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**TECHNICAL NOTE**

**HAZARDOUS GROUND GAS RISK ASSESSMENT**

Proposed Commercial Development at Unit 2, Seafire Close, Clifton Moor

Prepared by:   
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Approved by:   
**S. L. Roberts** BEng (Hons) MSc CEnv MICE

Date: 2<sup>nd</sup> March 2020



## 1.0 INTRODUCTION

Alan Wood and Partners have undertaken a programme of ground gas monitoring at the proposed commercial development at Unit 2, Seafire Close on Clifton Moor in York (YO30 4UU). The site location is shown on Figure 43366/001.

This technical note should be read in conjunction with all other related reports and drawings:

- Alan Wood & Partners; Phase I Geo-Environmental Appraisal at Unit Two, Seafire Close, York, YO30 4XF (JS/BAD/43366-Rp-002 Rev A), dated 9<sup>th</sup> December 2019.
- Alan Wood & Partners; Phase II Geo-Environmental Investigation Report for Unit Two, Seafire Close, York (JS/AC/43366-Rp-005), dated 10<sup>th</sup> January 2020.

4 No. windowless sampler boreholes (BH1 to BH4) were completed to a maximum depth of 5.00m (m bgl) on the 26<sup>th</sup> of November 2019. Three boreholes were completed with ground gas and groundwater monitoring installations. The locations of the boreholes are shown on the attached plan (43366/002), while the installation details are shown on the enclosed borehole logs.

This document has been completed in general accordance with current guidance, listed below:

- Environment Agency (2004), *Guidance on the management of landfill gas*;
- Building Research Establishment (BRE) Report 212 (1991), Construction of new buildings on gas-contaminated land;
- CL:AIRE Research Bulletin RB17, A pragmatic approach to Ground Risk Assessment, November 2012
- CIRIA C665 (2015), Assessing risks posed by hazardous ground gases to buildings;
- BS8485 2015, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings; and
- Reliability and risk in gas protection design" by S.A. Wilson and G.B. Card, Ground Engineering (1999).

It is generally accepted that a potential risk to a building development may exist where methane and carbon dioxide concentrations exceed a calculated site-specific Gas Screening Value (GSV). Above these values, consideration should be given to providing some form of gas protective measures within the proposed development.

As indicated in these documents, the assessment of potential risk associated with a given ground gas regime should also incorporate the atmospheric pressure, atmospheric pressure trends and gas flow rates over the monitoring period, which have significant influence over gas emission and vertical and/or horizontal ground gas migration through the sub-surface environment. These measurements were therefore included with the monitoring works to inform the risk assessment for the proposed development along with a review of atmospheric pressure patterns in the days preceding the monitoring event.

Gas monitoring was undertaken on site due to the potential risk of hazardous ground gases associated with potential made ground associated with the former airfield.

No radon protective measures are required in construction.

## 2.0 ASSESSMENT

The intrusive works undertaken encountered ground conditions as summarised below:

**Table 1.0 - Summary of Ground Conditions**

Lithology	Exploration Location	Approximate proven depth (m) to base from existing ground level	Approximate Thickness (m)	Allowable Safe Bearing Capacity (kN/m <sup>2</sup> )
Topsoil	TP3B, TP4A, TP4B, BH1, BH2, BH3	0.10 – 0.40		-
Tarmac	TP3A, BH4	0.15		-
Limestone Sub-base	TP3A, BH1, BH3, BH4	0.40 - 0.45	0.05 - 0.30	-
Made Ground - Granular	TP3B, TP4A, TP4B, BH3	0.85 – 1.00	0.30 - 0.75	-
Glaciolacustrine Deposits	All	0.60 - 5.0*	4.15 – 4.60	100
Groundwater	Perched groundwater was encountered in WS3 within a sand lens at 3.45m bgl			

### **Made Ground:**

Made ground was found in TP3B, TP4A, TP4B and BH3 to a maximum depth of 1.00m, comprising clayey gravelly sand with pockets of soft clay, and clayey sand and gravel. The gravel component comprised limestone with rare limestone cobbles.

### **Natural Strata:**

Topsoil was encountered in all exploratory holes apart from BH4. The natural ground comprised a sequence of firm to stiff occasionally soft orange brown slightly sandy silty clay, over grey brown slightly sandy silty clay with silt partings, over brown very sandy clay with sand partings.

No visual and olfactory evidence of gross contamination, such as hydrocarbons, was observed on site. Environmental laboratory analysis on samples which were obtained



during the site investigation works are being completed by UKAS accredited laboratories.

