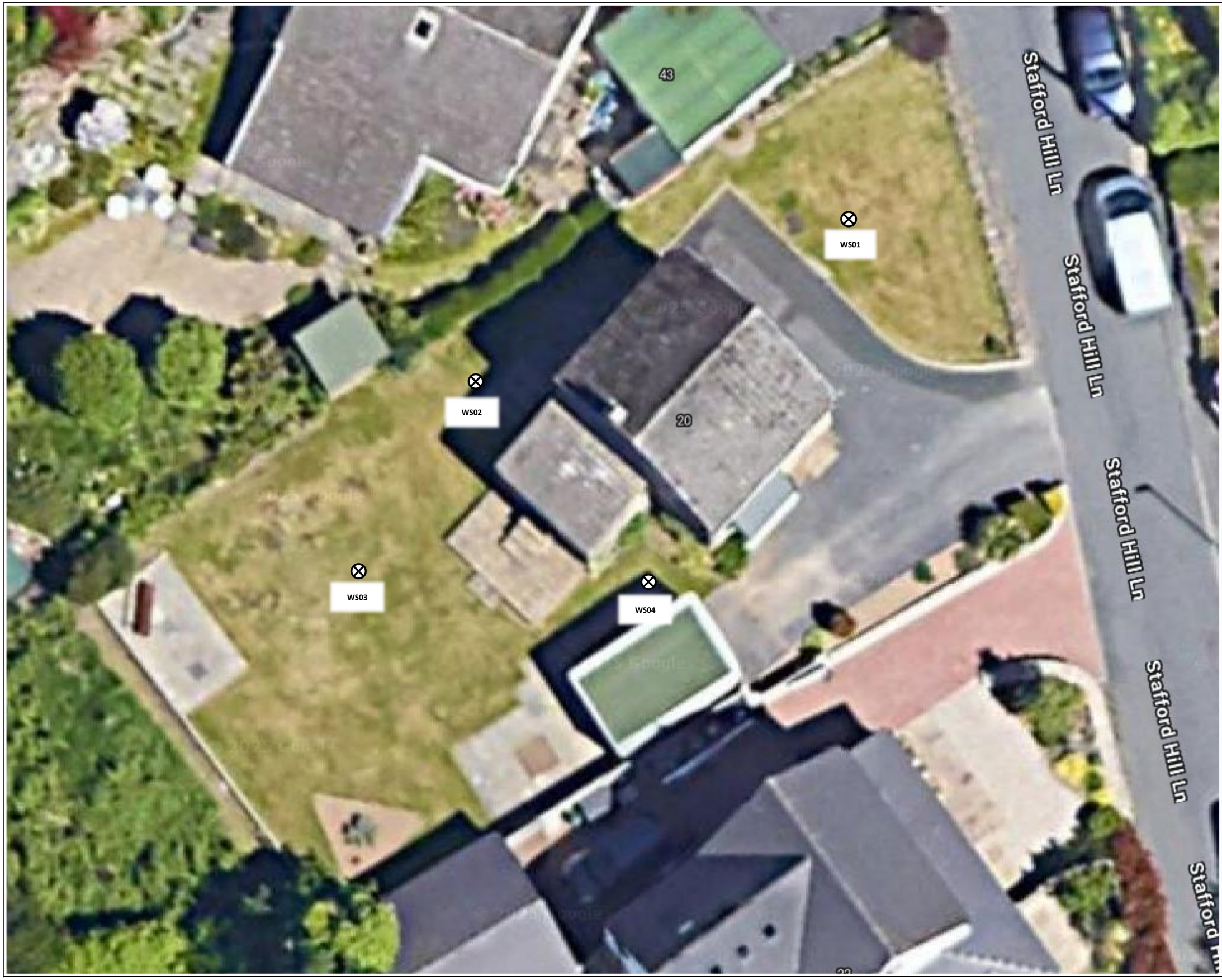
[1] Adapted from tables 5.5a and 5.5b of CIRIA C665, 2007, *Assessing risks posed by hazardous ground gas to buildings, p60.*
[2] Leeds Bradford Airport weather station. Online source: weatheronline.co.uk

We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For Rogers Geotechnical Services Ltd,

Yours Faithfully,

Rob Palmer MSc FGS ACIEH
Engineering Director



Notes:

Investigation positions approximated from site operative's notes.

