

**FORMER TETROSYL WORKS, BEVIS
GREEN, BURY**

**PHASE 2: SUPPLEMENTARY SITE
INVESTIGATION**

For: Urban Regen Ltd & Barratt Homes

Manchester

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	Name	Position	Signature	Date
Author	S D Miller BSc, MCIWEM	Consultant		28.04.2021
Reviewer	B J Thomas BSc, MSc, CIWEM, C.Env	Partner		28.04.2021



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FORMER TETROSYL WORKS, BEVIS GREEN, BURY PHASE 2 SUPPLEMENTARY SITE INVESTIGATION

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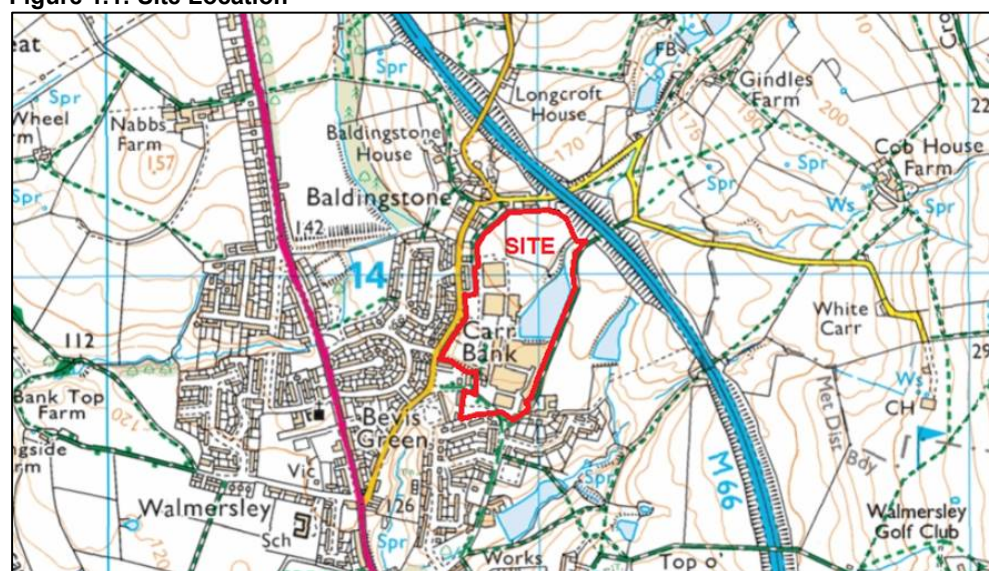
1. Introduction

- 1.1 Remediation works to prepare the former Tetrosyl Bevis Green works off Mill Road, Bury for Phase 2 of the Barratt Homes residential housing development are to be undertaken by Urban Regen Ltd. (URL) on behalf of Barratt Homes Manchester (BM). Smith Grant LLP (SGP) has been appointed by URL on behalf of BM to carry out supplementary site investigations to inform additional risk assessments and confirm the appropriateness of the existing Outline Remediation Strategy. The results will partly inform working methods, health and safety control measures, soil and groundwater treatment requirements, and any other additional mitigation measures to manage residual risks. Site details are:

Table 1.1: Site Details

Address	Bevis Green Works, Mill Road, Bury BL9 6RE
National Grid Reference	380950, 413950
Local Authority	Bury Metropolitan Council (BMC)
Site Area	10.4 ha total - development area 7.2 ha (72%), Phase 2 Area~4.4 ha (42%)
Previous Use	Derelict, office, warehouse and packaging facility, car parking, access roads and landscaped/open ground
Site Access	Entrances off Walmersley Old Road and Mill Road
Planning Reference	63533
Proposed Use	Residential and open space

Figure 1.1: Site Location



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- 1.2 Planning Consent 63533 includes Condition No. 4 which relates to the requirement for site investigation, risk assessment and remediation proposals to be submitted to and approved by BMC. Condition 4 is worded as follows:

4. No development, other than site clearance, demolition, or works relating to site investigation remediation or ground works, shall commence unless and until: -

- A contaminated land Preliminary Risk Assessment report to assess the actual/potential contamination and/or ground gas/landfill gas risks at the site shall be submitted to, and approved in writing by, the Local Planning Authority.*
- Where actual/potential contamination and/or ground gas/landfill gas risks have been identified, detailed site investigation and suitable risk assessment shall be submitted to and approved in writing by the Local Planning Authority.*
- Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority.*

- 1.3 SGP had previously undertaken a review of pre-existing site investigation information and produced an updated Preliminary Risk Assessment and Outline Remediation Strategy (Ref: R2174-R01-v2, Date 02.05.2019). This document was submitted together with proposals for additional site investigation works to BMC and their consultee, the Environment Agency (EA), for comment. BMC's (Ref: CL584.240719.1 Date 24.07.19) and the EA's responses (07.02.2020) both acknowledged the general approach of enabling / demolition works, further investigation, and development of supplementary measures to the outline Remediation Strategy, as required.
- 1.4 Both regulators reiterated the requirement for further investigation and better characterisation of the risks associated with the site before the Outline Remediation Strategy (ORS) could be approved, or alternatively required the production of Detailed Remediation Strategies for issues relating to the management of risks to human health from ground gas, VOC vapours and the protection of Controlled Waters.
- 1.5 The phasing of the demolition, preparatory and remediation works and the planned development required that the northwest portion of the site be released for development first. This area is referred to as Phase 1 with the remainder of the site forming Phase 2, the boundaries of which are indicated on Drawing 001. Phase 1 has been subject to additional investigations and reporting by SGP including a Supplementary Site Investigation (ref: R2714c-R02-v1; June 2020) and a Supplementary Groundwater Investigation (ref: R2714c-R03-v1; October 2020), both of which also incorporate an area to the south of Phase 1 referred to as the site car park which is yet to undergo a substantial reduced level dig and has therefore been incorporated into the Phase 2 area.
- 1.6 The Phase 1 remediation and preparatory earthworks were carried out under the provisions of the ORS between June 2020 and September 2020 and are detailed in SGP's Remediation Earthworks Completion Report – Phase 1 (R2174C-R04-v2; November 2020). This report has also been submitted to BMC and the EA for comment who concluded that the works are sufficient to allow built development to commence in Phase 1 in accordance with a Construction-Stage Remediation Strategy summarising the recommendations for development made in the previous Phase 1 reporting.

- 1.7 The Phase 2 area was considered to be at much higher risk of ground contamination due to the historical presence of the backfilled quarry, bulk above / below ground storage tanks (ASTs & USTs), a solvent recovery farm, and other storage and processing areas. Demolition and clearance works have now largely been completed in the Phase 2 area which has allowed the required additional site investigation works to commence in this part of the site. This report describes the investigations and assessments undertaken to assess the identified potential source zones in the Phase 2 area. Further assessment of groundwater and ground gas / vapour risks throughout Phase 2 is also scheduled, however this report is limited to the works undertaken to characterise primary (contents of tanks and any residual free product) and secondary (soil contamination within source zones) contaminant sources.
- 1.8 The findings of this assessment will also be used as lines of evidence in support of a separate assessment of risks to Controlled Waters from sources within the Phase 2 area and in development of the wider site conceptual model, risk assessment, Options Appraisal and Detailed Remediation Strategy in respect of such risks.

2. Methodology

2.1 Objectives & Rationale

2.1.1 In general, the Outline Remediation Strategy allows for most of the risks to human health to be managed through the use of barriers to isolate future site residents from onsite sources of contamination whilst recognising that measures will be required in specific areas to remove such sources that cannot be managed through these techniques. It is assumed that a full soil cover system will be required in all areas to physically isolate residents from direct exposure to site soils.

2.1.2 Risks associated with the various organic chemicals stored and used on the site exist, mainly through the potential for vapour ingress into dwellings and the migration of groundwater pollution from sources of hydrocarbons and other VOCs / SVOCs. The most significant known / potential contamination hotspots identified to date, as summarised in the Outline Remediation Strategy, are all within the Phase 2 area (locations indicated on Drawing 001), although given the history of the site, the potential for other, previously unidentified VOC / SVOC sources also exists. Further investigation was therefore required to fully characterise the type and extent of contamination within the potential / known hotspot areas. The features within Phase 2 identified as requiring further investigation are listed in Table 2.1 below:

Table 2.1 Potential or Known Contamination "Hot-spots"

Hotspot ref:	Feature
Quarry	Former rock quarry, latterly used as a refuse tip
1	Former reservoir; underground storage tanks (USTs) for white spirit, antifreeze (MEG) and methanol; above ground storage tanks (ASTs) including heating oil; antifreeze mixing area
2	Drum compound
3	Fuel oil AST
4	Diesel AST
5	Kerosene AST
6	ASTs for dichloromethane (DCM), white spirit, kerosene, sodium silicate and heating oil - located between former mill buildings
7	Electrical transformer and diesel AST on side of mill building
8	Disused AST (contents unknown) on lodge dam
9	USTs infilled with concrete near boiler house
10	Solvent filling room and ASTs
11	Solvent recovery plant and tank farm (various ASTs and pipework)
13	Waste sludge reclamation plant
14	Drum crushing plant

2.1.3 Each of these areas have now been investigated through a programme of sampling tank contents (HS #1 only, other tanks had been removed before BM took vacant possession of the site) and trial pitting with sampling to determine secondary soil sources.

2.1.4 In addition to the planned Phase 2 groundwater assessment programme and the measures set out in the Outline Remediation Strategy for investigations and inspections of potential source areas as the demolition and enabling earthworks progress, this information will provide valuable lines of evidence in the developing characterisation of the site. Refined conceptual models and Qualitative Risk Assessments are needed to confirm the adequacy of the Outline Remediation Strategy and to determine whether amendments or supplementary measures are required.

2.1.5 All of the fieldwork was carried out by appropriately qualified and experienced SGP Environmental Consultant, S Miller.

2.2 UST Sampling (Hotspot #1)

2.2.1 Numerous USTs are present within the hotspot #1 area and as all of their contents were not established during the previous site works, a sampling program to confirm this was deemed necessary to fully characterise these potential contamination sources. The investigation in this area therefore consisted of accessing the inspection chambers to the various USTs followed by sample collection of the contained fluids, where present. The samples were placed into containers as advised by the laboratory and descriptions of the retrieved samples were recorded, including any potential contamination indicators.

2.2.2 The locations and assigned references of the USTs (refs: IC1-IC15) are indicated on Drawing 002 and a hotspot investigation photo record is provided in Appendix A.

2.2.3 Samples obtained from the USTs were collected and delivered to accredited laboratory Element Materials Technology (EMT), Deeside for analysis within 24 hours of sample collection and were placed in a sealed cool box kept at a temperature below 9°C. Chain of Custody documentation is retained by SGP.

2.2.4 Samples obtained from the USTs were categorised as either 'Product' (non-aqueous phase liquid) or 'Aqueous' (water often displaying contamination indicators from residual contaminants). Based on these observations and following consultation with the laboratory, the appropriate schedule of analysis was identified.

2.2.5 Laboratory analysis was then carried out using standard GCMS VOC and SVOC analysis for a target list of indicator compounds (common industrial / waste VOC contaminants), total volatile aromatic and aliphatic hydrocarbon fractions and Tentatively Identified Compounds (TICs – See 2.4) for all samples collected. Whole Oil analysis was also carried out on the samples determined to be 'Product' to provide a qualitative interpretation of the material retrieved. Analysis certificates are provided in Appendix C.

2.3 Soil Sampling Methodology

2.3.1 Targeted trial-pit entries were excavated in each of the identified hotspot locations with the exceptions of hotspots #1, #3 and #8 (discussed further in Sections 2.3 & 2.5). Where present,

the concrete slab was broken out with a hydraulic breaker and a tracked excavator was used to excavate the made ground and natural superficial deposits in each location, to rockhead where possible. Descriptions of the soils, groundwater, and any contamination indicators were recorded and PID readings were taken by introducing the inlet of the unit into holes or voids exposed within the disturbed soils, targeting any suspect materials encountered but also more generally at 0.25m intervals to include representative arisings from all levels within the excavation. Calibration Certification is provided in Appendix D.

- 2.3.2 Trial Pit locations are indicated on Drawing 001 with hotspot investigation photo records and trial pit logs provided in Appendices A and B, respectively.
- 2.3.3 Representative soil samples were collected and delivered to EMT, Deeside for analysis within 48 hours of sample collection and were placed in a sealed cool box kept at a temperature below 9°C. Chain of Custody documentation is retained by SGP.
- 2.3.4 Laboratory analysis was then carried out using standard GCMS VOC and SVOC analysis for a target list of indicator compounds (common industrial / waste VOC contaminants), total volatile aromatic and aliphatic hydrocarbon fractions, glycols and Tentatively Identified Compounds (TICs) - estimated by comparison of chromatographs to a library database with a degree of uncertainty to determine adsorbed phase soil concentrations for comparison to health critical screening values. Analysis for a range of polychlorinated biphenyls (PCBs) was also scheduled for the soil sample collected from Trial Pit 7 due to the past presence of an electrical transformer in this area. Analysis certificates are provided in Appendix C.

2.4 TIC Assessment

- 2.4.1 VOC / SVOC TIC analysis has been selected for all soil and product samples collected. This is to allow semi-quantitative assessment of any organic substances used or stored on the site which are not on the target lists of common volatile and semi-volatile substances subject to accredited analysis. The majority of TICs present are likely to be hydrocarbon compounds which are assessed by comparison of criteria derived for the various aliphatic and aromatic fractions listed under the Total Petroleum Hydrocarbons Working Group (TPHCWG) scheme. The TICs detected during the investigation and interpretation and determination as to whether they fall into the various TPHCWG classes was made by looking up the CAS numbers provided in the TIC analysis and assessing the chemical structure and functional groups to check the classification.
- 2.4.2 Where TIC or target list substances do not have generic criteria and therefore have no accepted toxicological and physiochemical datasets in the UK context, a separate discussion on the properties, likely toxicity and concentrations is provided to assess whether further consideration of risks is necessary. It should be noted that at higher molecular weights / retention times on the VOC TIC interpretation it is common for the library search to identify unusual substances, particularly in organic soil, made ground or residues. Sometimes these may genuinely be

associated with industrial use, in which case they would be expected in high concentrations or to occur over multiple samples for all media. Other occurrences may be metabolites, naturally occurring substances or breakdown products. Potential sources for these substances are discussed but in general the results are discounted for occasional occurrences of complex, high molecular weight TICs with long retention times that are present at low concentrations.

2.5 Constraints

- 2.5.1 Two of the hotspot areas within Phase 2 could not be investigated due to 1) the presence of the URL compound which is situated directly above hotspot #3, and 2) being unable to safely access the hotspot #8 area which is located on a currently inaccessible ledge where a former AST was once present (although a trial pit was excavated on the level below the former AST directly to the south). These two areas will therefore require further investigation once made fully accessible.
- 2.5.2 The infilled quarry could also only be partially investigated which comprised the excavation of two perpendicular trial trenches before sidewall collapse occurred at between approximately 2.5-4m bgl. The maximum depth of made ground within the infilled quarry will be proven by drilling boreholes during the planned Phase 2 Groundwater Investigation.
- 2.5.3 Other constraints included the presence of potentially live services (HS7-TP1), obstructions including suspected relict culverts and/or large drains (HS4-TP1, HS10-TP1 & HS10-TP3), the flooding of trial pits from broken relict pipelines (HS2-TP1, HS10-TP4 & HS13-TP2), and the potential risk of causing a nearby wall to collapse onto an adjacent public footpath (HS4-TP2). However, with the exceptions of hotspots #3 and #8 and the quarry, it is considered that the hotspots have been adequately investigated for the purposes of this assessment and to characterise and classify the nature of primary and secondary pollutant sources present.

3. Results & Discussion

3.1. UST Sampling & Analysis (Hotspot 1)

3.1.1. A total of 15 USTs were present within the hotspot #1 area located in the southeast corner of the site which were all accessible by removing the cast iron covers and caps to the downpipes. Bailers connected with twine were then extended into the USTs and samples of the contained fluids, where present, were retrieved, described, categorised as either 'Product' or 'Aqueous', and scheduled for laboratory analysis specific to their categorisation. A summary of the descriptions of the retrieved samples and the scheduled analysis is provided in Table 3.1 below.

Table 3.1 Hotspot 1 USTs Sample / Analysis Summary

UST / Sample Reference	Sample Description	Product / Liquid Determination	Scheduled Analysis
IC1(-S1)	Brown, silty, slight petrochemical odour, limited volume	Aqueous	VOCs & SVOCs (target list & TICs) and TPHCWG
IC2(-S1)	N/A - Dry	N/A	N/A
IC3(-S1)	N/A - Dry	N/A	N/A
IC4(-S1)	N/A - Dry	N/A	N/A
IC5(-S1)	N/A - Dry	N/A	N/A
IC6(-S1)	Brown, silty, slight petrochemical odour, limited volume	Aqueous	VOCs & SVOCs (target list & TICs) and TPHCWG
IC7(-S1)	N/A - Dry	N/A	N/A
IC8(-S1)	Red, transparent, strong petrochemical odour	Product	VOCs & SVOCs (target list & TICs), TPHCWG and Whole Oil interpretation.
IC9(-S1)	Brown, silty, no distinct odour, rainwater infiltration likely (no cap to chamber)	Aqueous	VOCs & SVOCs (target list & TICs) and TPHCWG
IC10(-S1)	Green, opaque, slight sweet odour	Product	VOCs & SVOCs (target list & TICs), TPHCWG and Whole Oil interpretation.
IC11(-S1)	Grey, silty, strong petrochemical odour, limited volume	Aqueous	VOCs & SVOCs (target list & TICs) and TPHCWG
IC12(-S1)	Separated liquid (less dense = dark brown; more dense = transparent with slight brown colouration), strong petrochemical odour	Product	VOCs & SVOCs (target list & TICs), TPHCWG and Whole Oil interpretation.

UST / Sample Reference	Sample Description	Product / Liquid Determination	Scheduled Analysis
IC13(-S1)	Transparent with slight yellow colouration, slightly sweet, citrus odour	Aqueous	VOCs & SVOCs (target list & TICs) and TPHCWG
IC14(-S1)	Transparent with slight brown colouration, strong petrochemical odour	Product	VOCs & SVOCs (target list & TICs), TPHCWG and Whole Oil interpretation.
IC15(-S1)	Grey-black, moderate petrochemical odour, viscous (oily)	Aqueous (initially suspected product)	VOCs & SVOCs (target list & TICs) and TPHCWG

3.1.2. The relevant laboratory analysis certificates (refs: 20-7814 & 20-8505) are attached in Appendix C and the results of the VOC / SVOC target list (only including compounds with results above analytical limit of detections) and TPHCWG analysis are summarised in Tables 3.2 (aqueous) and 3.4 (Product) below. Interpretation of the TIC results indicate that the vast majority of detected VOCs / SVOC TICs fall into the various TPHCWG bands, those which do not are summarised in Tables 3.3 (aqueous) and 3.5 (Product). A summary of the Whole Oil analysis and interpretation carried out on the 'Product' samples is included in Table 3.6.

Table 3.2 Summary of Hotspot 1 VOC/SVOC Target List and TPHCWG Analysis Results (aqueous)

Contaminant	Range of concentrations (µg/l)	Contaminant	Range of concentrations (µg/l)
Benzene	<0.5-25.9	Propylbenzene	<3-348
Toluene	<5-1,166	1,3,5-Trimethylbenzene	<3-910
Ethylbenzene	<1-474	tert-Butylbenzene	<3-273
m/p-xylene	<2-1,994	1,2,4-Trimethylbenzene	<3-3,650
o-xylene	<1-1,584	sec-Butylbenzene	<3-254
aliphatic >C5-C6	<10-6,037	4-Isopropyltoluene	<4-243
aliphatic >C6-C8	<10-74,934	n-Butylbenzene	<3-251
aliphatic >C8-C10	<10-8,665	2-Methylphenol	<<0.5-4.7
aliphatic >C10-C12	<5-1,849,503	4-Methylphenol	<1-839
aliphatic >C12-C16	<10-59,380	Phenol	<1-87
aliphatic >C16-C21	<10-26,120	2-Methylnaphthalene	<1-111
aliphatic >C21-C35	<10-6,890	Naphthalene	<1-171
aromatic >C5-C6	<10-1,238	Acenaphthylene	<0.5-5.5
aromatic >C6-C8	<10-1,242	Acenaphthene	<1-19
aromatic >C8-C10	<10-5,333	Fluorene	<0.5-18.8
aromatic >C10-C12	<5-88,990	Phenanthrene	<0.5-23.8
aromatic >C12-C16	<10-2,570	Anthracene	<0.5-4.1
aromatic >C16-C21	<10-1,090	Fluoranthene	<0.5-1.5
aromatic >C21-C35	<10-100,023	Pyrene	<0.5-1.9
Methyl tert-butyl ether	<0.1-15	Bis(2-ethylhexyl) phthalate	<0.5-30

Contaminant	Range of concentrations (µg/l)	Contaminant	Range of concentrations (µg/l)
Vinyl Chloride	<0.1-1	Diethyl phthalate	<1-28
Dichloromethane	<5-93	Dimethyl phthalate	<1-4
Trichloroethylene	<3-3	Dibenzofuran	<0.5-19.7
Isopropylbenzene	<3-211	Isophorone	<0.5-1267.3

3.1.3. TPHCWG and VOC / SVOC Target List analysis of the aqueous samples collected from USTs 'IC1', 'IC6', 'IC9', 'IC11', 'IC13' and 'IC15' predominantly determined the presence of hydrocarbons across a range of fractions, although concentrations were very low in sample 'IC6-S1' and virtually absent in sample 'IC9-S1' which only confirmed the presence of aliphatic C6-C8 hydrocarbons at 89 µg/l. Numerous VOCs and SVOCs were also detected but at generally much lower concentrations.

Table 3.3 Summary of Hotspot 1 Non-TPHCWG VOC / SVOC TICs (aqueous)

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/l)
IC1-S1, IC11-S1 & IC13-S1	67-64-1	Acetone	VOC	Ketone	156-435
IC1-S1 & IC6-S1	75-65-0	2-Propanol, 2-methyl- (aka butanol)	VOC	Alcohol	100-4,613
IC1-S1 & IC15-S1	78-93-3	2-Butanone	VOC	Ketone	288-553
IC1-S1 & IC11-S1	78-83-1	1-Propanol, 2-methyl- (aka isobutanol)	VOC	Alcohol	100-280
IC1-S1	75-84-3	1-Propanol, 2,2-dimethyl- (aka Neopentyl alcohol)	VOC	Alcohol	128
IC1-S1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	144
IC1-S1 & IC6-S1	590-50-1	2-Pentanone, 4,4-dimethyl-	VOC	Ketone	256-1,211
IC1-S1	564-04-5	3-Pentanone, 2,2-dimethyl-	VOC	Ketone	130
IC1-S1	6144-93-0	2-Pentanol, 4,4-dimethyl-	VOC	Alcohol	140
IC1-S1	1000342-70-4	1-Octadecanesulphonyl chloride	VOC	Aliphatic hydrocarbon with sulphonyl chloride group	431
IC11-S1	2142-73-6	Ethanone, 1-(2,5-dimethylphenyl)-	VOC	Aromatic ketone	227
IC11-S1 & IC13-S1	64-17-5	Ethanol	VOC	Alcohol	108-164
IC11-S1	67-63-0	Isopropyl Alcohol	VOC	Alcohol	4,915
IC11-S1 & IC13-S1	71-36-3	1-Butanol	VOC	Alcohol	419 -1,400

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/l)
IC11-S1	78-92-2	2-Butanol	VOC	Alcohol	3,742
IC13-S1	14898-79-4	2-Butanol, (R)-	VOC	Alcohol	289
IC13-S1	4359-46-0	1,3-Dioxolane, 2-ethyl-4-methyl-	VOC	Cyclic acetal	241
IC13-S1	71-23-8	1-Propanol	VOC	Alcohol	5,899
IC15-S1	79-09-4	Propanoic acid	VOC	Carboxylic Acid	138
IC1-S1	1000406-31-9	Docosane, 1-iodo-	SVOC	Organo-iodide	746
IC15-S1	1155-45-9	5-Isopropyl-2-methylphenyl carbanilate	SVOC	Ester of organic acid	246
IC11-S1	15158-36-8	4-Methylphthalaldehyde	SVOC	Benzene fused dialdehyde	6,110
IC11-S1	17496-14-9	1H-Inden-1-one, 2,3-dihydro-2-methyl-	SVOC	Aromatic ketone	1,680
IC9-S1	271-58-9	2,1-Benzisoxazole	SVOC	Benzene-fused isoxazole	117
IC11-S1 & IC15-S1	35587-60-1	1-Methylindan-2-one	SVOC	Aromatic ketone	245-3,107
IC11-S1	499-06-9	Benzoic acid, 3,5-dimethyl-	SVOC	Carboxylic acid	4,830
IC11-S1	529-33-9	1-Naphthalenol, 1,2,3,4-tetrahydro-	SVOC	Alcohol	3,491
IC11-S1 & IC15-S1	529-34-0	1(2H)-Naphthalenone, 3,4-dihydro-	SVOC	Ketone	412-5,321
IC11-S1	536-50-5	Benzenemethanol, .alpha.,4-dimethyl-	SVOC	Alcohol	13,689
IC11-S1	536-66-3	Benzoic acid, 4-(1-methylethyl)-	SVOC	Carboxylic acid	1,682
IC11-S1	53957-33-8	Benzenemethanol, 2,5-dimethyl-	SVOC	Alcohol	8,324
IC11-S1	54125-39-2	trans-2,3-Epoxydecane	SVOC	Epoxide (cyclic ether)	916
IC1-S1	544-77-4	Hexadecane, 1-iodo-	SVOC	Organo-Iodide	1,085
IC11-S1 & IC15-S1	585-74-0	Ethanone, 1-(3-methylphenyl)-	SVOC	Aromatic ketone	118-3,518
IC11-S1	603-79-2	Benzoic acid, 2,3-dimethyl-	SVOC	Carboxylic acid	5,630
IC11-S1	611-01-8	Benzoic acid, 2,4-dimethyl-	SVOC	Carboxylic acid	9,761
IC11-S1 & IC15-S1	83-33-0	1H-Inden-1-one, 2,3-dihydro-	SVOC	Aromatic ketone	224-15,240
IC11-S1	87-41-2	1(3H)-Isobenzofuranone	SVOC	Cyclic carboxylic ester	8,824
IC11-S1	89-95-2	Benzenemethanol, 2-methyl-	SVOC	Alcohol	6,148
IC15-S1	95-14-7	1H-Benzotriazole	SVOC	Benzene fused triazole	136

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/l)
IC1-S1 & IC6-S1	98-54-4	Phenol, p-tert-butyl-	SVOC	Alcohol	339-923
IC11-S1	98-85-1	Benzenemethanol, .alpha.- methyl-	SVOC	Alcohol	15,473

3.1.4. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with various functional groups including alcohols, ketones, acetals, carboxylic acids, aldehydes, ethers and esters have been detected at low concentrations. Aliphatic hydrocarbons with substituted iodine atoms and sulphonyl chloride groups have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of more elevated concentrations of other identified contaminants.

