Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Standard Landfill Site

Flintshire County Council Waste Management Services

Environmental Management 2026

Quarterly Monitoring Review January - March 2026

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Quarterly Monitoring Review January - March 2026

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1.0 INTRODUCTION

1.1 Background

1.1.1 This report reviews environmental monitoring data collected during the first quarter (Q1) of 2026 (January–March) at the Standard Landfill Site in Buckley (hereafter referred to as 'the Site'). The review is undertaken in accordance with the requirements of Natural Resources Wales (NRW). All gas and groundwater level (dip) data considered in this report were collected between the 1st of January and the 31st of March 2026, in line with the Environmental Permit (EP) ref. EPR/BP3390VA and the Standard Landfill Closure Plan ref. 3031-CAU-XX-XX-RP-V-0304.

1.1.2 This report presents and discusses monitoring data for landfill gas, leachate, groundwater, and surface water at the Standard Landfill Site. Further information on the Site's location, surrounding land use, historical development, and environmental context can be found in the Standard Landfill Site Annual Monitoring Review 2025 (document ref. 6635-CAU-XX-XX-RP-V-0311), submitted separately to NRW by Caulmert Ltd on behalf of Flintshire County Council Waste Management Services.

2.0 LANDFILL GAS

2.1 Introduction

2.1.1 Routine landfill gas (LFG) monitoring was conducted monthly at 28 perimeter boreholes during the review period. Methane, carbon dioxide, oxygen, relative pressure, and atmospheric pressure were recorded at each borehole.

2.1.2 Borehole locations are shown on the attached drawing 'Site Survey' ref. 14339a. Detailed methane and carbon dioxide concentrations are highlighted in **Appendix 1**.

2.1.3 An active gas extraction system comprising a 235 KW Engine and Flare is operated at the Site.

2.2 In Waste Gas Wells

2.2.1 The gas field at Standard Landfill Site is monitored and balanced on a regular basis, in accordance with the working plan. Landfill gas monitoring data for the in-waste boreholes for this review are included in Appendix 1.

Methane

2.2.2 The maximum methane concentration recorded in the in-waste boreholes varied from below the limit of detection (GV3 and GV20) to 80 % (GV22). Average methane concentrations across in-waste boreholes ranged from 0 % (GV3 and GV20) to 80 % (GV22).

Carbon Dioxide

2.2.3 Average carbon dioxide concentrations for in-waste boreholes ranged from 0.57 % (GV3) to 25.30 % (GV55). Peak carbon dioxide concentration for in-waste boreholes ranged from 0.7 % (GV3 and GV20) to 25.3 % (GV55).

Oxygen Overview

2.2.4 Oxygen concentration for in-waste boreholes ranged from 0.4 % (GV1 and GV4) to 17.2 % (GV3). There were seven in-waste boreholes showing over 5 % oxygen ingress (GV3, GV6, GV18, GV19, GV20, GW61 and GW62). The average oxygen concentration ranged from 0.47 % (GV1) to 17.03 % (GV3). Wells with potential air ingress are shown in Table 1

Table 1: Wells with potential air ingress

Monitoring Point	O2 %			% above 5%
	Min	Max	Avg	
GV18	15.4	16	15.77	100%
GV19	5.1	5.5	5.27	100%
GV20	10.8	11.9	11.50	100%
GV3	16.9	17.2	17.03	100%
GV6	5.1	5.3	5.20	100%
GW61	14.9	15.1	15.00	100%
GW62	15.2	15.5	15.33	100%

Carbon Monoxide and Hydrogen Sulphide

2.2.5 Carbon monoxide concentration for in-waste boreholes ranged from 1 ppm (GW61) to 6 ppm (GV4, GV18, GV20, GV51 and GV55). The average carbon monoxide concentration across this category of boreholes ranged from 2.33 ppm (GV3) to 5 ppm (GV19, GV20 and GV22).

2.2.6 Hydrogen sulphide levels in in-waste boreholes varied from 2 ppm (GV22, GV6, GW62) to 7 ppm (GV1, GV10, GV18, GV20, GV3, GV4, GW61). The average concentration ranged from 3.67 ppm (GV22, GV55) to 6 ppm (GV1, GV3). GV3)

2.3 Perimeter Gas Wells

Methane

2.2.1 Methane was only detected at BH22 with a maximum concentration of 0.30 %. No methane was detected at any other monitoring location. Concentrations remained comparable to those detected previously in Q4 2025.

2.2.2 An EP Compliance Assessment Report (CAR) ID 37073/0202764 issued by Natural Resources Wales (NRW) on the 27th of February 2014, proposed a methane EP Compliance Limit of 1.00 % for BH22. The EP Compliance Limit was not exceeded in Q1, and thus, methane concentrations on the Site are not considered a risk.

Carbon Dioxide

2.3.1 Carbon dioxide EP Compliance Limits were agreed with the NRW during the third Quarter of 2011. Details of the limits and monitoring data are highlighted in **Appendix 1**.

2.2.3 Average carbon dioxide concentrations varied between 1.07 % (BH2.2) to 1.50 % (BH5.1). No EP Compliance Limits were exceeded in this quarter. Thus, carbon dioxide concentrations at the Site are not considered a risk.