### **Groundwater:**

Perched groundwater was encountered in WS3 within a sand lens at 3.45m bgl.

### **Hazardous Ground Gas Risk Assessment**

Fugitive ground gases, linked with potential made ground associated with the disused airfield and existing development, may present an unacceptable risk to the development on the basis of available information.

In accordance with BS8485:2007, BS8576:2013, NHBC (2007) and CIRIA C665 (2007), a period of ground gas monitoring appropriate for the identified potential source and proposed end use of the site should be undertaken.

The likely generation potential for ground gas at the site is 'moderate', in accordance with CIRIA C665 (2007) Tables 5.5a and 5.6b. It is considered that, with low sensitivity classification for the proposed development (commercial), 6 monitoring visits are required over a period of 3 months, in order to determine the minimum level of ground gas protection required.

### **Ground Gas Monitoring**

6 no. rounds of gas monitoring were proposed and have been completed on the basis of the Phase I and II Geo-Environmental Reports.

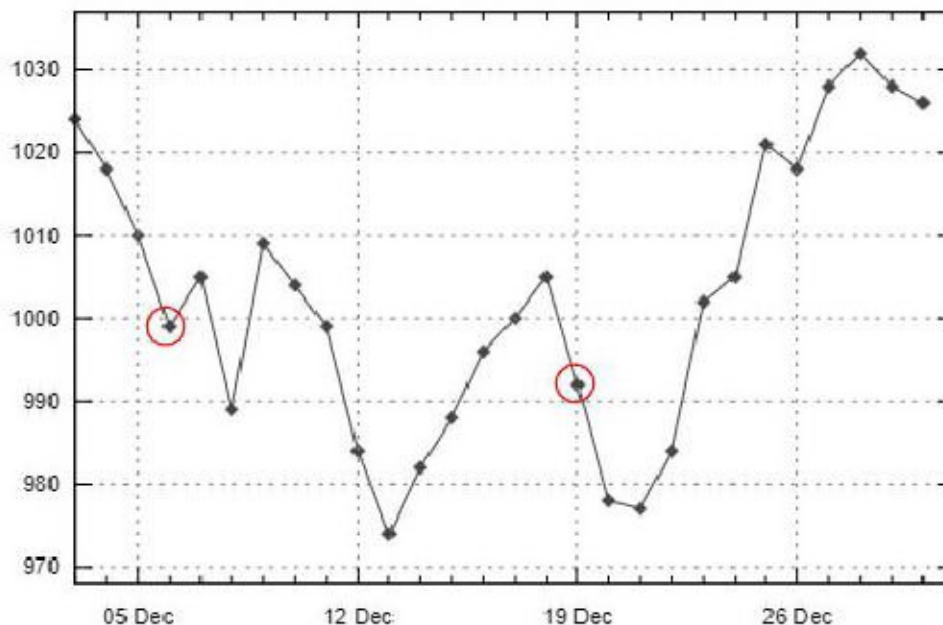
**Round 1;** 6<sup>th</sup> December 2019; (995 to 996mb) during a period of fluctuating barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	2.50	18.70	0	0	1.87	-
BH2	0.0	1.80	20.50	0	0	1.62	-
BH3	0.0	0.20	20.20	0	0	1.22	-
AIR	0.0	0.10	20.50	0	-	-	-

**Round 2;** 19<sup>th</sup> December 2019; (994mb to 996mb) during a period of falling barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	2.30	18.80	0	0	1.62	-
BH2	0.0	1.30	20.00	0	0	1.25	-
BH3	0.0	0.20	21.60	0	0	1.06	-
AIR	0.0	0.0	21.70	0	-	-	-

Linton-On-Ouse  
 Pressure [hPa]: 03.12.2019 - 31.12.2019  
 © weatheronline.co.uk



**Round 3;** 3<sup>rd</sup> January 2020; (1019mb to 1020mb) during a period of rising barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	2.00	18.80	0	0	1.65	-
BH2	0.0	1.10	19.70	0	0	1.28	-
BH3	0.0	0.10	20.70	0	0	1.10	-
AIR	0.0	0.10	20.80	0	-	-	-