Table 3.4 Summary of Hotspot 1 VOC/SVOC Target List and TPHCWG Analysis Results (Product)

Contaminant	Range of concentrations (%)	Contaminant	Range of concentrations (%)
Benzene	<0.01-0.04	Propylbenzene	<0.01-0.85
Toluene	<0.01-0.89	1,3,5-Trimethylbenzene	<0.01-1.46
Ethylbenzene	<0.01-1.76	tert-Butylbenzene	<0.01-3.05
m/p-xylene	<0.01-6.27	1,2,4-Trimethylbenzene	<0.01-5.71
o-xylene	<0.01-3.34	sec-Butylbenzene	<0.01-1.15
aliphatic >C5-C6	NDP - 0.1	n-Butylbenzene	<0.01-1.52
aliphatic >C6-C8	NDP - 0.4	2-Methylnaphthalene	<0.01-0.95
aliphatic >C8-C10	NDP - 39.6	Naphthalene	<0.01-0.47
aliphatic >C10-C12	NDP - 57.5	Acenaphthene	<0.01-0.45
aliphatic >C12-C16	NDP - 29	Fluorene	<0.01-0.59
aliphatic >C16-C21	NDP - 33.9	Phenanthrene	<0.01-0.57
aliphatic >C21-C35	NDP - 10	Fluoranthene	<0.01-0.21
aromatic >C6-C8	NDP - <0.1	Pyrene	<0.01-0.27
aromatic >C8-C10	NDP - 4.7	Benzo(a)anthracene	<0.01-0.6
aromatic >C10-C12	NDP - 6.7	Chrysene	<0.01-0.07
aromatic >C12-C16	NDP - 7.4	Bis(2-ethylhexyl) phthalate	<0.01-0.01
aromatic >C16-C21	NDP - 7.8	Butylbenzyl phthalate	<0.01-0.04
aromatic >C21-C35	NDP - 2	Di-n-butyl phthalate	<0.01-0.45
1,1,1-Trichloroethane	<0.01-0.07	Dimethyl phthalate	<0.01-0.53
Isopropylbenzene	<0.01-1.14	Dibenzofuran	<0.01-1.49

Notes to table:

NDP: No determination possible

Table 3.5 Summary of Hotspot 1 Non-TPHCWG VOC / SVOC TICs (Product)

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (%)
IC8-S1	UI_PEAK_GRP	Unidentified Group of Compounds	VOC	Unknown	30.06
IC10-S1	67-63-0	Isopropyl Alcohol	VOC	Alcohol	99.84
IC12-S1	67-64-1	Acetone	VOC	Ketone	0.1
IC12-S1	UI_PEAK_GRP	Unidentified Group of Compounds	VOC	Unknown	18.35
IC12-S1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	0.21
IC8-S1	51282-56-5	Ethyl 5-chloro-2-nitrobenzoate	SVOC	Ester of benzoic acid with substituted nitrogen & chlorine atoms	0.79
IC8-S1	67388-11-8	4-Methylnaphtho[1,2-b]thiophene	SVOC	Polyaromatic hydrocarbon fused with thiophene ring	0.64
IC8-S1	2136-72-3	Ethanol, 2-(octadecyloxy)-	SVOC	Alcohol with a single carbon atom substituted with oxygen.	0.17
IC8-S1	40750-71-8	Benzene, 1-chlorodifluoromethoxy-4-nitro-	SVOC	Nitrobenzene with methoxy-chlorofluorocarbon branch	0.1
IC8-S1	544-77-4	Hexadecane, 1-iodo-	SVOC	Organo-iodide	0.22
IC10-S1	65-85-0	Benzoic acid	SVOC	Carboxylic acid	3.14
IC12-S1	35031-55-1	1-Propanone, 1-(2,4-dimethylphenyl)-	SVOC	Aromatic ketone	0.12
IC12-S1	89-74-7	Ethanone, 1-(2,4-dimethylphenyl)-	SVOC	Aromatic ketone	0.09
IC12-S1	91-08-7	Benzene, 1,3-diisocyanato-2-methyl-	SVOC	Benzene ring with 2 cyanate groups	<0.01
IC12-S1	529-34-0	1(2H)-Naphthalenone, 3,4-dihydro-	SVOC	Aromatic ketone	0.08
IC12-S1	4727-18-8	Cyclopentadecanone, 2-hydroxy-	SVOC	Cyclic ketone with attached hydroxyl group	<0.01
IC14-S1	38775-38-1	1-Hexadecanesulfonyl chloride	SVOC	Aliphatic hydrocarbon with substituted sulphonyl chloride group	0.15
IC14-S1	29804-22-6	Disparlure	SVOC	Epoxide (cyclic ether)	0.03
IC14-S1	150-86-7	Phytol	SVOC	Alcohol	<0.01
IC14-S1	6222-06-6	Pentafluoropropionic acid, tetradecyl ester	SVOC	Ester with fluorocarbon branch	<0.01
IC14-S1	765-14-0	Vinyl lauryl ether	SVOC	Ether	0.01
IC14-S1	74339-52-9	Trichloroacetic acid, tetradecyl ester	SVOC	Ester with chlorocarbon branch	<0.01
IC14-S1	930-02-9	Octadecane, 1-(ethenyloxy)-	SVOC	Ether	0.01

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (%)
IC14-S1	60609-53-2	8-Hexadecenal, 14-methyl-, (Z)-	SVOC	Aldehyde	0.02
IC14-S1	4860-03-1	Hexadecane, 1-chloro-	SVOC	Haloalkane	0.02
IC14-S1	25269-17-4	Thunbergol	SVOC	Cyclic isopropyl alcohol	0.01
IC14-S1	62016-79-9	Heptacosane, 1-chloro-	SVOC	Haloalkane	0.04

Table 3.6 Summary of Hotspot #1 Product Whole Oil Analysis

Sample ref.	Laboratory Description	Carbon Range	Boiling Point Range (°C)	Interpretation
IC8-S1	Red / amber oil on green water	7-30	98-450	Diesel (estimated age: 5 years)
IC10-S1	Green liquid	6-7	69-98	Antifreeze (ethylene glycol)
IC12-S1	Red / amber oil on water	7-31	98-459	Kerosene range organics and unknown organics
IC14-S1	Clear oil on water	7-18	98-317	White spirit

3.1.5. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with various functional groups including alcohols, ketones, acetals, carboxylic acids, aldehydes, ethers and esters have been detected at low concentrations. With the exception of alcohols, including glycol, which represent the only non-hydrocarbon product present, these, and other more esoteric substances, were generally present at <1% of the product mass.

3.1.6. In summary, the contaminants of concern identified in HS1 are diesel and white spirit hydrocarbons and alcohols, specifically glycol. Groundwater sampling in the area will include analysis for the wider range of organic compounds including TICs; however, based on the current information, remediation works will be targeted to the removal of hydrocarbons and alcohols to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances present.

3.2. Hotspot 2 Trial Pitting & Soils Analysis

3.2.1. Hotspot 2 (HS2) comprises a former drum compound located to the east of Building 2 (now demolished) where during previous site investigations carried out by ESNR (2003) and e3p (2017) elevated lead was detected in the soil (entry PH41) and trace C10-12 aromatic hydrocarbons were detected in a groundwater sample collected from borehole RB202. Site inspections carried out while the site was operational indicated that the drums present contained a range of additives

for use in the various manufactured products; these included synthetic scents, linseed oil, resins, colourants and auxiliary products.

3.2.2. SGP attended site on 09.12.20 to investigate the area further which comprised the excavation of three trial pits (HS2-TP1 to TP3). Initially the concrete slab (0.2m) was broken out and the underlying made ground was removed until the excavations could not be progressed due to the presence of competent rock. Bedrock was confirmed at 1.7-1.9m bgl in trial pits TP2 & TP3, respectively, but could not be confirmed in TP1 due to flooding from a broken relict pipeline (although it was suspected to be present at 1.6m bgl where solid ground was encountered).

3.2.3. The made ground typically comprised a blackish-brown, slightly clayey, ashy, sandy gravel with cobbles / boulders of brick and sandstone. A grey sandy gravel of sandstone and a grey / orange gravelly sand was also recorded. No odours were noted during the excavations but screening of the arisings with a photoionisation detector (PID) returned positive readings between 0.4-10.8ppm.

3.2.4. Soil samples were collected from each trial pit (refs: HS2-TP1-S1, HS2-TP2-S1 & HS2-TP3-S1) and were targeted at the most significantly impacted materials in each excavation (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS2 area. The relevant soil analysis certificate (ref: 20/17443) is included in Appendix C.

3.2.5. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to generic assessment criteria (GAC) for human health (S4ULs) in Table 3.7 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.7 Hotspot 2 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005
Toluene	S4UL Residential	130	<0.003-0.116
Ethylbenzene	S4UL Residential	47	<0.003-0.081
m/p-xylene	S4UL Residential	59	<0.004-0.341
o-xylene	S4UL Residential	56	<0.004-0.086
aliphatic >C5-C6	S4UL Residential	42	<0.1
aliphatic >C6-C8	S4UL Residential	100	<0.1-0.3
aliphatic >C8-C10	S4UL Residential	27	<0.1-0.9
aliphatic >C10-C12	S4UL Residential	130	<0.2-55.8
aliphatic >C12-C16	S4UL Residential	1,100	<4-94
aliphatic >C16-C21	S4UL Residential	65,000	<7-132

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aliphatic >C21-C35	S4UL Residential	65,000	114-677
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1
aromatic >C8-C10	S4UL Residential	34	<0.1-3.1
aromatic >C10-C12	S4UL Residential	74	<0.2-54.4
aromatic >C12-C16	S4UL Residential	140	<4-160
aromatic >C16-C21	S4UL Residential	260	<7-64
aromatic >C21-C35	S4UL Residential	1,100	<7-615
Naphthalene	S4UL Residential	2.3	<0.01-0.130
Acenaphthene	S4UL Residential	210	<0.01-0.102
Fluorene	S4UL Residential	170	<0.01-0.073
Phenanthrene	S4UL Residential	95	<0.01-1.81
Anthracene	S4UL Residential	2,400	<0.01-0.226
Fluoranthene	S4UL Residential	280	<0.01-1.735
Pyrene	S4UL Residential	620	<0.01-2.429
Benzo(a)anthracene	S4UL Residential	7.2	<0.01-1.139
Chrysene	S4UL Residential	15	<0.01-1.632
Benzo(b)fluoranthene	S4UL Residential	2.6	<0.01-1.265
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.492
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-0.760
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.331
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.136
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.454
Phenols	S4UL Residential	280	<0.01-0.078
1,1,1-Trichloroethane	S4UL Residential	8.8	<0.003-0.116
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.120
Tetrachloroethene (PCE)	S4UL Residential	0.18	<0.003-0.360
1,2-Dichlorobenzene	S4UL Residential	23	<0.01-0.410
1,2,4-Trichlorobenzene	S4UL Residential	2.6	<0.01-0.028
1,3-Dichlorobenzene	S4UL Residential	0.4	<0.01-0.037
1,4-Dichlorobenzene	S4UL Residential	61	<0.01-0.169
Chloromethane	CL:AIRE	0.0083	<0.003-0.029

Notes to table:

ND: no asbestos fibres detected

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.2.6. Exceedances of residential screening criteria have been confirmed for hydrocarbons and the chlorinated solvents TCE, PCE and chloromethane, although overall concentrations of the latter are not particularly high compared to the hydrocarbons detected.

3.2.7. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the vast majority of cases and further assessment of these are not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.8 Hotspot 2 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS2-TP1-S1	75-00-3	Chloroethane	VOC	Haloalkane	<2-35
HS2-TP1-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	<100-193
HS2-TP1-S1 & HS2-TP3-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	<10-37
HS2-TP1-S1 & HS2-TP3-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	<10-97
HS2-TP1-S1	6012-97-1	Thiophene, tetrachloro-	SVOC	Thiopene with 4 substituted chlorine atoms.	865
HS2-TP1-S1	93-56-1	1,2-Ethanediol, 1- phenyl- (aka styrene glycol)	SVOC	Alcohol	952
HS2-TP1-S1	121-86-8	Benzene, 2-chloro-1- methyl-4-nitro- (aka CNT)	SVOC	Haloarene with nitro branch	667

3.2.8. Of the possible VOCs / SVOCs suggested in the TIC analysis and those identified as part of the Target List analysis for which there are no GAC, none were present in excess of 1 mg/kg. The TICs may be residues from the chemicals stored / spilled in the area, or given the relatively low concentrations, impurities present in these.

Table 3.9 Hotspot 2 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50-1,301	HS2-TP1-S1
Propylene glycol	<50-755	HS2-TP1-S1
Diethylene glycol	<50-156,478	HS2-TP1-S1
Triethylene glycol	<50-377	HS2-TP1-S1
Thiodiglycol	<50-146	HS2-TP1-S1 & HS2-TP2-S1

3.2.9. Glycols were present at significant concentrations, primarily diethylene glycol, the main constituent of antifreeze.

3.2.10. In summary, the contaminants of concern identified in HS2 are hydrocarbons and alcohols, specifically glycol, although chlorinated solvents were detected at lower levels. Groundwater sampling in the area will include analysis for the wider range of organic compounds including

TICs; however, based on the current information, remediation works will be targeted to the removal of hydrocarbons and alcohols to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances present. If significantly higher concentrations of chlorinated solvents are detected during the monitoring, then these will be added to the Remediation criteria.

3.3. Hotspot 4 Trial Pitting & Soils Analysis

3.3.1. Hotspot 4 (HS4) comprises an area along the southern boundary where a former diesel AST was located and where during a previous intrusive investigation carried out by ESNR (2003) slightly elevated arsenic was detected in the soils (hydrocarbon contamination was also suspected but not confirmed with testing). Follow up investigations carried out by e3p (2014) and SGP (2018) did not, however, confirm the presence of significant soil contamination in this area.

3.3.2. SGP attended site on 09.12.20 to investigate the area further which comprised the excavation of two trial pits (HS4-TP1 & TP2). Initially the concrete slab (0.2m) was broken out and the underlying made ground was removed until either a large obstruction was encountered (HS4-TP1 - suspected relict drain at 1.4m bgl) or, in the case of HS4-TP2, the excavation could not be progressed due to safety considerations (continued excavation beyond 2.9m bgl appeared to be causing instability of an adjacent wall). Bedrock was not confirmed in either trial pit.

3.3.3. The made ground typically comprised a 0.25m thick layer of greyish-brown, cobbly, sandy, gravel of sandstone underlain by a blackish-brown, ashy, sandy gravel (with occasional boulders recorded in HS4-TP1). No odours were noted during the excavations but screening of the arisings of HS4-TP2 with a PID returned positive readings between 0.7-4.5ppm.

3.3.4. A single soil sample was collected from trial pit HS4-TP2 (ref: HS4-TP2-S1) which was targeted at the most significantly impacted materials (as indicated by elevated PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS4 area. The relevant soil analysis certificate (ref: 20/17443) is included in Appendix C.

3.3.5. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.10 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that approximately half of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.10 Hotspot 4 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Toluene	S4UL Residential	130	<0.003
Ethylbenzene	S4UL Residential	47	<0.003
m/p-xylene	S4UL Residential	59	<0.004
o-xylene	S4UL Residential	56	<0.004
aliphatic >C5-C6	S4UL Residential	42	<0.1
aliphatic >C6-C8	S4UL Residential	100	<0.1
aliphatic >C8-C10	S4UL Residential	27	<0.1
aliphatic >C10-C12	S4UL Residential	130	23.6
aliphatic >C12-C16	S4UL Residential	1,100	198
aliphatic >C16-C21	S4UL Residential	65,000	509
aliphatic >C21-C35	S4UL Residential	65,000	394
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1
aromatic >C8-C10	S4UL Residential	34	<0.1
aromatic >C10-C12	S4UL Residential	74	10.4
aromatic >C12-C16	S4UL Residential	140	31
aromatic >C16-C21	S4UL Residential	260	161
aromatic >C21-C35	S4UL Residential	1,100	181
Naphthalene	S4UL Residential	2.3	0.117
Fluorene	S4UL Residential	170	0.064
Phenanthrene	S4UL Residential	95	0.333
Fluoranthene	S4UL Residential	280	0.258
Pyrene	S4UL Residential	620	0.361
Benzo(a)anthracene	S4UL Residential	7.2	0.109
Chrysene	S4UL Residential	15	0.146
Benzo(b)fluoranthene	S4UL Residential	2.6	0.113
Benzo(k)fluoranthene	S4UL Residential	77	0.044
Benzo(a)pyrene	S4UL Residential	2.2	0.075
Indeno(123cd)pyrene	S4UL Residential	27	0.033
Benzo(ghi)perylene	S4UL Residential	320	0.059

3.3.6. No exceedances of residential screening criteria have been reported for any of the TPHCWG hydrocarbons or target list VOCs / SVOCs (for which criteria are available) tested for.

3.3.7. Assessment of the TIC interpretation analysis results indicates the presence of compounds primarily consisting of SVOCs with a single VOC also detected. The individual substances are represented by the various TPHCWG fractions in approximately half of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances are listed below:

Table 3.11 Hotspot 4 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS4-TP1-S1	150-86-7	Phytol	VOC	Alcohol	231
HS4-TP1-S1	55720-40-6	Naphthalene, 2,3,6-trichloro	SVOC	Haloarene	3,155
HS4-TP1-S1	20020-02-4	Naphthalene, 1,2,3,4-tetrachloro	SVOC	Haloarene	1,172
HS4-TP1-S1	55720-43-9	Naphthalene, 1,4,6,7-tetrachloro	SVOC	Haloarene	1,859

3.3.8. The SVOCs suggested in the TIC analysis all consisted of polychlorinated naphthalenes (PCNs) which were present at low concentrations between 1.2mg/kg and 3.2mg/kg. The source of these contaminants is unclear as PCNs were typically used as insulating coatings for electrical wires historically; these would be expected to be persistent in soils due to their low solubility/mobility. The alcohol phytol was the only VOC suggested in the TIC analysis which was present at a very low concentration of 0.23mg/kg.

Table 3.12 Hotspot 4 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50	None
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.3.9. Glycols were not present above laboratory detection limits in the sample collected from HS4.

3.3.10. In summary, volatile hydrocarbons (C5-C10) and glycols were not detected above laboratory detection limits in the sample collected from HS4, whereas heavier end hydrocarbons (C10-35) and polyaromatic hydrocarbons (PAHs) were detected but at concentrations below residential screening criteria. The only pollutants of concern identified in the TIC analysis were PCNs, but as they were detected at low concentrations it is not envisaged that specific remedial measures will be required in HS4 as a result, provided groundwater contamination by these substances is not detected.

3.4. Hotspot 5 Trial Pitting & Soils Analysis

Hotspot 5 (HS5) comprises an area in the southeast of the site where a kerosene AST was located between former Buildings 4, 13, 14 and 15, although previous intrusive investigations carried out by both ESNR (2003) and e3p (2014) did not identify the presence of significant soil or groundwater contamination in the area.

3.4.1. SGP attended site on 08.12.20 to investigate the area further which comprised the excavation of two trial pits (HS5-TP1 & TP2); however, due to the presence of a culvert which is to remain intact

during the development, these were constrained to the eastern end of the hotspot area. Initially the concrete slab (0.2m) was broken out and the underlying made ground soils were removed until the excavations could not be progressed due to the presence of competent rock. Bedrock was confirmed at 2m bgl in HS5-TP1 and 0.6m bgl in HS5-TP2.

3.4.2. The made ground in HS5-TP1 comprised a combination of brown, gravelly, sandy clay and orange / brown, gravelly sand with frequent cobbles and boulders of sandstone and brick; a pocket of black ashy gravel was also noted between 1.2-2m bgl. In the western part of HS5-TP2, the made ground comprised a dark grey, slightly clayey, sandy gravel with frequent cobbles of red brick; however, in the eastern end of the trial pit the concrete hardstanding was positioned directly on top of weathered sandstone bedrock. No odours were noted during the excavations but screening of the arisings with a PID returned positive readings between 0.9-7.3ppm.

3.4.3. Soil samples were collected from both trial pits (refs: HS5-TP1-S1 & HS5-TP2-S1) and were targeted at the most significantly impacted materials in each excavation (as assessed through appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS5 area. The relevant soil analysis certificate (ref: 20/17443) is included in Appendix C.

3.4.4. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.13 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.13 Hotspot 5 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005
Toluene	S4UL Residential	130	<0.003-0.29
Ethylbenzene	S4UL Residential	47	0.114-0.189
m/p-xylene	S4UL Residential	59	0.012-0.175
o-xylene	S4UL Residential	56	0.005-0.044
aliphatic >C5-C6	S4UL Residential	42	<0.1-0.2
aliphatic >C6-C8	S4UL Residential	100	<0.1-0.2
aliphatic >C8-C10	S4UL Residential	27	<0.1
aliphatic >C10-C12	S4UL Residential	130	0.2-1.7
aliphatic >C12-C16	S4UL Residential	1,100	<0.2-42
aliphatic >C16-C21	S4UL Residential	65,000	9-71
aliphatic >C21-C35	S4UL Residential	65,000	13-62
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aromatic >C8-C10	S4UL Residential	34	0.9-4.1
aromatic >C10-C12	S4UL Residential	74	<0.2-8.7
aromatic >C12-C16	S4UL Residential	140	7-22
aromatic >C16-C21	S4UL Residential	260	17-61
aromatic >C21-C35	S4UL Residential	1,100	16-369
Naphthalene	S4UL Residential	2.3	<0.01-0.033
Acenaphthene	S4UL Residential	210	<0.01-0.041
Fluorene	S4UL Residential	170	<0.01-0.025
Phenanthrene	S4UL Residential	95	0.029-0.471
Anthracene	S4UL Residential	2,400	<0.01-0.097
Fluoranthene	S4UL Residential	280	0.022-0.649
Pyrene	S4UL Residential	620	0.027-0.612
Benzo(a)anthracene	S4UL Residential	7.2	0.043-0.299
Chrysene	S4UL Residential	15	0.029-0.379
Benzo(b)fluoranthene	S4UL Residential	2.6	<0.01-0.300
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.117
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-0.181
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.110
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.042
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.163
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-0.225

Notes to table:

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.4.5. No exceedances of residential screening criteria have been reported for any of the TPHCWG hydrocarbons or target list VOCs / SVOCs (for which criteria are available) tested for.

3.4.6. Assessment of the TIC interpretation analysis results indicates the presence of compounds primarily consisting of SVOCs with a single VOC also detected. The majority of the individual substances are represented by the various TPHCWG fractions and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.14 Hotspot 5 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS5-TP2-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	225
HS5-TP1-S1 & HS5-TP2-S1	131-11-3	Dimethyl phthalate	SVOC	Ester	356-481
HS5-TP2-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	17

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS5-TP2-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	27
HS5-TP2-S1	78-40-0	Triethyl phosphate	SVOC	Ester	834
HS5-TP1-S1 & HS5-TP2-S1	85-44-9	Phthalic anhydride	SVOC	Carbonyl / Phthalate intermediate	<100
HS5-TP1-S1	131-11-3	Dimethyl phthalate	SVOC	Ester	201

3.4.7. Of the possible SVOCs suggested in the TIC analysis and those identified as part of the Target List analysis for which there are no GAC, none were present in excess of 1 mg/kg. The source of these contaminants is unclear considering the known former usage of the area, but they may be residues from chemicals previously stored / spilled in the area.

Table 3.15 Hotspot 5 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50-222	HS5-TP2-S1
Diethylene glycol	<50-6,001	HS5-TP2-S1
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.4.8. Propylene glycol and diethylene glycol (the main constituent of antifreeze) were both detected in sample HS2-TP2-S1 but at relatively low concentrations of 0.22mg/kg and 6.0mg/kg, respectively.

3.4.9. In summary, hydrocarbons (TPHCWG, BTEX and PAHs) were generally above laboratory detection limits in the HS5 samples but at concentrations below residential screening criteria. The presence of other organic compounds was suggested by the TIC analysis (esters, nitrogen-substituted PAHs, ethers and carbonyl / phthalate intermediates) but at low concentrations not envisaged to require specific remedial measures to be taken as a result. Similarly, glycols were detected but not at concentrations deemed likely to cause significant pollution issues in the context of the pollutants identified in the wider site.

3.5. Hotspot 6 Trial Pitting & Soils Analysis

3.5.1. Hotspot 6 (HS6) comprises an area between former buildings 14 and 15 in the centre-southeast of the site where a number of ASTs were previously located which contained a range of products including: dichloromethane (DCM), white spirit, kerosene, sodium silicate and heating oil. Previous intrusive investigations carried out by ESNR (2003) and e3p (2014) identified the presence of elevated hydrocarbons in the shallow soils, although this was not repeated in the e3p (2017) investigation during which no significant soil contamination was identified.

- 3.5.2. SGP attended site on 08.12.20 to investigate the area further which comprised the excavation of six trial pits (HS6-TP1 to TP6). Initially the concrete slab (0.15-0.2m) was broken out and the underlying made ground was removed until the excavations could not be progressed due to the presence of competent rock. Bedrock was confirmed at between 0.3m bgl (TP2) to 1.6m bgl (TP6) and was generally present at shallower depths in the north.
- 3.5.3. The made ground in the northern part of HS6 (TP1-TP3) comprised a thin layer of black ashy gravel to a maximum depth of 0.3m bgl underlain by either weathered or competent bedrock. The made ground in the south was more varied but typically comprised sandy gravels to 0.4-1.6m bgl with localised inclusions of ash, clay and cobbles of red brick. A strong sweet odour was noted in the made ground and underlying weathered bedrock in TP3 and slight to strong hydrocarbon odours were noted in the made ground arisings of TP4, TP5 and TP6. PID readings of between 1.8-178.8ppm were recorded during the HS6 excavations with the highest readings corresponding to the areas where moderate to strong odours were recorded.
- 3.5.4. Soil samples were collected from five of the six trial pits (refs: HS6-TP1-S1, HS6-TP3-S1, HS6-TP4-S1, HS6-TP5-S1 & HS6-TP6-S1) and were targeted at the most significantly impacted materials (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS6 area. The relevant soil analysis certificate (ref: 20/17443) is included in Appendix C.
- 3.5.5. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.16 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.16 Hotspot 6 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005-0.012
Toluene	S4UL Residential	130	0.003-1.008
Ethylbenzene	S4UL Residential	47	0.00-37.323
m/p-xylene	S4UL Residential	59	0.006-1.067
o-xylene	S4UL Residential	56	<0.004-0.723
aliphatic >C5-C6	S4UL Residential	42	<0.1-2.1
aliphatic >C6-C8	S4UL Residential	100	<0.1-23.1
aliphatic >C8-C10	S4UL Residential	27	<0.1-88
aliphatic >C10-C12	S4UL Residential	130	<0.2-730.2
aliphatic >C12-C16	S4UL Residential	1,100	<4-349
aliphatic >C16-C21	S4UL Residential	65,000	<7-51
aliphatic >C21-C35	S4UL Residential	65,000	67-191

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1-0.2
aromatic >C8-C10	S4UL Residential	34	<0.1-573.1
aromatic >C10-C12	S4UL Residential	74	<0.1-182.2
aromatic >C12-C16	S4UL Residential	140	<4-4,486
aromatic >C16-C21	S4UL Residential	260	<7-70
aromatic >C21-C35	S4UL Residential	1,100	<7-176
Naphthalene	S4UL Residential	2.3	0.01-1.277
Acenaphthene	S4UL Residential	210	<0.01-0.734
Fluorene	S4UL Residential	170	<0.01-0.418
Phenanthrene	S4UL Residential	95	0.065-3.964
Anthracene	S4UL Residential	2,400	<0.01-0.556
Fluoranthene	S4UL Residential	280	0.076-4.336
Pyrene	S4UL Residential	620	0.086-3.879
Benzo(a)anthracene	S4UL Residential	7.2	0.08-1.270
Chrysene	S4UL Residential	15	0.08-1.719
Benzo(b)fluoranthene	S4UL Residential	2.6	0.078-1.889
Benzo(k)fluoranthene	S4UL Residential	77	0.03-0.735
Benzo(a)pyrene	S4UL Residential	2.2	0.054-0.924
Indeno(123cd)pyrene	S4UL Residential	27	0.029-0.752
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.244
Benzo(ghi)perylene	S4UL Residential	320	0.044-0.973
Phenols	S4UL Residential	280	<0.01-0.432
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.070
Tetrachloroethene (PCE)	S4UL Residential	0.18	<0.003-0.138
Chloromethane	CL:AIRE GAC	0.0083	<0.003-0.353
Dichloromethane	NA	NA	<0.003-0.956
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-13.107
Dimethyl phthalate	NA	NA	<100-13,131,176

Notes to table:

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3.5.6. Multiple exceedances of residential screening criteria have been confirmed for C8-16 hydrocarbons, the chlorinated solvents TCE and chloromethane, and the PAH dibenzo(ah)anthracene ranging from the minor (dibenzo(ah)anthracene) to the highly significant (i.e. chloromethane and aromatic C12-16 hydrocarbons).