Carbon Monoxide and Hydrogen Sulphide

2.3.2 No carbon monoxide or hydrogen sulphide was detected at any of the monitoring locations throughout this quarter.

3.0 LEACHATE

3.1 Introduction

3.1.1 Leachate levels were recorded monthly at eight of nine leachate monitoring locations, LC2.1(LC), LC3, LC4, LC7, S2, S3, SSR5 (LS5) and SSR6 (LS6). The S1 sample was lost in transit. As in the previous quarter, the nearest well to LC2 was sampled (LC2.1), as there was no access to LC2.

3.1.2 Well locations are shown on the enclosed Environmental Monitoring Location drawing 14339a.

3.2 Leachate Levels

3.2.1 Leachate levels were recorded monthly. A table of leachate levels, in metres below ground level (mBGL) and metres above Ordnance Datum (mAOD), is highlighted in **Appendix 2**.

3.2.2 Leachate levels remained below the EP Compliance Limit (2.00 m above the well base) throughout the review period at all locations, apart from the LS5 monitoring location. Leachate head levels at LS5 averaged at 5.19 m in Q1 2026, almost identical to the previously recorded average of 5.20m in Q4 2025. Average leachate head levels at the remaining monitoring locations ranged from 1 m (LC2.1(LC)) to 1.78 m (LC7). The base levels, however, are unconfirmed, and the accuracy of these leachate 'head' figures cannot be verified. The minimum, maximum, and average leachate head levels in metres above the well base are indicated in **2**.

Table 2 Leachate Head Levels (in metres above well base)

Leachate Head (m)	LC2.1 (LC)	LC3	LC4	LC7	LS5	LS6	S1	S2	S3
Min	0.98	1.02	1.31	1.76	5.18	1.19	1.07	1.46	1.19
Max	1.02	1.09	1.34	1.80	5.19	1.20	1.10	1.50	1.24
Average	1.00	1.05	1.32	1.78	5.19	1.19	1.08	1.48	1.22

3.3 Leachate Quality

3.3.1 A summary of the leachate quality is shown in **Appendix 2**. The quarterly parameters were sampled once on the 11th of March 2026, no leachate quality results for S1 were available due to the sample being lost in transit.

3.3.2 Ammonia (as N) concentrations within leachate at the Site were high at many locations during Q1, akin to the previous review period, but are seen to be very variable over the year. The maximum concentration recorded was 1,000 mg/L at locations LC2.1(LC). Elevated concentrations were also observed at SSR6 (640 mg/L), SSR5 (620mg/l) and S3 (500 mg/L). Lower values were observed at LC4 (390 mg/L), LC7 (390 mg/L), and LC3 (310 mg/L), with the lowest at S2 (160 mg/L). For comparison, concentrations during Q4 ranged from 1,209 mg/L at SSR5 to 0.93 mg/L at LC3. The mean ammonia concentration across all leachate wells and the holding tank decreased from 611 mg/L in Q4 to 515.56 mg/L during Q1.

3.3.3 The highest chloride concentration recorded during Q1 was 1,740 mg/L at location LC2. This is relatively lower than the previous quarter's maximum of 1,886 mg/L at SSR6, excluding the holding tank(HT). The current peak value is comparable with that observed in Q1 2025 (1,800 mg/L). The mean chloride concentration excluding HT for Q1 was 936 mg/L, compared with 978 mg/L in the preceding quarter.

3.3.4 Chemical Oxygen Demand (COD) concentrations during Q1 ranged from 730 mg/L at LC3 to 2,810 mg/L at location SSR6. The mean COD concentration for this quarter, excluding the HT, was 1,766 mg/L, indicating an increase from Q4's mean value of 925 mg/L; continuing in the upward trend observed since Q4 2024, when the mean concentration was 673 mg/L.

3.3.5 Leachate pH during Q1 was generally slightly alkaline across all the monitoring locations, with a site-wide mean of 7.36, a decrease from the previous quarter's mean value of 7.65.

3.3.6 The concentrations of dissolved metals during this review period were generally within orders of magnitude for each element across the monitoring locations, with the exception of sodium within LC2, which was notably higher (1,310 mg/L). The average concentrations decreased from 68.2 mg/L last quarter to 67.1 mg/L during this quarter for magnesium, from 380 mg/L to 318.8 mg/L for potassium, and from 936 mg/L to 713.9 mg/L for sodium.

3.3.7 Monitoring undertaken during Q1 2026 indicates a variable trend in several key leachate quality parameters across the Site. Ammonia, chloride, and dissolved metal (i.e., potassium and sodium) concentrations all decreased compared with the previous quarter, while COD increased during this quarter compared with the previous quarter.

4.0 GROUNDWATER

4.1 Introduction

4.1.1 During the review period, groundwater levels were recorded monthly at eight groundwater monitoring boreholes, GW1, GW2, GW2R, GW3, GW4R, GW5, GW6 and GW7R. Location GW2R was installed in October 2016 to replace GW2. Samples collected at these locations were analysed for the quarterly suite of substances on the 11th of March 2026.

4.2 Groundwater Levels

4.2.1 Groundwater level data were recorded monthly in metres below ground level (mBGL) on the 12th of January, 9th of February, and 11th of March 2026. Where borehole cover levels in Ordnance Datum are available, this was used to calculate the groundwater level in metres Above Ordnance Datum (mAOD).

4.2.2 Groundwater levels across the monitoring boreholes were variable during Q1 2026. The highest groundwater levels were consistently recorded at ST GW 5 (ranging from 131.41 mAOD to 132.02 mAOD). In contrast, the lowest levels were measured at ST GW 3 (decreasing from 81.86 mAOD in January to 80.17 mAOD in March).

