

**Contaminated Land
Air Quality
Environmental Audit**

Partnership No: OC 300776

Our ref: R2174-R20-v2

28th November 2024

Barratt Homes Manchester

Adamson House
Towers Business Park
Wilmslow Road
Didsbury
M20 2YY

By e-mail: bradley.massey@barratthomes.co.uk

Dear Brad,

Tetrosyl, Waldmers Wood, Bury.

**Remediation Phases 2D (South) & 2F (Centre-south) Handover Area (Plots 208-218 & 251-257)
Vapour Risk Assessment**

Introduction

The Smith Grant LLP (SGP) Phase 2 Remedial Strategy (report reference: R2174-R11-v6; dated October 2023) specifies the requirement for ground gas monitoring and sampling of vapours (ref: Section 7.7 and Drawings 06 and 07). With respect to the recommendations, this includes:

Ground Gas Monitoring: will be carried out to assess the gassing regime within all areas of deep fills >3m, including existing, reworked and new fill areas. Drilled boreholes will be equipped with minimum 50mm diameter gas wells with response zones 1-4m depth (where possible over bedrock), placed on a grid spacing of 1 entry per 2,500m² (~50m grid). Testing will be for pressure and flow, methane, carbon dioxide, oxygen and VOC (by PID) concentrations. Monitoring will occur on 6 occasions over a 3-month period following completion of earthworks, with possible extension of the programme should any results indicate a change from the default assumption for building protection measures of CIRIA CS2 conditions.

Volatile organic compound (VOC) vapour monitoring: will take place across all areas where built development is proposed over VOC hotspots (identified hotspot area HS6, and any other suspect areas; the latter will include locations where existing or further site investigations identify elevated VOCs by PID testing that exceed 50 ppm¹).

The VOC monitoring will utilise shallow soil probes with response zone extending from 1m to the water table or 2m below ground level; this may require drilling to competent rock. Monitoring

¹ Others have been responsible for the production of the earthworks completion report and whilst this has not been provided to SGP, it is understood that no previously unexpected VOC contamination was encountered within the Phase 2 Early Handover area.

locations will be spaced at 1 per 25m² over the VOC hotspot area within the wider Phase 2 area (HS6) and at a wider spacing of 1 per 50m² over the remaining Phase 2 site area. VOC monitoring will take place on 3 occasions, with monitoring by PID, with one sample per probe to be collected in Silocan or equivalent container for GC-MS laboratory analysis.

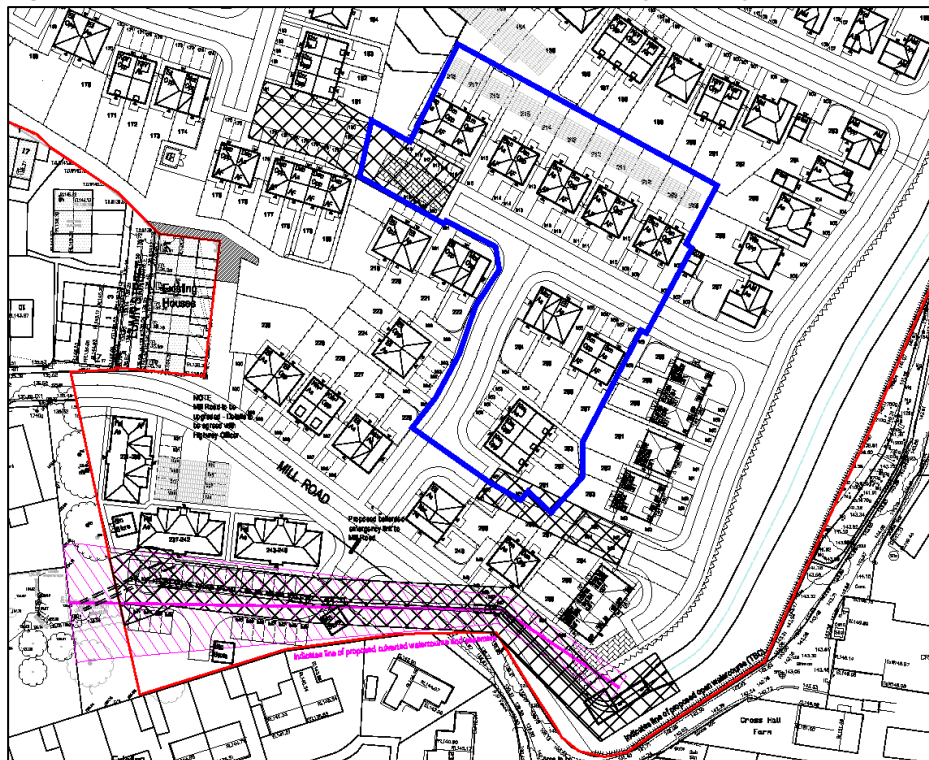
The results of laboratory VOC analysis will be compared against manufacturers' specifications for VOC-resistant membranes and outdoor inhalation health criteria to provide reassurance concerning residual VOC levels. Detailed quantitative risk assessment will be carried out to determine the significance of any exceedances of the above screening levels and need for any change to the assumed house protection measures.

The Phase 2 Remedial Strategy has been submitted to both the Environment Agency (EA) and Bury Metropolitan Borough Council (BMBC). Comments from BMBC received on 15.02.24 did not object to the post-remediation gas and vapour monitoring, hence we assume that this has been accepted.

Scope of report

Preparatory earthworks within the Phase 2D (South) and 2F (Centre-south) Handover Area (see figure 1.1 for area boundary and appended drawing 456/ED/05 for Remediation Phasing plan) have been completed. This covers Plots 208-218 & 251-257 according to the most recent development layout plan provided to SGP. This report details the post-remediation vapour monitoring undertaken and this information has been used to undertake a post-remediation vapour risk assessment (gas monitoring was not required due to the absence of deep fills in this area). Ultimately this is to inform the developer-stage mitigation requirements which will be detailed in the forthcoming Developer-Stage Remediation Strategy for this area. This is a consistent approach which has been adopted in previous phases.

Figure 1.1. Phase 2D & 2F Handover Area (blue boundary) overlayed on Excerpt of Site Layout Plan





Site works

SGP carried out the intrusive investigation works on the 16th October 2024 which consisted of the drilling of 5 continuous tube sample boreholes.

The positions of the exploratory boreholes were identified by SGP in agreement with the developer (Barratt Homes Manchester (BHM)) and the remediation contractor (Urban Regen Limited (URL)). These consisted of semi-regular entries targeted to areas where identified / potential contamination hotspots have been identified (Hotspots 1, 2, 6 & 7) achieving an approximate 25m grid spacing across the handover area. All of the wells were utilised for vapour monitoring / sampling due to the potential for residual vapour risks following remediation. None of the wells were utilised for gas monitoring due to the absence of deep fills in the Phase 2D (South) and 2F (Centre-south) Handover Area.