3.5.7. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The

TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.17 Hotspot 6 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS6-TP3-S1	75-00-3	Chloroethane	VOC	Haloalkane	<2-16,859
HS6-TP4-S1	75-69-4	Trichlorofluoromethane (aka freon-11)	VOC	CFC	<2-8
HS6-TP3-S1, HS6-TP4-S1, HS6-TP5-S1 & HS6-TP6-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	<100-10,301
HS6-TP3-S1	84-66-2	Diethyl phthalate	SVOC	Ester	<100-12,480
HS6-TP1-S1, HS6-TP3-S1 & HS6-TP4-S1	131-11-3	Dimethyl phthalate	SVOC	Ester	<100- 13,131,176
HS6-TP3-S1 & HS6-TP5-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	<10-483
HS6-TP3-S1, HS6-TP4-S1, HS6-TP5-S1 & HS6-TP6-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	<10-514
HS6-TP3-S1	79-20-9	Acetic acid, methyl ester	VOC	Carboxylate ester	2,747
HS6-TP3-S1	141-78-6	Ethyl Acetate	VOC	Acetate ester	15,812
HS6-TP3-S1	105-37-3	Propanoic acid, ethyl ester	VOC	Carboxylic acid	1,078
HS6-TP3-S1	97-62-1	Propanoic acid, 2-methyl-, ethyl ester	VOC	Carboxylic acid	592
HS6-TP3-S1	591-24-2	Cyclohexanone, 3-methyl-	VOC	Aromatic ketone	222
HS6-TP4-S1	67-64-1	Acetone	VOC	Ketone	132
HS6-TP4-S1	14898-79- 4	2-Butanol, (R)-	VOC	Alcohol	491
HS6-TP3-S1, HS6-TP4-S1, HS6-TP5-S1 & HS6-TP6-S1	78-40-0	Triethyl phosphate	SVOC	Triester of ethanol and phosphoric acid	513-12,877
HS6-TP1-S1	85-44-9	Phthalic anhydride	SVOC	Carbonyl / Phthalate intermediate	<100
HS6-TP3-S1	93-58-3	Benzoic acid, methyl ester	SVOC	Aromatic ester	729
HS6-TP3-S1	3302-10-1	Hexanoic acid, 3,5,5- trimethyl-	SVOC	Carboxylic acid	4,089
HS6-TP3-S1	89-71-4	Benzoic acid, 2-methyl-, methyl ester	SVOC	Aromatic ester	3,299

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS6-TP3-S1	50604-01-8	Benzoic acid, 2-ethyl-, methyl ester	SVOC	Aromatic ester	796
HS6-TP3-S1	37275-49-3	4,7-Methano-1H-indenol, hexahydro-	SVOC	Alcohol	3,490
HS6-TP3-S1	109-21-7	Butanoic acid, butyl ester	SVOC	Carboxylic acid	7,168
HS6-TP3-S1	22479-95-4	1,2-Benzenedicarboxylic acid, 4-hydroxy-, dimethyl ester	SVOC	Ester with attached hydroxyl group	6,663
HS6-TP4-S1	96-09-3	Oxirane, phenyl-	SVOC	Benzene ring with attached epoxide group	114
HS6-TP4-S1	94-96-2	1,3-Hexanediol, 2-ethyl-	SVOC	Alcohol	698
HS6-TP4-S1	143-07-7	Dodecanoic acid	SVOC	Carboxylic acid	375
HS6-TP4-S1	1445-69-8	1,4-Dioxo-1,2,3,4-tetrahydrophthalazine	SVOC	Phthalic Hydrazide	163
HS6-TP4-S1	84-69-5	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	SVOC	Ester	319
HS6-TP4-S1	6946-24-3	Tetracosane, 1-bromo-	SVOC	Haloalkane	143
HS6-TP6-S1	4536-30-5	Ethanol, 2-(dodecyloxy)-	SVOC	Alcohol	3,719

3.5.8. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with various functional groups including alcohols, ketones, carboxylic acids, ethers and esters have been detected at concentrations ranging from very low to very high, the most significant being dimethyl phthalate which had a maximum concentration of 13,132 mg/kg (HS6-TP3-S1). Other compounds such as the phthalic hydrazide 1,4-Dioxo-1,2,3,4-tetrahydrophthalazine and the haloalkane Tetracosane, 1-bromo- have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of the more elevated concentrations of other identified contaminants.

Table 3.18 Hotspot #6 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50-8,084	HS 6-TP3-S1, HS6-TP4-S1 & HS6-TP5-S1
Propylene glycol	<50-20,343	HS 6-TP3-S1, HS6-TP4-S1 & HS6-TP5-S1
Diethylene glycol	<50-91,879	HS 6-TP3-S1, HS6-TP4-S1 & HS6-TP5-S1
Triethylene glycol	<50-289	HS 6-TP3-S1 & HS6-TP5-S1
Thiodiglycol	<50	None

3.5.9. Glycols were present at significant concentrations, primarily diethylene glycol, the main constituent of antifreeze.

3.5.10. In summary, the contaminants of concern identified in HS6 are hydrocarbons, dimethyl phthalate and alcohols, specifically glycol. Although chlorinated solvents were detected at lower levels (i.e. chloromethane), given their higher pollution potential, these will also be included in the pollutants of concern associated with HS6. Groundwater sampling in the area will include analysis for the wider range of organic compounds including TICs; however, based on the current information, remediation works will be targeted to the removal of hydrocarbons, alcohols and phthalates to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances present. If significantly higher concentrations of chlorinated solvents are detected during the monitoring, then these will be added to the Remediation criteria.

3.6. Hotspot #7 Trial Pitting & Soils Analysis

3.6.1. Hotspot #7 (HS7) comprises an area in the centre-south of the site where an electrical transformer and diesel AST were located having previously been attached to the west of Building 14 (now demolished). The only environmental testing carried out in HS7 in the reviewed investigations was PCB testing of the soils in the vicinity of the transformer which did not identify the presence of these contaminants above laboratory detection limits, as reported by ESNR (2003).

3.6.2. SGP attended site on 08.12.20 to investigate the area further which comprised the excavation of a single trial pit (HS7-TP1). Initially the concrete slab (0.2m) was broken out and the underlying made ground was removed until the excavation could not be progressed due to the presence of a previously unlocated, potentially live, water pipeline at 1m bgl. The depth to competent bedrock was therefore not confirmed.

3.6.3. In the western part of trial pit HS7-TP1, the made ground comprised a greyish-brown, sandy, clayey, gravel with frequent cobbles of red brick, but in the eastern end the concrete hardstanding was positioned directly on top of weathered sandstone bedrock. No odours were noted during the excavation but screening of the made ground arisings with a PID returned positive readings of up to 9.3ppm.

3.6.4. A soil sample was collected from the trial pit (ref: HS7-TP1-S1) which was targeted at the most significantly impacted material (as assessed through appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS7 area. The relevant soil analysis certificate (ref; 20/17443) is included in Appendix C.

3.6.5. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.19 below, where available (Target List compounds are only included in the table if detected). Due to the former presence of an electrical transformer, samples have also been collected for PCB analysis and the results compared to the CLEA SGV. Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.19 Hotspot #7 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005
Toluene	S4UL Residential	130	0.008
Ethylbenzene	S4UL Residential	47	0.037
m/p-xylene	S4UL Residential	59	0.023
o-xylene	S4UL Residential	56	0.010
aliphatic >C5-C6	S4UL Residential	42	<0.1
aliphatic >C6-C8	S4UL Residential	100	<0.1
aliphatic >C8-C10	S4UL Residential	27	0.6
aliphatic >C10-C12	S4UL Residential	130	19.6
aliphatic >C12-C16	S4UL Residential	1,100	43
aliphatic >C16-C21	S4UL Residential	65,000	59
aliphatic >C21-C35	S4UL Residential	65,000	444
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1
aromatic >C8-C10	S4UL Residential	34	0.4
aromatic >C10-C12	S4UL Residential	74	<0.2
aromatic >C12-C16	S4UL Residential	140	13
aromatic >C16-C21	S4UL Residential	260	48
aromatic >C21-C35	S4UL Residential	1,100	885
Naphthalene	S4UL Residential	2.3	0.109
Acenaphthene	S4UL Residential	210	0.093
Fluorene	S4UL Residential	170	0.047
Phenanthrene	S4UL Residential	95	0.648
Anthracene	S4UL Residential	2,400	0.092
Fluoranthene	S4UL Residential	280	0.89
Pyrene	S4UL Residential	620	0.945
Benzo(a)anthracene	S4UL Residential	7.2	0.474
Chrysene	S4UL Residential	15	0.807
Benzo(b)fluoranthene	S4UL Residential	2.6	0.766
Benzo(k)fluoranthene	S4UL Residential	77	0.298
Benzo(a)pyrene	S4UL Residential	2.2	0.389
Indeno(123cd)pyrene	S4UL Residential	27	0.203
Dibenzo(ah)anthracene	S4UL Residential	0.24	0.063
Benzo(ghi)perylene	S4UL Residential	320	0.306
PCBs (Total)	CLEA SGV	0.008	0.041
Bis(2-ethylhexyl) phthalate	NA	NA	0.255

Notes to table:

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3.6.6. The PCB analysis has demonstrated the presence of these contaminants at low concentrations, but still exceeding the conservative CLEA SGV screening criteria. The likely source of this

contamination is the electrical transformer previously located in the area. A variety of hydrocarbons have been identified above laboratory detection limits but in all instances were at concentrations below residential screening criteria.

3.6.7. Assessment of the TIC interpretation analysis results indicates the presence of compounds within the SVOC class only. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.20 Hotspot #7 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS7-TP1-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	368
HS7-TP1-S1	131-11-3	Dimethyl phthalate	SVOC	Ester	864
HS7-TP1-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	24
HS7-TP1-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	62
HS7-TP1-S1	78-40-0	Triethyl phosphate	SVOC	Triester of ethanol and phosphoric acid	1,515
HS7-TP1-S1	84-69-5	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	SVOC	Phthalate with 2 attached isobutyl groups	346

3.6.8. Of the possible SVOCs suggested by the TIC analysis and those identified as part of the Target List analysis for which there are no GAC, all were present at low concentrations of 1.5mg/kg or lower. The source of these contaminants is unclear considering the known former usage of the area, but they may be residues from chemicals previously stored / spilled in the area.

Table 3.21 Hotspot #7 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50	None
Diethylene glycol	646	HS7-TP1-S1
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.6.9. The only glycol tested for identified above laboratory detection limits was diethylene glycol, however this was present at a very low concentration (0.65mg/kg) and is therefore not considered to be indicative of a significant pollution risk.

3.6.10. In summary, the only contaminant of concern identified in HS7 are PCBs associated with the former electrical transformer. Consequently, remediation in this area will be targeted to the removal of PCBs to risk-based remedial targets, although this may be revised if more significantly elevated VOCs are detected during these works or groundwater results indicate pollution is occurring.

3.7. Hotspot #8 Trial Pitting

3.7.1. Hotspot #8 (HS8) comprises an area to the north of former Building 13 where an AST was located which had been unused for a number of years; consequently, the former contents are unknown. The intrusive investigation carried out by ESNR (2003) identified the presence of elevated hydrocarbons (including TEX compounds) in the soils in this area at 2.4-2.6m bgl, although this was not repeated in the e3p (2014) investigation during which no significant soil contamination was identified.

3.7.2. SGP attended site on 07.12.20 to investigate the area further, however the former AST was situated on an inaccessible ledge severely limiting the investigation. A trial pit was therefore excavated on the level below as close to the former AST as possible (HS8-TP1). The trial pit arisings comprised reinforced concrete to 0.2m bgl underlain by weathered sandstone bedrock with competent rock confirmed at 0.5m bgl. No made ground, odours, positive PID readings or staining was recorded in the excavated arisings and therefore no samples were collected.

3.7.3. No indications of contamination were noted in HS8 during the trial pitting exercise, however it is likely that this does not accurately represent the conditions underlying the former AST due to the constraints described above. Once the ledge upon which the AST was located is made accessible, further investigation should be carried out to determine the potential for secondary contamination sources in this area.

3.8. Hotspot #9 Trial Pitting & Soils Analysis

3.8.1. Hotspot #9 (HS9) is located in the centre of the site and comprises an area of former USTs which were present to the west of Building 8 (now demolished). The contents of the USTs have not been specified but at some point during the site's history (prior to 2003) they were infilled with concrete. The only previous intrusive investigation carried out in this area detailed in the reviewed reports was by ESNR (2003) during which the presence of elevated TEX hydrocarbons were identified in the bedrock at 3m bgl as well as high concentrations of ethylbenzene and xylenes in the shallow groundwater.

3.8.2. SGP attended site on 01.12.20 to investigate the area further which comprised the excavation of a single trial pit (HS9-TP1). Made ground comprising a thin veneer of brown, sandy, gravel of sandstone (0.1m) and an underlying 0.5m thick stratum of black, gravelly, sandy clay was initially removed followed by excavation of the underlying natural soils which consisted of a slightly

gravelly, sandy clay. Sandstone bedrock was encountered at 2.5m bgl and the trial pit could not be progressed further.

3.8.3. A slight odour was noted in the made ground which continued into the natural clays and strengthened towards the base of the trial pit. This was reflected in the PID readings which recorded the presence of VOCs in the made ground at 10.6ppm rising to 187ppm in the natural clay.

3.8.4. Two samples were collected from the HS9-TP1 trial pit from both the made ground and the underlying natural clay soils (refs: HS9-TP1-S1 & HS9-TP1-S2) targeted at the most significantly impacted materials (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS9 area. The relevant soil analysis certificate (ref: 20/16893) is included in Appendix C.

3.8.5. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.22 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.22 Hotspot #9 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.005
Toluene	S4UL Residential	130	0.079-0.589
Ethylbenzene	S4UL Residential	47	0.008-0.091
m/p-xylene	S4UL Residential	59	0.030-0.301
o-xylene	S4UL Residential	56	<0.004-0.051
aliphatic >C5-C6	S4UL Residential	42	<0.1
aliphatic >C6-C8	S4UL Residential	100	<0.1-0.1
aliphatic >C8-C10	S4UL Residential	27	0.1-0.3
aliphatic >C10-C12	S4UL Residential	130	<0.2-27.4
aliphatic >C12-C16	S4UL Residential	1,100	<4-6
aliphatic >C16-C21	S4UL Residential	65,000	<7-10
aliphatic >C21-C35	S4UL Residential	65,000	<7-68
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1
aromatic >C8-C10	S4UL Residential	34	<0.1
aromatic >C10-C12	S4UL Residential	74	<0.2-10
aromatic >C12-C16	S4UL Residential	140	5-8
aromatic >C16-C21	S4UL Residential	260	<7-14
aromatic >C21-C35	S4UL Residential	1,100	<7-91
Naphthalene	S4UL Residential	2.3	<0.01-0.126

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Fluorene	S4UL Residential	170	<0.01-0.05
Phenanthrene	S4UL Residential	95	<0.01-0.501
Anthracene	S4UL Residential	2,400	<0.01-0.129
Fluoranthene	S4UL Residential	280	<0.01-0.621
Pyrene	S4UL Residential	620	<0.01-0.595
Benzo(a)anthracene	S4UL Residential	7.2	<0.01-0.293
Chrysene	S4UL Residential	15	<0.01-0.278
Benzo(b)fluoranthene	S4UL Residential	2.6	<0.01-0.253
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.098
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-0.144
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.071
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.027
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.091
Phenols	S4UL Residential	280	<0.01-0.035

Notes to table:

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.8.6. Various hydrocarbons have been identified above laboratory detection limits; however no exceedances of residential screening criteria have been reported for any of the TPHCWG hydrocarbons or target list VOCs / SVOCs (for which criteria are available) tested for.

3.8.7. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the vast majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.23 Hotspot #9 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS9-TP1-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	389
HS9-TP1-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	60
HS9-TP1-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	67
HS9-TP1-S2	629-96-9	1-Eicosanol	VOC	Alcohol	852

3.8.8. Of the possible VOCs / SVOCs suggested by the TIC analysis and those identified as part of the Target List analysis for which there are no GAC, none were present above 1mg/kg. The source of these contaminants is unclear considering the uncertainty of the chemicals contained within the HS9 USTs, but they may be residues from chemicals previously stored / spilled in the area or, given the low concentrations, impurities in these.

Table 3.24 Hotspot #9 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50	None
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.8.9. Glycols were not present above laboratory detection limits in either of the samples collected from the HS9 area.

3.8.10. In summary, a variety of organic compounds have been detected (i.e. hydrocarbons), however with regards to the determinants for which there are GAC, none have been identified above residential screening criteria. The VOCs / SVOCs detected for which there are no GAC have all been identified at very low concentrations (<1mg/kg) and glycols were not present above laboratory detection limits. However, based on the elevated PID readings of both the made ground and particularly the natural clay soils, remediation works will still be required in this area and will be targeted to the removal of hydrocarbons to risk-based remedial targets.

3.9. Hotspot #10 Trial Pitting & Soils Analysis

3.9.1. Hotspot #10 (HS10) comprises the northern part of former Building 7 in the centre-north of the site which previously housed a solvent drum filling room and associated ASTs. A previous intrusive investigation carried out by ESNR (2003) detected the presence of elevated BTEX compounds in this area, although this was not repeated in the e3p (2017) investigation during which no significant soil contamination was identified.

3.9.2. SGP attended site on 30.09.20 to investigate the area further which comprised the excavation of four trial pits (HS10-TP1 to TP4). Initially the concrete slab (0.1-0.15m) was broken out and the underlying made ground was removed until the excavations could not be progressed due to the presence of significant obstructions, competent bedrock, or as a result of trial pit flooding. Bedrock was confirmed at 1.2m bgl in HS10-TP2 but could not be confirmed in either TP1 or TP3 due to the presence of a large, suspected relict culvert which could not be removed (at 0.8m & 1.6m bgl, respectively), or in TP4 due to the rapid inflow of potentially contaminated water from a suspected broken relict fuel line at 1.1m bgl.

3.9.3. The made ground was highly variable in the HS10 area comprising sandy / sandstone gravels, clayey, gravelly sands, gravelly clays, and brick fills. Grey staining of the made ground in the eastern sidewall of TP4 was noted at between 0.3-1.2m bgl. The presence of weathered sandstone bedrock was confirmed in 2 locations: the western part of TP1 from 0.3-0.8m bgl and situated above the bedrock in TP2 at between 0.8-1.2m bgl. Silvery-green staining was also noted on the weathered bedrock in TP2.

- 3.9.4. A moderate hydrocarbon odour was noted in the made ground of TP1 and very strong hydrocarbon odours were noted in both the made ground and underlying weathered sandstone bedrock in TP2. This corresponds with where the highest PID readings were recorded in HS10 with maximum values of 269ppm in TP1 and 1,348ppm in TP2, both from the made ground soils. No odours were noted in the arisings of TP3 and TP4 and the maximum PID readings from these trial pits was 3ppm, although the water which ingressed into TP4 from the broken suspected relict fuel line was noted to be both black and very odorous.
- 3.9.5. Two soil samples were collected from trial pits TP1 and TP2 (refs: HS10-TP1-S1 & HS10-TP2-S1) which were targeted at the most significantly impacted materials (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS10 area. The relevant soil analysis certificate (ref: 20/13383) is included in Appendix C.
- 3.9.6. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to generic assessment criteria (GAC) for human health (S4ULs) in Table 3.25 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the vast majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.25 Hotspot #10 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.003
Toluene	S4UL Residential	130	12.3-53.9
Ethylbenzene	S4UL Residential	47	2.3-54.7
m/p-xylene	S4UL Residential	59	15.4-55.3
o-xylene	S4UL Residential	56	5.6-40.5
aliphatic >C5-C6	S4UL Residential	42	<1-2.9
aliphatic >C6-C8	S4UL Residential	100	12.9-278.4
aliphatic >C8-C10	S4UL Residential	27	8.4-150.3
aliphatic >C10-C12	S4UL Residential	130	10.8-708.4
aliphatic >C12-C16	S4UL Residential	1,100	<4-328
aliphatic >C16-C21	S4UL Residential	65,000	<7-61
aliphatic >C21-C35	S4UL Residential	65,000	23-134
aromatic >C5-C7	S4UL Residential	70	<1
aromatic >C7-C8	S4UL Residential	130	3.9-291.4
aromatic >C8-C10	S4UL Residential	34	9.9-192.6
aromatic >C10-C12	S4UL Residential	74	16.3-197.2
aromatic >C12-C16	S4UL Residential	140	12-84
aromatic >C16-C21	S4UL Residential	260	13-128

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aromatic >C21-C35	S4UL Residential	1,100	<7-96
Naphthalene	S4UL Residential	2.3	0.017-1.994
Acenaphthene	S4UL Residential	210	<0.01-0.725
Fluorene	S4UL Residential	170	<0.01-0.598
Phenanthrene	S4UL Residential	95	0.098-2.947
Anthracene	S4UL Residential	2,400	<0.01-0.426
Fluoranthene	S4UL Residential	280	0.071-2.946
Pyrene	S4UL Residential	620	0.115-2.535
Benzo(a)anthracene	S4UL Residential	7.2	0.081-1.024
Chrysene	S4UL Residential	15	0.067-1.035
Benzo(b)fluoranthene	S4UL Residential	2.6	0.04-1.116
Benzo(k)fluoranthene	S4UL Residential	77	0.15-0.434
Benzo(a)pyrene	S4UL Residential	2.2	0.029-0.933
Indeno(123cd)pyrene	S4UL Residential	27	0.012-0.406
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.131
Benzo(ghi)perylene	S4UL Residential	320	0.018-0.544
Phenols	S4UL Residential	280	0.124-6.835
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.020
Tetrachloroethene (PCE)	S4UL Residential	0.18	0.018-0.117
Vinyl Chloride	S4UL Residential	0.00064	<0.002-0.010
1,2-Dichlorobenzene	S4UL Residential	23	<0.004-0.451
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-1.293

Notes to table:

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.9.7. Multiple exceedances of residential screening criteria have been confirmed for aliphatic and aromatic C6-12 hydrocarbons, ethylbenzene, and the chlorinated solvents TCE and vinyl chloride ranging from the minor (TCE) to the highly significant (i.e. C8-C10 hydrocarbons and vinyl chloride).

3.9.8. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.26 Hotspot #10 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS10-TP2-S1	156-59-2	cis-1-2-Dichloroethene	VOC	Haloalkene	<3-112

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS10-TP2-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	<10-204
HS10-TP2-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	<10-278
HS10-TP1-S1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	449
HS10-TP2-S1	3944-37-4	1-Propanol, 2-(1-methylethoxy)-	VOC	Alcohol with methyl and ethoxy groups	273
HS10-TP2-S1	78-92-2	2-Butanol	VOC	Alcohol	301
HS10-TP2-S1 & HS10-TP2-S1	67-64-1	Acetone	VOC	Ketone	351-2,115
HS10-TP1-S1	141-63-9	Pentasiloxane, dodecamethyl-	SVOC	Organo-siloxane	318
HS10-TP1-S1	85-44-9	Phthalic anhydride	SVOC	Carbonyl / Phthalate intermediate	1,409
HS10-TP1-S1	1000382-55-3	Phthalic acid, 8-bromooctyl isobutyl ester	SVOC	Phthalate with bromooctyl & isobutyl branches	330
HS10-TP2-S1	84-64-0	1,2-Benzenedicarboxylic acid, butyl cyclohexyl ester	SVOC	Ester	1,862
HS10-TP2-S1	10436-09-6	trans-13-Docosenamide	SVOC	Amide	2,804

3.9.9. In addition to those identified as part of the Target List analysis for which there are no GAC, a variety of possible VOCs / SVOCs have also been suggested by the TIC analysis which include, but are not limited to: haloalkenes, ethers, alcohols, esters, amides, ketones and organo-siloxanes; however, none of the identified contaminants were present in excess of 3 mg/kg. It is suspected that these may be residues from the chemicals stored / spilled in the area or, given the relatively low concentrations, impurities present in these.

Table 3.27 Hotspot #10 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50-65	HS10-TP2-S1
Propylene glycol	<50-657	HS10-TP2-S1
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.9.10. Two of the glycols tested for were identified above laboratory detection limits (monoethylene glycol and propylene glycol), however these were present at low concentrations (<1 mg/kg) and are therefore not considered to be indicative of a significant pollution risk in the context of the more elevated concentrations of other contaminants identified.

3.9.11. Due to the inflow of suspected contaminated water into HS10-TP4 from a severed relict pipeline (described as black and odorous), an aqueous sample was collected from this trial pit for TPHCWG, VOC and SVOC analysis (ref: HS10-TP4-WS1). The relevant laboratory analysis certificate (ref: 20-13383) is attached in Appendix C and the results of the VOC / SVOC target list (only including compounds with results above analytical limit of detections) and TPHCWG analysis are summarised in Table 3.28 below.

Table 3.28 Summary of Hotspot #10 VOC/SVOC Target List and TPHCWG Analysis Results (Aqueous)

Contaminant	Range of concentrations (µg/l)	Contaminant	Range of concentrations (µg/l)
Benzene	16.9	aromatic >C21-C35	10
Toluene	10,351	Methyl tert-butyl ether	69.6
Ethylbenzene	1,173	Dichlorodifluoromethane	10
m/p-xylene	5,662	Vinyl Chloride	1.6
o-xylene	1,865	cis-1-2-Dichloroethene	5
aliphatic >C5-C6	2,450	Propylbenzene	50
aliphatic >C6-C8	7,940	1,2,4-Trimethylbenzene	1014
aliphatic >C8-C10	2,931	2-Methylphenol	81.3
aliphatic >C10-C12	728	2,4-Dimethylphenol	68
aliphatic >C12-C16	230	4-Methylphenol	189
aliphatic >C16-C21	260	Phenol	13
aliphatic >C21-C35	820	2-Methylnaphthalene	4
aromatic >C5-C6	617	Naphthalene	13
aromatic >C6-C8	15,021	Phenanthrene	1
aromatic >C8-C10	11,150	Pyrene	0.6
aromatic >C10-C12	1,385	Bis(2-ethylhexyl) phthalate	41
aromatic >C12-C16	20	1,2-Dichlorobenzene	1
aromatic >C16-C21	10		

3.9.12. The TPHCWG and VOC / SVOC Target List analysis of sample HS10-TP4-S1 predominantly determined the presence of hydrocarbons across a range of fractions. Several VOCs and SVOCs were also detected (including halogenated compounds) but at generally much lower concentrations.

3.9.13. Interpretation of the TIC results indicate that the majority of detected VOCs / SVOC TICs fall into the various TPHCWG bands, those which do not are summarised in Table 3.29 below.