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank,
Shelley,
Huddersfield,
HD8 8LU

Telephone: 0843 50 66 87
www.rogersgeotech.co.uk

Client:
Hinchcliffe Architecture & Design Ltd

Job Number:
C5066/25/E/7718

Project Details:
20 Stafford Hill Lane, Kirkheaton

Scale: Not to scale - reference only

Borehole Log

Environmental Geotechnical Specialists

Borehole No. **WS01**

Sheet 1 of 1

Project Name: 20 Stafford Hill Lane	Project No. C5066/25/E/7718	Co-ords:	Hole Type WLS
Location: Kirkheaton		Level:	Scale 1:50
Client: Pegg Ellison Electrical Ltd		Dates: 11/03/2025	Logged By IMY

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Dia. (mm)	TCR (%)	Results	Depth (m)	Level (m)	Legend	Stratum Description
				57	100		0.15			TOPSOIL (Dark brown silty CLAY with frequent rootlets).
				47	80		1.30			Soft brown sandy gravelly CLAY. Sand is fine. Gravel is sub-angular to sub-rounded, tabular, fine to medium of sandstone.
							2.00			Soft brown becoming greyish brown very gravelly CLAY. Gravel is sub-angular to sub-rounded, tabular, fine to medium of sandstone and mudstone.
										End of Borehole at 2.00m

Remarks

AGS

Borehole Log

Environmental Geotechnical Specialists

Borehole No. **WS02**

Sheet 1 of 1

Project Name: 20 Stafford Hill Lane	Project No. C5066/25/E/7718	Co-ords:	Hole Type WLS
Location: Kirkheaton		Level:	Scale 1:50
Client: Pegg Ellison Electrical Ltd		Dates: 11/03/2025	Logged By IMY

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Dia. (mm)	TCR (%)	Results	Depth (m)	Level (m)	Legend	Stratum Description
				57	55		0.35			TOPSOIL (Dark brown silty CLAY with frequent rootlets).
							0.65			MADE GROUND (Soft brown silty gravelly CLAY. Gravel is sub-angular to sub-rounded, fine to medium of brick and occasional sandstone),
				47	70		1.60			Soft brown mottled grey sandy becoming slightly sandy, gravelly CLAY. Sand is fine. Gravel is sub-angular to sub-rounded, fine to medium of sandstone and mudstone.
							2.00			Firm brown mottled grey sandy very gravelly CLAY. Sand is fine. Gravel is sub-angular to sub-rounded, fine to medium, tabular of sandstone.
										End of Borehole at 2.00m

Remarks

AGS

Borehole Log

Borehole No. **WS03**

Sheet 1 of 1

Project Name: 20 Stafford Hill Lane	Project No. C5066/25/E/7718	Co-ords:	Hole Type WLS
Location: Kirkheaton		Level:	Scale 1:50
Client: Pegg Ellison Electrical Ltd		Dates: 11/03/2025	Logged By IMY

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Dia. (mm)	TCR (%)	Results	Depth (m)	Level (m)	Legend	Stratum Description
				57	70		0.30			TOPSOIL (Dark brown sandy CLAY with frequent rootlets).
							0.50			Soft brown very gravelly becoming gravelly silty CLAY. Gravel is sub-angular to sub-rounded, fine to medium of sandstone.
				47	55					Very soft brown sandy gravelly CLAY. Sand is fine. Gravel is sub-angular to sub-rounded, fine to medium of sandstone.
							1.80			Extremely weak thinly laminated brown micaceous SILTSTONE.
							2.00			End of Borehole at 2.00m