The spacing was designed to satisfy that specified for VOC monitoring within the Remedial Strategy, although some amendments were made to the borehole locations to take into account the proposed development layout of the Site. The borehole references and associated monitoring were as follows:

- VP2D01-D03 & VP2F03-2F04: vapour monitoring / sampling

The positions of the SGP exploratory holes drilled on site as part of this investigation are indicated on the URL Borehole Locations drawing (ref: 333/12/11/24), enclosed.

The continuous tube sample boreholes were drilled using a tracked, dumper-mounted, ATV Competitor 130 window sampler rig to 2m below ground level (bgl) (VP2D03, VP2F03 & VP2F04) or refusal on hard ground (VP2D01 - 0.8m bgl & VP2D02 - 1.0m bgl). Boreholes were advanced using a plastic lined, steel tube sampling system driven into the ground by a top drive percussive hammer. A near continuous 87–67mm diameter core sample was recovered of the sampled materials for subsequent examination.

On completion of the boring, all boreholes were utilised for the installation of a 50mm diameter slotted uPVC standpipe from the base of the boreholes up to 1m bgl in entries VP2D03, VP2F03 and VP2F04, or 0.5m bgl in entries VP2D01 and VP2D02. The remaining 0.5-1m of the borehole was finished with a section of plain, 50mm diameter pipe and a further 1m section of plain pipe was then added to protrude from the ground for ease of identification. The slotted sections of the standpipes were surrounded with pea gravel while expansive bentonite clay was added around the plain pipes and below the slotted sections to seal the boreholes. The standpipes were finished with a rubber bung with a gas tap which was left in the 'closed' position.

Three rounds of VOC vapour monitoring were carried out on all of the above-mentioned boreholes using a MiniRAE 3000 photoionisation detector (PID) with a 10.6ev strength bulb on the following dates: 22.10.24, 31.10.24, and 11.11.24. Vapour samples were also collected from these boreholes within Bottlevac vessels on 31.10.24 for VOC and hydrocarbon analysis with a second vapour sample collected from borehole VP2D03 for VOC analysis only on 21.11.24, the reasons for which are discussed in more detail below.

Summary of Ground Conditions

The following information summarises the findings of the Site investigation carried out by SGP on the 16th October 2024. The site investigation logs and photographs of the window sampler borehole



locations / arisings are provided in Appendices A and B, respectively, and the investigation locations are indicated on drawing 333/12/11/24.

All depths stated in the following sections are from ground level contemporaneous with the site investigation date.

Made Ground

Made Ground was recorded in all window sampler borehole locations from ground level down to depths of 0.7m bgl (VP2D01), 0.9m bgl (VP2D02), 1.0m bgl (VP2D03) and >2.0mbgl (VP2F03 & VP2F04). The types of made ground described were as follows:

- Gravelly / very gravelly sandy clay fill, typically with cobbles of sandstone (VP2D02, VP2D03, VP2F03 & VP2F04)
- Brown, clayey, sandy, sandstone gravel and cobble fill (VP2D01)
- Brown, slightly gravelly, silty sand fill with slight chemical odour in top 0.15m and pockets of fine to medium angular limestone (VP2D03)

Silty Sand

A brown, slightly gravelly, fine, silty sand with a slight chemical odour was described in the northwest of the handover area (VP2D03) from 1.0-1.1m bgl.

Boulder Clay

Boulder clay was also described in entry VP2D03 only, comprising a greyish-brown, gravelly, sandy clay from 1.1->2m bgl.

Weathered Bedrock

Sandstone bedrock was identified in two locations in the north / northeast of the handover area at 0.7m bgl (VP2D01) and 0.9m bgl (VP2D02) resulting in refusal at 0.8m and 1.0m bgl, respectively.

Contamination Indicators

As described above, a slight chemical odour was noted in entry VP2D03 in the northwest of the handover area from 0.0-0.15m bgl (with a respective PID reading of 3.8ppm) and 1.0-1.1m bgl (PID reading of 7.8ppm).

Results

Vapour Monitoring Results

Three rounds of vapour monitoring were carried out on the five installed boreholes. Monitoring was completed on the 22nd October 2024, 31st October 2024 and 12th November 2024. Copies of the vapour monitoring records are provided in Appendix C.

During the VOC monitoring programme, positive concentrations above the limit of detection (0.1ppm) were recorded using the PID on at least one occasion in all entries with the exception of VPD01, albeit at low concentrations with a maximum reading of 10.8ppm in VP2D03. The ranges were as follows:

- VP2D02: 3.6-5.2ppm
- VP2D03: <0.1-10.8ppm



- VP2F03: 1.6-2.8ppm (2 rounds only, well destroyed by 3rd site visit)
- VP2F04: <0.1-0.9ppm

Gas flows were consistently below detection limits (<0.1l/hr).

Groundwater was identified in only one of the borehole entries during the drilling works (VP2D03) which was suspected to be perched given its absence in nearby entry VP2D02. During the second and third monitoring rounds where groundwater levels were recorded, groundwater (suspected perched where identified) was recorded at the following depths:

- VP2D01: Dry
- VP2D02: 0.40-0.54m bgl
- VP2D03: 0.62-0.74m bgl
- VP2F03: 1.78m bgl (2nd round only, well destroyed by 3rd site visit)
- VP2F04: 0.83-0.87m bgl

Vapour Sampling Results

Samples for vapour analysis (speciated hydrocarbons and target list VOC compounds) were collected on 31.10.24 from all of the borehole entries installed in the handover area. Samples were collected using 'Bottlevac' containers (glass containers containing a partial vacuum and quick release coupling) with dedicated sample trains as provided by Element Materials Technology (EMT), Deeside.

Soil vapours from each installation were drawn into the Bottlevac until the pressures in the well and container reached equilibrium.

The methodology for deriving assessment screening criteria for health impacts from VOCs at the receptor is set out in Appendix 9 of the VOC handbook². Tolerable Daily Soil Intake values (TDSIs) or Index Doses (IDs) (for non-carcinogens and carcinogens, respectively) are multiplied by the body weight (13.3 kg) and divided by the inhalation rate (11.85 m³/day) of a female child receptor aged 0-6yrs (time-weighted average) as defined in the EA "Updated technical background to the CLEA model" (ref: SC050021/SR3, 2009). Most of the substances under consideration have toxicological inhalation data published in either "The LQM/CIEH S4ULs for Human Health Risk Assessment" (ref: S4UL3102, 2014 – Copyright Land Quality Management Limited reproduced with permission) or the CL:AIRE "Soil Generic Assessment Criteria for Human Health Risk Assessment" report (January 2010).

The exception to this is benzene for which a UK Air Quality Standard (AQS) is available (5 µg/m³) which has been utilised.

The assessment criteria are inherently conservative as they assume long-term, constant exposure of residents over a 24-hr period for 365 days a year, from a continuous source which does not diminish over time. However, for the most vulnerable receptors (infants and small children), significant amounts of time spent within dwellings may be anticipated.