Table 3.29 Summary of Hotspot #10 Non-TPHCWG VOC / SVOC TICs (Aqueous)

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/l)
HS10-TP4-WS1	67-64-1	Acetone	VOC	Ketone	2,297
HS10-TP4-WS1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	174
HS10-TP4-WS1	67-63-0	Isopropyl Alcohol	VOC	Alcohol	855

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/l)
HS10-TP4-WS1	10544-50-0	Cyclic octaatomic sulphur	SVOC	Homonocyclic Sulphur	363

3.9.14. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with functional groups including ketones and alcohols (as well as homonocyclic sulphur) have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of the more elevated concentrations of other contaminants identified.

Table 3.30 Hotspot #10 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	15	HS10-TP4-WS1
Propylene glycol	<10	None
Diethylene glycol	11	HS10-TP4-WS1
Triethylene glycol	<10	None
Thiodiglycol	<10	None

3.9.15. Two of the glycols tested for were identified above laboratory detection limits (monoethylene glycol and diethylene glycol), however these were present at very low concentrations and are again not considered to be indicative of a significant pollution risk in the context of other, more concentrated contaminants identified.

3.9.16. In summary, the primary contaminants of concern identified in HS10 are aliphatic and aromatic C6-12 hydrocarbons which were associated with very high PID readings in excess of 1,000ppm. Although chlorinated solvents were detected, these were present at much lower concentrations. Groundwater sampling in the area will include analysis for the wider range of organic compounds including TICs; however, based on the current information, remediation works will be targeted to the removal of hydrocarbons to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances present. If significantly higher concentrations of chlorinated solvents are detected during the groundwater monitoring, then these will be added to the Remediation criteria.

3.10. Hotspot #11 Trial Pitting & Soils Analysis

3.10.1. Hotspot #11 (HS11) comprises an area in the north of the site where a solvent recovery plant and a bulk storage tank farm was previously located. Previous intrusive investigations carried out by ESNR (2003) and e3p (2014 & 2017) identified the presence of elevated hydrocarbons (including BTEX) in the groundwater in this area and low hydrocarbon / VOC concentrations in

the soils (in the ESNR investigation only, no significant soil contamination was identified during either of the e3p investigations).

- 3.10.2. SGP attended site over three separate dates (25.11.20, 01.12.20 & 07.12.20) to investigate the area further which comprised the excavation of a total of ten trial pits (HS11-TP1 to TP10). Initially the concrete slab (0.15-0.25m) was broken out and the underlying made ground / natural superficial deposits were removed until the excavations could not be progressed due to the presence of competent rock. Bedrock was confirmed at depths of between 0.4m bgl (TP7) and 2.7m bgl (TP6 & TP10).
- 3.10.3. Underlying the concrete hardstanding, the made ground (where present) typically comprised a sandstone gravel fill to depths of 0.4-0.5m bgl (TP4-6 & TP8-10); the exception to this was a black, gravelly, slightly clayey, ashy sand present beneath the hardstanding in TP1 and TP3 to depths of 0.45m-0.5m bgl. Deeper deposits of made ground were only noted in TP5 (black, clayey, sandy gravel with cobbles of red brick to 0.85m bgl) and TP6 (slightly gravelly, clayey sand to 0.7m bgl, underlain by a reworked, slightly gravelly, sandy clay to 1.9m bgl).
- 3.10.4. Natural superficial deposits consisted of either an orangish-brown, grey-mottled, slightly gravelly, sandy clay to a maximum depth of 2.7m bgl (TP1-6 & TP8), a slightly clayey, gravelly sand with frequent cobbles of sandstone (TP9 only, 0.65-1.5m bgl), or a cobbly, sandy gravel of weathered sandstone bedrock at depths ranging from 0.2m bgl to 2.7m bgl (TP1, TP7, TP8 & TP10). Silver staining of the natural superficial deposits was noted towards the base of three trial pits - HS11-TP8 (1.1-1.6m bgl), TP9 (1.9-2.3m bgl) and TP10 (1.6-2.7m bgl).
- 3.10.5. With the exception of TP6 where no significant indicators of contamination were observed during the excavation, strong hydrocarbon odours were noted in every trial pit through both the made ground and natural strata. The maximum PID readings of the arisings from these trial pits ranged from between 268-4,085ppm with the highest readings typically recorded at the base of the trial pits suggesting likely impacts to the underlying sandstone bedrock.
- 3.10.6. Either one or two samples were collected from each of the ten trial pits targeted at the most significantly impacted made ground and / or natural materials (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS11 area and to help determine the depth profile of the contamination encountered. The relevant soil analysis certificates (20/16571, 20/16893 & 20/17261) are included in Appendix C.
- 3.10.7. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.31 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the vast majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied;

others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.31 Hotspot #11 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.003-0.361
Toluene	S4UL Residential	130	0.102-50.491
Ethylbenzene	S4UL Residential	47	0.042-64.551
m/p-xylene	S4UL Residential	59	0.030-153.308
o-xylene	S4UL Residential	56	<0.004-69.244
aliphatic >C5-C6	S4UL Residential	42	<0.1-9
aliphatic >C6-C8	S4UL Residential	100	<0.1-368
aliphatic >C8-C10	S4UL Residential	27	<0.1-233.9
aliphatic >C10-C12	S4UL Residential	130	<0.2-1,981.9
aliphatic >C12-C16	S4UL Residential	1,100	<4-68
aliphatic >C16-C21	S4UL Residential	65,000	<7-31
aliphatic >C21-C35	S4UL Residential	65,000	<7-385
aromatic >C5-C7	S4UL Residential	70	<1
aromatic >C7-C8	S4UL Residential	130	<1-817.2
aromatic >C8-C10	S4UL Residential	34	<1-616.2
aromatic >C10-C12	S4UL Residential	74	<0.2-410.4
aromatic >C12-C16	S4UL Residential	140	<4-32
aromatic >C16-C21	S4UL Residential	260	<7-30
aromatic >C21-C35	S4UL Residential	1,100	<7-505
Naphthalene	S4UL Residential	2.3	<0.01-2.555
Acenaphthene	S4UL Residential	210	<0.01-0.102
Fluorene	S4UL Residential	170	<0.01-0.128
Phenanthrene	S4UL Residential	95	<0.01-1.056
Anthracene	S4UL Residential	2,400	<0.01-0.234
Fluoranthene	S4UL Residential	280	<0.01-1.36
Pyrene	S4UL Residential	620	<0.01-1.257
Benzo(a)anthracene	S4UL Residential	7.2	<0.01-0.714
Chrysene	S4UL Residential	15	<0.01-0.681
Benzo(b)fluoranthene	S4UL Residential	2.6	<0.01-0.748
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.291
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-0.606
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.27
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.104
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.362
Phenols	S4UL Residential	280	<0.01-2.861
1,1,1-Trichloroethane	S4UL Residential	8.8	<0.003-0.172
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.784

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Tetrachloroethene (PCE)	S4UL Residential	0.18	<0.003-0.519
1,2-Dichlorobenzene	S4UL Residential	23	<0.004-0.196
1,3-Dichlorobenzene	S4UL Residential	0.4	<0.004-0.162
1,4-Dichlorobenzene	S4UL Residential	61	<0.004-0.026
Chloroform	S4UL Residential	0.91	<0.003-0.058
1,2-Dichloroethane	S4UL Residential	0.0071	<0.004-0.144
Chlorobenzene	S4UL Residential	0.46	<0.003-0.668
Dichloromethane	NA	NA	<0.03-0.140
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-1.905

Notes to table:

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.10.8. Multiple exceedances of residential screening criteria have been confirmed for aliphatic and aromatic C6-12 fraction hydrocarbons, BTEX compounds, naphthalene and the chlorinated solvents TCE, PCE, chlorobenzene and 1,2-dichloroethane, although the latter are present at much lower concentrations.

3.10.9. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.32 Hotspot #11 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS11-TP1-S1, HS11-TP2-S1, HS11-TP3-S2, HS11-TP4-S2 & HS11-TP5-S2	156-59-2	cis-1-2-Dichloroethene	VOC	Haloalkene	6-17
HS11-TP3-S2, HS11-TP4-S2 & HS11-TP5-S2	75-71-8	Dichlorodifluoromethane	VOC	Chlorofluorocarbon	3-86

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS11-TP1-S1, HS11-TP1-S2, HS11-TP2-S1, HS11-TP2-S2, HS11-TP4-S1, HS11-TP4-S2, HS11-TP8-S2, HS11-TP9-S1, HS11-TP9-S2 & HS11-TP10-S1	1634-04-4	Methyl Tertiary Butyl Ether	VOC	Ether	4-220
HS11-TP3-S2 & HS11-TP9-S1	75-34-3	1,1-Dichloroethane	VOC	Haloalkane	7-14
HS11-TP9-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	193
HS11-TP1-S1, HS11-TP3-S1 & HS11-TP5-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	20-140
HS11-TP1-S1, HS11-TP2-S1, HS11-TP3-S1, HS11-TP4-S1, HS11-TP5-S1, HS11-TP7-S1, HS11-TP8-S1 & HS11-TP9-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	11-78
HS11-TP4-S1 & HS11-TP8-S1	78-59-1	Isophorone	SVOC	Ketone	144-168
HS11-TP1-S2, HS11-TP9-S2 & HS11-TP10-S1	67-64-1	Acetone	VOC	Ketone	132-1,431
HS11-TP1-S2, HS11-TP9-S2 & HS11-TP10-S1	67-63-0	Isopropyl Alcohol	VOC	Alcohol	220-921
HS11-TP2-S1 & HS11-TP3-S1	121-44-8	Triethylamine	VOC	Organic amine	945-3,684
HS11-TP4-S2, HS11-TP5-S2, HS11-TP9-S2 & HS11-TP10-S1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	235-6,266
HS11-TP5-S2	108-20-3	Diisopropyl ether	VOC	Ether	166
HS 11-TP6-S1	78-93-3	2-Butanone	VOC	Ketone	235
HS11-TP7-S1	13395-76-1	Cyclohexanone, 2,3- dimethyl-	VOC	Aromatic ketone	466

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS11-TP9-S2	109-99-9	Tetrahydrofuran	VOC	Cyclic ether	155
HS11-TP10-S1	98277-76-0	Ether, 2-chloro-1-methylethyl isopropyl	VOC	Halogenated ether	253
HS11-TP10-S1	78-92-2	2-Butanol	VOC	Alcohol	151
HS11-TP3-S1, HS11-TP4-S1 & HS11-TP5-S1	102-82-9	Tributylamine	SVOC	Organic amine	196-1,505
HS11-TP3-S1	128-37-0	Butylated Hydroxytoluene	SVOC	Alcohol	234
HS11-TP3-S1	132-65-0	Dibenzothiophene	SVOC	Aromatic organosulfur	193
HS11-TP3-S1	10544-50-0	Cyclic octaatomic sulfur	SVOC	Homocyclic Sulphur	3,585
HS11-TP4-S1	85-44-9	Phthalic anhydride	SVOC	Carbonyl / Phthalate intermediate	306
HS11-TP4-S1	584-84-9	Benzene, 2,4-diisocyanato-1-methyl-	SVOC	Benzene ring with 2 cyanate groups	195
HS11-TP4-S1	119-61-9	Benzophenone	SVOC	Aromatic ketone	333
HS11-TP4-S1	80-05-7	Phenol, 4,4'-(1-methylethylidene)bis-	SVOC	Phenol	366
HS 11-TP5-S1	2783-26-8	2-Tolyloxirane	SVOC	Epoxide (cyclic ether)	492
HS 11-TP5-S1	38861-78-8	4'-(2-Methylpropyl)acetophenone	SVOC	Aromatic ketone	3,327
HS 11-TP5-S1	36039-36-8	Benzeneethanol, beta.-methyl-4-(2-methylpropyl)- (aka Ibuprofen)	SVOC	Alcohol	491
HS 11-TP5-S1	70362-45-7	2,2',3,6-Tetrachloro-1,1'-biphenyl	SVOC	Haloarene	358
HS 11-TP6-S1	98-89-5	Cyclohexanecarboxylic acid	SVOC	Cyclic carboxylic acid	251
HS11-TP8-S1	556-67-2	Cyclotetrasiloxane, octamethyl-	SVOC	Cyclic organic siloxane	223
HS11-TP8-S2	91-76-9	1,3,5-Triazine-2,4-diamine, 6-phenyl-	SVOC	Organic amine	253
HS11-TP8-S2	1235-74-1	Methyl dehydroabietate	SVOC	Ester	669
HS11-TP9-S1	20294-32-0	6-Methyl-4-indanol	SVOC	Alcohol	592
HS11-TP9-S1	88-99-3	1,2-Benzenedicarboxylic acid	SVOC	Phthalic acid	460
HS11-TP9-S1	584-84-9	Benzene, 2,4-diisocyanato-1-methyl-	SVOC	Benzene ring with 2 cyanate groups	329
HS11-TP9-S1	41604-19-7	4-Bromo-2-fluorobiphenyl	SVOC	Haloarene	201

- 3.10.10. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with various functional groups including alcohols, ketones, cyanates, carboxylic acids, amines, ethers and esters have also been suggested but at low concentrations in comparison to the levels of hydrocarbon contamination detected (maximum individual contaminant concentration = 6.3mg/kg). Halogenated compounds have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of the more elevated concentrations of other identified contaminants.

Table 3.33 Hotspot #11 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50-1,293	HS11-TP2-S1, HS11-TP2-S2, HS11-TP3-S1, HS11-TP5-S2, HS11-TP9-S1 & HS11-TP10-S1
Propylene glycol	<50-424	HS11-TP1-S1, HS11-TP2-S1, HS11-TP7-S1, HS11-TP9-S1, HS11-TP9-S2 & HS11-TP10-S1
Diethylene glycol	<50-69	HS11-TP2-S1
Triethylene glycol	<50	None
Thiodiglycol	<50	None

- 3.10.11. Three of the glycols tested for were identified above laboratory detection limits (monoethylene glycol, diethylene glycol and propylene glycol), however these were present at low concentrations (<2 mg/kg) and are therefore not considered to be indicative of a significant pollution risk in the context of the more elevated concentrations of other contaminants identified.
- 3.10.12. In summary, the primary contaminants of concern identified in HS11 are aliphatic and aromatic C6-12 and BTEX hydrocarbons. Although chlorinated solvents were detected these were at much lower concentrations. Groundwater sampling in the area will include analysis for the wider range of organic compounds including TICs. Based on the current information remediation works will be targeted to the removal of hydrocarbons to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances presents. If significantly higher concentrations of chlorinated solvents are detected during the monitoring, then these will be added to the Remediation criteria.

3.11. Hotspot #13 Trial Pitting & Soils Analysis

- 3.11.1. Hotspot #13 (HS13) comprises an area in the centre-north of the site where a waste sludge reclamation plant was located to the north of former Building 7. The only intrusive investigation carried out in this area in the reviewed reporting was by ESNR (2003) during which no significant soil contamination was identified.

- 3.11.2. SGP attended site over two separate dates (30.09.20 & 25.11.20) to investigate the area further which comprised the excavation of two trial pits (refs: HS13-TP1 & TP12). In TP1, the concrete slab was broken out (0.2m) and the underlying made ground removed until the excavation could not be progressed due to the limit constraints of the excavator (4.1m bgl). Granular made ground was present at the site surface in TP2 which was excavated to 2.7m bgl where the excavation was terminated due to the rapid inflow of water. The depth to bedrock was therefore not confirmed in either trial pit.
- 3.11.3. The made ground in TP1 comprised a sandstone gravel fill to 0.7m bgl underlain by a grey-black, soft, wet, sandy, gravelly clay with pockets of black sand, frequent cobbles of brick, and occasional metal and wood. In TP2, only one stratum of made ground was encountered consisting of a black, gravelly, cobbly, slightly clayey, ashy sand with pockets of orange clay, inclusions of metal (including a degraded drum) and boulders of stone masonry.
- 3.11.4. Strong hydrocarbon odours were noted in the arisings of both trial pits at between 0.7-4.1m bgl in TP1 and throughout the entire depth profile of TP2. The maximum PID readings recorded from each trial pit were 143.8ppm (TP1; 1.2m bgl) and 227.7ppm (TP2; 1.4m bgl).
- 3.11.5. A sample was collected from each trial pit targeted at the most significantly impacted made ground (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS13 area. The relevant soil analysis certificates (20/13383 & 20/16571) are included in Appendix C.
- 3.11.6. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.34 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.34 Hotspot #13 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	0.005-0.046
Toluene	S4UL Residential	130	0.133-8.569
Ethylbenzene	S4UL Residential	47	0.402-58.461
m/p-xylene	S4UL Residential	59	3.546-155.835
o-xylene	S4UL Residential	56	2.209-2.471
aliphatic >C5-C6	S4UL Residential	42	<0.1-0.2
aliphatic >C6-C8	S4UL Residential	100	1.1-5.1
aliphatic >C8-C10	S4UL Residential	27	25.1-191.9
aliphatic >C10-C12	S4UL Residential	130	570.9-1,964.1
aliphatic >C12-C16	S4UL Residential	1,100	253-616
aliphatic >C16-C21	S4UL Residential	65,000	113-379

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aliphatic >C21-C35	S4UL Residential	65,000	110-386
aromatic >C5-C7	S4UL Residential	70	<1
aromatic >C7-C8	S4UL Residential	130	<0.1-3
aromatic >C8-C10	S4UL Residential	34	2-35.9
aromatic >C10-C12	S4UL Residential	74	102.4-442.7
aromatic >C12-C16	S4UL Residential	140	89-185
aromatic >C16-C21	S4UL Residential	260	73-504
aromatic >C21-C35	S4UL Residential	1,100	77-925
Naphthalene	S4UL Residential	2.3	2.367-2.466
Acenaphthene	S4UL Residential	210	<0.5
Fluorene	S4UL Residential	170	<0.5
Phenanthrene	S4UL Residential	95	1.276-5.707
Anthracene	S4UL Residential	2,400	0.176-3.271
Fluoranthene	S4UL Residential	280	0.666-2.896
Pyrene	S4UL Residential	620	0.763-3.260
Benzo(a)anthracene	S4UL Residential	7.2	0.449-3.312
Chrysene	S4UL Residential	15	0.334-1.724
Benzo(b)fluoranthene	S4UL Residential	2.6	0.368-1.798
Benzo(k)fluoranthene	S4UL Residential	77	0.143-0.699
Benzo(a)pyrene	S4UL Residential	2.2	0.314-1.418
Indeno(123cd)pyrene	S4UL Residential	27	0.138-0.632
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.5
Benzo(ghi)perylene	S4UL Residential	320	0.188-0.774
Phenols	S4UL Residential	280	<0.01-27.642
Tetrachloroethene (PCE)	S4UL Residential	0.18	<0.003-0.031
Chloromethane	CL:AIRE	0.0083	<0.003-0.011
Bis(2-ethylhexyl) phthalate	NA	BA	<5 (& 0.126)

Notes to table:

S4UL: LQM / CIEH Suitable for Use Levels (S4ULs); residential with plant uptake land use (at 1% SOM). Copyright land quality management limited reproduced with permission publication number S4UL 3102. All rights reserved.

3.11.7. Multiple exceedances of residential screening criteria have been confirmed for aliphatic C8-12 hydrocarbons, aromatic C8-21 hydrocarbons, ethylbenzene, m/p-xylene, naphthalene and the chlorinated solvent chloromethane. These have ranged from the minor (e.g. naphthalene) to the highly significant (i.e. aliphatic C8-12 hydrocarbons).

3.11.8. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.35 Hotspot #13 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS13-TP1-S1 & HS13-TP2-S1	75-71-8	Dichlorodifluoromethane	VOC	Chlorofluorocarbon	44-1,750
HS13-TP2-S1	1634-04-4	Methyl Tertiary Butyl Ether	VOC	Ether	<2-5
HS13-TP2-S1	75-00-3	Chloroethane	VOC	Haloalkane	<2-9
HS13-TP1-S1	84-74-2	Di-n-butyl phthalate	SVOC	Ester	<5000
HS13-TP1-S1 & HS13-TP2-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	87-5,633
HS13-TP1-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	<500
HS13-TP1-S1	n/a	Nonadecyl pentafluoropropionate	VOC	Halogenated ester	6,565
HS13-TP1-S1	85-44-9	Phthalic anhydride	SVOC	Carbonyl / Phthalate intermediate	8,863
HS13-TP1-S1	91-08-7	Benzene, 1,3-diisocyanato- 2-methyl-	SVOC	Benzene ring with 2 cyanate groups	3,393
HS13-TP1-S1	584-84-9	Benzene, 2,4-diisocyanato- 1-methyl-	SVOC	Benzene ring with 2 cyanate groups	38,116
HS13-TP1-S1	5400-75-9	2H-Benzimidazol-2-one, 1,3-dihydro-5-methyl-	SVOC	Aromatic amide	1,204
HS13-TP1-S1	112-84-5	13-Docosenamide, (Z)-	SVOC	Amide	1,150
HS13-TP2-S1	526-75-0	Phenol, 2,3-dimethyl-	SVOC	Alcohol	17,375
HS13-TP2-S1	1470-94-6	1H-Inden-5-ol, 2,3-dihydro-	SVOC	Alcohol	22,695
HS13-TP2-S1	491-35-0	Quinoline, 4-methyl-	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	20,339
HS13-TP2-S1	1455-18-1	3-Methylbenzothiophene	SVOC	Aromatic hydrocarbon fused with thiophene ring	6,476
HS13-TP2-S1	20294-32-0	6-Methyl-4-indanol	SVOC	Alcohol	146,679
HS13-TP2-S1	18272-83-8	Benzene, 1-methoxy-4-(1- methyl-2-propenyl)-	SVOC	Benzene ring with attached methoxy, methyl & phenyl groups	40,918
HS13-TP2-S1	18657-09-5	Benzene, 1-(1-butenyl)-4- methoxy-, trans-	SVOC	Benzene ring with attached methoxy and butenyl groups	17,166
HS13-TP2-S1	580-51-8	3-Hydroxybiphenyl	SVOC	Alcohol	109,486
HS13-TP2-S1	91902-42-0	4-Cyclohepta-2,4,6-trienyl- phenol	SVOC	Alcohol	80,350
HS13-TP2-S1	71153-40-7	2,5-Dimethyl-4-(4- aminophenyl)pyridine	SVOC	Aromatic organic amine with nitrogen-substituted benzene ring	89,496

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS13-TP2-S1	19817-12-0	1,2,3,4-Tetrahydrophenanthren-9-ol	SVOC	Alcohol	128,314
HS13-TP2-S1	51557-26-7	2-Propenoic acid, 3-(2-naphthalenyl)-	SVOC	Carboxylic acid	23,122
HS13-TP2-S1	1689-64-1	9H-Fluoren-9-ol	SVOC	Alcohol	28,213
HS13-TP2-S1	7372-88-5	Dibenzothiophene, 4-methyl-	SVOC	Aromatic organosulfur	70,452
HS13-TP2-S1	838-88-0	Benzenamine, 4,4'-methylenebis[2-methyl-	SVOC	Aromatic organic amine	8,310
HS13-TP2-S1	36093-99-9	4-Thiazolemethanol, 2-(4-chlorophenyl)-	SVOC	Alcohol and haloarene attached to central thiazole ring.	26,135
HS13-TP2-S1	22037-06-5	Selenocyanic acid, p-(ethylmethylamino)phenyl ester	SVOC	Selenocyanate attached to aromatic amine.	19,603

3.11.9. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. However, relatively high concentrations of a number of other organic compounds with various functional groups including, but not limited to, alcohols, cyanates, carboxylic acids, amides, ethers and esters have also been suggested. These were generally at low concentrations in comparison to the levels of hydrocarbon contamination detected, although some have been detected at significant concentrations and in some instances above 100mg/kg, including: 6-Methyl-4-indanol (147mg/kg), 3-Hydroxybiphenyl (109mg/kg) and 1,2,3,4-Tetrahydrophenanthren-9-ol (147mg/kg). Halogenated compounds have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of the more elevated concentrations of other identified contaminants.

3.11.10. The wide range of contaminants identified may be as a result of the former operations which occurred in this part of the site (waste sludge reclamation) or may be symptomatic of impacts from the area of landfilling directly to the north.

Table 3.36 Hotspot #13 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50	None
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.11.11. Glycols were not present above laboratory detection limits in the samples collected from HS13.

3.11.12. In summary, the primary contaminants of concern identified in HS13 are hydrocarbons across a wide range of fractions, although other substances were detected at lower levels (i.e. chloromethane). Groundwater sampling in the area will include analysis for the wider range of organic compounds including TICs; however, based on the current information, remediation works will be targeted to the removal of hydrocarbons to risk-based remedial targets and the associated removal of the much lower concentrations of other substances present as co-contaminants should be sufficient to reduce risks from all substances present. If significantly higher concentrations of organic contaminants are detected during the monitoring, then these will be added to the Remediation criteria.

3.12. Hotspot #14 Trial Pitting & Soils Analysis

3.12.1. Hotspot #14 (HS14) comprises an area in the north of the site where drum crushing plant was previously located. The intrusive investigation carried out by ESNR (2003) identified traces of TEX hydrocarbons in the soils in this area, however this was not repeated in the e3p (2017) investigation during which no significant soil contamination was identified.

3.12.2. SGP attended site over two separate dates (23.11.20 & 07.12.20) to investigate the area further which comprised the excavation of six trial pits (refs: HS14-TP1 to TP6). Made ground was present within each trial pit to varying depths (0.2-2.9m bgl) which was excavated along with the underlying natural superficial deposits (where present) until the excavations could not be progressed due to the presence of competent rock. Bedrock was confirmed at depths of between 1.4m bgl (TP1) and 2.9m bgl (TP4).

3.12.3. With the exception of TP6 where a concrete slab (0.2m) present at the site surface, made ground topsoil comprising a dark brown, gravelly, slightly sandy, silty clay was present in each trial pit to depths of between 0.2-0.5m bgl. Deeper deposits of made ground which was variable in nature were present in trial pits 3-6 to a maximum depth of 2.9m bgl and comprised either of the following:

- Grey-black sandy gravelly clay fill with frequent roots, cobbles of brick and sandstone masonry and inclusions of metal and wood;
- Combination of brown grey-mottled sandy clay and light brown / grey sandy cobbly sandstone gravel fill;
- Black ashy gravel.

3.12.4. Natural superficial deposits were present in trial pits 1-3 and 5 and consisted of either a slightly gravelly, sandy clay between 0.2-2.5m bgl (TP1, TP2 and TP5), or a sandy gravel of weathered sandstone bedrock between 1.2-2.7m bgl (TP1 & TP5).