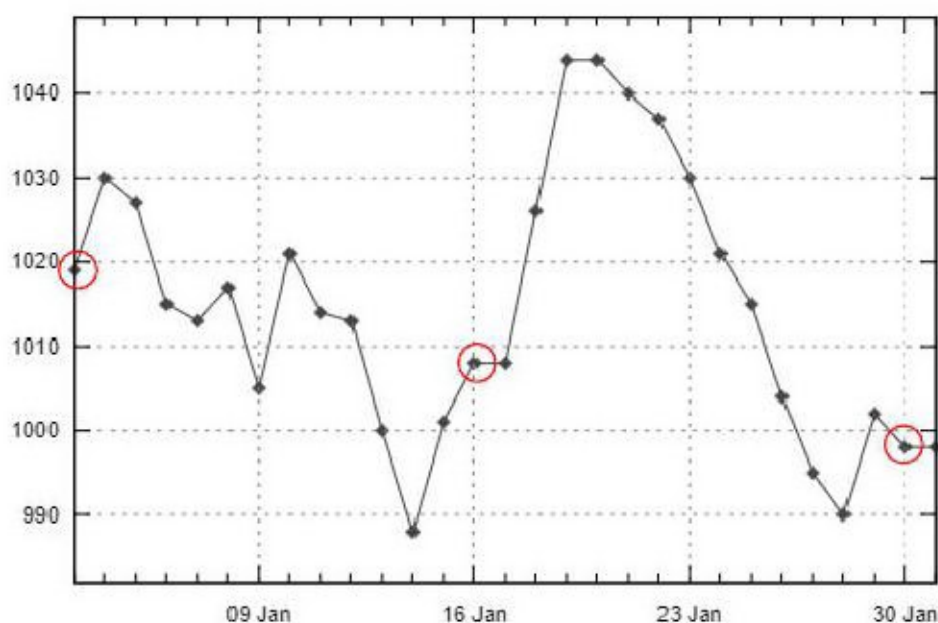
**Round 4;** 16<sup>th</sup> January 2020; (1011mb to 1012mb) during a period of rising barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	3.10	14.90	0	0.10	1.54	0.0031
BH2	0.0	3.30	18.40	0	0	1.07	-
BH3	0.0	0.30	20.50	0	0	1.10	-
AIR	0.0	0.10	20.60	0	-	-	-

**Round 5;** 30<sup>th</sup> January 2020; (998mb to 997mb) during a period of falling barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	1.60	17.20	0	1.90	1.45	0.0304
BH2	0.0	0.10	20.40	0	0.10	0.98	0.0001
BH3	0.0	0.30	20.30	0	0.20	1.16	0.0006
AIR	0.0	0.10	20.40	0	-	-	-

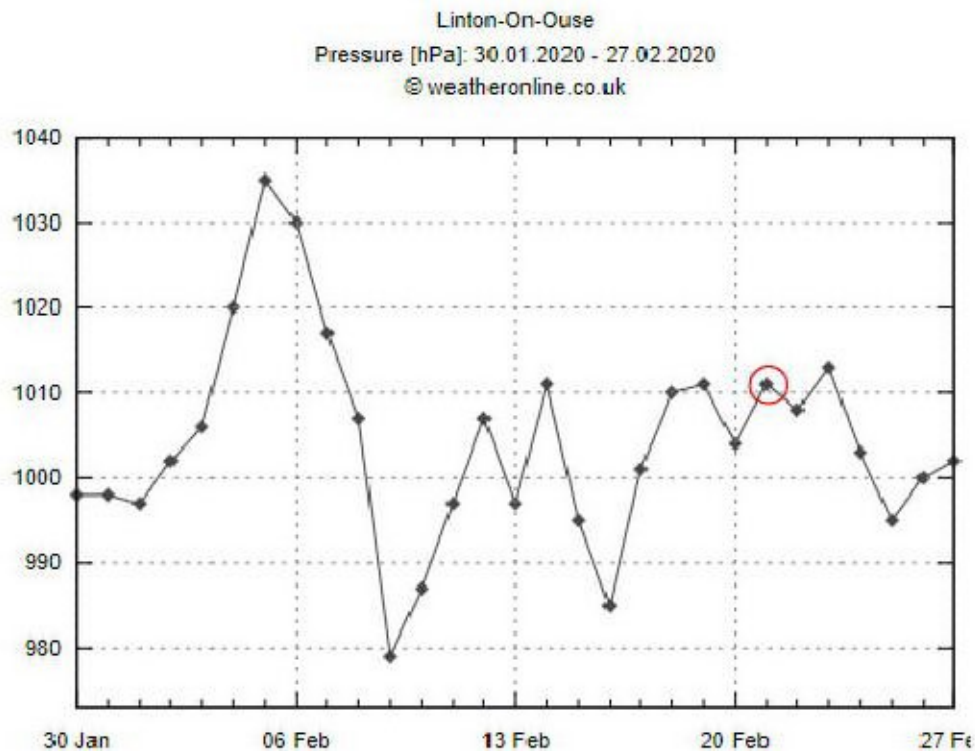
Linton-On-Ouse  
Pressure [hPa]: 03.01.2020 - 31.01.2020  
© weatheronline.co.uk