² CIRIA C682: The VOCs Handbook: Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination 2009

The IDs and TDSIs (calculated as the tolerable daily intake (TDI) value minus the mean daily intake (MDI) value with respect to inhalation, or 50% of the TDI where the MDI is >50% of the TDI) used in the determination of the inhalation assessment criteria are summarised in the table below. Where TDSIs or IDs are not available for any of the tested compounds, these have not been included. Target list VOCs are also not included if reported below laboratory detection limits in all samples.

Table 3. Derivation of Inhalation Assessment Criteria

Contaminant	Index Dose/Tolerable Daily Soil Intake Value ($\mu\text{g}/\text{kg}\cdot\text{bw}\cdot\text{day}^{-1}$)	Assessment Criteria ($\mu\text{g}\cdot\text{m}^3$)
Benzene	1.4 (S4UL)	5 (AQS)
Toluene	1,308 (S4UL)	1,468.05
Ethylbenzene	55.7 (S4UL)	62.51
m/p-xylene	30 (S4UL)	33.67
o-xylene	30 (S4UL)	33.67
Aliphatic Hydrocarbons (C5-C6)	2,500 (S4UL)	2,805.90
Aliphatic Hydrocarbons (C6-C8)	2,500 (S4UL)	2,805.90
Aliphatic Hydrocarbons (C8-C10)	145 (S4UL)	162.74
Aliphatic Hydrocarbons (C10-C12)	145 (S4UL)	162.74
Aromatic Hydrocarbons (C5-C7)*	Benzene	Benzene
Aromatic Hydrocarbons (C7-C8)*	Toluene	Toluene
Aromatic Hydrocarbons (C8-C10)	30 (S4UL)	33.67
Aromatic Hydrocarbons (C10-C12)	30 (S4UL)	33.67
Vinyl Chloride	0.3 (S4UL)	0.33
Chloromethane	2.57 (CL:AIRE)	2.88
1,1-Dichloroethene	56.6 (CL:AIRE)	63.52
Trans-1,2-Dichloroethene	11 (CL:AIRE)	12.34
Trichloroethene (TCE)	0.57 (S4UL)	0.63

*Aromatic C5-C7 and C7-C8 correspond to benzene and toluene. As BTEX analysis has been undertaken repetition of these results in the aromatic fraction have not been reported.

Soil-vapour concentrations determined through Bottlevac sampling have been compared to the derived inhalation assessment criteria (where applicable) as summarised in Table 4 below. The EMT laboratory test certificate (ref: 24-18552) and the associated results summary table is provided in Appendix D.

Table 4. Comparison of Assessment Criteria to Soil-Vapour Concentrations

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour Range of concentrations ($\mu\text{g}/\text{m}^3$)	Exceedances
Benzene	5 (AQS)	6.4-25.6	5: All entries
Toluene	1,468.05	15.1-18.8	None
Ethylbenzene	62.51	<4.3	None
m/p-xylene	33.67	<8.7	None
o-xylene	33.67	<4.3	None
Aliphatic Hydrocarbons (C5-6)	2,805.90	<33-414	None
Aliphatic Hydrocarbons (C6-8)	2,805.90	82-765	None

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour Range of concentrations ($\mu\text{g}/\text{m}^3$)	Exceedances
Aliphatic Hydrocarbons (C8-10)	162.74	85-165	1: VP2F04
Aliphatic Hydrocarbons (C10-12)	162.74	<65	None
Aromatic Hydrocarbons (EC5-7)	As Benzene	As Benzene	5: All entries
Aromatic Hydrocarbons (EC7-8)	As Toluene	As Toluene	None
Aromatic Hydrocarbons (EC8-10)	33.67	<49	None*
Aromatic Hydrocarbons (EC10-12)	33.67	<53	None*
Vinyl Chloride	0.33	<2.6-940.7	2: VP2D03 & VP2F04
Chloromethane	2.88	4.1-10.3	5: All entries
1,1-Dichloroethene (1,1 DCE)	63.52	<4-35.7	None
Trans-1,2-Dichloroethene	12.34	<4-31.7	1: VP2D03
Trichloroethene (TCE)	0.63	<5.4-198.8	1: VP2D03

*Limit of detection is greater than the screening value

Exceedances of the derived assessment criteria were reported for:

- Benzene at 6.4-25.6 $\mu\text{g}/\text{m}^3$ (criteria = 5 $\mu\text{g}/\text{m}^3$) – All entries
- Aliphatic Hydrocarbons (C8-10) at 165 $\mu\text{g}/\text{m}^3$ (criteria = 162.74 $\mu\text{g}/\text{m}^3$) – VP2F04
- Chloromethane at 4.1-10.3 $\mu\text{g}/\text{m}^3$ (criteria = 2.88 $\mu\text{g}/\text{m}^3$) – All entries
- Vinyl Chloride at 5.1-940.7 $\mu\text{g}/\text{m}^3$ (criteria = 0.33 $\mu\text{g}/\text{m}^3$) – VGP2D03 & VP2F04
- Trans-1,2-Dichloroethene at 31.7 $\mu\text{g}/\text{m}^3$ (criteria = 12.34 $\mu\text{g}/\text{m}^3$) – VP2D03
- Trichloroethene (TCE) at 198.8 $\mu\text{g}/\text{m}^3$ (criteria = 0.63 $\mu\text{g}/\text{m}^3$) – VP2D03

Given the significantly elevated vinyl chloride and TCE concentrations reported in VP2D03 (2,850x and 315x their respective derived assessment criteria, respectively) with no apparent source, it was considered prudent to resample this borehole to determine if these results were anomalous. SGP therefore returned to site on 21.11.24 to collect a vapour sample from this borehole for VOC analysis only as per the sampling method described above.

The soil-vapour concentrations reported in VP2D03 (VOC target list only) with respect to both the original (31.11.24) and repeat (21.11.24) sampling rounds have been compared against the derived inhalation assessment criteria as summarised in Table 5 below. The EMT laboratory test certificate for the second vapour sampling round (ref: 24-19848) is provided in Appendix D.

Table 5. Comparison of Assessment Criteria to Soil-Vapour Concentrations – VP2D03 only (31/10 & 21/11)

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour concentrations - 31/10/24 ($\mu\text{g}/\text{m}^3$)	Soil-Vapour concentrations - 21/11/24 ($\mu\text{g}/\text{m}^3$)	Exceedances
Benzene	5 (AQS)	6.4	6.4	31/10 & 21/11
Toluene	1,468.05	18.8	131.9	None
Ethylbenzene	62.51	<4.3	<4.3	None
m/p-xylene	33.67	<8.7	<8.7	None
o-xylene	33.67	<4.3	<4.3	None
Vinyl Chloride	0.33	940.7	56.2	31/10 & 21/11

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour concentrations - 31/10/24 ($\mu\text{g}/\text{m}^3$)	Soil-Vapour concentrations - 21/11/24 ($\mu\text{g}/\text{m}^3$)	Exceedances
Chloromethane	2.88	4.1	<2.1	31/10
1,1-Dichloroethene	63.52	28.3	8.1	None
Trans-1,2-Dichloroethene	12.34	31.7	11.9	31/10
Trichloroethene (TCE)	0.63	198.8	150.5	31/10 & 21/11

The vinyl chloride concentration remained significantly elevated during the second sampling visit with a reported concentration of $56.2\mu\text{g}/\text{m}^3$ (170x the derived assessment) albeit a much lower concentration than compared to the first sampling occasion. The concentration of TCE had also reduced between the sampling rounds, however this was less significant only dropping from $198.8\mu\text{g}/\text{m}^3$ to $150.5\mu\text{g}/\text{m}^3$ (239x the derived assessment criteria).