- 3.12.5. Odours were generally absent with the only exception being from the made ground arisings of TP6 (0.2-2.1m bgl) where a slight to moderate hydrocarbon odour was noted. This is anticipated to be associated with the relict pipework encountered in this trial pit at 1.1m bgl and corresponds with where the highest PID reading in HS14 was recorded (48.23ppm). PID readings of the arisings of the other trial pits were generally below detection limits (<0.1ppm) and in all cases (other than TP6) were below 3ppm. The only other potential contamination indicator noted was the presence of silver-stained soils within the made ground of TP4 (1.7-2.4m bgl), although this was suspected to be from a relatively small volume of paint.
- 3.12.6. A sample was collected from each trial pit (with the exception of TP2) targeted at the most significantly impacted made ground (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the HS14 area. The relevant soil analysis certificates (20/16413 & 20/17261) are included in Appendix C (sample refs: HS14-TP1-S1, HS14-TP3-S1, HS14-TP4-S1, HS14-TP5-S1 & HS14-TP6-S1).
- 3.12.7. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.37 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.37 Hotspot #14 Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.003
Toluene	S4UL Residential	130	<0.003-0.228
Ethylbenzene	S4UL Residential	47	<0.003-0.019
m/p-xylene	S4UL Residential	59	<0.005-0.075
o-xylene	S4UL Residential	56	<0.003-0.018
aliphatic >C5-C6	S4UL Residential	42	<0.1
aliphatic >C6-C8	S4UL Residential	100	<0.1-0.1
aliphatic >C8-C10	S4UL Residential	27	<0.1-0.7
aliphatic >C10-C12	S4UL Residential	130	<0.2-12.4
aliphatic >C12-C16	S4UL Residential	1,100	<4-6
aliphatic >C16-C21	S4UL Residential	65,000	<7
aliphatic >C21-C35	S4UL Residential	65,000	<7
aromatic >C5-C7	S4UL Residential	70	<1
aromatic >C7-C8	S4UL Residential	130	<1
aromatic >C8-C10	S4UL Residential	34	<1
aromatic >C10-C12	S4UL Residential	74	<0.2
aromatic >C12-C16	S4UL Residential	140	<4
aromatic >C16-C21	S4UL Residential	260	<7-9

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
aromatic >C21-C35	S4UL Residential	1,100	<7-48
Naphthalene	S4UL Residential	2.3	<0.01-0.08
Acenaphthylene	S4UL Residential	170	<0.01-0.025
Acenaphthene	S4UL Residential	210	<0.01-0.104
Fluorene	S4UL Residential	170	<0.01-0.083
Phenanthrene	S4UL Residential	95	<0.01-0.776
Anthracene	S4UL Residential	2,400	<0.01-0.160
Fluoranthene	S4UL Residential	280	<0.01-1.121
Pyrene	S4UL Residential	620	<0.01-1.090
Benzo(a)anthracene	S4UL Residential	7.2	<0.01-0.568
Chrysene	S4UL Residential	15	<0.01-0.630
Benzo(b)fluoranthene	S4UL Residential	2.6	<0.01-0.640
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.249
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-0.574
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.281
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.096
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.391
Phenols	S4UL Residential	280	<0.01-0.018
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.488
Chloromethane	CL:AIRE	0.0083	<0.003-0.006
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-3.094

Notes to table:

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3.12.8. Various hydrocarbons have been identified above laboratory detection limits; however, no exceedances of residential screening criteria have been reported for any of the TPHCWG / BTEX hydrocarbons or PAHs tested for. The only exceedance identified in the VOC / SVOC Target List analysis was for the chlorinated solvent TCE in sample HS14-TP1-S1 which was collected from natural sandy clay between 0.2-1.2m bgl.

3.12.9. Assessment of the TIC interpretation analysis results indicates the presence of compounds within the SVOC class only. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.38 Hotspot #14 Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS14-TP4-S1	75-71-8	Dichlorodifluoromethane	VOC	Chlorofluorocarbon	3

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
HS14-TP3-S1 & HS14-TP4-S1	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	35-52
HS14-TP3-S1 & HS14-TP4-S1	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	20-59
HS14-TP1-S1		Phthalic acid, isobutyl octyl ester	SVOC	Phthalate	1,106
HS14-TP3-S1	239-35-0	Benzo[b]naphtho[2,1- d]thiophene	SVOC	Aromatic organosulfur	162

3.12.10. Of the possible SVOCs suggested in the TIC analysis and those identified as part of the Target List analysis for which there are no GAC, none were present in excess of 1.2 mg/kg. The source of these contaminants is unclear considering the known former usage of the area, but they may be residues from chemicals previously stored / spilled in the area.

Table 3.39 Hotspot #14 Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50-169	HS14-TP6-S1
Propylene glycol	<50	None
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.12.11. Monoethylene glycol is the only glycol tested for identified above laboratory detection limits, however this was present at the trace concentration of 0.17mg/kg and is not considered to be indicative of a significant pollution risk.

3.12.12. In summary, the only contaminant of concern identified above residential screening was the chlorinated solvent TCE, however this was only detected in one sample and was below detection limits in all 4 of the other samples collected from HS14 (<0.003mg/kg). Specific remedial measures during the earthworks stage are therefore not envisaged but measures will be required to be implemented during the construction phase of development which are likely to consist of engineered soil cover systems and vapour resistant membranes to be installed in future dwellings.

3.13. Quarry Trial Trenching & Soils Analysis

3.13.1. The former rock quarry which was latterly used as a refuse tip from the 1960's onwards (suspected to be completely infilled by 1982) is located in the north of the site. The intrusive investigations carried out by ESNR (2003) and e3p (2014 & 2017) did not establish the depth of the former quarry, but minor levels of hydrocarbons were detected in the area.

- 3.13.2. SGP attended site over two separate dates (23.03.2020 & 28.09.20) to investigate the area further which comprised the excavation of two trial trenches (refs: QTT1 & QTT2). Although the trenches were initially excavated in March, at this time they were only extended to shallow depth and were subsequently completed in September. Made ground was generally present to unproven depths within each trial trench (recorded to a maximum depth of approximately 4m bgl), although bedrock was encountered at between 1.8m to 2.7m bgl in the northwest / centre-north of the former quarry in QTT1. Where the depth of made ground was not proven, the trenches were excavated until they could not be progressed further due to the instability of the sidewalls causing collapse.
- 3.13.3. The made ground encountered was variable in nature and generally comprised the following constituent soil types:
- Brown, slightly clayey, sandy gravel (at the site surface to 0.15m-0.3m bgl);
 - Gravelly sand (locally described as cobbly and with pockets of sandy clay);
 - Grey-black / black, ashy gravel (locally described as oily);
 - Grey-black, organic, gravelly clay.
- 3.13.4. Various inclusions were also recorded in the different soil types described above including stone cobbles, red brick, metal, ceramic, tree branches and roots. Olfactory indicators of contamination were noted in QTT1 (slight to moderate hydrocarbon odours) and QTT2 (strong organic odour - associated with soils described as silvery in appearance). Positive PID readings ranged from 4.9ppm to 345ppm with the highest reading recorded in the made ground described as having a moderate hydrocarbon odour in QTT1.
- 3.13.5. Natural superficial deposits were limited to a sandy gravel of sandstone with cobbles of sandstone (weathered bedrock) in QTT1 in the northwest of the quarry at depths of between 1.7m-2.7m bgl located above the proven bedrock.
- 3.13.6. A total of six samples were collected from the trial trenches (refs: Q-TT1-S01, Q-TT2-S01, QTT1-S1 & S2, QTT1-S1 & S2) targeted at the most significantly impacted made ground (as assessed through odour, appearance and PID readings). This was to provide a realistic worst-case assessment of secondary soil sources within the former quarry. The relevant soil analysis certificates (20/4457 & 20/13273) are included in Appendix C.
- 3.13.7. The maximum concentrations of the TPHCWG and VOC / SVOC Target List analysis results are compared to GAC for human health (S4ULs) in Table 3.40 below, where available (Target List compounds are only included in the table if detected). Interpretation of the TIC results indicate that the majority of the VOC and SVOC TICs fall into the various TPHCWG bands applied; others, and target list substances for which no assessment criteria are available, are discussed below.

Table 3.40 Quarry Area Analysis Results Summary for Compounds for which GAC is Available

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Benzene	S4UL Residential	0.087	<0.003-0.151
Toluene	S4UL Residential	130	<0.003-43.686
Ethylbenzene	S4UL Residential	47	0.007-54.594
m/p-xylene	S4UL Residential	59	0.038-94.576
o-xylene	S4UL Residential	56	0.028-38.305
aliphatic >C5-C6	S4UL Residential	42	<0.1-0.3
aliphatic >C6-C8	S4UL Residential	100	<0.1-8.8
aliphatic >C8-C10	S4UL Residential	27	0.4-16.7
aliphatic >C10-C12	S4UL Residential	130	<0.2-1,853.8
aliphatic >C12-C16	S4UL Residential	1,100	<4-229
aliphatic >C16-C21	S4UL Residential	65,000	<7-59
aliphatic >C21-C35	S4UL Residential	65,000	<7-78
aromatic >C5-C7	S4UL Residential	70	<0.1
aromatic >C7-C8	S4UL Residential	130	<0.1-44.4
aromatic >C8-C10	S4UL Residential	34	<0.1-67
aromatic >C10-C12	S4UL Residential	74	<0.2-658
aromatic >C12-C16	S4UL Residential	140	<4-125
aromatic >C16-C21	S4UL Residential	260	<7-78
aromatic >C21-C35	S4UL Residential	1,100	<7-202
Naphthalene	S4UL Residential	2.3	0.033-4.789
Acenaphthylene	S4UL Residential	170	<0.01-0.41
Acenaphthene	S4UL Residential	210	<0.01-0.81
Fluorene	S4UL Residential	170	0.019-1.042
Phenanthrene	S4UL Residential	95	0.05-4.804
Anthracene	S4UL Residential	2,400	<0.01-1.31
Fluoranthene	S4UL Residential	280	0.036-5.395
Pyrene	S4UL Residential	620	0.039-4.584
Benzo(a)anthracene	S4UL Residential	7.2	0.042-2.239
Chrysene	S4UL Residential	15	0.026-2.04
Benzo(b)fluoranthene	S4UL Residential	2.6	0.023-2.184
Benzo(k)fluoranthene	S4UL Residential	77	<0.01-0.849
Benzo(a)pyrene	S4UL Residential	2.2	<0.01-1.964
Indeno(123cd)pyrene	S4UL Residential	27	<0.01-0.878
Dibenzo(ah)anthracene	S4UL Residential	0.24	<0.01-0.313
Benzo(ghi)perylene	S4UL Residential	320	<0.01-0.977
Phenols	S4UL Residential	280	<0.01-2.103
Vinyl Chloride	S4UL Residential	0.00064	<0.002-0.020
Trichloroethene (TCE)	S4UL Residential	0.016	<0.003-0.070
Tetrachloroethene (PCE)	S4UL Residential	0.18	<0.003-0.052
1,2-Dichloroethane	S4UL Residential	0.0071	<0.003-0.073

Contaminant	Soil standard source	Screening Concentration (mg/kg or indicated)	Concentration Range (mg/kg or indicated)
Chlorobenzene	S4UL Residential	0.46	<0.003-0.293
Bis(2-ethylhexyl) phthalate	NA	NA	<0.1-0.151

Notes to table:

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3.13.8. Multiple exceedances of residential screening criteria have been confirmed for a range of aliphatic and aromatic hydrocarbons, BTEX compounds, naphthalene, dibenzo(ah)anthracene and the chlorinated solvents TCE, vinyl chloride and 1,2-dichloroethane. These have ranged from the minor (e.g. dibenzo(ah)anthracene) to the highly significant (i.e. C10-12 aliphatic hydrocarbons and vinyl chloride).

3.13.9. Assessment of the TIC interpretation analysis results indicates the presence of compounds within both the VOC and SVOC classes. The individual substances are represented by the various TPHCWG fractions in the majority of cases and further assessment of these is not required. The TICs that do not fall into these classes of substances, as well as the detected target list substances for which no assessment criteria are available, are listed below:

Table 3.41 Quarry Area Analysis Results Summary for Non-TPHCWG (S)VOCs for which GAC is Unavailable

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
QTT1-S1, QTT1-S2, QTT2-S1 & QTT2-S2	75-71-8	Dichlorodifluoromethane	VOC	Chlorofluorocarbon	11-173
QTT1-S1	1634-04-4	Methyl Tertiary Butyl Ether	VOC	Ether	35
QTT1-S1	75-69-4	Trichlorofluoromethane (aka freon-11)	VOC	CFC	12
QTT1-S1 & QTT2-S1	156-60-5	trans-1-2-Dichloroethene	VOC	Haloalkene	9-86
QTT1-S1 & QTT2-S1	156-59-2	cis-1-2-Dichloroethene	VOC	Haloalkene	23-119
QTT2-S1 & QTT2-S2	86-74-8	Carbazole	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	261-477
Q-TT2-S01, QTT1-S1 QTT1-S2, QTT2-S1 & QTT2-S2	132-64-9	Dibenzofuran	SVOC	Cyclic diaryl ether	14-732
QTT1-S1	108-10-1	Methyl Isobutyl Ketone	VOC	Ketone	1,264

Detects (Sample ref(s))	CAS No	Name	VOC / SVOC	Class	Concentration Range (µg/kg)
QTT2-S1 & QTT2-S2	132-65-0	Dibenzothiophene	SVOC	Aromatic organosulfur	442-446
QTT2-S1 & QTT2-S2	10544-50-0	Cyclic octaatomic sulfur	SVOC	Homocyclic Sulphur	424-568
QTT2-S1	239-35-0	Benzo[b]naphtho[2,1-d]thiophene	SVOC	Aromatic organosulfur	298
QTT1-S1 QTT2-S1 & QTT2-S2	479-79-8	11H-Benzo[a]fluoren-11-one	SVOC	Aromatic ketone	313-416
QTT2-S1 & QTT2-S2	243-42-5	Benzo[b]naphtho[2,3-d]furan	SVOC	Aromatic hydrocarbon fused to furan ring	476-565
Q-TT2-S01	321-60-8	1,1'-Biphenyl, 2-fluoro-	SVOC	Haloarene	5,212
Q-TT2-S01	6626-23-9	Naphthalene, 1-(chloromethyl)-2-methyl-	SVOC	Haloarene	409
QTT2-S1	7320-53-8	Dibenzofuran, 4-methyl-	SVOC	Cyclic diaryl ether	392
QTT2-S1	3218-36-8	[1,1'-Biphenyl]-4-carboxaldehyde	SVOC	Biphenyl with carboxaldehyde group.	289
QTT2-S1	486-25-9	9H-Fluoren-9-one	SVOC	Aromatic ketone	169
QTT2-S1	313-80-4	Naphtho(2,1,8-def)quinoline	SVOC	Nitrogen-substituted polycyclic aromatic hydrocarbon	204
QTT2-S1	301-02-0	9-Octadecenamide, (Z)-	SVOC	Amide	2,034
QTT2-S2	20294-32-0	6-Methyl-4-indanol	SVOC	Alcohol	390
QTT2-S2	834-14-0	Benzene, 1-methoxy-4-(phenylmethyl)-	SVOC	Ether	435
QTT2-S2	112-84-5	13-Docosenamide, (Z)-	SVOC	Aliphatic amide	1,959

3.13.10. The majority of the contaminants identified as part of the VOC / SVOC TIC analysis were aliphatic and aromatic hydrocarbons contained within the banded hydrocarbon ranges discussed above. Organic compounds with various functional groups including, but not limited to, alcohols, ketones, amides and ethers have also been suggested, however these were at low concentrations in comparison to the levels of hydrocarbon contamination detected. Halogenated compounds have also been detected but at low concentrations not deemed likely to cause any significant pollution issues in the context of the more elevated concentrations of other identified contaminants.

Table 3.42 Quarry Area Glycols Analysis Results Summary

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Monoethylene glycol	<50	None
Propylene glycol	<50	None

Contaminant	Concentration Range (µg/kg)	Detects (Sample ref(s))
Diethylene glycol	<50	None
Triethylene glycol	<50	None
Thiodiglycol	<50	None

3.13.11. Glycols were not present above laboratory detection limits in the samples collected from the former quarry area.

4. Conclusions

- 4.1. Previous investigations had not provided sufficient coverage of the identified potential hotspots to adequately characterise the potential to act as significant pollution sources. The trial pitting and sampling carried out was intended to identify what substances are of concern by comparison of concentrations to residential criteria, and whether other substances for which no criteria are available are present at significant concentrations.
- 4.2. The assessment has confirmed the presence of significant primary contaminant sources in the remaining USTs in the south of the site and secondary soil sources in some of the locations elsewhere within Phase 2.

Table 1.1 Summary of findings Potential or Known Contamination "Hot-spots"

Hotspot ref:	Feature	SI findings
Quarry	Former rock quarry, latterly used as a refuse tip	Could not excavate to full depth -moderate concentrations of hydrocarbons and some other VOCs/SVOCs encountered.
#1	Former reservoir; underground storage tanks (USTs) for white spirit, antifreeze (MEG) and methanol; above ground storage tanks (ASTs) including heating oil; antifreeze mixing area	Tanks confirmed to contain product, specifically hydrocarbons and glycols; other tanks contain contaminated water - significant source
#2	Drum compound	Hydrocarbons and lower concentrations of VOCs confirmed
#3	Fuel oil AST	Not accessible
#4	Diesel AST	Low concentrations of contaminants detected
#5	Kerosene AST	Low concentrations of contaminants detected
#6	ASTs for dichloromethane (DCM), white spirit, kerosene, sodium silicate and heating oil - located between former mill buildings	Very high concentrations of Phthalates present with hydrocarbons and glycols - significant source
#7	Electrical transformer and diesel AST on side of mill building	Trace PCBs and low concentrations of other contaminants
#8	Disused AST (contents unknown) on lodge dam	Not accessible
#9	USTs infilled with concrete near boiler house	Low concentrations of contaminants detected

#10	Solvent filling room and ASTs	High concentrations of hydrocarbons and low concentrations of other contaminants, PID readings >1,000ppm- significant source
#11	Solvent recovery plant and tank farm (various ASTs and pipework)	High concentrations of hydrocarbons and low concentrations of other contaminants, PID readings >1,000ppm- significant source
#13	Waste sludge reclamation plant	High concentrations of hydrocarbons and other substances - significant source
#14	Drum crushing plant	Hydrocarbons and lower concentrations of VOCs confirmed

- 4.3. The most significant pollutant sources identified are HS #1, #6, #10, #11 & #13. These have been positively identified as having very high concentration of various contaminants, mostly hydrocarbons, but also Glycols (HS1) and Phthalates (HS6). Lower concentrations of other co-contaminants are present at all locations but at much lower concentrations.
- 4.4. Further assessment through groundwater monitoring is scheduled to take place in order to confirm whether the substances detected are viable pollution sources in respect of groundwater but it is evident that these locations (HS1, HS6, HS10, HS11 & HS13) will require remediation by removal of primary and secondary soil sources in accordance with the provisions of the ORS. Other measures may also be required depending on the residual concentrations in comparison to risk-based Remediation Criteria and the degree of impact to groundwater.
- 4.5. Excavation to the full depth of the quarry was not possible and two other locations (#3 & #8) were inaccessible at the time of the investigation, further investigations of the potential for these areas to contain significant contamination sources will be required.

5. Recommendations

- 5.1. Further investigation and assessment are required to confirm risks to controlled waters: these are to include the installation of monitoring wells upstream, within, and downstream of the three major source areas identified in the south (HS1), central area (HS6) and north of the site. (HS10, HS11 and HS13 being treated as a single large hotspot).
- 5.2. Notwithstanding the findings of the above and the outcome of further risk assessment, it is apparent that significant works to reduce or remove the primary and secondary soil sources present in these areas is required.
- 5.3. For area HS1, the USTs will require emptying and purging before their removal, then, in common with HS6 and HS10-11-13, excavation of impacted soils (defined by visual observations and PID readings) for removal or treatment under the provisions of the ORS can be carried out. Collection of verification samples from the bases and sidewalls of all such excavations will be required and the potential for the residual concentrations to cause pollution and/or harm will be assessed. The latter also being determined through measurement of impacts to groundwater and surface water.
- 5.4. The other areas will still require examination during breaking out of the remaining relict structures (floor slabs, foundations) and excavation / replacement of made ground. The Quarry should be investigated through deep boreholes and HS Records of PID readings and observations should be maintained to provide additional confidence that other significant sources are absent. It is considered that a watching brief will be required for all of the initial break-out operations within Phase 2.
- 5.5. The observations and testing results from these exercises and the general inspections of the preparatory earthworks within Phase 2 will be compiled into an enabling remediation earthworks verification report for issue to the regulators for approval. This will confirm the construction-stage mitigation measures required to manage residual risks to human health.
- 5.6. Based on current concentrations, the north western, central and southern parts of the site require hydrocarbon VOC vapour resistant membranes as part of the gas protection measures. An investigation of ground gas and VOC vapour concentrations remains to be completed within Phase 2 and it is envisaged that this will be completed following the enabling and remediation earthworks. This will inform which plots require VOC resistant membranes in addition to the site-wide will require CS2 / NHBC Amber 1 gas protection measures as a precaution based on the gas monitoring undertaken.

6. Limitations

6.1. Stratigraphy and Contamination Distribution

6.1.1. The evidence of stratigraphy is taken from discrete borehole and trial pit locations, and largely from factual information provided by other parties. Whilst it is usually reasonable to infer that similar conditions may extend between these locations; caution should be exercised.

6.1.2. The site investigations involved sampling at discrete locations, and it should be recognised that further areas or types of contamination may exist between investigation positions. The analyses performed are drawn from a typical suite of tests used to screen potentially contaminated land, presumably to fall within the available budget. It is always possible that other substances may be present that have not been included within the standard range of tests.

6.2. Gas and Groundwater

6.2.1. Any comments made on gas and/or groundwater conditions are based on observations or tests made at the time that the work was carried out. It should be noted that gas concentrations and pressures and groundwater levels and concentrations of substances may vary according to seasonal or weather related effects, sometimes in an unpredictable fashion.

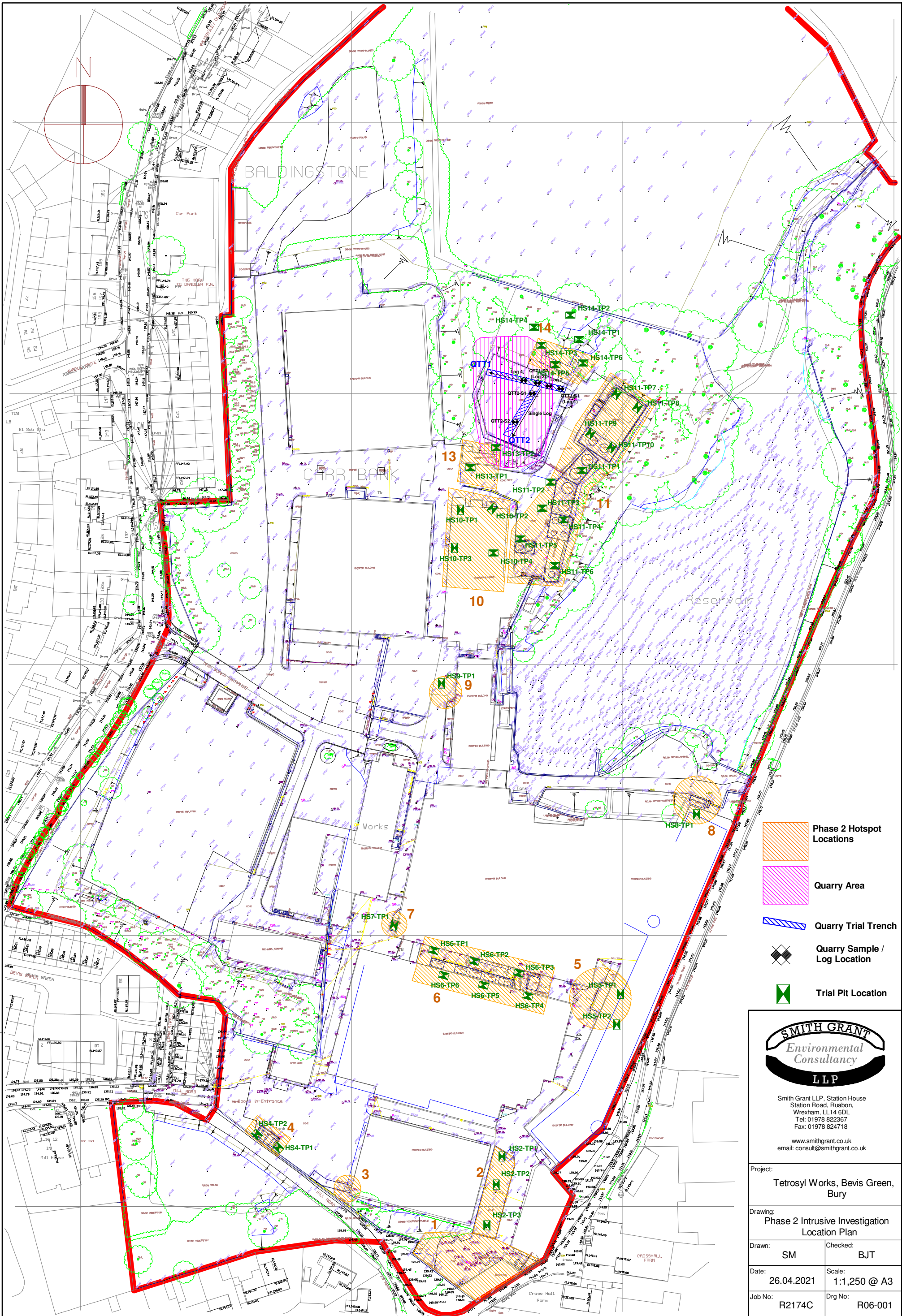
6.3. General

6.3.1. This report partially reviews and relies upon information provided by others. Smith Grant LLP accepts no responsibility for advice given on the basis of incorrect factual information provided to it.