The greatest difference in groundwater level during Q1 was recorded at ST GW1, with a decrease of 4.07m from 94.03 mAOD in January to 89.96 mAOD in March. Other noticeable decreases in groundwater levels observed in this quarter were as follows: ST GW 2R (from 87.10 mAOD in February to 83.95 mAOD in March), ST GW 3 (from 82.63 mAOD in February to 80.17 mAOD in March), and ST GW 7R (from 96.74 mAOD in January to 93.44 mAOD in March). Levels at ST GW 2 remained stable at 108.11 mAOD throughout the monitoring period. A summary of groundwater levels, expressed in both mBGL and mAOD, is presented in **Appendix 3**

4.3 Groundwater Quality

4.3.1 Detailed groundwater quality data is highlighted in **Appendix 3**. The quarterly parameters were tested on the 11th of March 2026. No analysis results for GW6 were available at the time of this report due to a sample loss in transit.

4.3.2 Ammonia concentrations in groundwater remained consistently low throughout Q1 2026, with the exception of GW4R having a recorded concentration of 1.40 mg/L. At the remaining monitoring locations, concentrations ranged from less than the detectable limit of 0.01 mg/L at GW1 to a maximum of 0.22 mg/L at GW5.

4.3.3 Chloride concentrations in groundwater during Q1 2026 remained broadly comparable to those recorded in Q4 2025, with the exception of GW5 at 76.2 mg/L during this quarter compared to 7.8 mg/L last quarter, and GW7 at 13.3 mg/L during this quarter compared to 52.9 mg/L last quarter. The highest concentration was also observed in GW5, at 76.2 mg/L, depicting an increase from Q4's 2025 maximum of 54.3 mg/L at GW1. At the remaining locations, concentrations varied between 46 mg/L (GW4R) and 58.2 mg/L (GW1). The site-

wide average chloride concentration for Q1 was 50.62 mg/L, a slight increase from Q4's average value of 41.59 mg/L.

4.3.4 The sulphate concentrations in this quarter averaged 206 mg/L, an increase compared to the average of 17.8 mg/l last quarter, the other quarterly sulphate levels prior to the previous quarter are comparable to the current quarter.

4.3.5 All other inorganic groundwater quality parameters (detailed in **Appendix 3**) remained broadly comparable to the previous review. COD concentrations during Q1 2026 ranged from 3 mg/L at GW3 to a maximum of 25 mg/L at GW4R. BOD concentrations ranged from <0.4 mg/L at GW4R and GW7, to 1.5 mg/L at GW2 and GW3.

4.3.6 The average concentration of copper increased to 26.6 µg/L compared to the last quarter's (Q4) average of 2.64 µg/L. This quarter's results are comparable to the quarters prior to quarter 4 of 2025. The last quarter was comparatively lower than historic levels.

4.3.7 Iron concentrations were all detected above the LOD during Q1 with concentrations ranging from 66.1 µg/L to 800 µg/L, a notable increase compared to the previous review (<5 µg/L). It should be noted that concentrations still remain significantly below the concentrations reported in Q3 2025 (15,494 µg/L, average across all locations).

4.3.8 Nickel levels are comparable to those from the previous quarter, with concentrations this quarter ranging from <1.50 µg/L at GW3, GW5 and GW7, to 2.19 µg/L at GW4R. This maximum depicts a noticeable decrease from what was recorded in Q3 of 2025, with values ranging between 2.50 µg/L in GW3 and 51.30 µg/L at GW6, respectively.

4.3.9 Arsenic concentrations of 0.62 µg/L and 0.42 µg/L were detected at GW1 and GW2 respectively, represent the maximum levels this quarter. The remaining locations were below the laboratory detection limits (<0.2 µg/L). The lead concentrations were below the laboratory detection limits (<4.1 µg/L) across all locations.

4.3.10 The cadmium, calcium, magnesium, mercury, potassium, and sodium in Q1 2026 were comparable to those previously recorded.

4.3.11 Groundwater pH was near neutral during Q1 2026, with a site-wide average of 6.45, similar to the previously reported average of 6.49 in Q4 2025.

5.0 SURFACE WATER

5.1 Introduction

5.1.1 Surface water samples were collected at 3 locations, SW4, SW5, and SW6 for the quarterly suite on the 13th of March 2026. The laboratory testing results can be found in **Appendix 4**.

5.2 Surface Water Quality

5.2.1 Ammonia (as N) concentrations in Q1 2026 were comparable to those of Q4 review period, with recorded values as follows: 0.34 mg/L at SW4, 0.26 mg/L at SW5, and 0.12 mg/L at SW6, respectively. These concentrations remain below the Environmental Permit compliance limit of 1 mg/L (only applicable to SW5).

5.2.2 Chloride concentration during Q1 2026 was below the EP Compliance Limit of 105 mg/L. Chloride concentration at SW5 (settlement lagoon prior to discharge) during Q1 2026 was 19 mg/L. SW4 (upstream) chloride concentration was 101 mg/L, comparable to the level within SW5. The concentration at SW5 was noticeably lower at 18.9 mg/L.