Remarks

RGS Environmental Geotechnical Specialists

Borehole Log

Borehole No. **WS04**

Sheet 1 of 1

Project Name: 20 Stafford Hill Lane	Project No. C5066/25/E/7718	Co-ords:	Hole Type WLS
Location: Kirkheaton		Level:	Scale 1:50
Client: Pegg Ellison Electrical Ltd		Dates: 11/03/2025	Logged By IMY

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Dia. (mm)	TCR (%)	Results	Depth (m)	Level (m)	Legend	Stratum Description
				57	95		0.30			TOPSOIL (Dark brown silty CLAY with frequent rootlets).
							0.70			Firm brown mottled grey slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded, fine to medium of sandstone.
				47	60		1.60			Firm brown sandy very gravelly CLAY. Sand is fine. Gravel is sub-angular to sub-rounded, fine to medium of sandstone.
							2.00			Soft brown slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded, fine to medium of sandstone.
										End of Borehole at 2.00m

1 2 3 4 5 6 7 8 9 10

Remarks

AGS

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	1	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	18.03.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2 Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
enquiries@rogersgeotech.co.uk

Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0	0.1	0.1	0	0	0	0	20	20			0	0	DRY		2.14	
WS03	0	0.1	0.1	0.1	0	0	0	0	21.2	21			0	0	DRY		1.86	
Max.	0	0.1	0.1	0.1	0	0	0	0	21.2	21	0	0	0	0	0			
Min.	0	0	0.1	0.1	0	0	0	0	20	20	0	0	0	0	0			

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	Dry
Precipitation	0.2l/m2 in last 6 hours
Wind	9
Temperature	8
Barometric Pressure	
Pressure Trend	Falling

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.1
Max CO_2	0.1	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	21.2	21.0
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	1014	1015

Operative Details.	M.Tuck

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	2	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	25.03.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2
Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
enquiries@rogersgeotech.co.uk

Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0	0.1	0.2	0	0	0	0	20.8	20.8			0	0	DRY		2.14	
WS03	0	0	0.2	0.2	0	0	0	0	20.8	20.7			0	0	1.67		1.88	
Max.	0	0	0.2	0.2	0	0	0	0	20.8	20.8	0	0	0	0	1.67			
Min.	0	0	0.1	0.2	0	0	0	0	20.8	20.7	0	0	0	0	1.67			

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	DRY
Precipitation	0l/m2 in last 12 hours
Wind	18
Temperature	12
Barometric Pressure	
Pressure Trend	Rising

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.0
Max CO_2	0.2	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	20.8	20.8
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	1011	1012

Operative Details.	M.Tuck

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	3	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	01.04.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2 Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
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Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0.1	0.1	0.2	0	0	0	0	21.3	21.1			0	0	DRY		2.14	
WS03	0.1	0.1	0.2	0.2	0	0	0	0	21.3	21.3			0	0	DRY		1.88	
Max																		
Min.																		

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	Wet (dew)
Precipitation	0l/m2 in last 12 hours
Wind	7
Temperature	9
Barometric Pressure	
Pressure Trend	Steady

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.0
Max CO_2	0.2	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	20.8	20.8
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	1018	1018

Operative Details.	M.Tuck

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	4	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	08.04.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2
Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
enquiries@rogersgeotech.co.uk

Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0	0.1	0.1	0	0	0	0	20.9	20.6			0	0	DRY		2.14	
WS03	0	0	0.2	0.2	0	0	0	0	20.8	20.8			0	0	DRY		1.88	
Max																		
Min.																		

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	DRY
Precipitation	0
Wind	4
Temperature	12
Barometric Pressure	
Pressure Trend	Rising

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.0
Max CO_2	0.2	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	20.8	20.8
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	1017	1018

Operative Details.	M.Tuck

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	5	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	16.04.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2 Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
enquiries@rogersgeotech.co.uk

Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0	0.1	0.2	0	0	0	0	22	20			0	0	DRY		2.14	
WS03	0.1	0.1	0.2	0.2	0	0	0	0	21.2	20.5			0	0	DRY		1.88	
Max																		
Min.																		