**Round 6;** 21<sup>st</sup> February 2020; (1011mb to 1011mb) during a period of fluctuating barometric pressure;

Borehole	CH <sub>4</sub> %v/v	CO <sub>2</sub> %v/v	O <sub>2</sub> %v/v	H <sub>2</sub> S ppm	Flow l/hr	Water m	GSV l/hr
BH1	0.0	2.20	16.4	0	0.1	1.26	0.0022
BH3	0.0	1.20	19.50	0	1.9	0.64	0.0228
BH4	0.0	0.40	19.70	0	0.1	1.06	0.0004
AIR	0.0	0.10	19.90	0	-	-	-





CH<sub>4</sub> - Methane Concentration  
 CO<sub>2</sub> - Carbon Dioxide Concentration  
 CO - Carbon Monoxide Concentration  
 O<sub>2</sub> - Oxygen Concentration  
 %v/v - Percent by volume in air  
 VOC - Volatile Organic Compounds

l/hr - Litres per hour  
 BD - Below detection limit  
 NR - Not Recorded  
 MP - Monitoring Point  
 ppm - Parts per million



### 3.0 CONCLUSIONS

$$\text{GSV (l/hr)} = \text{BH Flow rate (l/hr)} \times \text{Gas concentration (\%)}$$

No methane was detected throughout the monitoring period.

The peak concentration of **carbon dioxide (CO<sub>2</sub>)** was detected in BH2 on the 16<sup>th</sup> January 2020 at **3.30%v/v**.

A maximum peak flow reading of 1.9/hr was recorded within BH3 on 21<sup>st</sup> February 2020. Monitoring measurements were taken at atmospheric pressures between 994mb and 1020mb.

Ground gas monitoring visits have been undertaken during periods of rising, falling and fluctuating barometric pressures, as highlighted on the annotated barometric pressure graphs from a local weather station at Linton-on-Ouse.

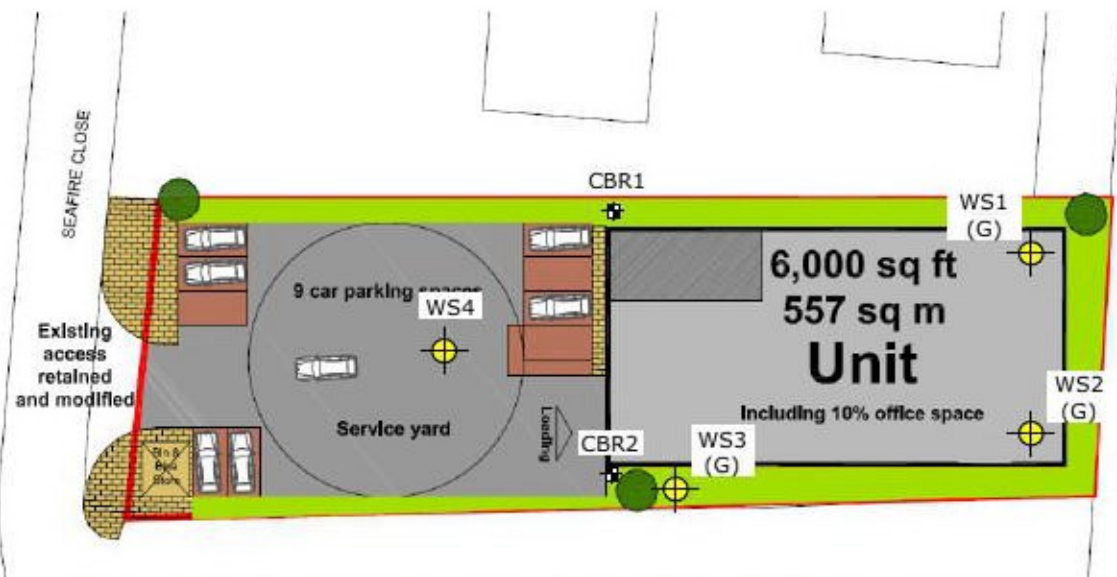
The results of the monitoring indicate that a GSV of **0.0627 l/hr** applies for carbon dioxide based on the highest recorded CO<sub>2</sub> concentration (i.e. 3.30%v/v). The maximum flow rate (i.e. 1.9/hr) has been recorded during a period of rising and falling barometric pressure.