6.3.2. This report has been prepared by SGP for the sole and exclusive use of Urban Regen Ltd, and Barratt Developments PLC. Reasonable skill, care and diligence has been exercised within the budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

6.3.3. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

DRAWINGS

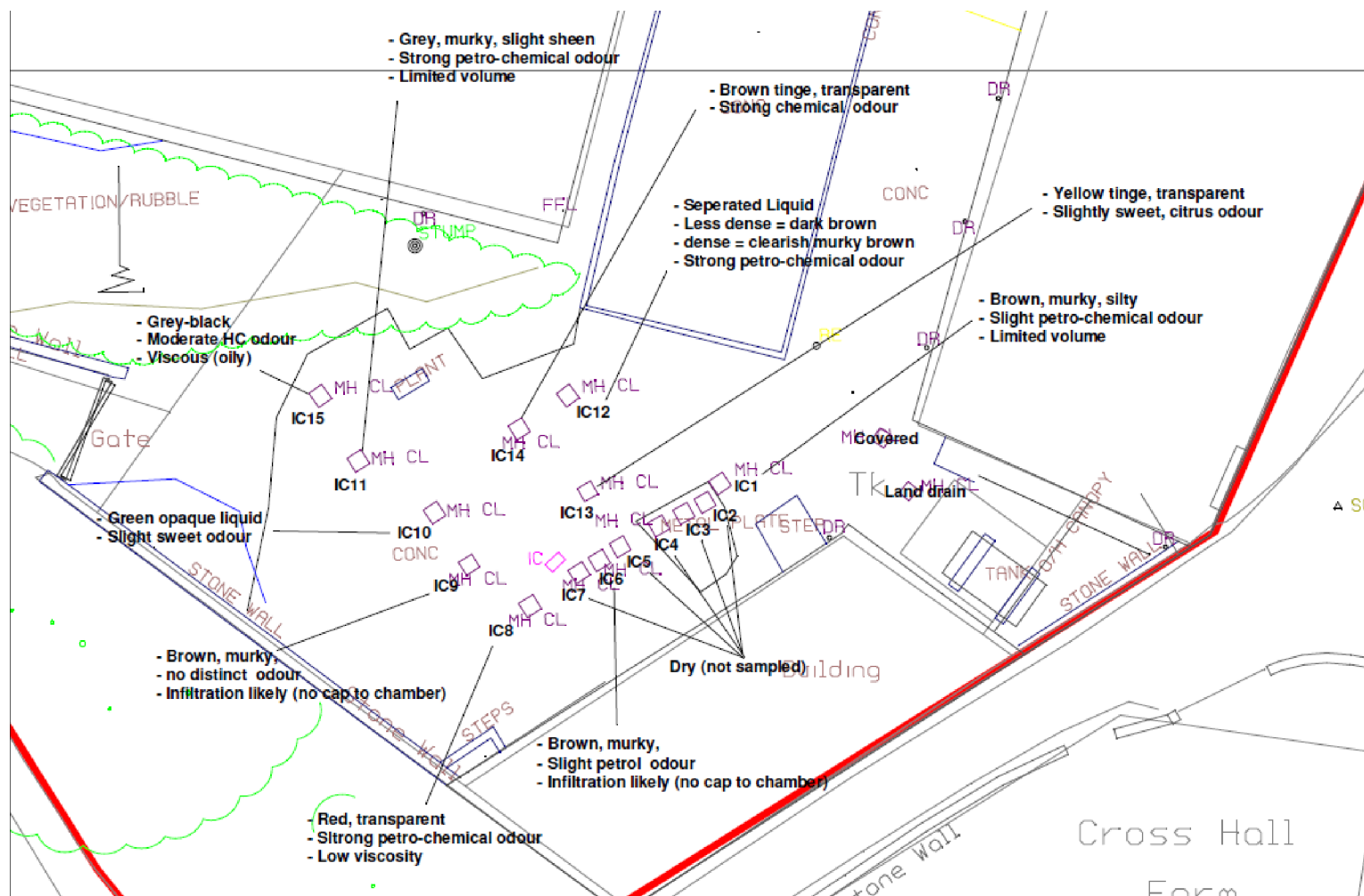
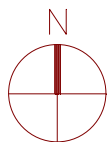


- Phase 2 Hotspot Locations
- Quarry Area
- Quarry Trial Trench
- Quarry Sample / Log Location
- Trial Pit Location

SMITH GRANT
Environmental
Consultancy
LLP

Smith Grant LLP, Station House
Station Road, Ruabon,
Wrexham, LL14 6DL
Tel: 01978 822367
Fax: 01978 824718
www.smithgrant.co.uk
email: consult@smithgrant.co.uk

Project: Tetrosyl Works, Bevis Green, Bury	
Drawing: Phase 2 Intrusive Investigation Location Plan	
Drawn: SM	Checked: BJT
Date: 26.04.2021	Scale: 1:1,250 @ A3
Job No: R2174C	Dwg No: R06-001



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Station House
Station Road, Ruabon
Wrexham, LL14 6DL
Tel: 01978 822367
Fax: 01978 824718

www.smithgrant.co.uk
email: info@smithgrant.co.uk

Project:
Tetrosyl, Bury

Drawing:
Hotspot #1 UST Location Plan

Drawn: SM	Checked: BJT
Date: 26.04.2021	Scale: NTS
Job No: R2174C	Drg No: R06-002

APPENDIX A

Hotspot Photo Records

Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 17.06.20 & 01.07.20	Hotspot ref: HS1	Compiled By: SM
Lab ref: 20-7814 & 20-8505		Samples: IC1-S1, IC6-S1, IC8-S1, IC9-S1, IC10-S1, IC11-S1, IC12-S1, IC13-S1, IC14-S1 & IC15-S1	

Inspection Chambers 1-7



Inspection Chamber 8



Inspection Chambers 9-11



Inspection Chamber 12



Inspection Chamber 13



Inspection Chamber 14



Inspection Chamber 15



Inspection Chamber 8 Sample



Inspection Chamber 10 Sample



Inspection Chamber 12 Sample



Inspection Chamber 14 Sample



Inspection Chamber 15 Sample



Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 09.12.20	Hotspot ref: HS2	Compiled By: SM
Lab ref: 20/17443		Samples: HS2-TP1-S1, HS2-TP2-S1, HS2-TP3-S1 & HS2-TP4-S1	

Trial Pit 1 Location



Trial Pit 1 Pit (1/2)



Trial Pit 1 Pit (2/2)



Trial Pit 1 Arisings



Trial Pit 2 Location



Trial Pit 2 Pit (1/2)



Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



Trial Pit 3 Location



Trial Pit 3 Pit (1/2)



Trial Pit 3 Pit (2/2)



Trial Pit 3 Arisings



Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 09.12.20	Hotspot ref: HS4	Compiled By: SM
Lab ref: 20/17443		Samples: HS4-TP1-S1	
Trial Pit 1 Location 	Trial Pit 1 Pit (1/2) 	Trial Pit 1 Pit (2/2) 	
Trial Pit 1 Arisings 	Trial Pit 2 Location 	Trial Pit 2 Pit (1/2) 	

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



Photograph

Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 08.12.20	Hotspot ref: HS5	Compiled By: SM
Lab ref: 20/17443			Samples: HS5-TP1-S1 & HS5-TP2-S1	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		Trial Pit 2 Location 		Trial Pit 2 Pit (1/2) 

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



NO PHOTOGRAPH

Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 08.12.20	Hotspot ref: HS6	Compiled By: SM
Lab ref: 20/17443		Samples: HS6-TP1-S1, HS6-TP3-S1, HS6-TP4-S1, HS6-TP5-S1 & HS6-TP6-S1	

Trial Pit 1 Location



Trial Pit 1 Pit (1/2)



Trial Pit 1 Pit (2/2)



Trial Pit 1 Arisings



Trial Pit 2 Location



Trial Pit 2 Pit



Trial Pit 2 Arisings



Trial Pit 3 Location



Trial Pit 3 Pit (1/2)



Trial Pit 3 Pit (2/2)



Trial Pit 3 Arisings



Trial Pit 4 Location



Trial Pit 4 Pit (1/2)



Trial Pit 4 Pit (2/2)



Trial Pit 4 Arisings (1/2)



Trial Pit 4 Arisings (2/2)



Trial Pit 5 Location



Trial Pit 5 Pit (1/2)



Trial Pit 5 Pit (2/2)



Trial Pit 5 Arisings



NO PHOTOGRAPH

Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 08.12.20	Hotspot ref: HS7	Compiled By: SM
Lab ref: 20/17443			Samples: HS7-TP1-S1	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		NO PHOTOGRAPH		NO PHOTOGRAPH

Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 07.12.20	Hotspot ref: HS8	Compiled By: SM
Lab ref: n/a		Samples: n/a	
Trial Pit 1 Location 	Trial Pit 1 Pit 	Trial Pit 1 Arisings 	

Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 01.12.20	Hotspot ref: HS9	Compiled By: SM
Lab ref: 20/16893			Samples: HS9-TP1-S1& HS9-TP1-S2	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		NO PHOTOGRAPH		NO PHOTOGRAPH

Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 30.09.20	Hotspot ref: HS10	Compiled By: SM
Lab ref: 20/13383			Samples: HS10-TP1-S1, HS10-TP2-S1 & HS10-TP4-WS1	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		Trial Pit 2 Location 		Trial Pit 2 Pit (1/2) 

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



Trial Pit 3 Location



Trial Pit 3 Pit (1/2)



Trial Pit 3 Pit (2/2)



Trial Pit 3 Arisings (1/2)



Trial Pit 3 Arisings (2/2)



Trial Pit 4 Location



Trial Pit 4 Pit (1/2)



Trial Pit 4 Pit (2/2)



Trial Pit 4 Arisings



Trial Pit 4 - Water ingress from broken pipe



Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 25.11.20, 01.12.20 & 07.12.20	Hotspot ref: HS11	Compiled By: SM
Lab ref: 20/16571, 20/16893 & 20/17261		Samples: HS11-TP1-S1 & S2, HS11-TP2-S1 & S2, HS11-TP3-S1 & S2, HS11-TP4-S1 & S2, HS11-TP5-S1 & S2, HS11-TP6-S1, HS11-TP1-S1, HS11-TP8-S1 & S2, HS11-TP9-S1 & S2 and HS11-TP10-S1	
Trial Pit 1 Location 	Trial Pit 1 Pit (1/2) 	Trial Pit 1 Pit (2/2) 	
Trial Pit 1 Arisings 	Trial Pit 2 Location 	Trial Pit 2 Pit (1/2) 	

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



Trial Pit 3 Location



Trial Pit 3 Pit (1/2)



Trial Pit 3 Pit (2/2)



Trial Pit 3 Arisings



Trial Pit 4 Location



Trial Pit 4 Pit (1/2)



Trial Pit 4 Pit (2/2)



Trial Pit 4 Arisings



Trial Pit 5 Location



Trial Pit 5 Pit (1/2)



Trial Pit 5 Pit (2/2)



Trial Pit 5 Arisings



Trial Pit 6 Location



Trial Pit 6 Pit (1/2)



Trial Pit 6 Pit (2/2)



Trial Pit 6 Arisings



Trial Pit 7 Location



Trial Pit 7 Pit



Trial Pit 7 Arisings



Trial Pit 8 Location



Trial Pit 8 Pit (1/2)



Trial Pit 8 Pit (2/2)



Trial Pit 8 Arisings



Trial Pit 9 Location



Trial Pit 9 Pit (1/2)



Trial Pit 9 Pit (2/2)



Trial Pit 9 Arisings



Trial Pit 10 Location



Trial Pit 10 Pit (1/2)



Trial Pit 10 Pit (1/2)



Trial Pit 10 Arisings



Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 30.09.20 & 25.11.20	Hotspot ref: HS13	Compiled By: SM
Lab ref: 20/13383 & 20/16571			Samples: HS13-TP1-S1 & HS13-TP2-S1	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		Trial Pit 2 Location 		Trial Pit 2 Pit (1/2) 

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



NO PHOTOGRAPH

Job ref: R2174C (Tetrosyl, Bury) – Phase 2		Date: 23/11/2020 & 07/12/2020	Hotspot ref: HS14	Compiled By: SM
Lab ref: 20/16413 & 20/17261			Samples: 20/16413 & 20/17261	
Trial Pit 1 Location 		Trial Pit 1 Pit (1/2) 		Trial Pit 1 Pit (2/2) 
Trial Pit 1 Arisings 		Trial Pit 2 Location 		Trial Pit 2 Pit (1/2) 

Trial Pit 2 Pit (2/2)



Trial Pit 2 Arisings



Trial Pit 3 Location



Trial Pit 3 Pit



Trial Pit 3 Arisings



Trial Pit 4 Location



Trial Pit 4 Pit (1/2)



Trial Pit 4 Pit (2/2)



Trial Pit 4 Arisings (1/2)



Trial Pit 4 Arisings (2/2)



Trial Pit 5 Location



Trial Pit 5 Pit (1/2)



Trial Pit 5 Pit (2/2)



Trial Pit 5 Arisings



Trial Pit 6 Location



Trial Pit 6 Pit (1/2)



Trial Pit 6 Pit (2/2)



Trial Pit 6 Arisings



Job ref: R2174C (Tetrosyl, Bury) – Phase 2	Date: 28.09.20	Hotspot ref: Quarry Area	Compiled By: SM
Lab ref: 20/13273		Samples: QTT1-S1 & S2, QTT2-S1 & S2	

Quarry Trial Trench 1 (East - Log 1 Area)



Quarry Trial Trench 1 (Centre-east - Log 2 Area)



Quarry Trial Trench 1 (Centre - Log 3 Area)



Quarry Trial Trench 1 (West - Log 4 Area)



Quarry Trial Trench 1 Arisings



Quarry Trial Trench 2 (North)



Quarry Trial Trench 2 (Centre)



Quarry Trial Trench 2 (South)



Quarry Trial Trench 2 Arisings



Appendix B

Trial Pit Logs

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM		JOB NO. R2174C	TRIAL PIT NO. HS2-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL		DATE: 09.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
	HS2-TP1-S1	PID up to 10.8ppm	0.00	MADE GROUND: Reinforced concrete.		
			0.2	MADE GROUND: Blackish-brown slightly clayey ashy sandy gravel with frequent cobbles of brick and frequent cobbles / boulders of sandstone between 0.3-0.9m bgl.		
0.5						
		PID up to 3.2ppm Broken relict cast iron water pipeline - flooded trial pit.	1.00			
			1.6	Trial pit ended @ 1.6m bgl due to flooding of trial pit - bedrock suspected at base but unable to confirm.		
			2.00			
			3.00			
			4.00			
			5.00			

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Environmental Consultancy

LLP

Smith Grant LLP
Station House, Station Road,
Ruabon, Wrexham LL146DL

Tel: 01978822367
Fax: 019788247182

www.smithgrant.co.uk
email: consult@smithgrant.co.uk

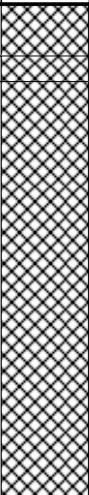
GROUND WATER:
No groundwater encountered.

REMARKS:

SCALE: 1:250

LOGGED BY: SM

FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS2-TP2
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 09.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS2-TP2-S1	PID up to 4.3ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Grey sandy gravel of sandstone.	
0.7				MADE GROUND: Combination of grey / orange gravelly sand and black ashy sandy gravel with frequent cobbles / boulders of sandstone and a pocket of silvery-blue clay from 0.3-0.7m bgl.	
			1.00		
			1.9	Trial pit ended @ 1.9m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT:	Tetrosyl, Bury		ENGINEER:	SM		JOB NO.	R2174C		TRIAL PIT NO.	
		EXCAVATED BY:	Hitachi excavator		CLIENT:	URL		DATE:	09.12.20		HS2-TP3	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS		DEPTH (m)	DESCRIPTION OF STRATA						LEGEND	
	HS2-TP3-S1	PID up to 1.9ppm		0.00	MADE GROUND: Reinforced concrete.							
0.5				0.2	MADE GROUND: Blackish-brown slightly clayey ashy sandy gravel with occasional cobbles of red brick and frequent cobbles / boulders of sandstone between 1.1-1.7m bgl.							
				PID up to 0.4ppm		1.00	Trial pit ended @ 1.7m bgl due to presence of competent sandstone bedrock.					
			1.7									
			2.00									
			3.00									
			4.00									
			5.00									

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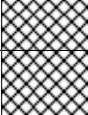
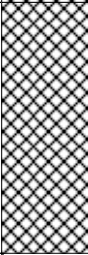
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email: consult@smithgrant.co.uk

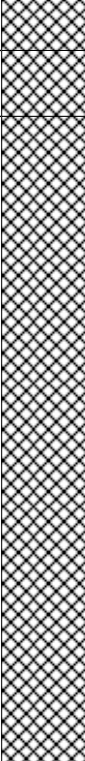
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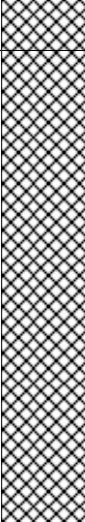
REMARKS:

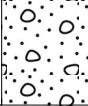
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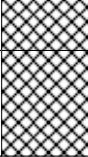
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS4-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 09.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Greyish-brown cobbly sandy gravel of sandstone	
			0.45	MADE GROUND: Blackish-brown ashy sandy gravel with occasional boulders of sandstone masonry.	
			1.00		
			1.4	Trial pit ended @ 1.4m bgl due to presence of obstruction (suspected large relict drain)	
			2.00		
			3.00		
			4.00		
			5.00		

 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: No groundwater encountered.		
	REMARKS:		
	SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS4-TP2
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 09.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
1	HS4-TP2-S1	PID up to 4.5ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Greyish-brown cobbly sandy gravel of sandstone	
			0.45	MADE GROUND: Black ashy sandy gravel with pocket of brown sand from 1.4m bgl.	
			1.00		
			2.00		
			2.9		
		PID up to 0.7ppm	3.00	Trial pit ended @ 2.9m bgl - unsafe to progress further due to presence of adjacent wall leading onto public footpath.	
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

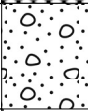
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS5-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		PID up to 0.9ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Combination of brown gravelly sandy clay and orange / brown gravelly sand fill with frequent cobbles and boulders of sandstone and brick and a pocket of black ashy gravel from 1.2m-2m bgl.	
2	HS5-TP1-S1	PID up to 7.3ppm	2.00	Trial pit ended @ 2m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

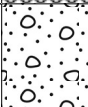
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS5-TP2 (E)
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
			0.2	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock.	
			0.6	Trial pit ended @ 0.6m bgl due to presence of competent sandstone bedrock.	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS5-TP2 (W)
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS5-TP2-S1	PID up to 0.9ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Dark grey slightly clayey sandy gravel with frequent cobbles of red brick.	
0.6					0.6
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

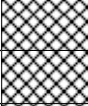
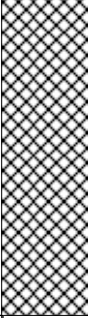
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS6-TP1-S1	PID up to 3.9ppm PID up to 24.7ppm	0.00	MADE GROUND: Reinforced concrete.	
0.15			MADE GROUND: Black ashy gravel.		
0.25			Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock.		
0.6			Trial pit ended @ 0.6m bgl due to presence of competent sandstone bedrock.		
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

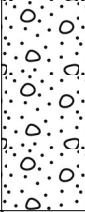
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP2
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		PID up to 1.8ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.15	MADE GROUND: Black ashy gravel.	
			0.3	Trial pit ended @ 0.3m bgl due to presence of competent sandstone bedrock.	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

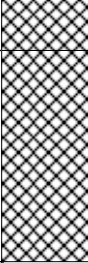
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP3
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.3	HS6-TP3-S1	PID up to 50ppm PID up to 17.1ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.15	MADE GROUND: Black ashy gravel (strong sweet odour).	
			0.3	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock (strong sweet odour).	
			0.7	Trial pit ended @ 0.7m bgl due to presence of competent sandstone bedrock.	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP4
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS6-TP4-S1	PID up to 178.8ppm PID up to 8.1ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Blackish-grey slightly clayey sandy gravel with cobbles of red brick (strong hydrocarbon odour)	
0.5			0.5	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock with pocket of orangish-brown sandy clay.	
			0.9	Trial pit ended @ 0.9m bgl due to presence of competent sandstone bedrock.	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

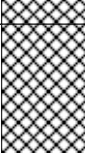
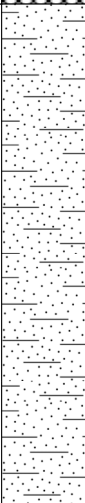
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP5
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.4	HS6-TP5-S1	PID up to 7.8ppm PID up to 6.6ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.15	MADE GROUND: Grey slightly clayey sandy gravel with inclusions of black ashy gravel (slight hydrocarbon odour)	
			0.4	Orangish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock.	
			0.7	Trial pit ended @ 0.7m bgl due to presence of competent sandstone bedrock (south of trial pit).	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

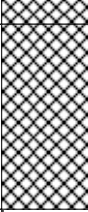
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS6-TP6
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS6-TP6-S1	Large concrete footing in north of trial pit @0.8m bgl - unable to remove PID up to 74.3ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Light greyish-brown sandy gravel.	
	0.4	MADE GROUND: Combination of orangish-brown clayey gravelly sand and blackish-grey slightly clayey sandy ashy gravel with frequent cobbles / boulders of sandstone and brick (moderate hydrocarbon odour)			
1.6		1.00			
			1.6	Trial pit ended @ 1.6m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS: Relict sandstone wall present along WHS of trial pit Relict brick foundations in northeast of trial pit to 0.8m bgl			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

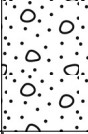
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS7-TP1(E)
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
			0.2	Orangish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock.	
			1.00	Trial pit ended @ 1m bgl due to presence of potentially live water pipeline.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS7-TP1(W)
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS7-TP1-S1	Relict electricity cable present @ 0.3-0.4m bgl PID up to 9.3ppm Cast iron water pipeline (possibly live from reservoir) present @ 0.9-1m bgl	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Greyish-brown sandy clayey gravel with frequent cobbles of red brick.	
1			1.00	Trial pit ended @ 1m bgl due to presence of potentially live water pipeline.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS8-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 08.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Relict cast iron pipework encountered at 0.2-0.4m bgl along southern excavation extent.	0.00	MADE GROUND: Reinforced concrete.	
			0.2	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock.	
			0.5	Trial pit terminated @ 0.5m bgl due to presence of competent sandstone bedrock.	
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

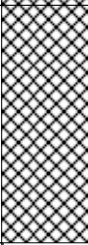
SHEET: 1 of 1	LOCATION: Mill Road	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS9-TP1
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 01.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.6	HS9-TP1-S1	PID up to 10.6ppm Relict clay pipework and electricity cable encountered at 0.6-0.7m bgl	0.00	MADE GROUND: Brown sandy gravel of sandstone.	
			0.1	MADE GROUND: Black gravelly sandy clay (slight odour).	
2.5	HS9-TP1-S2	PID up to 187ppm	0.6	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (slight to moderate odour, strengthening towards base).	
			1.00		
			2.00		
			2.5	Trial pit terminated @ 2.5m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

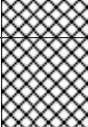
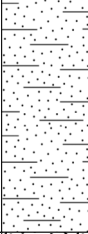
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS10-TP1(E)
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 30.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.5	HS10-TP1-S1	PID up to 269ppm	0.00 0.1	MADE GROUND: Reinforced concrete	
			0.8	MADE GROUND: Grey-brown sandy clayey sandstone gravel fill (moderate hydrocarbon odour) - brick foundations of former building along eastern sidewall	
			1.00	Trial pit terminated @ 0.8m bgl; unable to progress due to presence of suspected relict culvert	
			2.00		
			3.00		
			4.00		
			5.00		
 SMITH GRANT Environmental Consultancy LLP Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Not encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

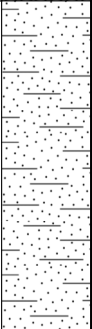
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS10-TP1(W)
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 30.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete	
			0.1	MADE GROUND: Grey sandy gravelly clay fill	
			0.3	Brown cobbly SANDY GRAVEL of sandstone - weathered bedrock	
			0.8	Trial pit terminated @ 0.8m bgl; unable to progress due to presence of suspected relict culvert	
			1.00		
2.00					
3.00					
4.00					
5.00					
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Not encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

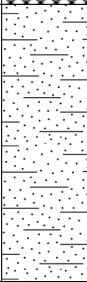
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS10-TP2	
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 30.09.20		
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND	
0.6	HS10-TP2-S1	PID up to 1348ppm PID up to 1306ppm	0.00	MADE GROUND: Reinforced concrete		
			0.15	MADE GROUND: Grey sandy gravel fill		
			0.4	MADE GROUND: Grey-black slightly clayey gravelly sand with frequent cobbles of red brick (very strong hydrocarbon odour)		
			0.8			
			1.00	Silvery-green stained brown cobbly SANDY GRAVEL of sandstone - weathered bedrock (very strong hydrocarbon odour)		
			1.2	Trial pit terminated @ 1.2m bgl due to presence of sandstone bedrock		
2.00						
3.00						
4.00						
5.00						
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Not encountered				
		REMARKS:				
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1		

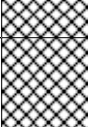
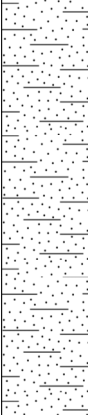
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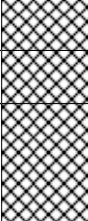
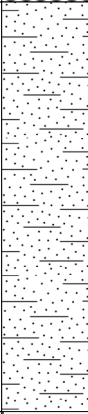
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS10-TP4
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 30.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
1.1	HS10-TP4 -WS1	PID up to 3ppm Suspected relict fuel line penetrated - inflow of very odorous black liquid (sampled)	0.00	MADE GROUND: Reinforced concrete	
			0.1	MADE GROUND: Sandy gravelly brick fill	
			0.3	MADE GROUND: Brown grey-mottled sandy clay fill with fine gravel including coal fragments - some grey staining towards eastern sidewall.	
			1.00		
			1.2	Trial pit terminated @ 1.2m bgl to prevent impacts to underlying sandstone bedrock and aquifer from penetrated suspected fuel pipeline.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Not encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

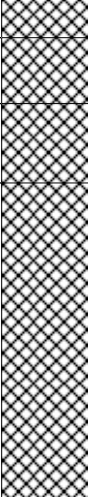
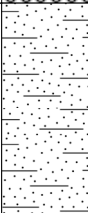
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP1
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 25.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.4	HS11-TP1-S1	PID up to 1805ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.15	MADE GROUND: Black gravelly slightly clayey ashy sand with cobbles of stone and brick, inclusions of wood and grease-like product locally (strong odour).	
		PID up to 455ppm	0.5	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (strong odour).	
			1.00		
			1.4	Yellow cobbly SANDY GRAVEL of weathered sandstone bedrock; silver staining from 1.9m bgl (strong odour).	
2.00					
2.3	HS11-TP1-S2	PID up to 2132ppm	2.3	Trial pit ended @ 2.3m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP2
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 25.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
0.5	HS11-TP2-S1	Clay / metal pipework present at intersection of made ground and natural strata along western sidewall with surrounding soils stained grey / black.	0.25	Orangish-brown grey-mottled slightly gravelly SANDY CLAY with large pockets of gravelly cobbly (sandstone) sand stained silver from 1.2m bgl; gravel is fine to medium comprising sandstone and coal (strong odour).	
			1.00		
1.5	HS11-TP2-S2	PID up to 457ppm	1.5	Trial pit ended @ 1.5m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

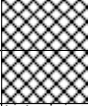
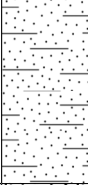
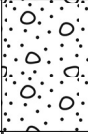
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP3
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 25.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
			0.15		
0.45	HS11-TP3-S1	PID up to 268ppm		MADE GROUND: Black gravelly slightly clayey ashy sand with cobbles of stone and brick and inclusions of wood (strong odour).	
		PID up to 16.5ppm	0.45		
				Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (moderate odour dissipating with depth).	
			1.00		
1.3	HS11-TP3-S2	PID up to 11.8ppm			
		PID up to 3.2ppm	1.5		
				Trial pit ended @ 1.5m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

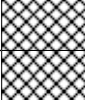
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP4
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 01.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS11-TP4-S1	PID up to 132ppm	0.00	MADE GROUND: Reinforced concrete.	
0.15			MADE GROUND: Grey clayey sandy gravel of sandstone with frequent cobbles of brick (moderate odour).		
0.5	HS11-TP4-S2	PID up to 3,342ppm	0.5	Orangish-brown grey-mottled slightly gravelly SANDY CLAY with pocket of greyish brown sand from 1.2-1.5m bgl; gravel is fine to medium comprising sandstone and coal (strong odour, particularly towards base).	
2.1			2.1	Trial pit ended @ 2.1m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

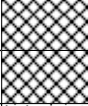
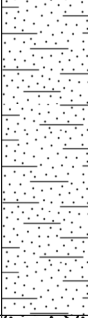
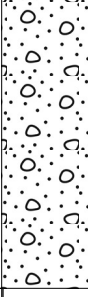
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP5
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 01.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS11-TP5-S1	PID up to 192ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Grey sandy gravel of sandstone.	
			0.4	MADE GROUND: Black clayey sandy gravel with frequent cobbles of red brick (strong odour)	
0.85			0.85	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (strong odour, particularly towards base).	
			1.00		
	HS11-TP5-S2	PID up to 2,920ppm	2.00		
					2.4
2.4				Trial pit ended @ 2.4m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