5.2.3 COD concentrations during Q1 2026 ranged from 21 mg/L at SW4, to 39 mg/L at SW5.

5.2.4 Nitrate concentrations during Q1 2026 were below the laboratory limit of detection (<1.30 mg/L) at all locations.

5.2.5 Sulphate concentrations during Q1 2026 were recorded as 130 mg/L at SW4, 150 mg/L at SW5, and 160 mg/L at SW6. These values are noticeably higher than the Q4 2025 monitoring results but remain in line with historic levels.

5.2.6 Iron concentrations during Q1 2026 were recorded as 59.8 µg/L at SW4, 197 µg/L at SW5, and 222 µg/L at SW6, respectively. These values are generally lower compared to the previous quarter, with the exception of SW4 (72.6 µg/L at SW4, 572 µg/L at SW5, and 425 µg/L at SW6, respectively).

5.2.7 Magnesium concentrations during Q1 2026 were 18.9 mg/L at SW4, 32.2 mg/L at SW5, and 31.6 mg/L at SW6 respectively. These values are comparable to those recorded during the previous quarter (12 mg/L for SW4, 14 mg/L for SW5, and 7 mg/L for SW6, respectively).

5.2.8 Potassium and sodium concentrations in surface water locations showed no significant changes compared to the results observed in previous quarterly review periods.

5.2.9 pH levels at the surface water monitoring locations were near neutral with a slight increase compared to the last quarter, with values of 7.7 at SW4, 7.9 at SW5 and 7.9 at SW6, but in line with historic levels.

6.0 CONCLUSIONS

6.1 Landfill gas

6.1.1 Average methane, carbon dioxide and Oxygen concentrations across the in-waste gas wells during Q1 2026 were 36.7 %, 15.6 % and 5.1 %, respectively. Seven of the in-waste gas wells showed signs of potential air ingress.

6.1.2 As noted within previous reviews, methane was only detected in BH22 with a maximum concentration of 0.3 % recorded during the first quarter of 2026.

6.1.3 The EP Compliance Limits for methane and carbon dioxide were not exceeded throughout Q1.

6.1.4 No carbon monoxide or hydrogen sulphide was detected during Q1.

6.2 Leachate

6.2.1 Leachate levels remained within the EP Compliance Limit for the duration of Q1 at all locations, except for LS5.

6.2.2 Overall, the Q1 2026 monitoring data indicate a variable trend in several key leachate quality parameters across the Site compared to last quarter, however, the data shows a trend of increase for COD. These should be monitored closely in subsequent reviews to ascertain if the variations are a result of seasonal variability or a longer-term shift in leachate composition.

6.3 Groundwater

6.3.1 Groundwater levels during Q1 2026 were highest in January and February, with slightly lower levels during March. This trend is likely influenced by seasonal variations in rainfall.

6.3.2 Inorganic parameters analysed in groundwater during Q1 2026 were generally consistent with established site trends; last quarters drop in copper levels has rebounded to match previous levels, iron and nickel have also followed this pattern.

6.3.3 Again, groundwater pH during Q1 2026 shifted more towards neutral conditions relative to Q3; however, values remained within the expected range for the Site. Concentrations of cadmium, calcium, magnesium, potassium, and sodium demonstrated only minor variations and were broadly consistent with those observed during the previous monitoring period.

6.4 Surface Water

6.4.1 All inorganic surface water quality was comparable to that recorded previously.

6.4.2 There were no significant changes in the concentration of metals or surface water pH in Q1.

6.4.3 No EP Compliance Limit was exceeded for any parameter.

DRAWINGS

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APPENDIX 1

Landfill Gas

Table 1: Landfill Gas Summary

Parameter		BH1	BH1.1	BH2.0	BH2.1	BH2.2	BH3.0	BH3.1	BH4.0	BH4.1	BH4.2	BH5.0	BH5.1	BH5.2	BH5.3
Methane (% v/v)	EP Compliance Limit	1.00	1.00	1.00	10.00	1.00	15.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	14/01/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11/02/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	17/03/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Dioxide (% v/v)	EP Compliance Limit	5.40	5.40	7.80	10.60	7.10	19.40	5.80	9.60	6.00	16.00	17.10	7.10	5.40	5.40
	14/01/2026	1.40	1.30	1.20	1.30	0.90	1.30	1.10	1.10	1.40	1.10	1.30	1.40	1.40	1.10
	11/02/2026	1.30	1.20	1.10	1.20	1.10	1.20	1.40	1.20	1.30	1.00	1.20	1.50	1.40	1.30
	17/03/2026	1.40	1.30	1.20	1.50	1.20	1.30	1.40	1.30	1.20	1.20	1.30	1.60	1.30	1.00
	Average	1.37	1.27	1.17	1.33	1.07	1.27	1.30	1.20	1.30	1.10	1.27	1.50	1.37	1.13
Oxygen (% v/v)	14/01/2026	19.90	19.80	19.60	19.60	19.80	19.60	19.50	20.00	19.40	19.40	19.30	19.50	19.60	19.80
	11/02/2026	20.00	19.90	19.80	19.90	20.10	19.80	19.60	19.90	19.60	19.70	19.60	19.80	19.60	19.90
	17/03/2026	19.90	19.60	19.80	19.60	19.90	19.50	19.90	20.00	20.00	20.00	19.80	19.90	19.70	19.80
	Average	19.93	19.77	19.73	19.70	19.93	19.63	19.67	19.97	19.67	19.70	19.57	19.73	19.63	19.83