With respect to the other exceedances identified within VP2D03 during the original sampling round, the benzene concentration has remained identical at $6.4\mu\text{g}/\text{m}^3$ whereas the chloromethane and trans-1,2-dichloroethene concentrations have reduced to $<2.1\mu\text{g}/\text{m}^3$ and $11.9\mu\text{g}/\text{m}^3$ respectively, below their derived assessment criteria.

Risk Assessment

It is considered likely that the source of the elevated VOCs identified across the Phase 2D (South) and 2F (Centre-South) Handover Area is residual contamination within the shallow soils following the remediation works.

Significant, highly localised, exceedances were identified for vinyl chloride and TCE in borehole VP2D03 during the original vapour sampling round carried out on 31.10.24. Although VOC concentrations had generally reduced in this entry by the time of the repeat sampling visit carried out on 21.11.24 (especially with respect to vinyl chloride), the concentrations of vinyl chloride and TCE were still significantly elevated when compared to the assessment criteria at over two orders of magnitude the acceptable concentrations. It also cannot be discounted that the reduction in VOC concentrations could be attributable to variable weather conditions with the atmospheric temperature described as “warm” during the original sampling round and “cold” during the repeat visit, as detailed in Appendix C.

Although vinyl chloride and TCE were not identified as contaminants of concern in the area of VP2D03, it is understood that the hotspots located in close proximity to this entry (HS6 & HS7) were remediated down to competent bedrock under the supervision of Groundtech Consulting as reported in their Remediation Verification Report - Phase 2 (Excluding Phase 2a/2b) (ref: GRO-21459-5053; dated May 2024). It is therefore inferred that the elevated vinyl chloride and TCE in this location is the result of residual impacts in the made ground / shallow superficial deposits following remediation, as indicated by the slight chemical odour / marginally elevated PID readings recorded in these strata during the VP2D03 drilling works. It is considered that the most practical option to mitigate risks from these contaminants can be undertaken at the construction phase of the development, as discussed below.

Conclusions

Elevated VOCs have been reported across the Phase 2D (South) and 2F (Centre-South) Handover Area which has been attributed to residual contamination following remediation of this part of the site.



Barratt Homes

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Based on the current information, VOC protection measures and high-level verification will be required within the Phase 2D (South) and 2F (Centre-South) Handover Area, although further detailed assessment could be considered which may negate this requirement. A soil cover system in gardens and areas of soft landscaping will also be required to protect future receptors from potential exposure to soils impacted by residual contamination.

Recommendations

It is recommended that the findings of this report are used to produce a Developer-Stage Remediation Strategy which will detail the VOC/Gas protection measures to be installed within all dwellings in accordance with current CIRIA guidance (as well as the soil cover system to be installed in gardens / landscaped areas). The Strategy should also detail a verification plan on how the protection measures will be suitably verified, again following current guidance.