The worst case GSV indicates that the ground gas regime complies with Characteristic Situation 1 (very low risk) (defined in CIRIA C665 Tables 8.5 and 8.6).

### 4.0 RECOMMENDATIONS

**Gas precautionary measures are therefore not required** for the proposed new commercial development in relation to methane or carbon dioxide.

Radon protective measures are not required in construction. The site is not in a Radon Affected Area and less than 1% of properties are above the Action Level.



Key



Windowless Sampler  
Boreholes

(G) – with ground gas  
monitoring



CBR Test Location



DO NOT SCALE



Alan Wood & Partners

Client. <b>IPIF Co Fox Lloyd Jones Limited</b>		
Project. <b>Seafire Close, Clifton Moor</b>		
Drawing. <b>Borehole Location Plan</b>		
Date. <b>28.11.19</b>	Scale. <b>NTS</b>	
Drawn by. <b>AC</b>	Check by. <b>JMS</b>	Approved by. <b>JMS</b>
Status: <b>FOR INFORMATION</b>		
Job no. <b>43366</b>	Fig. no. <b>001</b>	Rev.



# Borehole Log

Borehole No.

**BH1**

Sheet 1 of 1

Project Name: Seafire Close, Clifton Moor, York

Project No.  
43366 (1)

Co-ords: 459599.00 - 455357.00

Hole Type  
WLS

Location: Seafire Close, Clifton Moor, York

Level: 15.00

Scale  
1:50

Client: IPIF Co Fox Lloyd Jones Ltd

Dates: 26/11/2019 - 26/11/2019

Logged By  
AC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40			0.40	14.60		TOPSOIL: Loose, brown, clayey SAND with abundant rootlets.	
		0.50	ES		0.45	14.55		MADE GROUND: Limestone hardcore. Medium strength, orange brown mottled grey, firm, slightly sandy silty CLAY.	
		1.00	ES						1
		1.20		N=13 (2,3/2,4,3,4)					
		2.00		N=12 (2,3/3,3,3,3)	2.20	12.80			2
		3.00		N=10 (2,1/2,3,2,3)	3.10	11.90		Medium strength, brown, firm to stiff, slightly sandy silty CLAY. <i>From 2.60m bgl frequent sand part</i>	3
		4.00		N=10 (2,2/2,2,3,3)				Medium strength, brown, firm occasionally soft, very sandy CLAY.	4
		5.00		N=24 (2,3/4,6,7,7)	5.00	10.00		<i>Becomes slightly gravelly. Gravel of fine and medium rounded sandstone.</i> End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks







# Borehole Log

Borehole No.

**BH2**

Sheet 1 of 1

Project Name: Seafire Close, Clifton Moor, York

Project No.  
43366 (1)

Co-ords: 459618.00 - 455349.00

Hole Type  
WLS

Location: Seafire Close, Clifton Moor, York

Level: 15.00

Scale  
1:50

Client: IPIF Co Fox Lloyd Jones Ltd

Dates: 26/11/2019 - 26/11/2019

Logged By  
AC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.40	14.60		TOPSOIL: Loose, brown, clayey SAND with abundant rootlets. Rare coarse angular oolitic limestone gravel at base.	
		0.60	ES					Soft to firm, orange brown mottled grey, silty CLAY.	
		1.20 1.25	D	N=10 (2,2/2,2,3,3)	0.90	14.10		Medium strength, brown, firm to stiff, mottled grey, slightly sandy, silty CLAY.	
		2.00		N=11 (2,2/2,3,3,3)				<u>Sand lens at 2.00m bgl.</u>	
		3.00		N=10 (2,2/2,2,3,3)	3.90	11.10		<u>From 2.70m bgl frequent sand partings.</u>	
		4.00		N=11 (2,2/2,3,3,3)				Medium strength, brown, firm becoming soft, very sandy CLAY.	
		5.00		N=25 (2,2/4,5,8,8)	5.00	10.00		End of borehole at 5.00 m	

Remarks





# Borehole Log

Borehole No.