Parameter		BH5.4	BH5.5	BH5.7	BH6.0	BH6.1	BH6.2	BH6.3	BH7.0	BH7.1	BH12	BH13	BH15	BH16	BH22
Methane (% v/v)	EP Compliance Limit	1.00	1.00	1.60	1.00	1.00	1.00	1.00	10.00	10.00	1.00	1.00	1.00	1.00	1.00
	14/01/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	11/02/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	17/03/2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
	Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Carbon Dioxide (% v/v)	EP Compliance Limit	8.30	3.00	3.10	5.40	8.20	6.20	5.50	6.50	5.20	7.00	7.60	5.80	3.00	3.10
	14/01/2026	1.30	1.40	1.20	1.00	1.40	1.30	1.40	1.20	1.50	1.20	1.20	1.30	1.20	1.10
	11/02/2026	1.20	1.20	1.30	1.20	1.30	1.40	1.50	1.60	1.40	1.10	1.10	1.40	1.50	1.30
	17/03/2026	1.30	1.30	1.20	1.10	1.20	1.30	1.30	1.40	1.50	1.30	1.20	1.30	1.40	1.10
	Average	1.27	1.30	1.23	1.10	1.30	1.33	1.40	1.40	1.47	1.20	1.17	1.33	1.37	1.17
Oxygen (% v/v)	14/01/2026	19.20	19.60	19.40	19.90	19.30	19.50	19.50	19.30	19.50	19.50	19.60	19.60	19.70	19.60
	11/02/2026	19.30	19.80	19.50	20.10	19.60	19.70	19.60	19.40	19.60	19.70	19.80	19.60	19.80	19.30
	17/03/2026	19.60	19.70	19.60	19.60	19.80	19.90	20.10	19.60	19.80	19.80	19.90	19.70	19.90	19.50
	Average	19.37	19.70	19.50	19.87	19.57	19.70	19.73	19.43	19.63	19.67	19.77	19.63	19.80	19.47

Table 2: In-waste Landfill Gas Monitoring Data Summary (Methane, Carbon Dioxide, Oxygen)

ID	Methane (% v/v)			Carbon Dioxide (% v/v)			Oxygen (% v/v)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
GV1	50.30	50.50	50.40	19.50	19.80	19.63	0.40	0.50	0.47
GV10	50.10	50.30	50.23	19.60	19.80	19.67	1.50	1.90	1.70
GV11	50.00	50.20	50.07	19.80	20.00	19.90	1.30	1.40	1.33
GV18	0.60	0.70	0.63	19.60	19.90	19.80	15.40	16.00	15.77
GV19	36.50	36.90	36.77	17.30	17.40	17.37	5.10	5.50	5.27
GV20	0.00	0.00	0.00	0.50	0.70	0.60	10.80	11.90	11.50
GV22	80.00	80.00	80.00	3.50	3.90	3.67	0.60	0.80	0.70
GV3	0.00	0.00	0.00	0.40	0.70	0.57	16.90	17.20	17.03
GV4	50.20	50.40	50.30	19.80	20.00	19.87	0.40	0.60	0.50
GV5	50.20	50.40	50.30	19.60	19.90	19.77	0.50	0.80	0.63
GV51	50.20	50.40	50.33	24.10	24.50	24.27	0.50	0.70	0.60
GV55	49.60	50.10	49.90	25.30	25.30	25.30	0.60	0.80	0.70
GV6	50.40	50.60	50.50	19.80	20.00	19.90	5.10	5.30	5.20
GV7	51.00	51.30	51.20	19.50	19.70	19.57	1.40	1.60	1.50
GV8	50.20	50.60	50.33	19.70	20.00	19.87	0.50	0.80	0.67
GV9	50.10	50.90	50.50	19.60	19.90	19.77	1.30	1.40	1.37
GW60	20.00	21.10	20.37	24.50	25.00	24.80	1.20	1.30	1.23
GW61	0.50	0.60	0.57	1.00	1.40	1.13	14.90	15.10	15.00
GW62	4.00	4.50	4.23	1.20	1.30	1.23	15.20	15.50	15.33

Table 3: In-waste Landfill Gas Monitoring Data Summary (Carbon Monoxide, Hydrogen Sulphide, Relative Pressure)

ID	Carbon Monoxide (ppm)			Hydrogen Sulphide (ppm)			Relative Pressure (mb)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
GV1	3.00	4.00	3.33	5.00	7.00	6.00	-25.40	-23.40	-24.43
GV10	2.00	3.00	2.67	4.00	7.00	5.67	0.00	0.00	0.00
GV11	2.00	5.00	3.67	4.00	5.00	4.67	-25.30	-23.50	-24.47
GV18	3.00	6.00	4.00	4.00	7.00	5.33	-9.90	-9.10	-9.40
GV19	5.00	5.00	5.00	5.00	6.00	5.33	0.20	0.30	0.23
GV20	3.00	6.00	5.00	3.00	7.00	5.00	0.20	0.20	0.20
GV22	5.00	5.00	5.00	2.00	5.00	3.67	-25.40	-23.60	-24.43
GV3	2.00	3.00	2.33	5.00	7.00	6.00	0.30	0.40	0.37
GV4	3.00	6.00	4.00	3.00	7.00	5.00	-25.30	-23.40	-24.43
GV5	2.00	5.00	3.67	3.00	5.00	4.33	0.00	0.00	0.00
GV51	2.00	6.00	3.67	4.00	6.00	5.33	-25.30	-23.40	-24.40
GV55	3.00	6.00	4.67	3.00	5.00	3.67	-25.50	-23.60	-24.57
GV6	3.00	5.00	3.67	2.00	6.00	4.33	-25.60	-23.60	-24.57
GV7	4.00	5.00	4.67	4.00	5.00	4.33	-25.80	-23.40	-24.60
GV8	2.00	5.00	3.33	5.00	6.00	5.33	-25.40	-23.60	-24.50
GV9	3.00	5.00	4.00	5.00	6.00	5.33	0.00	0.00	0.00
GW60	2.00	5.00	3.67	5.00	6.00	5.33	-25.90	-23.50	-24.63
GW61	1.00	4.00	3.00	3.00	7.00	5.00	0.30	0.40	0.33
GW62	2.00	3.00	2.67	2.00	6.00	4.33	0.20	0.30	0.23