Yours sincerely
for: Smith Grant LLP

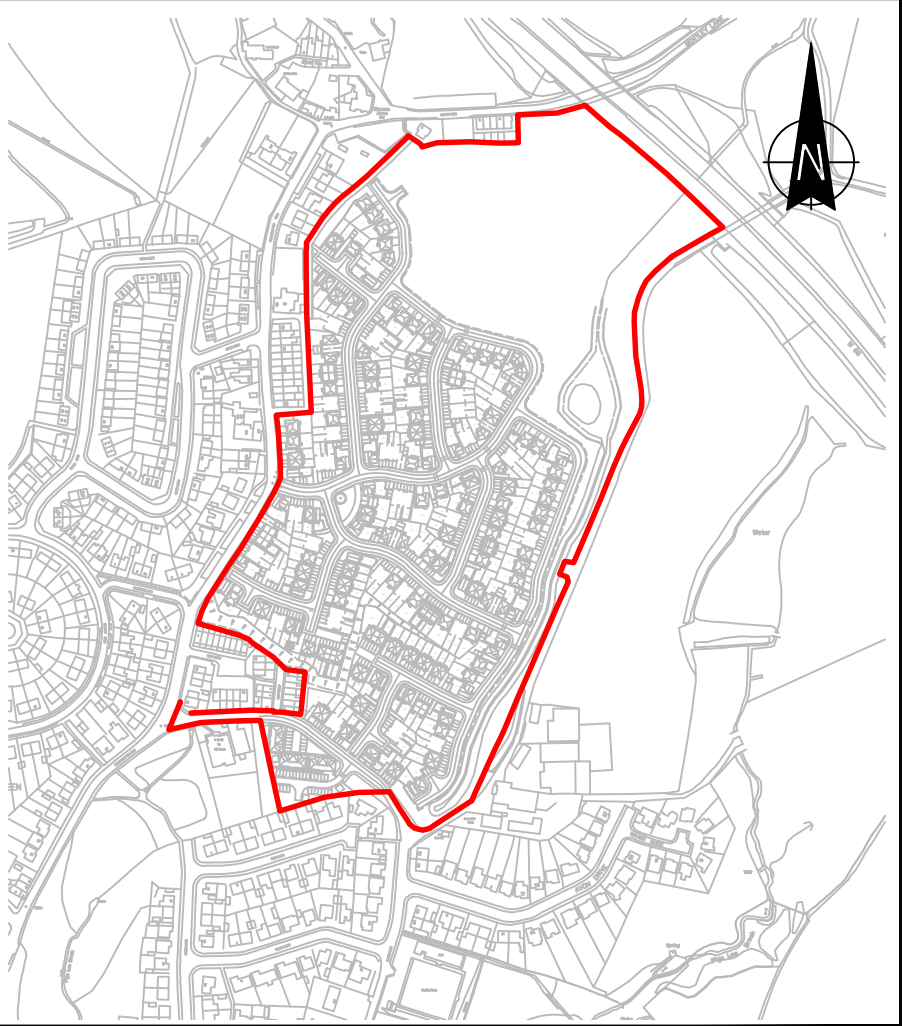
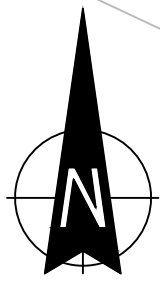
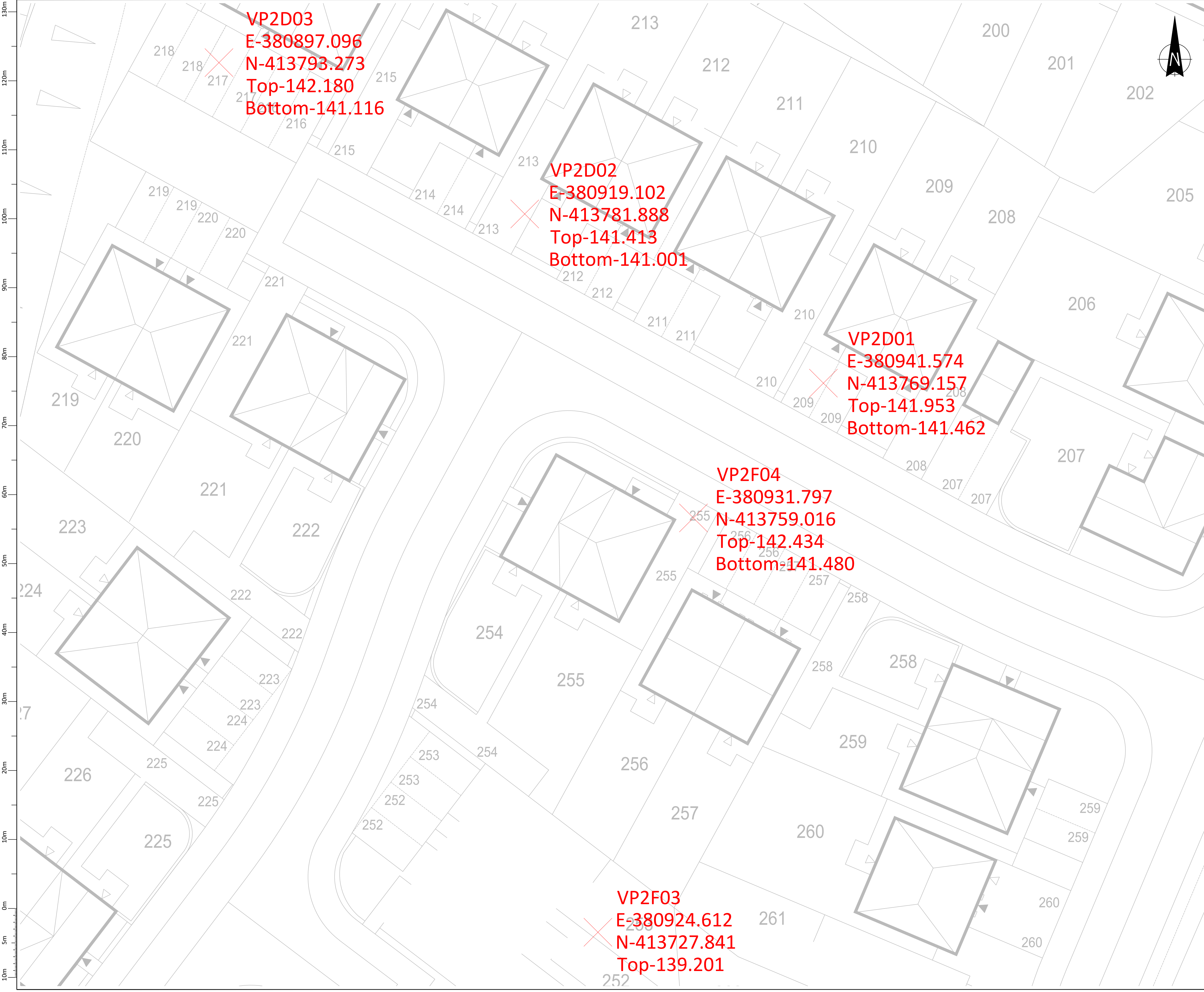
A handwritten signature in black ink, appearing to read "S D Miller", is located below the typed name.

S D Miller BSc MCIWEM
(Senior Consultant)

Enclosed:

URL Drawing: Drilling Locations (ref: 333/12/11/24)
456-ED-05_Remediation_TEN_Remediation Phasing Plan_G
Appendix A: Borehole Logs
Appendix B: Site Investigation Photographic Record
Appendix C: Vapour monitoring Records
Appendix D: EMT Laboratory Report (24/18552 & 24-19848) and Vapour Results Summary

DRAWINGS



Location Plan Scale 1:5000

Notes:	
Site boundary	
Test Locations	

- Notes**
- This plan is to be read in conjunction with the associated Completion Report.
 - The residential layout depicted on this plan is extracted from drawing '491-ED-08' supplied digitally by Barrat Homes Manchester.
 - Due to potential live services and issues associated with withdrawal of support; remediation works have been carried out to within circa 1m of the site boundary unless otherwise detailed.
 - All CBR tests were carried out by Murray Rix.

Survey Information:			
Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
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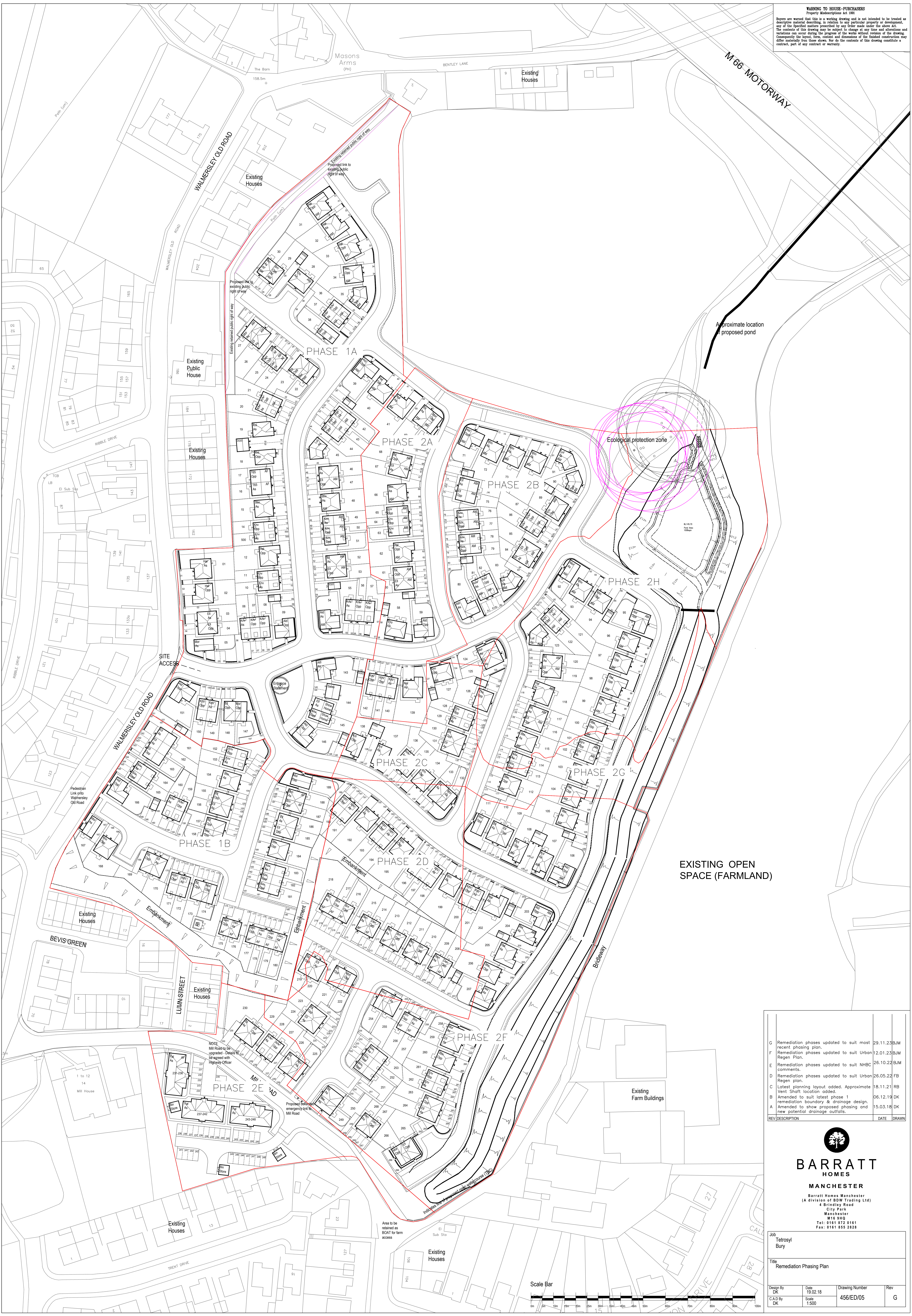
Rev	Date	Amendment	Drawn	Checked