**BH3**

Sheet 1 of 1

Project Name: Seafire Close, Clifton Moor, York

Project No.  
43366 (1)

Co-ords: 459585.00 - 455333.00

Hole Type  
WLS

Location: Seafire Close, Clifton Moor, York

Level: 15.00

Scale  
1:50

Client: IPIF Co Fox Lloyd Jones Ltd

Dates: 26/11/2019 - 26/11/2019

Logged By  
AC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.10	14.90		TOPSOIL: Loose, brown, clayey SAND with abundant rootlets.	
		0.90	ES		0.85	14.15		MADE GROUND: Loose clayey, gravelly SAND. Gravel of medium and coarse, angular and sub-angular limestone. Frequent pockets of soft orange sandy clay.	
		1.20		N=9 (2,2/2,2,2,3)				Limestone cobble at 0.60m bgl	
		2.00		N=11 (2,2/3,2,3,3)	2.00	13.00		Medium strength, brown grey mottled orange, firm to stiff, slightly sandy silty CLAY.	
		3.00		N=10 (2,1/2,2,3,3)	3.00	12.00		Medium strength, brown, firm to stiff, sandy CLAY with frequent silt partings.	
		4.00		N=12 (2,2/2,3,3,4)				Medium strength, brown, soft, very sandy CLAY.	
		5.00		N=17 (3,2/3,4,5,5)	5.00	10.00		End of borehole at 5.00 m	

Remarks

Perched water at 3.45m bgl.





# Borehole Log

Borehole No.

**BH4**

Sheet 1 of 1

Project Name: Seafire Close, Clifton Moor, York

Project No.  
43366 (1)

Co-ords: 459567.00 - 455340.00

Hole Type  
WLS

Location: Seafire Close, Clifton Moor, York

Level: 15.00

Scale  
1:50

Client: IPIF Co Fox Lloyd Jones Ltd

Dates: 26/11/2019 - 26/11/2019

Logged By  
AC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25	ES		0.15	14.85		TARMAC	
		0.50	ES		0.45	14.55		MADE GROUND: Limestone hardcore.	
		0.95	D					Medium strength, brown grey mottled orange, firm becoming stiff, silty CLAY with frequent silt partings.	1
		1.20		N=10 (2,2/2,2,3,3)				Becomes grey brown	
		2.00		N=11 (2,2/2,3,3,3)				Orange sand parting at 2.50m bgl	2
		3.00		N=10 (2,2/2,3,2,3)	2.60	12.40		Medium strength, brown, firm to stiff, slightly sandy CLAY.	3
		4.00		N=15 (3,2/3,4,4,4)				Becomes very sandy CLAY at 3.75m bgl.	4
		5.00		N=23 (3,4/4,6,6,7)	5.00	10.00		End of borehole at 5.00 m	5
									6
									7
									8
									9
									10

Remarks






Alan Wood & Partners				 Alan Wood & Partners				GROUND GAS & GROUNDWATER MONITORING RECORD SHEET						
Project Name:		Project No:		Visit No:										
Seafire Close, Clifton Moor		43366		1 of 6										
Location:		Clifton Moor, York		Operative:		ST								
Client:		IPIF Co Fox Lloyd Jones Limited		Date:		06.12.19								
Monitoring Point	Methane (% v/v)	Methane (% v/v Peak)	CO2 (% v/v)	CO2 (% v/v Peak)	O2 (% v/v)	O2 (Min)	Flow Rate l/(hr)	GSV (l/hr)	Water Level (m bgl)	H2S	Comments			
WS1	0.00	0.00	2.40	2.50	20.40	18.70	0.00	0.0000	1.87	0.00	995mb			
WS2	0.00	0.00	0.10	0.80	20.50	20.50	0.00	0.0000	1.62	0.00	995mb			
WS3	0.00	0.00	0.10	0.20	20.50	20.20	0.00	0.00	1.22	0.00	996mb			
AIR	0.00	0.00	0.10	0.10	20.50	20.50	-	-	-	-	996mb			

### Meteorological Conditions

Ground Conditions	<div><div></div><div></div><div></div><div></div></div>	Dry	<div><div></div><div></div><div></div><div></div></div>	Moist	<div><div>X</div><div></div><div></div><div></div></div>	Wet	<div><div></div><div></div><div></div><div></div></div>	Snow	<div><div></div><div></div><div></div><div></div></div>	Frozen	<div><div></div><div></div><div></div><div></div></div>
Wind		Calm		Light	X	Moderate		Strong			
Cloud Cover		None		Slight		Cloudy	X	Overcast			
Rain		None	X	Slight		Moderate		Heavy			
Barometric Pressure (mb)				Start	995			End	996		
Pressure Trend?				Falling				Rising	X		
Temperature (C)											