APPENDIX 2

Leachate

Table 1: Leachate Levels

Parameter		LC2.1 (LC)	LC3	LC4	LC7	LS5	LS6	S1	S2	S3
Well height (mAOD)		**141.05**	**133.96**	**148.65**	**151.29**	**133.31**	**134.86**	**127.98**	**128.86**	**128.50**
Dip to Base		**31.00**	**4.84**	**19.00**	**20.31**	**32.00**	**33.00**	**4.43**	**3.35**	**5.09**
Dip to Liquid (m)	**13/01/2026**	29.98	3.82	17.69	18.53	19.00	30.02	3.33	1.86	3.90
	10/02/2026	30.00	3.79	17.66	18.51	18.99	30.00	3.35	1.89	3.87
	11/03/2026	30.02	3.75	17.68	18.55	19.02	30.02	3.36	1.85	3.85
Leachate Head (m)	**13/01/2026**	1.02	1.02	1.31	1.78	5.19	1.19	1.10	1.49	1.19
	10/02/2026	1.00	1.05	1.34	1.80	5.19	1.20	1.08	1.46	1.22
	11/03/2026	0.98	1.09	1.32	1.76	5.18	1.19	1.07	1.50	1.24
Leachate Level (mAOD)	**13/01/2026**	111.07	130.14	130.96	132.76	114.31	104.84	124.65	127.00	124.60
	10/02/2026	111.05	130.17	130.99	132.78	114.32	104.86	124.63	126.97	124.63
	11/03/2026	111.03	130.21	130.97	132.74	114.29	104.84	124.62	127.01	124.65