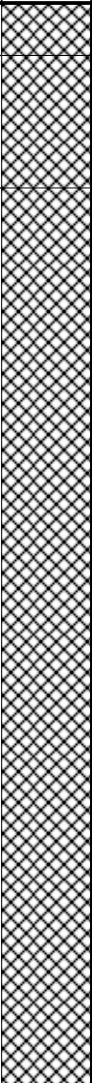
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP6
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 01.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS11-TP6-S1	PID up to 0.88ppm	0.00	MADE GROUND: Reinforced concrete.	
0.15			MADE GROUND: Grey sandy gravel of sandstone with frequent cobbles of sandstone.		
0.4			MADE GROUND: Dark greyish-brown slightly gravelly clayey sand.		
0.7			MADE GROUND: Reworked orangish-brown grey-mottled slightly gravelly SANDY CLAY with cobbles and boulders of sandstone, clay pipework and orange gravel bedding.		
1.00					
1.9	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal.				
2.00			2.7	Trial pit ended @ 2.7m bgl due to presence of competent sandstone bedrock.	
3.00			4.00		
5.00					
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

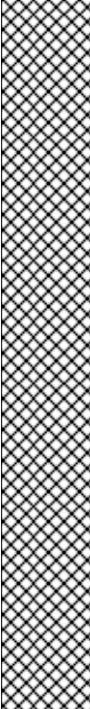
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP7
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS11-TP7-S1	PID up to 1231ppm	0.00	MADE GROUND: Reinforced concrete.	
0.2			Yellow cobbly SANDY GRAVEL of weathered sandstone bedrock (strong odour).		
0.4			Trial pit ended @ 0.4m bgl due to presence of competent sandstone bedrock.		
			1.00		
			2.00		
			3.00		
			4.00		
			5.00		
Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP8
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
0.4	HS11-TP8-S1	PID up to 162ppm	0.2	MADE GROUND: Grey cobbly sandy gravel of sandstone (strong odour).	
		PID up to 64ppm	0.4	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (strong odour).	
			1.00		
	HS11-TP8-S2	PID up to 2032ppm	1.1	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock with silver staining towards base (strong odour).	
1.6			1.6	Trial pit ended @ 1.6m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 SMITH GRANT Environmental Consultancy LLP Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

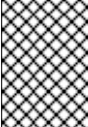
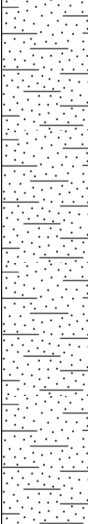
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP9
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Reinforced concrete.	
0.4	HS11-TP9-S1	PID up to 2001ppm	0.2	MADE GROUND: Grey cobbly sandy gravel of sandstone (strong odour).	
		PID up to 98ppm	0.4	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (strong odour).	
			0.65	Yellowish-brown slightly clayey gravelly SAND with frequent cobbles of sandstone (strong odour).	
		PID up to 2171ppm	1.00		
1.5	HS11-TP9-S2		1.5	Trial pit ended @ 1.5m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

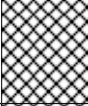
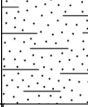
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS11-TP10
		EXCAVATED BY: Hitachi excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
1.6	HS11-TP10 -S1	PID up to 1187ppm	0.00	MADE GROUND: Reinforced concrete.	
			0.2	MADE GROUND: Grey cobbly sandy gravel of sandstone (strong odour).	
		PID up to 4085ppm	0.4	Orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal (strong odour).	
			1.00		
		PID not responding following previous high reading.	1.6	Yellowish-brown cobbly SANDY GRAVEL of weathered sandstone bedrock with silver staining towards base (strong odour).	
			2.00		
			2.7	Trial pit ended @ 2.7m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

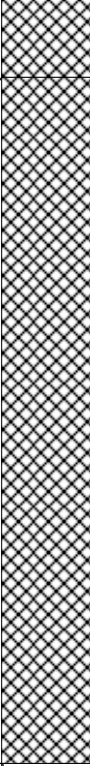
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS13-TP1
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 30.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
1.2	HS13-TP1-S1	Sidewalls unstable from 1m bgl Maximum PID reading = 143.8ppm @ 1.2m bgl; down to 13ppm towards bottom of pit Relict water pipe @ 1.5m bgl Relict cable @ 2m bgl	0.00	MADE GROUND: Reinforced concrete	
			0.2	MADE GROUND: Brown sandy gravelly cobbly sandstone fill	
			0.7	MADE GROUND: Grey-black soft wet sandy gravelly clay with pockeys of black sand frequent cobbles of brick and occasional metal and wood (strong hydrocarbon odour locally between 1-1.5m bgl)	
			1.00		
			2.00		
			3.00		
			4.00		
			4.1	Trial pit terminated @ 4.1m bgl due to extent limit of excavator.	
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM		JOB NO. R2174C	TRIAL PIT NO. HS13-TP2
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL		DATE: 25.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
	HS13-TP2-S1	PID up to 227.7ppm	0.00	MADE GROUND: Black gravelly cobbly slightly clayey ashy sand with pockets of orange clay, inclusions of metal (including degraded drum) and boulders of stone masonry (strong hydrocarbon odour).		
1.6			1.00			
			2.00			
			2.7	Trial pit ended @ 2.7m bgl due to flooding of trial pit.		
			3.00			
			4.00			
			5.00			
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.				
		REMARKS: Significant inflow of black water @ 2.5m bgl - possibly from broken relict pipeline				
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1		

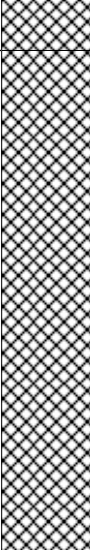
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP1
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 23.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS14-TP1-S1		0.00	Dark brown gravelly slightly sandy silty clay MADE GROUND topsoil with frequent roots, cobbles of sandstone and red brick, and inclusions of wood; gravel is fine to coarse of mixed lithology including red brick fragments. Soft to firm orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal.	
0.2					
1.2					1.4
			1.4	Trial pit ended @ 1.4m bgl due to presence of competent sandstone bedrock.	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS: No olfactory or visual indicators of contamination recorded. Maximum PID reading of excavated soils = 1ppm between 0.2-1.2m bgl.			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

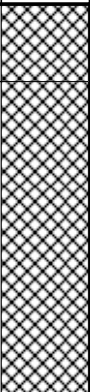
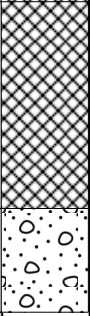
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP2
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 23.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Dark brown gravelly slightly sandy silty clay MADE GROUND topsoil with frequent roots, cobbles of sandstone and red brick, and inclusions of wood; gravel is fine to coarse of mixed lithology including red brick fragments.	
			0.5	Soft to firm orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal.	
			1.00		
			2.00		
			2.5	Trial pit ended @ 2.5m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS: No olfactory or visual indicators of contamination recorded. PID readings of excavated soils all <0.1ppm.			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

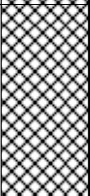
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP3	
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 23.11.20		
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND	
	HS14-TP3-S1		0.00	Dark brown gravelly slightly sandy silty clay MADE GROUND topsoil with frequent roots, cobbles of sandstone and red brick, and inclusions of wood; gravel is fine to coarse of mixed lithology including red brick fragments.		
			0.4	Grey-black sandy gravelly clay fill with frequent roots, cobbles of brick and sandstone masonry, boulders of brick foundations and inclusions of metal, wood and plastic sheeting.		
1.6				1.6	Soft to firm orangish-brown grey-mottled slightly gravelly SANDY CLAY; gravel is fine to medium comprising sandstone and coal.	
				2.00	Trial pit ended @ 2m bgl due to presence of competent sandstone bedrock.	
			3.00			
			4.00			
			5.00			
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.				
		REMARKS: No olfactory or visual indicators of contamination recorded. PID readings of excavated soils all <0.1ppm.				
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1		

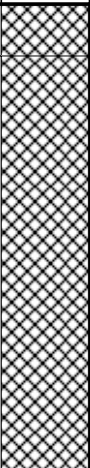
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP4
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 23.11.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Dark brown gravelly slightly sandy silty clay MADE GROUND topsoil with frequent roots, cobbles of sandstone and red brick, and inclusions of wood; gravel is fine to coarse of mixed lithology including red brick fragments.	
			0.3	Grey-black sandy gravelly clay fill with frequent roots, cobbles of brick and sandstone masonry and inclusions of metal and wood.	
			1.00		
	HS14-TP4-S1	Localised inclusion of silver stained soils between 1.7-2.4m bgl (suspected paint).	2.00		
2.4			2.9		
			3.00	Trial pit ended @ 2.9m bgl due to presence of competent sandstone bedrock.	
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS: No olfactory indicators of contamination recorded. PID readings of excavated soils all <0.1ppm.			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP5
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS14-TP5-S1		0.00	Dark brown gravelly slightly sandy silty clay MADE GROUND topsoil with frequent roots.	
			0.25	MADE GROUND: Combination of brown grey-mottled sandy clay and light brown / grey sandy cobbly sandstone gravel fill	
0.8		PID up to 2.64ppm	1.00		
		PID up to 1.2ppm	1.7	MADE GROUND: Black ashy gravel	
		PID up to 0.64ppm	2.2	Light brown / grey SANDY GRAVEL of weathered sandstone bedrock.	
			2.7	Trial pit ended @ 2.7m bgl due to presence of competent sandstone bedrock.	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

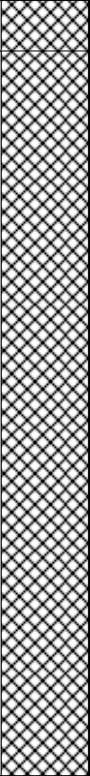
SHEET: 1 of 1	LOCATION: Mill Rd	PROJECT: Tetrosyl, Bury	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. HS14-TP6
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 07.12.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	HS14-TP6-S1	PID up to 48.23ppm Relict clay pipe and gravel bedding encountered. PID up to 7.48ppm	0.00	MADE GROUND: Reinforced concrete.	
1			0.2	MADE GROUND: Combination of brown grey-mottled sandy clay and light brown gravelly sand fill with frequent cobbles and boulders of sandstone (slight to moderate odour).	
			2.00	2.1	Trial pit ended @ 2.1m bgl due to presence of competent sandstone bedrock.
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: No groundwater encountered.			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl, Mill Road	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. QTT1-Log 1
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 28.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	QTT1-S1	PID = 16.5ppm Black oily product leaking out of excavation sidewalls PID = 345ppm PID = 66ppm	0.00	MADE GROUND: Brown slightly clayey sandy gravel	
			0.3	MADE GROUND: Yellow / grey gravelly cobbly sand with a pocket of orangish-brown grey-mottled sandy clay (slightly odorous)	
2			1.00		
			1.5	MADE GROUND: Black oily ashy gravel (moderate hydrocarbon odour)	
			2.00		
			2.3	Yellow grey-stained SANDY GRAVEL of sandstone with cobbles of sandstone (slight hydrocarbon odour) - weathered bedrock	
			2.7	Terminated @ 2.7m bgl due to presence of bedrock	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl, Mill Road	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. QTT1-Log 2
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 28.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		PID = 4.9ppm (max reading through all strata)	0.00	MADE GROUND: Brown slightly clayey sandy gravel	
			0.15	MADE GROUND: Yellow gravelly cobbly sand with pockets of orangish-brown grey-mottled sandy clay	
			0.9	MADE GROUND: Black ashy gravel	
			1.7	Yellow SANDY GRAVEL of sandstone with cobbles of sandstone - weathered bedrock	
			2.00	Terminated @ 2.7m bgl due to presence of bedrock	
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl, Mill Road	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. QTT1-Log 3
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 28.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	QTT1-S2	PID = 20.8ppm	0.00	MADE GROUND: Brown slightly clayey sandy gravel	
			0.2	MADE GROUND: Combination of grey-black gravelly organic clay and orange / grey gravelly sand	
1.5			1.00		
			1.8	Terminated @ 1.8m bgl due to presence of bedrock	
			2.00		
			3.00		
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl, Mill Road	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. QTT1-Log 4
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 28.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		PID = 5.7ppm (max reading through stratum)	0.00	MADE GROUND: Brown slightly clayey sandy gravel (continues to western extent of trial trench)	
			0.2	MADE GROUND: Combination of grey-black organic gravelly clay and black slightly clayey ashy gravel with frequent cobbles of stone and red brick, rare ceramic and occasional tree roots and branches (deepens to >4m to western extent of trial trench with no significant changes to material description)	
			1.00		
			2.00		
			3.00		
			3.5	Terminated @ 3.5m bgl due to sidewall collapse (depth approximate due to sidewall collapse).	
			4.00		
			5.00		
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: None encountered			
		REMARKS:			
		SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl, Mill Road	ENGINEER: SM	JOB NO. R2174C	TRIAL PIT NO. QTT2-Log 1
		EXCAVATED BY: Hitachi Excavator	CLIENT: URL	DATE: 28.09.20	
DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	MADE GROUND: Brown slightly clayey sandy gravel	
			0.2	MADE GROUND: Combination of grey-black ashy gravel, grey-black organic gravelly clay and grey-brown slightly clayey gravelly sand with frequent cobbles of stone and red brick, rare metal and occasional roots; silvery appearance locally (strong organic odour) - Excavation restricted to 2.5m bgl from centre to south of trial trench due to significant sidewall collapse when progressed deeper.	
1.5	QTT2-S1	QTT2-S1 (north of trench): 1-2m bgl; PID = 23.1ppm	1.00		
2	QTT2-S2	QTT2-S2 (south of trench): 1.5-2m bgl; PID = 27.1ppm - maximum reading through stratum	2.00		
			3.00	Terminated @ 3m bgl due to sidewall collapse (@ 2.5m bgl from centre to south of trial trench)	
			4.00		
			5.00		

 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: None encountered		
	REMARKS:		
	SCALE: 1:250	LOGGED BY: SM	FIGURE NO. 1

Appendix C

Laboratory Results

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Ben Thomas
Date : 30th March, 2020
Your reference : R2174C
Our reference : Test Report 20/4557 Batch 1
Location : Tetrosyli
Date samples received : 23rd March, 2020
Status : Final report
Issue : 1

Six samples were received for analysis on 23rd March, 2020 of which six 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.

Authorised By:



Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyli
Contact: Ben Thomas
EMT Job No: 20/4557

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyli
 Contact: Ben Thomas
 EMT Job No: 20/4557

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12					Please see attached notes for all abbreviations and acronyms		
Sample ID	Q-TT1-S01	Q-TT2-S01	HS12 TP1 - S01	HS12 TP1 - S02	HS15 TP1 - S01	HS15 TP1 - S02							
Depth	0.20	0.20	0.40	0.80	0.20	0.50							
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J							
Sample Date	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020							
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand	Clay	Clayey Loam	Clayey Sand							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method No.
Date of Receipt	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020							
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Phenol ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	45	9653	597	<10	10011	24					<10	ug/kg	TM16/PM8
Naphthalene	33	4789	271	<10	5841	<10					<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Acenaphthene	13	<10	112	<10	<10	<10					<10	ug/kg	TM16/PM8
Fluorene	24	203	363	<10	1759	<10					<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	118	50	560	<10	3221	<10					<10	ug/kg	TM16/PM8
Anthracene	34	<10	97	<10	173	<10					<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	208	36	183	<10	199	<10					<10	ug/kg	TM16/PM8
Pyrene ^{#M}	166	39	871	<10	883	41					<10	ug/kg	TM16/PM8
Benzo(a)anthracene	114	42	52	<10	33	27					<10	ug/kg	TM16/PM8
Chrysene	94	26	206	<10	241	21					<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	106	32	27	<10	39	<10					<10	ug/kg	TM16/PM8
Benzo(a)pyrene	50	16	12	<10	13	<10					<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	15	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	22	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	76	23	19	<10	28	<10					<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	30	<10	<10	<10	11	<10					<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100	11928	<100	2059	<100					<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	2012	<100					<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	298	<100	<100	<100					<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyli
Contact: Ben Thomas
EMT Job No: 20/4557

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12					Please see attached notes for all abbreviations and acronyms		
Sample ID	Q-TT1-S01	Q-TT2-S01	HS12 TP1 - S01	HS12 TP1 - S02	HS15 TP1 - S01	HS15 TP1 - S02							
Depth	0.20	0.20	0.40	0.80	0.20	0.50							
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J							
Sample Date	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020							
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand	Clay	Clayey Loam	Clayey Sand							
Batch Number	1	1	1	1	1	1							
Date of Receipt	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020					LOD/LOR	Units	Method No.
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Bromophenylphenylether ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Carbazole	<10	<10	<10	<10	180	<10					<10	ug/kg	TM16/PM8
Dibenzofuran ^{#M}	<10	155	<10	<10	428	<10					<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachlorobutadiene ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Isophorone ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Nitrobenzene ^{#M}	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	110	127	120	113	133	122					<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	104	123	121	114	123	125					<0	%	TM16/PM8

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyli
Contact: Ben Thomas
EMT Job No: 20/4557

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12					Please see attached notes for all abbreviations and acronyms		
Sample ID	Q-TT1-S01	Q-TT2-S01	HS12 TP1 - S01	HS12 TP1 - S02	HS15 TP1 - S01	HS15 TP1 - S02							
Depth	0.20	0.20	0.40	0.80	0.20	0.50							
COC No / misc Containers	V J	V J	V J	V J	V J	V J							
Sample Date	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020							
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand	Clay	Clayey Loam	Clayey Sand							
Batch Number	1	1	1	1	1	1							
Date of Receipt	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020	23/03/2020					LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<2 ^{AA}	<1					<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6	<12 ^{AA}	<6					<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30	<30	<30	<60 ^{AA}	<30					<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3	19 ^{AA}	<3					<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	7 ^{AA}	<3					<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	56 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<12 ^{AA}	<6					<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
Toluene #	<3	25	21	<3	>>30242 ^{AA}	<3					<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	25 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Ethylbenzene #	7	9	29	<3	>>53489 ^{AA}	<3					<3	ug/kg	TM15/PM10
m/p-Xylene #	120	72	138	8	>>129838 ^{AA}	<5					<5	ug/kg	TM15/PM10
o-Xylene #	28	29	68	<3	>>27495 ^{AA}	<3					<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Isopropylbenzene #	7	<3	15	<3	3961 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<4 ^{AA}	<2					<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
Propylbenzene #	16	16	26	<4	>>9635 ^{AA}	<4					<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	500	78	68	4	>>16814 ^{AA}	5					<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<6 ^{AA}	<3					<3	ug/kg	TM15/PM10
tert-Butylbenzene #	25	<5	<5	<5	>>5263 ^{AA}	<5					<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	1369	309	519	13	>>146361 ^{AA}	13					<6	ug/kg	TM15/PM10
sec-Butylbenzene #	65	16	37	<4	>>4761 ^{AA}	<4					<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	149	19	71	13	3781 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4	136 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
n-Butylbenzene #	58	27	106	<4	>>6137 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7	<14 ^{AA}	<7					<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<8 ^{AA}	<4					<4	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7	<14 ^{AA}	<7					<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	69	119	89	119	94 ^{AA}	112					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	85	115	87	115	84 ^{AA}	102					<0	%	TM15/PM10

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/4557
Sample number:	3
Sample identity:	Q-TT2-S01
Sample depth:	0.20
Sample Type:	Clayey Sand
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/4557 **Method:** SVOC
Sample number: 4 **Matrix:** Solid
Sample identity: Q-TT2-S01
Sample depth: 0.20
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
2216-33-3	Octane, 3-methyl-	3.774	87	11570
111-84-2	Nonane	4.072	94	58265
3728-54-9	Cyclohexane, 1-ethyl-2-methyl-	4.151	80	9213
2051-30-1	Octane, 2,6-dimethyl-	4.469	91	41999
620-14-4	Benzene, 1-ethyl-3-methyl-	4.638	91	66562
5911-04-6	Nonane, 3-methyl-	4.877	90	41002
526-73-8	Benzene, 1,2,3-trimethyl-	4.986	94	75222
124-18-5	Decane	5.190	94	109739
17302-28-2	Nonane, 2,6-dimethyl-	5.431	90	40463
1678-93-9	Cyclohexane, butyl-	5.500	87	38502
105-05-5	Benzene, 1,4-diethyl-	5.558	94	36631
1074-43-7	Benzene, 1-methyl-3-propyl-	5.581	81	63836
1074-55-1	Benzene, 1-methyl-4-propyl-	5.736	81	36694
13151-35-4	Decane, 5-methyl-	5.758	90	16987
2847-72-5	Decane, 4-methyl-	5.791	94	17725
6975-98-0	Decane, 2-methyl-	5.824	90	53671
13151-34-3	Decane, 3-methyl-	5.890	90	36732
4126-78-7	Cycloheptane, methyl-	6.022	81	13063
527-84-4	o-Cymene	6.084	92	37988
1120-21-4	Undecane	6.147	95	61715
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.231	95	11000
1632-70-8	Undecane, 5-methyl-	6.315	87	14382
934-74-7	Benzene, 1-ethyl-3,5-dimethyl-	6.503	87	14715
1595-16-0	Benzene, 1-methyl-4-(1-methylpropyl)-	6.576	87	14721
2980-69-0	Undecane, 4-methyl-	6.662	90	4382
1002-43-3	Undecane, 3-methyl-	6.750	81	6911

Element Materials Technology

Job number:	20/4557
Sample number:	4
Sample identity:	Q-TT2-S01
Sample depth:	0.20
Sample Type:	Clayey Sand
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/4557 **Method:** SVOC
Sample number: 6 **Matrix:** Solid
Sample identity: HS12 TP1 - S01
Sample depth: 0.40
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
526-73-8	Benzene, 1,2,3-trimethyl-	4.718	90	147
124-18-5	Decane	5.178	90	354
1074-17-5	Benzene, 1-methyl-2-propyl-	5.581	81	320
527-84-4	o-Cymene	5.648	93	283
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.824	93	143
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	5.846	93	264
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	5.901	93	407
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.084	87	790
1120-21-4	Undecane	6.147	87	865
527-53-7	Benzene, 1,2,3,5-tetramethyl-	6.199	89	252
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.231	95	387
769-57-3	Benzene, (1,2-dimethyl-1-propenyl)-	6.783	91	355
112-40-3	Dodecane	6.970	93	1063
17301-23-4	Undecane, 2,6-dimethyl-	7.087	92	632
6682-71-9	1H-Indene, 2,3-dihydro-4,7-dimethyl-	7.266	86	742
2809-64-5	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	7.365	97	1293
629-50-5	Tridecane	7.687	98	2129
13065-07-1	Naphthalene, 1,2,3,4-tetrahydro-2,7-dimethyl-	7.749	96	880
3891-98-3	Dodecane, 2,6,10-trimethyl-	8.197	91	4258
582-16-1	Naphthalene, 2,7-dimethyl-	8.370	95	1352
581-42-0	Naphthalene, 2,6-dimethyl-	8.395	93	2066
21693-55-0	Naphthalene, 1,2,3,4-tetrahydro-1,5,7-trimethyl-	8.558	90	2315
80655-44-3	Decahydro-1,1,4a,5,6-pentamethylnaphthalene	8.778	86	1949
629-62-9	Pentadecane	8.909	91	9390
941-81-1	4,6,8-Trimethylazulene	9.038	96	7021
2131-42-2	Naphthalene, 1,4,6-trimethyl-	9.122	96	3465
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.146	83	2369
544-76-3	Hexadecane	9.445	91	6551
	Octatriacontyl pentafluoropropionate	9.508	84	6108

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 0.40

Sample Type: Clayey Sand

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 0.80

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/4557 **Method:** SVOC
Sample number: 10 **Matrix:** Solid
Sample identity: HS15 TP1 - S01
Sample depth: 0.20
Sample Type: Clayey Loam
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-84-2	Nonane	4.072	95	582
611-14-3	Benzene, 1-ethyl-2-methyl-	4.629	91	3214
871-83-0	Nonane, 2-methyl-	4.798	93	618
2051-30-1	Octane, 2,6-dimethyl-	4.877	83	1098
526-73-8	Benzene, 1,2,3-trimethyl-	4.986	95	7884
124-18-5	Decane	5.179	93	3767
17302-28-2	Nonane, 2,6-dimethyl-	5.431	90	2443
1678-93-9	Cyclohexane, butyl-	5.500	81	1634
135-01-3	Benzene, 1,2-diethyl-	5.558	95	3118
1074-43-7	Benzene, 1-methyl-3-propyl-	5.581	81	3233
95-93-2	Benzene, 1,2,4,5-tetramethyl-	5.648	94	2847
13151-35-4	Decane, 5-methyl-	5.758	87	750
2847-72-5	Decane, 4-methyl-	5.791	87	1327
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.824	91	3150
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	5.846	94	1385
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.901	87	3858
58422-65-4	Ethaneperoxoic acid, 1-cyano-1,4,8-trimethyl-7-nonenyl ester	5.956	83	955
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	6.084	80	5401
1120-21-4	Undecane	6.147	93	6121
17312-53-7	Decane, 3,6-dimethyl-	6.367	93	7719
17059-48-2	1H-Indene, 2,3-dihydro-1,6-dimethyl-	6.783	93	807
53172-84-2	Benzene, (1-methyl-1-butenyl)-	6.805	83	906
66660-42-2	cis, cis-3-Ethylbicyclo[4.4.0]decane	7.195	87	2166
2809-64-5	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	7.365	95	4463
6117-97-1	Dodecane, 4-methyl-	7.410	81	1701
90-12-0	Naphthalene, 1-methyl-	7.669	93	1990

Element Materials Technology

Job number: 20/4557 **Method:** SVOC
Sample number: 10 **Matrix:** Solid
Sample identity: HS15 TP1 - S01
Sample depth: 0.20
Sample Type: Clayey Loam
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
629-50-5	Tridecane	7.687	94	1879
13065-07-1	Naphthalene, 1,2,3,4-tetrahydro-2,7-dimethyl-	7.750	91	2429
4175-54-6	Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	7.922	90	2554
22531-20-0	Naphthalene, 6-ethyl-1,2,3,4-tetrahydro-	7.999	87	1836
3891-98-3	Dodecane, 2,6,10-trimethyl-	8.198	87	6650
629-59-4	Tetradecane	8.320	91	12000
575-41-7	Naphthalene, 1,3-dimethyl-	8.370	97	8471
582-16-1	Naphthalene, 2,7-dimethyl-	8.395	95	4629
941-81-1	4,6,8-Trimethylazulene	9.122	96	3424
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.146	95	1985
2131-41-1	Naphthalene, 1,4,5-trimethyl-	9.218	95	9685
112-40-3	Dodecane	9.445	83	4294
3892-00-0	Pentadecane, 2,6,10-trimethyl-	9.716	95	3904
55045-11-9	Tridecane, 5-propyl-	9.995	90	11978
55836-29-8	Tricyclo[4.4.1.0(2,5)]undeca-1(10),3,6,8-tetraene, 11-(1-methylethylidene)-	10.045	80	1654
593-45-3	Octadecane	10.422	93	5153
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	10.491	97	9267
832-69-9	Phenanthrene, 1-methyl-	10.830	90	381
2531-84-2	Phenanthrene, 2-methyl-	10.939	81	4166
2789-88-0	di-p-Tolylacetylene	11.443	86	1572
1599-67-3	1-Docosene	11.679	81	524
629-94-7	Heneicosane	11.712	97	1523
638-67-5	Tricosane	12.134	95	1661
42217-02-7	1-Chloroeicosane	12.319	89	2470
1786-12-5	Cyclotetradecane, 1,7,11-trimethyl-4-(1-methylethyl)-	12.513	93	1066
629-97-0	Docosane	12.572	96	1443
18835-33-1	1-Hexacosene	13.483	95	376

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP **Matrix :** Solid

Reference: R2174C

Location: Tetrosyli

Contact: Ben Thomas

[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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/4557

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

Please include all sections of this report if it is reproduced

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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
AA	x2 Dilution

EMT Job No: 20/4557

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes

EMT Job No: 20/4557

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM15_A	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention :	Scott Miller
Date :	30th June, 2020
Your reference :	R2174C
Our reference :	Test Report 20/7814 Batch 1
Location :	Tetrosyl, Bury
Date samples received :	18th June, 2020
Status :	Final report
Issue :	2

Seven samples were received for analysis on 18th June, 2020 of which seven 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.