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	DRY
Precipitation	3l/m2 in last 6 hours
Wind	No data gusty
Temperature	9
Barometric Pressure	
Pressure Trend	Steady

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.0
Max CO_2	0.2	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	20.8	20.8
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	995	995

Operative Details.	M.Tuck

Post Fieldworks Discrete Well Monitoring Site Record

Job No:	C5066/25/E/7718	Client:	Pegg Ellison Electrical Ltd	Visit:	6	Of	6
Site:	20 Stafford Hill, Kirkheaton	Date:	23.04.2025				

RGS Environmental Geotechnical Specialists

Rogers Geotechnical Services Ltd , Offices 1 & 2
Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU

Tel: 01484 604 354
enquiries@rogersgeotech.co.uk

Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak				
WS01	0	0	0.1	0.2	0	0	0	0	21	20.8			0	0	DRY		2.14	
WS03	0	0	0.1	0.1	0	0	0	0	20.8	20.5			0	0	DRY		1.88	
Max																		
Min.																		

ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)

Meteorological & Site Information	
General Ground Condition	Dry
Precipitation	0l/m2 in last 6 hours
Wind	11
Temperature	12
Barometric Pressure	
Pressure Trend	Rising

Monitor Technical Specifications								
Gas Monitor Used:	GA5000							
Serial No:	G503524							
Monitor Gas Range	CH_4	5>60	CO_2	5<40	O_2	21.2		
Gas Flow Range	0-10 l/hr							
Date of Calibration	25.10.2024							
PID Monitor (If used)								
PID Monitor Serial No.								
Calibration Date.								

Monitoring Period Summary (All Visits)	Peak	Steady
Max CH_4	0.0	0.0
Max CO_2	0.2	0.2
Max CO	0	0
Max H_2S	0	0
Max O_2	20.8	20.8
Min O_2	20.8	20.7
Flow rate	0.0	0.0

	Start	End
Barometric Pressure	1005	1005

Operative Details.	M.Tuck

CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 20-Apr-2024

Certificate Number: G503524_2/35282

Issued by: QED Environmental Systems Inc.

Customer: **QED ENVIRONMENTAL SYSTEMS LIMITED**
QED ENVIRONMENTAL SYSTEMS LTD CYAN PARK - UNIT 3 JIMMY HILL WAY COVENTRY, WEST MIDLA CV2 4QP GB

Description:

Model: GA5000

Serial Number: G503524

Accredited Results:

Methane (CH4)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.1	5.0	0.42
15.0	14.9	0.66
60.0	59.7	1.03

Carbon Dioxide (CO2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	5.0	0.43
15.0	15.0	0.71
40.0	40.0	1.19

Oxygen (O2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
20.9	21.0	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.2 °C/88.1 °F

O2 readings recorded at: 22.1 °C/71.7 °F

Barometric Pressure: 0987 mbar/29.15 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

CERTIFICATION OF CALIBRATION

PJLA Calibration

No. 66916

QED™

Date Of Calibration: 20-Apr-2024

Certificate Number: G503524_2/35282

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.33"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0987 mbar / 29.15 "Hg	0987 mbar / 29.16 "Hg

As received gas check readings are only recorded if the instrument is received in a working condition.
Where the instrument is received damaged no reading can be taken.

Date of Issue : 24 Apr 2024

Approved By Signatory

Linda Ostrowski

Laboratory Inspection

www.qedenv.com (800) 624-2026 info@qedenv.com

QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130

CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 25-Oct-2024

Certificate Number: G503524_10/36927

Issued by: QED Environmental Systems Inc.

As received Barometric Pressure recorded at: 23.2 °C/73.7 °F

As received gas check readings are only recorded if the instrument is received in a working condition. Where the instrument is received damaged no reading can be taker

Date of Issue : 26 Oct 2024

Approved By Signatory

[redacted]
Laboratory Inspection

www.qedenv.com (800) 624-2026 info@qedenv.com

QED Environmental Systems Inc. 2355 Bishop Circle West, Dexter, MI 48130

CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 25-Oct-2024

Certificate Number: G503524_10/36927

Issued by: QED Environmental Systems Inc.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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