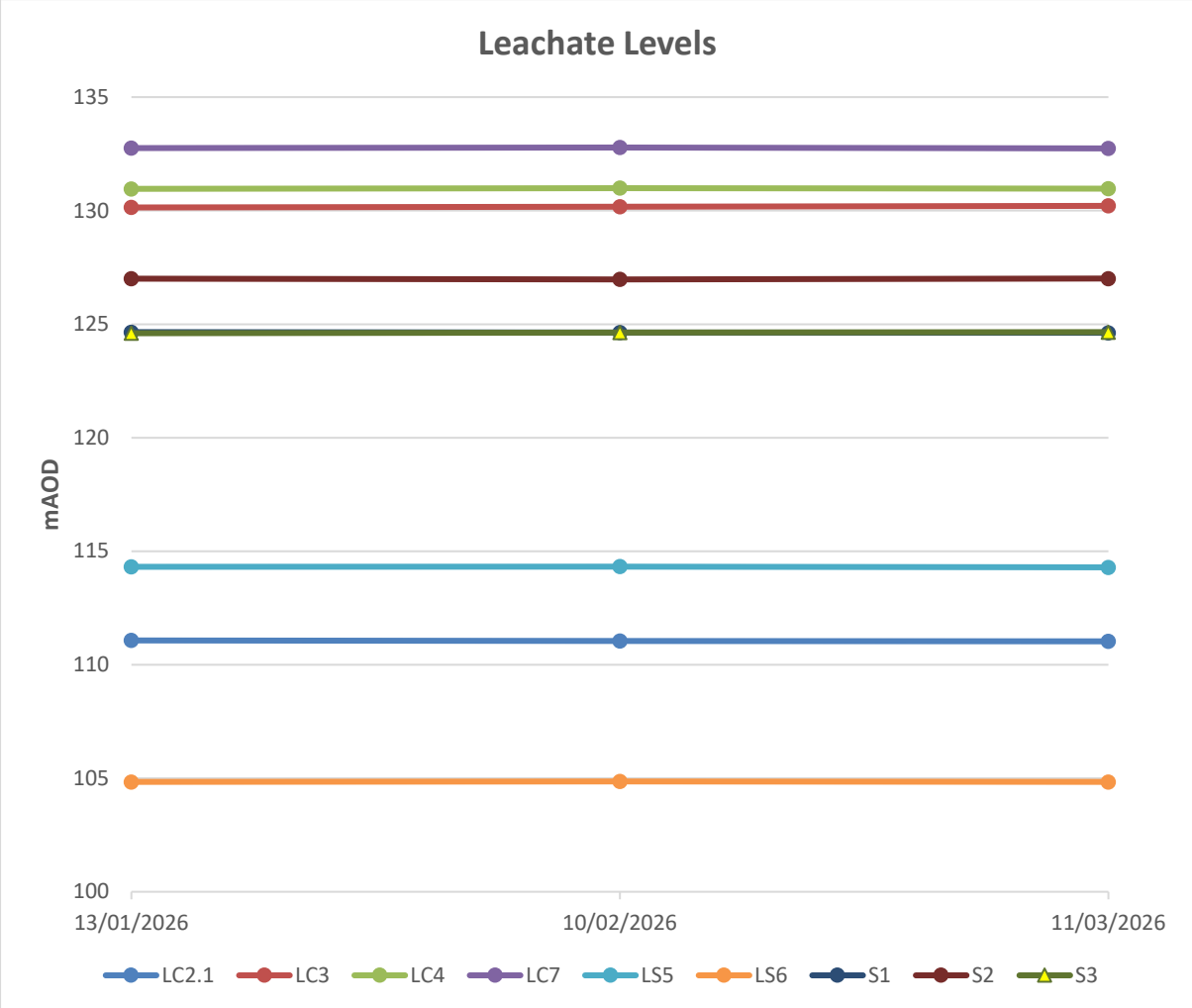

Table 2: Leachate Quality Data Summary

Parameter	Unit	HT	LC2	LC3	LC4	LC7	S1*	S2	S3	SSR5	SSR6
Inorganics											
Alkalinity, Total as CaCO3	mg/L	4110	6450	2570	3160	3060		1400	3830	4410	4410
Ammonia as N	mg/L	630	1000	310	390	390		160	500	620	640
BOD	mg/L	84.9	84.9	27.9	84.9	27.9		11.3	142	84.9	27.9
Chloride	mg/L	1160	1740	676	705	715		325	1040	1170	1120
Chlorine, Total (Residual)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
COD	mg/L	1160	2200	730	1210	1230		2200	1080	2670	2810
Conductivity	uS/cm	10550	15840	6538	7361	7502		4476	9359	10570	10620
pH	pH Units	7.2	7.4	7.2	7.3	7.4		7.3	7.7	7.4	7.3
Total Oxidised Nitrogen as N	mg/L	0.3	0.12	0.58	0.16	0.14		0.21	0.96	0.38	0.16
Filtered (Dissolved) Metals											
Magnesium (Dis.Filt)	mg/L	67.6	63.9	74.4	77.2	77.2		56.3	59.0	66.3	62.4
Potassium (Dis.Filt)	mg/L	368	592	251	238	253		116	333	370	348
Sodium (Dis.Filt)	mg/L	790	1310	487	590	632		276	753	813	774

***sample for S1 lost in transit so no analysis available**

APPENDIX 3

Groundwater

Table 1: Groundwater Levels

Parameter	Date	ST GW 1	ST GW 2	ST GW 2R	ST GW 3	ST GW 4R	ST GW 5	ST GW 6	ST GW 7R
Dip Level (mBGL)	12/01/2026	30.05	9.10	30.25	31.56	35.05	2.84	25.31	45.26
	09/02/2026	30.14	9.10	30.11	30.79	34.96	3.05	25.12	46.12
	11/03/2026	34.12	9.10	33.26	33.25	36.01	3.45	26.57	48.56
Groundwater Level (mAOD)	12/01/2026	94.03	108.11	86.96	81.86	95.95	132.02	98.26	96.74
	09/02/2026	93.94	108.11	87.10	82.63	96.04	131.81	98.45	95.88
	11/03/2026	89.96	108.11	83.95	80.17	94.99	131.41	97.00	93.44