Client:	Barratt Homes Manchester		
Project:	Waldmers Wood Former Tetrosyl Works		
Title:	BOREHOLE LOCATIONS		
Scale:	First Issue:	Drawn:	Checked:
1:200	12/11/2024	R.Corrigan	R.Parry
Drawing No:	Revision:		

333/12/11/24

WARNING TO HOUSE-PURCHASERS
Property Misdescriptions Act 1991
Buyers are warned that this is a working drawing and is not intended to be treated as descriptive material describing, in relation to any particular property or development, any of the specified matters prescribed by any Order made under the above Act. The contents of this drawing may be subject to change at any time and alterations and variations may occur during the progress of the works without revision of the drawing. Consequently the layout, form, content and dimensions of the finished construction may differ materially from those shown. Nor do the contents of this drawing constitute a contract, part of any contract or warranty.



G	Remediation phases updated to suit most recent phasing plan.	29.11.23	BJM
F	Remediation phases updated to suit Urban Regen Plan.	12.01.23	BJM
E	Remediation phases updated to suit NHBC comments.	26.10.22	BJM
D	Remediation phases updated to suit Urban Regen plan.	26.05.22	FB
C	Latest planning layout added. Approximate Vent Shaft location added.	18.11.21	RB
B	Amended to suit latest phase 1 remediation boundary & drainage design.	06.12.19	DK
A	Amended to show proposed phasing and new potential drainage outfalls.	15.03.18	DK
REV	DESCRIPTION	DATE	DRAWN



**BARRATT
HOMES**

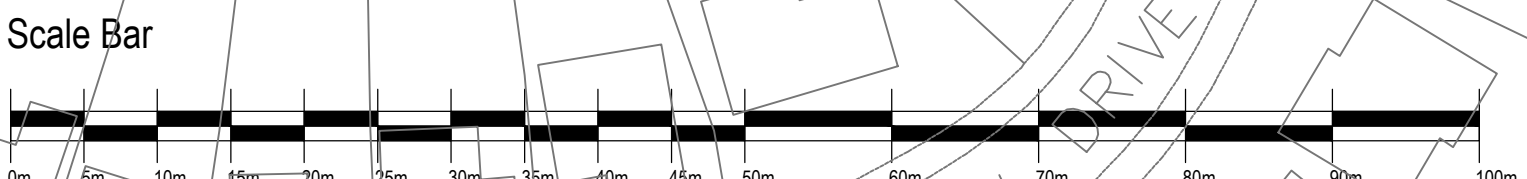
MANCHESTER

Barratt Homes Manchester
(A division of BDW Trading Ltd)
4 Brimley Road
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M16 9JQ
Tel: 0161 872 0161
Fax: 0161 855 2628

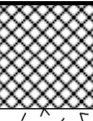
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Remediation Phasing Plan

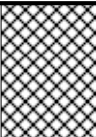
Design By DK	Date 19.02.18	Drawing Number 456/ED/05	Rev G
CAD By DK	Scale 1:500		



APPENDIX A
Borehole Logs

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2D & 2F) HA	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VP2D01		
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes	DATE: 16.10.24			
PHYSICAL TESTING		DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT Blows/150mm					0	Brown clayey sandy sandstone gravel and cobble fill (MADE GROUND)	
					0.7	Light brown and grey SANDSTONE (BEDROCK) Borehole terminated @ 0.8m bgl due to refusal in bedrock (SANDSTONE); window sampler unable to advance borehole	
 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk GROUND WATER: Groundwater not encountered							
REMARKS: No contamination indicators (i.e. odours, staining or elevated PID readings) throughout strata Monitoring well installed to 0.8m bgl (0-0.5m plain, 0.5-0.8m slotted)							
SCALE: 1:50				LOGGED BY: SM		FIGURE NO. 1	

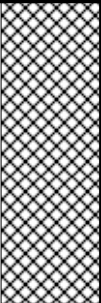
SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2D & 2F) HA	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VP2D02
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes	DATE: 16.10.24	

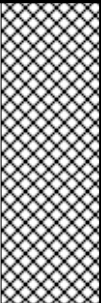
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Brown very gravelly sandy clay fill with frequent cobbles of pale grey and yellow sandstone (MADE GROUND)	
				0.9	Light brown SANDSTONE (BEDROCK)	
					Borehole terminated @ 1m bgl due to refusal in bedrock (SANDSTONE); window sampler unable to advance borehole	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered	
	REMARKS: No contamination indicators (i.e. odours, staining or elevated PID readings) throughout strata Monitoring well installed to 1m bgl (0-0.5m plain, 0.5-1m slotted)	
	SCALE: 1:50	LOGGED BY: SM

FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2D & 2F) HA	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VP2D03	
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes	DATE: 16.10.24		
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT Blows/150mm			PID = 3.8ppm (0-0.15m)	0	Brown slightly gravelly silty sand fill with slight chemical odour in top 0.15m and pockets of fine to medium angular limestone (MADE GROUND)	
				0.6	Greyish brown gravelly sandy clay fill (MADE GROUND)	
			PID = 7.8ppm (1-1.1m)	1	Brown slightly gravelly fine silty SAND with slight chemical odour	
				1.1	Greyish brown gravelly SANDY CLAY	
					Borehole terminated @ 2m bgl at intended well depth.	
 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk			GROUND WATER: Groundwater strike at ~1.2m, rise to 0.5m (likely perched)			
			REMARKS: Monitoring well installed to 2m bgl (0-1m plain, 1-2m slotted)			
SCALE: 1:50		LOGGED BY: SM		FIGURE NO. 1		