GSV = maximum flow rate (l/hr) x maximum gas concentration (%)

Alan Wood & Partners				GROUND GAS & GROUNDWATER MONITORING RECORD SHEET							
Project Name: Seafire Close, Clifton Moor		Project No: 43366		Visit No: 2 of 6							
Location: Clifton Moor, York		Operative:		DA							
Client: IPIF Co Fox Lloyd Jones Limited		Date:		19.12.19							
Monitoring Point	Methane (% v/v)	Methane (% v/v Peak)	CO2 (% v/v)	CO2 (% v/v Peak)	O2 (% v/v)	O2 (mln)	Flow Rate (l/hr)	GSV (l/hr)	Water Level (m bgl)	H2S	Comments
WS1	0.00	0.00	2.30	7.30	18.80	18.80	0.00	0.0000	1.62	0.00	996.00
WS2	0.00	0.00	1.30	1.30	20.00	20.00	0.00	0.0000	1.25	0.00	995.00
WS3	0.00	0.00	0.20	0.20	21.60	21.60	0.00	0.00	1.06	0.00	994.00
AIR	0.00	0.00	0.00	0.00	21.70	21.70	-	-	-	0.00	995.00

### Meteorological Conditions

Ground Conditions

Wind

Cloud Cover

Rain

Barometric Pressure (mb)

Pressure Trend?

Temperature (C)

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GSV = maximum flow rate (l/hr) x maximum gas concentration (%)


Alan Wood & Partners				GROUND GAS & GROUNDWATER MONITORING RECORD SHEET									
Project Name: Seafire Close, Clifton Moor		Project No: 43366		Visit No: 3 of 6		DA		03/01/2020					
Location: Clifton Moor, York		Client: IPIF Co Fox Lloyd Jones Limited		Operative:		Date:							
Monitoring Point	Methane (% v/v)	Methane (% v/v Peak)	CO2 (% v/v)	CO2 (% v/v Peak)	O2 (% v/v)	O2 (Min)	Flow Rate (l/hr)	GSV (l/hr)	Water Level (m bgl)	H2S	Comments		
WS1	0.00	0.00	2.00	2.00	18.80	18.80	0.00	0.0000	1.65	0.00	1019.00		
WS2	0.00	0.00	1.10	1.10	19.70	19.70	0.00	0.0000	1.28	0.00	1020.00		
WS3	0.00	0.00	0.10	0.10	20.70	20.70	0.00	0.00	1.10	0.00	1020.00		
AIR	0.00	0.00	0.10	0.10	20.80	20.80	-	-	-	0.00	1019.00		

### Meteorological Conditions

Ground Conditions	<input type="text"/>	Dry	<input type="text"/>	Moist	<input type="text"/>	Wet	<input type="text"/>	Snow	<input type="text"/>	↑ frozen	<input type="text"/>
Wind	<input type="text"/>	Calm	<input type="text"/>	Light	<input type="text"/>	Moderate	<input type="text"/>	Strong	<input type="text"/>		
Cloud Cover	<input type="text"/>	None	<input type="text"/>	Slight	<input type="text"/>	Cloudy	<input type="text"/>	Overcast	<input type="text"/>		
Rain	<input type="text"/>	None	<input type="text"/>	Slight	<input type="text"/>	Moderate	<input type="text"/>	Heavy	<input type="text"/>		
Barometric Pressure (mb)	<input type="text"/>	10.19	<input type="text"/>	Start	<input type="text"/>		<input type="text"/>	End	<input type="text"/>		
Pressure Trend?	<input type="text"/>	Falling	<input type="text"/>		<input type="text"/>	Steady	<input type="text"/>	Rising	<input type="text"/>		
Temperature (C)	<input type="text"/>										

GSV = maximum flow rate (l/hr) x maximum gas concentration (%)




