

Our Ref C5092/25/E/GM
9th January 2026

HRB Investments Ltd,
93 Westbourne Road,
Huddersfield,
West Yorkshire,
HD1 4LG



For the attention of Satnam Singh,

Dear Satnam,

Ref: Land at Reinwood Road, Reinwood, Huddersfield, West Yorkshire, HD3 4DS.

Further to our report on a geo-environmental investigation (C5092/25/E/7765) which was presented in November 2025, we have now completed the gas monitoring and present our findings.

Monitoring

Gas monitoring standpipes were installed to between 0.80m and 4.00m depth in boreholes WS01, WS02 and WS04, the locations of which are provided on the site plan presented as Appendix 1 of the geo-environmental report. Visits were made to the site between the 30th October 2025 and the 6th January 2026. The results of this work are tabulated below.

Table 1: Gas monitoring								
Location	Date	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow	Barometric Pressure (mb)	Water Level (m)	Standpipe Depth (m)
WS01	30.10.2025	0.0	0.5	20.2	0.0	986 ↑	Dry	4.00
	06.11.2025	0.0	0.6	20.1	0.0	985 ↑	Dry	
	20.11.2025	0.0	0.6	20.0	0.0	1015 ↑	Dry	
	04.12.2025	0.0	0.5	20.2	0.0	997 ↓	Dry	
	18.12.2025	0.0	0.8	19.9	0.0	999 ↓	Dry	
	06.01.2026	0.0	0.7	20.0	0.0	1009 ↓	Dry	
WS02	30.10.2025	0.0	0.9	19.9	0.0	986 ↑	Dry	0.90
	06.11.2025	0.0	0.9	19.8	0.0	985 ↑	Dry	
	20.11.2025	0.0	0.8	19.7	0.0	1015 ↑	Dry	
	04.12.2025	0.0	0.8	20.1	0.0	997 ↓	Dry	
	18.12.2025	0.0	0.6	20.0	0.0	999 ↓	Dry	
	06.01.2026	0.0	0.0	20.4	0.0	1009 ↓	Dry	
WS04	30.10.2025	0.0	0.6	20.2	0.0	986 ↑	Dry	0.80
	06.11.2025	0.0	0.9	19.6	0.0	985 ↑	Dry	
	20.11.2025	0.0	0.9	19.8	0.0	1015 ↑	Dry	
	04.12.2025	0.0	0.8	20.0	0.0	997 ↓	Dry	
	18.12.2025	0.0	0.9	19.8	0.0	999 ↓	Dry	
	06.01.2026	0.0	0.0	20.2	0.0	1009 ↓	Dry	

↑ rising pressure

↓ falling pressure

→ steady pressure



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The monitoring visits were undertaken using a GFM Series (Serial No 13747/270525) which was last calibrated on the 27th May 2025.

Gas Concentrations

With respect to ground gas, the results of the completed monitoring regime indicated a maximum concentration of 0.0% methane, with concentrations of carbon dioxide ranging between 0.0% and 0.9% in association with oxygen levels of between 19.7% and 20.4%. 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, a maximum flow rate of 0.0 litres per hour was recorded, as such, an assumed flow rate of 0.1% will be assumed in the 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 985mb and 1015mb.

In view of the above, it may be appreciated that the continued gas monitoring has revealed no increases in methane or carbon dioxide concentrations or flow rates. Moreover, the fourth and fifth visits took place during a period of known falling pressure and during periods of barometric pressure below 1000mb.

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 0.0% (0.000) methane was recorded along with 0.9% (0.009) carbon dioxide, in association with a maximum flow rate of 0.1 l/hr. This results in a negligible GSV for methane and a GSV of 0.0009 l/hr for carbon dioxide.

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.

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.

¹ Adapted from tables 5.5a and 5.5b of CIRIA C665, 2007, *Assessing risks posed by hazardous ground gas to buildings*, p60.



Accepting that the proposed development is of high sensitivity and that the generation potential is low to moderate, these tables suggest that 9 to 12 readings could be undertaken over a period of at least 6 months. However, C665 notes that *not all sites will require gas monitoring for the period and frequency indicated in Tables 5.5a and 5.5b*. In this case, a total of 6 monitoring visits were undertaken over a 3 month time period. Whilst this programme is less than the recommended period of time, it should be appreciated that numerous intervals of low and falling pressure have been captured during this programme. Indeed, the rationale behind an extended period of monitoring is to ensure that worst-case conditions are captured. In this instance, it is reasoned that this has materialised despite the shorter monitoring period.

In view of the above, and considering the low gas concentrations and flow rates, 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*. This conclusion was provisionally considered in the geo-environmental report. In this instance, it should be appreciated that the final monitoring regime has reinforced the characterisation of a low risk. 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*.

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,



Steven Hale BSc FGS
Geo-environmental Engineer



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