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2D & 2F) HA		ENGINEER: SM		JOB NO. R2174		WINDOW SAMPLE NO. VP2F03
		EXCAVATED BY: ATV Competitor 130		CLIENT: Barratt Homes		DATE: 16.10.24		
PHYSICAL TESTING		DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
CPT <u>Blows/150mm</u>					0	Greyish brown gravelly sandy clay fill with frequent cobbles of sandstone and gravel of red brick (MADE GROUND)		
						Borehole terminated @ 2m bgl at intended well depth.		
 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Groundwater not encountered						
		REMARKS: No contamination indicators (i.e. odours, staining or elevated PID readings) throughout strata Monitoring well installed to 2m bgl (0-1m plain, 1-2m slotted)						
		SCALE: 1:50		LOGGED BY: SM		FIGURE NO. 1		

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2D & 2F) HA		ENGINEER: SM		JOB NO. R2174		WINDOW SAMPLE NO. VP2F04
		EXCAVATED BY: ATV Competitor 130		CLIENT: Barratt Homes		DATE: 16.10.24		
PHYSICAL TESTING		DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
CPT <u>Blows/150mm</u>					0	Greyish brown gravelly sandy clay fill with frequent cobbles of sandstone and gravel of red brick (MADE GROUND)		
						Borehole terminated @ 2m bgl at intended well depth.		
 SMITH GRANT Environmental Consultancy LLP Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk								
GROUND WATER: Groundwater not encountered REMARKS: No contamination indicators (i.e. odours, staining or elevated PID readings) throughout strata Monitoring well installed to 2m bgl (0-1m plain, 1-2m slotted)								
SCALE: 1:50			LOGGED BY: SM			FIGURE NO. 1		

APPENDIX B

Site Investigation Photographic Record

Window Sampler Drilling Investigation Photolog

1.



16.10.24: VP2D01 Location

2.



16.10.24: VP2D01 Arisings

3.



16.10.24: VP2D02 Location

4.



16.10.24: VP2D02 Arisings

5.



16.10.24: VP2D03 Location

6.



16.10.24: VP2D03 Arisings

7.



16.10.24: VP2F03 Location

8.



16.10.24: VP2F03 Arisings

9.



16.10.24: VP2F04 Location

10.



16.10.24: VP2F04 Arisings

APPENDIX C

Vapour monitoring Records

Site name:	Tetrosyl Bury		Job number:		R2174
Time at:	start	13:00	Date:		22.10.24
	finish	13:45	Staff:		CM
Record code:	R01		Weather conditions:		Dry, 4/10 cloud cover
Barometric pressure at:		start:	998mb	finish:	1001mb
Pressure trend		1011-1004-1018mb (fall then rise) - Previous 3 days			
Instruments:		GFM430 / MiniRAe 3000	Ground conditions:		Dry

Well No.	VOCs ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
		peak	steady				
VP2D01	<0.1	<0.1	<0.1	<0.01	NR	NR	-
VP2D02	3.6	<0.1	<0.1	<0.01	NR	NR	-
VP2D03	<0.1	<0.1	<0.1	<0.01	NR	NR	-
VP2F03	1.6	<0.1	<0.1	<0.01	NR	NR	-
VP2F04	<0.1	<0.1	<0.1	<0.01	NR	NR	-
Limit of Detection	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±5%						

Site name:	Tetrosyl Bury		Job number:		R2174
Time at:	start	11:00	Date:		31.10.24
	finish	12:55	Staff:		SM
Record code:	R02		Weather conditions:		8/8 cloud, light drizzle, warm
Barometric pressure at:		start:	1011mb	finish:	1010mb
Pressure trend		1020-1028-1027mb (rise then steady) - Previous 3 days			
Instruments:		GFM430 / MiniRAe 3000	Ground conditions:		Wet / some standing water

Well No.	VOCs ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
		peak	steady				
VP2D01	<0.1	<0.1	<0.1	<0.01	Dry	0.78	Bottlevac sampling undertaken before readings
VP2D02	5.2	<0.1	<0.1	<0.01	0.4	1.04	
VP2D03	8.5	<0.1	<0.1	<0.01	0.62	1.86	
VP2F03	2.8	<0.1	<0.1	<0.01	1.78	1.89	
VP2F04	<0.1	<0.1	<0.1	<0.01	0.87	2.01	
Limit of Detection	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±5%						

Site name:	Tetrosyl Bury		Job number:		R2174
Time at:	start	10:25	Date:		12.11.24
	finish	11:30	Staff:		CM
Record code:	R03		Weather conditions:		Dry, cold, 9/10 cloud cover
Barometric pressure at:		start:	1025mb	finish:	1023mb
Pressure trend		1027-1026-1028 (Fall - Rise) - Previous 3 days			
Instruments:		GFM430 / MiniRAe 3000	Ground conditions:		Dry

Well No.	VOCs ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
		peak	steady				
VP2D01	<0.1	<0.1	<0.1	<0.01	Dry	0.77	-
VP2D02	5.1	<0.1	<0.1	<0.01	0.54	1.03	-
VP2D03	10.8	<0.1	<0.1	<0.01	0.74	1.9	-
VP2F03	Borehole destroyed						
VP2F04	0.9	<0.1	<0.1	<0.01	0.83	1.98	-
Limit of Detection	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	(-1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±5%						

Site name:	Tetrosyl Bury		Job number:	R2174
Time at:	start	12.55	Date:	21.11.24
	finish	13.00	Staff:	CM
Record code:	R04		Weather conditions:	Dry, cold, 1/8 cloud cover
Barometric pressure at:	start:	NR	finish:	NR
Pressure trend	1002-1006-1008 (Slight rise) - Previous 3 days			
Instruments:	GFM430 / MiniRAe 3000		Ground conditions:	Frosty

Well No.	VOCs ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
		peak	steady				
VP2D03	2.4	Not recorded					
Limit of Detection	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±5%						

APPENDIX D

EMT Laboratory Report (24-18552) and Vapour Results Summary

Smith Grant LLP
Suite 16 - Bryn Estyn Business Centre
Bryn Estyn Road
Wrexham
United Kingdom
LL13 9TY



4225



Attention : Scott Miller
Date : 8th November, 2024
Your reference : R2174
Our reference : Test Report 24/18552 Batch 1
Location : Tetrosyl
Date samples received : 31st October, 2024
Status : Final Report
Issue : 202411081441

Five samples were received for analysis on 31st October, 2024 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 1.086 kg of CO2

Scope 1&2&3 emissions - 2.567 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl
Contact: Scott Miller

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Sample ID: VP2 D01
Depth:
EMT Job No: 24/18552
EMT Sample No: 1
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 153 0.55
Sample Train Serial number: ST-608

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		1	4.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		5	10.3	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		6	19.2	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		4	15.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Canister Serial number: V 153 0.55
Sample Train Serial number: ST-608