Alan Wood & Partners								GROUND GAS & GROUNDWATER MONITORING RECORD SHEET							
Project Name: Seafire Close, Clifton Moor		Project No: 43366		Visit No: 5 of 6											
Location: Clifton Moor, York				Operative:		BD									
Client: IPIF Co Fox Lloyd Jones Limited				Date:		30.01.2020									
Monitoring Point	Methane (% v/v)	Methane (% v/v Peak)	CO <sub>2</sub> (% v/v)	CO <sub>2</sub> (% v/v Peak)	O <sub>2</sub> (% v/v)	O <sub>2</sub> (% v/v Peak)	Flow Rate (l/hr)	GSV (l/hr)	Water Level (m bgl)	H <sub>2</sub> S	Comments				
WS1	0.00	0.00	2.10	2.60	19.60	18.10	0.10	0.0025	1.51	0	998				
WS2	-	-	-	-	-	-	-	-	0.28	-	FLOODED				
WS3	0.00	0.00	0.30	0.80	20.30	17.50	0.00	-	1.56	0	998				
AIR	0.00	0.00	0.00	0.10	20.50	70.30	0.00	-	-	0	999				

### Meteorological Conditions

Ground Conditions	<input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Moist	<input type="checkbox"/> Wet	<input type="checkbox"/> Snow	<input type="checkbox"/> Frozen
Wind	<input checked="" type="checkbox"/> Calm	<input type="checkbox"/> Light	<input type="checkbox"/> Moderate	<input type="checkbox"/> Strong	
Cloud Cover	<input type="checkbox"/> None	<input type="checkbox"/> Slight	<input checked="" type="checkbox"/> Cloudy	<input type="checkbox"/> Overcast	
Rain	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Slight	<input type="checkbox"/> Moderate	<input type="checkbox"/> Heavy	
Barometric Pressure (mb)	<input type="text" value="998"/>		<input type="text" value="999"/>		
Pressure Trend?	<input type="text" value="Falling"/>		<input type="text" value="Steady"/>		
Temperature (C)	<input type="text" value="9"/>				

GSV = maximum flow rate (l/hr) x maximum gas concentration (%)

Alan Wood & Partners				GROUND GAS & GROUNDWATER MONITORING RECORD SHEET							
Project Name: Seafire Close, Clifton Moor		Project No: 43366		Visit No: 6 of 6							
Location: Clifton Moor, York		Operative:		BD							
Client: IPI Ltd Fox Lloyd Jones Limited		Date:		21.02.2020							
Monitoring Point	Methane (% v/v)	Methane (% v/v Peak)	CO2 (% v/v)	CO2 (% v/v Peak)	O2 (% v/v)	O2 (Min)	Flow Rate (l/hr)	GSV (l/hr)	Water Level (m bgl)	H2S	Comments
WS1	0.00	0.00	1.10	2.20	17.20	16.40	0.10	0.0022	1.26	0	1011
WS2	0.00	0.00	0.50	1.20	19.80	19.50	1.90	0.0228	0.64	0	1016
WS3	0.00	0.00	0.30	0.40	19.80	19.70	0.10	0.0004	1.06	0	1011
AIR	0.00	0.00	0.10	0.10	19.90	19.90	-	-	-	0	1011

### Meteorological Conditions

Ground Conditions

Wind

Cloud Cover

Rain

Barometric Pressure (mb)

Pressure Trend?

Temperature (C)

<input type="checkbox"/> Dry	<input type="checkbox"/> Calm	<input type="checkbox"/> None	<input type="checkbox"/> None
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<input checked="" type="checkbox"/> x	<input type="checkbox"/> Moist
<input checked="" type="checkbox"/> x	<input type="checkbox"/> Light
<input type="checkbox"/>	<input type="checkbox"/> Slight
<input checked="" type="checkbox"/> x	<input type="checkbox"/> Slight
<input type="checkbox"/>	<input type="checkbox"/> Start
<input type="checkbox"/>	<input type="checkbox"/> Falling

<input type="checkbox"/>	<input type="checkbox"/> Wet
<input type="checkbox"/>	<input type="checkbox"/> Moderate
<input type="checkbox"/>	<input type="checkbox"/> Cloudy
<input type="checkbox"/>	<input type="checkbox"/> Moderate

<input type="checkbox"/>	<input type="checkbox"/> Snow
<input type="checkbox"/>	<input type="checkbox"/> Strong
<input type="checkbox"/>	<input type="checkbox"/> Overcast
<input type="checkbox"/>	<input type="checkbox"/> Heavy
<input type="checkbox"/>	<input type="checkbox"/> End
<input checked="" type="checkbox"/> x	<input type="checkbox"/> Rising

<input type="checkbox"/>	<input type="checkbox"/> Frozen
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GSV = maximum flow rate (l/hr) x maximum gas concentration (%)

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