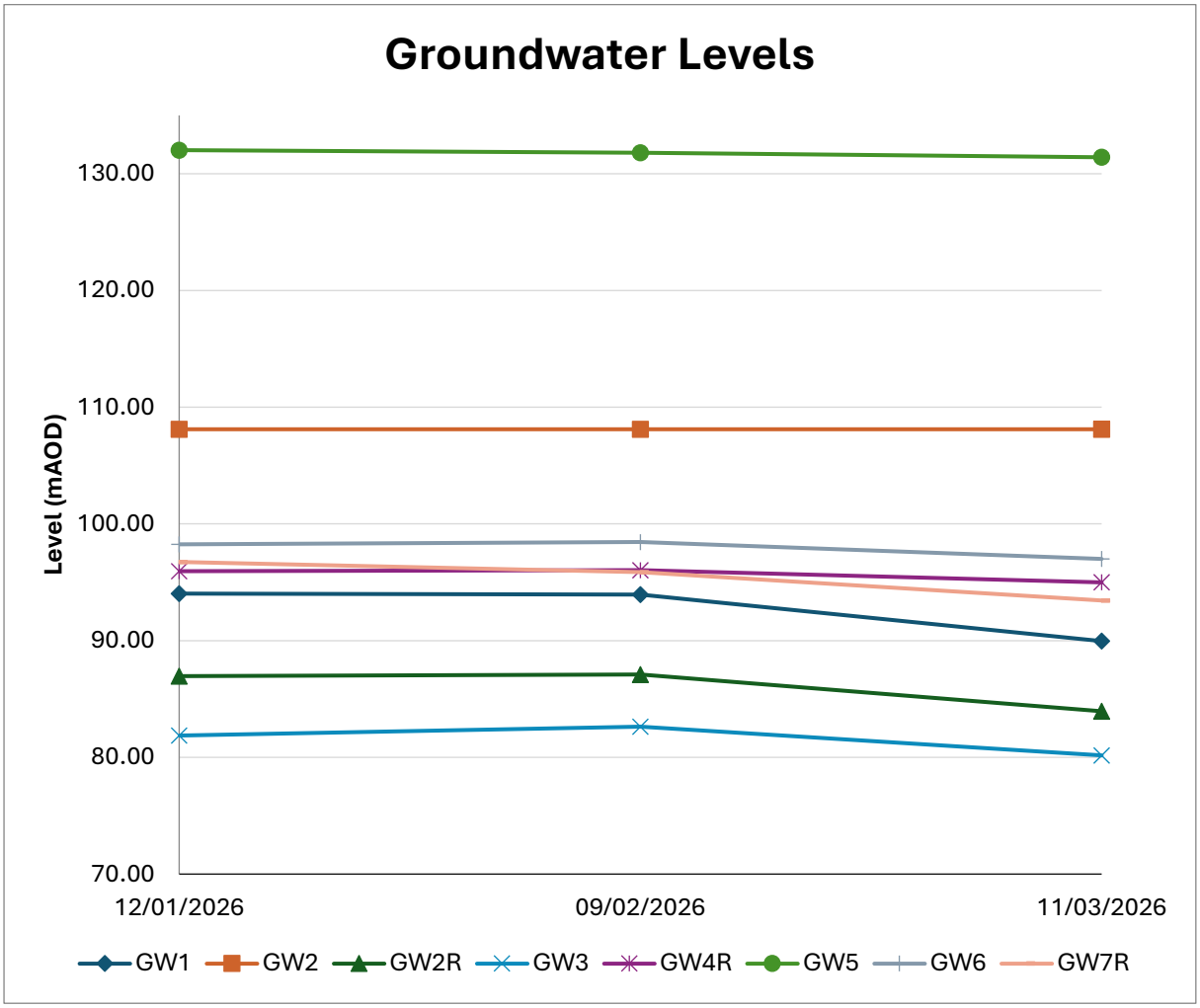

Table 2: Groundwater Quality Data Summary

Parameter	Units	GW1	GW2	GW3	GW4R	GW5	GW6*	GW7
Carbon								
Organic Carbon, Total	mg/L	54	53	87	81	54		71
Inorganics								
Alkalinity, Total as CaCO3	mg/L	44.9	49.2	53.5	326	225		125
Ammonia as N	mg/L	< 0.01	0.08	0.15	1.4	0.22		0.21
BOD, unfiltered	mg/L	1.1	1.5	1.5	< 0.4	0.6		<0.4
Chloride	mg/L	58.2	57.0	53.0	46.0	76.2		13.3
Chlorine, Total (Residual)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
COD	mg/L	7	4	3	25	17		14
Nitrate as NO3	mg/L	3.1	3.2	2.9	< 1.3	< 1.3		< 1.3
pH	pH Units	6.60	5.90	5.90	7.00	6.60		6.70
Sulphate	mg/L	190	210	170	220	56		200
Total Oxidised Nitrogen as NO3	mg/L	0.69	0.71	0.64	0.21	0.23		0.17
Filtered (Dissolved) Metals								
Arsenic	µg/L	0.62	0.42	< 0.20	< 0.20	< 0.20		< 0.20
Cadmium	µg/L	<0.9	<0.9	<0.9	<0.9	<0.9		<0.9
Calcium	mg/L	67.7	72.2	103	134	75.8		126
Copper	µg/L	25.7	23.2	25.0	30.4	31.2		24.2
Iron	µg/L	581	800	379	91.3	109		66.1
Lead	µg/L	< 4.10	< 4.10	< 4.10	< 4.10	< 4.10		< 4.10
Magnesium	mg/L	26.1	27.9	35.6	36.5	9.76		34.9
Mercury	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Nickel	µg/L	2.07	2.05	< 1.50	2.19	< 1.50		< 1.50
Potassium	mg/L	9.72	10.2	12.8	7.56	1.85		6.96
Sodium	µg/L	28.8	30.1	78.8	17.0	8.77		15.6

*Sample lost in transit for GW6 so no analysis available

APPENDIX 4

Surface Water

Table 1: Surface Water Quality.

Parameter	Units	EP Limit (SW5)	SW4	SW5	SW6
Inorganics					
Alkalinity, Total as CaCO3	mg/l	-	116	179	180
Ammonia as N	mg/l	1	0.34	0.26	0.12
BOD (as O2)	mg/l	-	4.4	1.3	0.9
Chloride	mg/l	105	101	19.0	18.9
Chlorine, Total (Residual)	mg/l	-	< 0.10	< 0.10	< 0.10
COD (as O2)	mg/l	-	21	39	33
Conductivity @ 20 deg.C	mS/cm	-	777	650	653
Nitrate as NO3	mg/l	-	< 1.3	< 1.3	< 1.3
pH	pH Units	-	7.7	7.9	7.9
Sulphate	mg/l	-	130	150	160
Total Oxidised Nitrogen as N	mg/l	-	< 0.07	0.09	0.08
Filtered (Dissolved) Metals					
Iron (Dis.Filt)	ug/l	-	59.8	197	222
Magnesium (Dis.Filt)	mg/l	-	18.9	32.2	31.6
Potassium (Dis.Filt)	mg/l	-	6.51	5.52	5.20
Sodium (Dis.Filt)	mg/l	-	58.6	15.3	14.3
Unfiltered (Total) Metals					
Calcium (Tot. Unfilt.)	mg/l	-	88.1	94.8	92.8

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