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl
Contact: Scott Miller

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Sample ID: VP2 D02
Depth:
EMT Job No: 24/18552
EMT Sample No: 2
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1037 0.55

Sample Train Serial number: ST-615

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		21	103.8	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		4	8.3	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		7	39.3	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		8	25.6	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		4	15.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Canister Serial number: V 1037 0.55
Sample Train Serial number: ST-615

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6 Please include all sections of this report if it is reproduced 5 of 16

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl
Contact: Scott Miller

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Sample ID: VP2 D03
Depth:
EMT Job No: 24/18552
EMT Sample No: 3
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1159 0.55
Sample Train Serial number: ST-605

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		368	940.7	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		2	9.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		2	4.1	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		9	35.7	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		8	31.7	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		7	28.3	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		283	1122.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		2	6.4	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		37	198.8	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		5	18.8	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Canister Serial number: V 1159 0.55
Sample Train Serial number: ST-605

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

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Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl
Contact: Scott Miller

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Sample ID: VP2F05
Depth:
EMT Job No: 24/18552
EMT Sample No: 4
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1166 0.55
Sample Train Serial number: ST-613

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		14	69.2	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		2	4.1	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		4	12.8	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		4	15.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Canister Serial number: V 1166 0.55
Sample Train Serial number: ST-613

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6 Please include all sections of this report if it is reproduced 9 of 16

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl
Contact: Scott Miller

Sample Date: 31 Oct 2024
Date of Receipt: 31 Oct 2024
Date Analysed: 4 Nov 2024

Sample ID: VP2F04
Depth:
EMT Job No: 24/18552
EMT Sample No: 5
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1237 0.55

Sample Train Serial number: ST-628

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		2	5.1	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		540	2670.3	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		3	6.2	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		2	11.2	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		3	12.1	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		2	6.4	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		4	15.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Client Name: Smith Grant LLP

Reference: R2174

Location: Tetrosyl

Contact: Scott Miller

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/18552

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 24/18552

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM68	Modified TO-15 method. Volatile Organic Compounds (VOCs) sampled using Gas Canisters, BottleVacs or Tedlar bags and analysed using Entech GC-MS.	PM0	No preparation is required.				
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Smith Grant LLP
Suite 16 - Bryn Estyn Business Centre
Bryn Estyn Road
Wrexham
United Kingdom
LL13 9TY



4225



Attention : Scott Miller
Date : 27th November, 2024
Your reference : -
Our reference : Test Report 24/19848 Batch 1
Location : Tetrosyl Bury
Date samples received : 21st November, 2024
Status : Final Report
Issue : 202411271048

One sample was received for analysis on 21st November, 2024 and was scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 0.217 kg of CO2

Scope 1&2&3 emissions - 0.513 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: -
Location: Tetrosyl Bury
Contact: Scott Miller

Sample Date: 21 Nov 2024
Date of Receipt: 21 Nov 2024
Date Analysed: 27 Nov 2024

Sample ID: VP2 D03
Depth:
EMT Job No: 24/19848
EMT Sample No: 1
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 20202 0.55
Sample Train Serial number: ST-23

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		22	56.2	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		<1	<4.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		1	<2.1	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		2	7.9	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		3	11.9	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		2	8.1	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		114	452.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		2	6.4	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		28	150.5	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		35	131.9	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		<2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		<1	<4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 21 Nov 2024
Date of Receipt: 21 Nov 2024
Date Analysed: 27 Nov 2024

Canister Serial number: V 20202 0.55
Sample Train Serial number: ST-23

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6 Please include all sections of this report if it is reproduced 3 of 8

Element Materials Technology

Notification of Deviating Samples

Notification of Deviating Samples

Client Name: Smith Grant LLP

Reference: -

Location: Tetrosyl Bury

Contact: Scott Miller

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/19848

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

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EMT Job No: 24/19848

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VOC	Unit	VP2D01 (31/10)	VP2D02 (31/10)	VP2D03 (31/10)	VP2D03 (21/11)	VP2F05 (31/10)	VP2F04 (31/10)
Vinyl Chloride [#]	ug.m3	2.6	2.6	940.7	56.2	2.6	5.1
Dichlorodifluoromethane (F-12)	ug.m3	4.9	103.8	9.9	4.9	69.2	2670.3
Chloromethane	ug.m3	10.3	8.3	4.1	2.1	4.1	6.2
Trichlorofluoromethane (F-11) [#]	ug.m3	5.6	39.3	5.6	5.6	5.6	11.2
1,1-Dichloroethene (1,1 DCE) [#]	ug.m3	4	4	35.7	7.9	4	4
Trans-1,2-Dichloroethene	ug.m3	4	4	31.7	11.9	4	4
1,1-Dichloroethane [#]	ug.m3	4	4	28.3	8.1	4	12.1
cis-1,2-Dichloroethene [#]	ug.m3	4	4	1122	452	4	4
Benzene [#]	ug.m3	19.2	25.6	6.4	6.4	12.8	6.4
Trichloroethene (TCE) [#]	ug.m3	5.4	5.4	198.8	150.5	5.4	5.4
Toluene [#]	ug.m3	15.1	15.1	18.8	131.9	15.1	15.1
Ethylbenzene [#]	ug.m3	4.3	4.3	4.3	4.3	4.3	4.3
m/p-Xylene [#]	ug.m3	8.7	8.7	8.7	8.7	8.7	8.7
o-Xylene [#]	ug.m3	4.3	4.3	4.3	4.3	4.3	4.3
Volatile Hydrocarbons	Unit	VP2D01 (31/10)	VP2D02 (31/10)	VP2D03 (31/10)	VP2D03 (21/11)	VP2F05 (31/10)	VP2F04 (31/10)
Aliphatic >C4-C6	ug.m3	33	414	202	-	89	245
Aliphatic >C6-C8	ug.m3	82	585	765	-	319	421
Aliphatic >C8-C10	ug.m3	85	154	144	-	112	165
Aliphatic >C10-C12	ug.m3	65	65	65	-	65	65
Aromatic >C5-EC7 (Benzene)	ug.m3	17.6	24	5.8	-	11.5	6.7
Aromatic >EC7-EC8 (Toluene)	ug.m3	13.6	15.8	17	-	15.1	15.8
Aromatic >EC8-EC10	ug.m3	49	49	49	-	49	49
Aromatic >EC10-EC12	ug.m3	53	53	53	-	53	53

Min	Max	SV
2.6	940.7	0.33
4.9	2670.3	-
2.1	10.3	2.88
5.6	39.3	-
4	35.7	63.52
4	31.7	12.34
4	28.3	-
4	1122	-
6.4	25.6	5
5.4	198.8	0.63
15.1	131.9	1,468.05
4.3	4.3	62.51
8.7	8.7	33.67
4.3	4.3	33.67
Min	Max	SV
33	414	2,805.90
82	765	2,805.90
85	165	162.74
65	65	162.74
5.8	24	5
13.6	17	2115.91
49	49	33.67
53	53	33.67