Authorised By:

A handwritten signature in black ink, appearing to read 'B. Leslie'.

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-4	5-8	13-16	21-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	IC1-S1	IC6-S1	IC9-S1	IC11-S1									
Depth													
COC No / misc													
Containers	V G	V G	V G	V G									
Sample Date	17/06/2020	17/06/2020	17/06/2020	17/06/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	18/06/2020	18/06/2020	18/06/2020	18/06/2020							LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	ND	See Attached								None	TM15/PM10
Methyl Tertiary Butyl Ether #	0.2	<0.1	<0.1	15.0							<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	25.9							<0.5	ug/l	TM15/PM10
Toluene #	77	<5	<5	>>1166							<5	ug/l	TM15/PM10
Ethylbenzene #	4	5	<1	474							<1	ug/l	TM15/PM10
m/p-Xylene #	32	74	<2	1994							<2	ug/l	TM15/PM10
o-Xylene #	21	13	<1	>>1584							<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	93	100	99	95							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	104	102	86							<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached	See Attached								None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	4227	109	<10	6037							<10	ug/l	TM36/PM12
>C6-C8 #	1285	<10	89	15151							<10	ug/l	TM36/PM12
>C8-C10 #	3138	789	<10	<10							<10	ug/l	TM36/PM12
>C10-C12 #	>>1849503	617	<5	254137							<5	ug/l	TM5/PM16/PM30
>C12-C16 #	>>59380	760	<10	4750							<10	ug/l	TM5/PM16/PM30
>C16-C21 #	>>26120	580	<10	<10							<10	ug/l	TM5/PM16/PM30
>C21-C35 #	>>6890	950	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	>>1950543	3805	89	280075							<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	439	<10	<10	1238							<10	ug/l	TM36/PM12
>EC7-EC8 #	62	<10	<10	1242							<10	ug/l	TM36/PM12
>EC8-EC10 #	54	110	<10	5333							<10	ug/l	TM36/PM12
>EC10-EC12 #	8073	160	<5	88990							<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	2040	240	<10	2570							<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	1090	330	<10	650							<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	500	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	12258	840	<10	100023							<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	1962801	4645	89	380098							<10	ug/l	TM5/PM16/PM30

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

Report : Product

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN₃

[illegible]

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

SVOC Report : Liquid

EMT Sample No.	1-4	5-8	13-16	21-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	IC1-S1	IC6-S1	IC9-S1	IC11-S1									
Depth													
COC No / misc													
Containers	V G	V G	V G	V G									
Sample Date	17/06/2020	17/06/2020	17/06/2020	17/06/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1							LOD/LOR	Units	Method No.
Date of Receipt	18/06/2020	18/06/2020	18/06/2020	18/06/2020									
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
4-Methylphenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10	<10	<10							<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1							<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
2-Methylnaphthalene #	111	11	<1	40							<1	ug/l	TM16/PM30
Naphthalene #	63	8	<1	171							<1	ug/l	TM16/PM30
Acenaphthylene #	5.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Acenaphthene #	19	<1	<1	<1							<1	ug/l	TM16/PM30
Fluorene #	18.8	1.8	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Phenanthrene #	23.8	2.3	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Anthracene #	4.1	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Fluoranthene #	1.5	0.8	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Pyrene #	1.9	1.1	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(a)anthracene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Chrysene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Benzo(a)pyrene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Indeno(123cd)pyrene	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Dibenzo(ah)anthracene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Benzo(ghi)perylene #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5	30							<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Diethyl phthalate #	<1	<1	<1	<1							<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1							<1	ug/l	TM16/PM30

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

Please see attached notes for all abbreviations and acronyms

QF-PM 3.1.3 v11

Client Name:	Smith Grant LLP	SVOC Report :	Product
Reference:	R2174C		
Location:	Tetrosyl, Bury		
Contact:	Scott Miller		
EMT Job No:	20/7814		

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

Please see attached notes for all abbreviations and acronyms

QF-PM 3.1.3 v11

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

VOC Report : Liquid

EMT Sample No.	1-4	5-8	13-16	21-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	IC1-S1	IC6-S1	IC9-S1	IC11-S1									
Depth													
COC No / misc													
Containers	V G	V G	V G	V G									
Sample Date	17/06/2020	17/06/2020	17/06/2020	17/06/2020									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1							LOD/LOR	Units	Method No.
Date of Receipt	18/06/2020	18/06/2020	18/06/2020	18/06/2020									
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	0.2	<0.1	<0.1	15.0							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	19	<5	<5	93							<5	ug/l	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	25.9							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1,3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	77	<5	<5	>>1166							<5	ug/l	TM15/PM10
trans-1,3-Dichloropropene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	4	5	<1	474							<1	ug/l	TM15/PM10
m/p-Xylene #	32	74	<2	1994							<2	ug/l	TM15/PM10
o-Xylene #	21	13	<1	>>1584							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	3	<3	211							<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	9	6	<3	348							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	68	29	<3	910							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	273							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	199	61	<3	>>3650							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	254							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	243							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	251							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	43	33	<2	229							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	93	100	99	95							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	96	104	102	86							<0	%	TM15/PM10

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/7814

VOC Report : Product

EMT Sample No.	9-12	17-20	25-28								Please see attached notes for all abbreviations and acronyms		
Sample ID	IC8-S1	IC10-S1	IC12-S1										
Depth													
COC No / misc													
Containers	V G	V G	V G										
Sample Date	17/06/2020	17/06/2020	17/06/2020										
Sample Type	Product	Product	Product										
Batch Number	1	1	1								LOD/LOR	Units	Method No.
Date of Receipt	18/06/2020	18/06/2020	18/06/2020										
VOC MS													
Dichlorodifluoromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Methyl Tertiary Butyl Ether	<0.05	<0.05	<0.05								<0.05	%	TM124/PM0
Chloromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Vinyl Chloride	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Bromomethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Chloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Trichlorofluoromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1-Dichloroethene (1,1 DCE)	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Dichloromethane (DCM)	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
trans-1-2-Dichloroethene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1-Dichloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
cis-1-2-Dichloroethene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
2,2-Dichloropropane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Bromochloromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Chloroform	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1,1-Trichloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1-Dichloropropene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Carbon tetrachloride	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2-Dichloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Benzene	<0.01	<0.01	0.01								<0.01	%	TM124/PM0
Trichloroethene (TCE)	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2-Dichloropropane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Dibromomethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Bromodichloromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
cis-1-3-Dichloropropene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Toluene	0.03	<0.01	0.40								<0.01	%	TM124/PM0
trans-1-3-Dichloropropene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1,2-Trichloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Tetrachloroethene (PCE)	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,3-Dichloropropane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Dibromochloromethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2-Dibromoethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Chlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,1,1,2-Tetrachloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Ethylbenzene	0.02	<0.01	0.70								<0.01	%	TM124/PM0
m/p-Xylene	0.19	<0.01	2.51								<0.01	%	TM124/PM0
o-Xylene	0.09	<0.01	1.34								<0.01	%	TM124/PM0
Styrene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Bromoform	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Isopropylbenzene	<0.01	<0.01	0.45								<0.01	%	TM124/PM0
1,1,2,2-Tetrachloroethane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Bromobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2,3-Trichloropropane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Propylbenzene	0.02	<0.01	0.34								<0.01	%	TM124/PM0
2-Chlorotoluene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,3,5-Trimethylbenzene	0.04	<0.01	0.41								<0.01	%	TM124/PM0
4-Chlorotoluene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
tert-Butylbenzene	<0.01	<0.01	1.22								<0.01	%	TM124/PM0
1,2,4-Trimethylbenzene	0.17	<0.01	1.38								<0.01	%	TM124/PM0
sec-Butylbenzene	<0.01	<0.01	0.46								<0.01	%	TM124/PM0
4-Isopropyltoluene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,3-Dichlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,4-Dichlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
n-Butylbenzene	0.05	<0.01	0.31								<0.01	%	TM124/PM0
1,2-Dichlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2-Dibromo-3-chloropropane	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
1,2,4-Trichlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Hexachlorobutadiene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0
Naphthalene	0.02	<0.01	<0.01								<0.01	%	TM124/PM0
1,2,3-Trichlorobenzene	<0.01	<0.01	<0.01								<0.01	%	TM124/PM0

Element Materials Technology

Method: VOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC

Matrix: Liquid

Sample depth:

Sample Type: Ground Water

Units: ug/l

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/7814

Method: VOC

Sample number: 21

Matrix: Liquid

Sample identity: IC11-S1

Sample depth:

Sample Type: Ground Water

Units: ug/l

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
64-17-5	Ethanol	2.222	74	108
67-64-1	Acetone	2.547	80	383
67-63-0	Isopropyl Alcohol	2.647	80	4915
78-92-2	2-Butanol	3.751	83	3742
78-83-1	1-Propanol, 2-methyl-	4.015	94	533
71-36-3	1-Butanol	4.298	86	419
1678-91-7	Cyclohexane, ethyl-	5.277	95	181
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	5.301	94	165
2216-33-3	Octane, 3-methyl-	5.446	91	343
15869-94-0	Octane, 3,6-dimethyl-	5.863	91	520
1678-92-8	Cyclohexane, propyl-	5.946	87	1902
15869-93-9	Octane, 3,5-dimethyl-	6.042	81	1291
124-18-5	Decane	6.272	96	5301
622-96-8	Benzene, 1-ethyl-4-methyl-	6.401	93	2017
2847-72-5	Decane, 4-methyl-	6.420	83	840
108-67-8	Mesitylene	6.695	95	2012
527-84-4	o-Cymene	6.739 - 6.977	90,94	1231
1120-21-4	Undecane	6.867	97	1958
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	7.020 - 7.182	90,95	1062
3333-13-9	Benzene, 1-methyl-4-(2-propenyl)-	7.054	93	124
2142-73-6	Ethanone, 1-(2,5-dimethylphenyl)-	7.126	84	227
95-93-2	Benzene, 1,2,4,5-tetramethyl-	7.223	94	243
488-23-3	Benzene, 1,2,3,4-tetramethyl-	7.250	97	267
112-40-3	Dodecane	7.416	96	264
767-59-9	1H-Indene, 1-methyl-	7.516	94	311
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	7.574	92	203
18636-55-0	1H-Indene, 1,1-dimethyl-	7.644	95	234
1124-20-5	Benzene, 1-methyl-3-(1-methylethenyl)-	7.732	92	244

Element Materials Technology

Job number: 20/7814

Method: VOC

Sample number: 12

Matrix: Product

Sample identity: IC8-S1

Sample depth:

Sample Type: Product

Units: %

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
142-82-5	Heptane	5.522	90	0.01
108-87-2	Cyclohexane, methyl-	6.145	91	0.04
UI_PEAK_GRP	Unidentified Group of Compounds	6.906 - 17.698	80,80,80,80,80,80	0.90
591-21-9	Cyclohexane, 1,3-dimethyl-	7.306	91	0.03
111-65-9	Octane	7.618	81	0.07
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	7.749	91	0.02
2040-96-2	Cyclopentane, propyl-	8.418	87	0.02
1678-91-7	Cyclohexane, ethyl-	8.490	94	0.04
3074-71-3	Heptane, 2,3-dimethyl-	8.818	83	0.02
7667-60-9	Cyclohexane, 1,2,4-trimethyl-, (1.alpha.,2.beta.,4.beta.)-	8.864	80	0.01
2216-33-3	Octane, 3-methyl-	9.090	83	0.04
111-84-2	Nonane	9.618	87	0.14
98-82-8	Benzene, (1-methylethyl)-	10.585	86	0.02
611-14-3	Benzene, 1-ethyl-2-methyl-	11.294 - 11.691	94,95	0.20
124-18-5	Decane	11.477	96	0.13
135-98-8	Benzene, (1-methylpropyl)-	12.189	80	0.03
1678-93-9	Cyclohexane, butyl-	12.274	86	0.03
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	12.340 - 13.511	80,90	0.05
526-73-8	Benzene, 1,2,3-trimethyl-	12.533	90	0.06
1074-43-7	Benzene, 1-methyl-3-propyl-	12.881	87	0.05
1120-21-4	Undecane	13.202	93	0.10
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	13.366	86	0.01
767-58-8	Indan, 1-methyl-	13.642	86	0.01
91-57-6	Naphthalene, 2-methyl-	17.305	83	0.04
90-12-0	Naphthalene, 1-methyl-	17.577	90	0.01

Element Materials Technology

Method: VOC

Matrix: **Product**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/7814
Sample number: 28
Sample identity: IC12-S1
Sample depth:
Sample Type: Product
Units: %

Method: VOC
Matrix: Product

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
67-64-1	Acetone	2.587	83	0.04
UI_PEAK_GRP	Unidentified Group of Compounds (Poor Quality Match)	4.299 - 14.803	80,80,80,80,80,80,80	7.34
592-27-8	Heptane, 2-methyl-	6.903	94	0.19
589-81-1	Heptane, 3-methyl-	7.083	90	0.13
108-10-1	Methyl Isobutyl Ketone	7.244	83	0.09
591-21-9	Cyclohexane, 1,3-dimethyl-	7.306	95	0.16
111-65-9	Octane	7.618	91	0.58
583-57-3	Cyclohexane, 1,2-dimethyl- (cis/trans)	7.749	94	0.10
2207-03-6	Cyclohexane, 1,3-dimethyl-, trans-	7.896	90	0.04
1072-05-5	Heptane, 2,6-dimethyl-	8.218	91	0.25
926-82-9	Heptane, 3,5-dimethyl-	8.372	87	0.18
2234-75-5	Cyclohexane, 1,2,4-trimethyl-	8.411	83	0.18
1678-91-7	Cyclohexane, ethyl-	8.480	94	0.62
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	8.562	97	0.58
3074-71-3	Heptane, 2,3-dimethyl-	8.815	87	0.31
7667-60-9	Cyclohexane, 1,2,4-trimethyl-, (1.alpha.,2.beta.,4.beta.)-	8.864	87	0.35
2213-23-2	Heptane, 2,4-dimethyl-	8.933	80	1.13
2216-33-3	Octane, 3-methyl-	9.087	91	0.93
111-84-2	Nonane	9.621	94	3.33
15869-94-0	Octane, 3,6-dimethyl-	10.290	87	1.18
17301-94-9	Nonane, 4-methyl-	10.799	87	0.91
871-83-0	Nonane, 2-methyl-	10.841	93	0.71
5911-04-6	Nonane, 3-methyl-	10.979	81	1.17
611-14-3	Benzene, 1-ethyl-2-methyl-	11.294 - 11.694	93,94	1.68
124-18-5	Decane	11.481	96	2.91
7058-05-1	Cyclohexane, 1-ethyl-2,3-dimethyl-	11.615	83	0.12
1678-93-9	Cyclohexane, butyl-	12.278	87	0.35
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	12.340 - 13.399	93,97	0.48
526-73-8	Benzene, 1,2,3-trimethyl-	12.533	94	1.04
1074-43-7	Benzene, 1-methyl-3-propyl-	12.878	94	0.52

Element Materials Technology

Method: VOC

Matrix: **Product**

Sample depth:

Units: %

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/7814

Method: SVOC

Sample number: 24

Matrix: Liquid

Sample identity: IC11-S1

Sample depth:

Sample Type: Ground Water

Units: ug/l

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
124-18-5	Decane	5.119	95	32854
99-87-6	p-Cymene	5.275	86	2520
2847-72-5	Decane, 4-methyl-	5.371	90	10318
1678-93-9	Cyclohexane, butyl-	5.443	94	6236
98-85-1	Benzenemethanol, .alpha.-methyl-	5.479	86	15473
1074-43-7	Benzene, 1-methyl-3-propyl-	5.526	89	10197
527-84-4	o-Cymene	5.592	94	4863
13151-35-4	Decane, 5-methyl-	5.702	87	2374
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	5.790	91	4848
17302-32-8	Nonane, 3,7-dimethyl-	5.823	83	1925
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.911	87	2747
1120-21-4	Undecane	6.093	95	16985
89-95-2	Benzenemethanol, 2-methyl-	6.219	94	6148
536-50-5	Benzenemethanol, .alpha.,4-dimethyl-	6.386	86	13689
488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.449	91	2578
585-74-0	Ethanone, 1-(3-methylphenyl)-	6.481	94	3518
53957-33-8	Benzenemethanol, 2,5-dimethyl-	7.022	90	8324
83-33-0	1H-Inden-1-one, 2,3-dihydro-	7.250	97	15240
17496-14-9	1H-Inden-1-one, 2,3-dihydro-2-methyl-	7.472	93	1680
54125-39-2	trans-2,3-Epoxydecane	7.480	83	916
35587-60-1	1-Methylindan-2-one	7.534	95	3107
87-41-2	1(3H)-Isobenzofuranone	7.642	91	8824
603-79-2	Benzoic acid, 2,3-dimethyl-	7.735	86	5630
611-01-8	Benzoic acid, 2,4-dimethyl-	7.768	92	9761
529-33-9	1-Naphthalenol, 1,2,3,4-tetrahydro-	7.812	97	3491
529-34-0	1(2H)-Naphthalenone, 3,4-dihydro-	7.922	87	5321
499-06-9	Benzoic acid, 3,5-dimethyl-	8.054	93	4830
15158-36-8	4-Methylphthalaldehyde	8.483	87	6110
536-66-3	Benzoic acid, 4-(1-methylethyl)-	8.561	81	1682

Element Materials Technology

Job number: 20/7814

Method: SVOC

Sample number: 12

Matrix: Product

Sample identity: IC8-S1

Sample depth:

Sample Type: Product

Units: %

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	3.484	81	0.05
100-41-4	Ethylbenzene	3.611	86	0.03
106-42-3	p-Xylene	3.704	95	0.14
111-84-2	Nonane	4.151	95	0.15
3728-56-1	1-Ethyl-4-methylcyclohexane	4.227	81	0.04
98-82-8	Benzene, (1-methylethyl)-	4.303	93	0.03
1678-92-8	Cyclohexane, propyl-	4.489	94	0.11
2051-30-1	Octane, 2,6-dimethyl-	4.556	90	0.12
620-14-4	Benzene, 1-ethyl-3-methyl-	4.716	95	0.20
108-67-8	Mesitylene	4.801	95	0.17
871-83-0	Nonane, 2-methyl-	4.894	90	0.05
611-14-3	Benzene, 1-ethyl-2-methyl-	4.911	95	0.11
5911-04-6	Nonane, 3-methyl-	4.961	94	0.10
526-73-8	Benzene, 1,2,3-trimethyl-	5.080	95	0.52
124-18-5	Decane	5.265	90	0.56
527-84-4	o-Cymene	5.406	94	0.04
17302-28-2	Nonane, 2,6-dimethyl-	5.511	90	0.25
1678-93-9	Cyclohexane, butyl-	5.582	94	0.24
141-93-5	Benzene, 1,3-diethyl-	5.638	96	0.18
1074-43-7	Benzene, 1-methyl-3-propyl-	5.667	90	0.22
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	5.726	93	0.18
2847-72-5	Decane, 4-methyl-	5.874	95	0.07
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	5.904	91	0.42
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	6.167	91	0.30
1120-21-4	Undecane	6.223	87	0.64
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.304	97	0.17
2039-89-6	Benzene, 2-ethenyl-1,4-dimethyl-	6.450	91	0.21
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	6.482	92	0.14
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	6.531	90	0.50
1595-16-0	Benzene, 1-methyl-4-(1-methylpropyl)-	6.647	87	0.15

Element Materials Technology

Job number: 20/7814

Method: SVOC

Sample number: 12

Matrix: Product

Sample identity: IC8-S1

Sample depth:

Sample Type: Product

Units: %

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
17059-48-2	1H-Indene, 2,3-dihydro-1,6-dimethyl-	6.851	93	0.31
112-40-3	Dodecane	7.041	93	0.73
3877-19-8	Naphthalene, 1,2,3,4-tetrahydro-2-methyl-	7.064	95	0.24
89-74-7	Ethanone, 1-(2,4-dimethylphenyl)-	7.095	80	0.14
1559-81-5	Naphthalene, 1,2,3,4-tetrahydro-1-methyl-	7.126	93	0.17
2613-76-5	1H-Indene, 2,3-dihydro-1,1,3-trimethyl-	7.251	90	0.18
6682-71-9	1H-Indene, 2,3-dihydro-4,7-dimethyl-	7.329	93	0.33
2809-64-5	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	7.430	97	0.53
6117-97-1	Dodecane, 4-methyl-	7.476	91	0.21
1560-97-0	Dodecane, 2-methyl-	7.507	90	0.18
36052-28-5	1-Naphthalenemethanol, 1,2,3,4-tetrahydro-8-methyl-	7.647	91	0.10
54340-86-2	Benzene, 4-(2-butenyl)-1,2-dimethyl-, (E)-	7.663	90	0.14
629-50-5	Tridecane	7.756	94	0.90
13065-07-1	Naphthalene, 1,2,3,4-tetrahydro-2,7-dimethyl-	7.811	93	0.47
4175-54-6	Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	7.977	97	0.42
571-61-9	Naphthalene, 1,5-dimethyl-	8.353	96	0.80
629-59-4	Tetradecane	8.384	96	1.28
581-40-8	Naphthalene, 2,3-dimethyl-	8.455	97	0.81
21693-55-0	Naphthalene, 1,2,3,4-tetrahydro-1,5,7-trimethyl-	8.486	95	0.63
575-43-9	Naphthalene, 1,6-dimethyl-	8.548	97	0.82
2131-42-2	Naphthalene, 1,4,6-trimethyl-	8.875	83	0.69
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.171	98	0.63
829-26-5	Naphthalene, 2,3,6-trimethyl-	9.273	95	1.02
643-58-3	1,1'-Biphenyl, 2-methyl-	9.416	95	0.42
3218-36-8	[1,1'-Biphenyl]-4-carboxaldehyde	9.559	80	0.66
1689-64-1	9H-Fluoren-9-ol	9.682	83	0.30
529-05-5	Chamazulene	9.835	95	0.15
2717-39-7	1,4,5,8-Tetramethylnaphthalene	9.908	93	0.60
1430-97-3	9H-Fluorene, 2-methyl-	9.945	90	0.64
544-76-3	Hexadecane	9.999	95	1.73

Element Materials Technology

Job number: 20/7814

Method: SVOC

Sample number: 12

Matrix: Product

Sample identity: IC8-S1

Sample depth:

Sample Type: Product

Units: %

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
1921-70-6	Pentadecane, 2,6,10,14-tetramethyl-	10.045	90	1.28
7350-72-3	1,4-Methanonaphthalene,1,4-dihydro-9-((1-methylethylidene)-	10.091	86	0.60
51282-56-5	Ethyl 5-chloro-2-nitrobenzoate	10.200	90	0.77
95676-48-5	Phenanthrene, 9,10-dihydro-1-methyl-	10.420	93	0.49
629-62-9	Pentadecane	10.466	93	1.52
3891-98-3	Dodecane, 2,6,10-trimethyl-	10.530	96	1.04
4612-63-9	9H-Fluorene, 2,3-dimethyl-	10.576	90	0.54
67388-11-8	4-Methylnaphtho[1,2-b]thiophene	10.686	91	0.62
295-48-7	Cyclopentadecane	10.750	80	0.59
832-69-9	Phenanthrene, 1-methyl-	10.870	94	0.51
630-01-3	Hexacosane	10.915	94	1.55
949-41-7	1H-Cyclopropa[l]phenanthrene,1a,9b-dihydro-	10.980	92	0.62
832-64-4	Phenanthrene, 4-methyl-	10.998	93	0.58
629-78-7	Heptadecane	11.282	89	0.61
112-95-8	Eicosane	11.337	93	1.15
1576-67-6	Phenanthrene, 3,6-dimethyl-	11.402	92	0.54
3674-66-6	Phenanthrene, 2,5-dimethyl-	11.482	91	0.46
2789-88-0	di-p-Tolylacetylene	11.507	83	0.30
2136-72-3	Ethanol, 2-(octadecyloxy)-	11.600	92	0.16
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	11.676	89	0.32
40750-71-8	Benzene, 1-chlorodifluoromethoxy-4-nitro-	11.718	94	0.10
6971-40-0	17-Pentatriacontene	11.836	83	0.08
7225-68-5	Dodecane, 1-cyclopentyl-4-(3-cyclopentylpropyl)-	12.274	91	0.11
629-94-7	Heneicosane	12.359	92	0.23
593-45-3	Octadecane	12.460	90	0.15
638-67-5	Tricosane	12.721	95	0.15
18835-33-1	1-Hexacosene	12.983	96	0.06
1786-12-5	Cyclotetradecane, 1,7,11-trimethyl-4-(1-methylethyl)-	13.126	94	0.06
544-77-4	Hexadecane, 1-iodo-	13.549	97	0.22
54964-82-8	Octadecane, 2,6,10,14-tetramethyl-	13.583	86	0.05

Element Materials Technology

Method: SVOC

Matrix: **Product**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: **Product**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/7814
Sample number: 28
Sample identity: IC12-S1
Sample depth:
Sample Type: Product
Units: %

Method: SVOC
Matrix: Product

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	3.484	90	0.59
100-41-4	Ethylbenzene	3.619	87	0.54
108-38-3	Benzene, 1,3-dimethyl-	3.712	95	1.25
2216-33-3	Octane, 3-methyl-	3.847	91	0.81
3728-56-1	1-Ethyl-4-methylcyclohexane	4.033	93	0.51
111-84-2	Nonane	4.176	94	2.10
98-82-8	Benzene, (1-methylethyl)-	4.312	93	0.34
1678-92-8	Cyclohexane, propyl-	4.497	81	0.96
15869-94-0	Octane, 3,6-dimethyl-	4.573	90	1.17
620-14-4	Benzene, 1-ethyl-3-methyl-	4.734	97	1.17
15869-93-9	Octane, 3,5-dimethyl-	4.902	87	1.21
871-83-0	Nonane, 2-methyl-	4.919	93	0.97
5911-04-6	Nonane, 3-methyl-	4.995	81	1.00
124-18-5	Decane	5.327	91	3.72
2847-72-5	Decane, 4-methyl-	5.538	87	1.38
141-93-5	Benzene, 1,3-diethyl-	5.657	80	0.77
527-84-4	o-Cymene	5.756	94	0.81
135-01-3	Benzene, 1,2-diethyl-	5.776	95	0.29
17302-27-1	Nonane, 2,5-dimethyl-	5.864	83	0.58
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.933	84	0.71
1075-38-3	Benzene, 1-(1,1-dimethylethyl)-3-methyl-	6.032	91	0.52
2049-95-8	Benzene, (1,1-dimethylpropyl)-	6.086	83	0.64
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	6.175	92	0.95
629-50-5	Tridecane	6.272	90	2.64
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.329	95	0.67
2958-76-1	Naphthalene, decahydro-2-methyl-	6.353	89	0.13
1120-21-4	Undecane	6.402	86	0.69
1758-85-6	Benzene, 2,4-diethyl-1-methyl-	6.617	95	0.35
2980-69-0	Undecane, 4-methyl-	6.739	86	0.21
1002-43-3	Undecane, 3-methyl-	6.820	91	0.35

Element Materials Technology

Method: SVOC

Matrix: **Product**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller

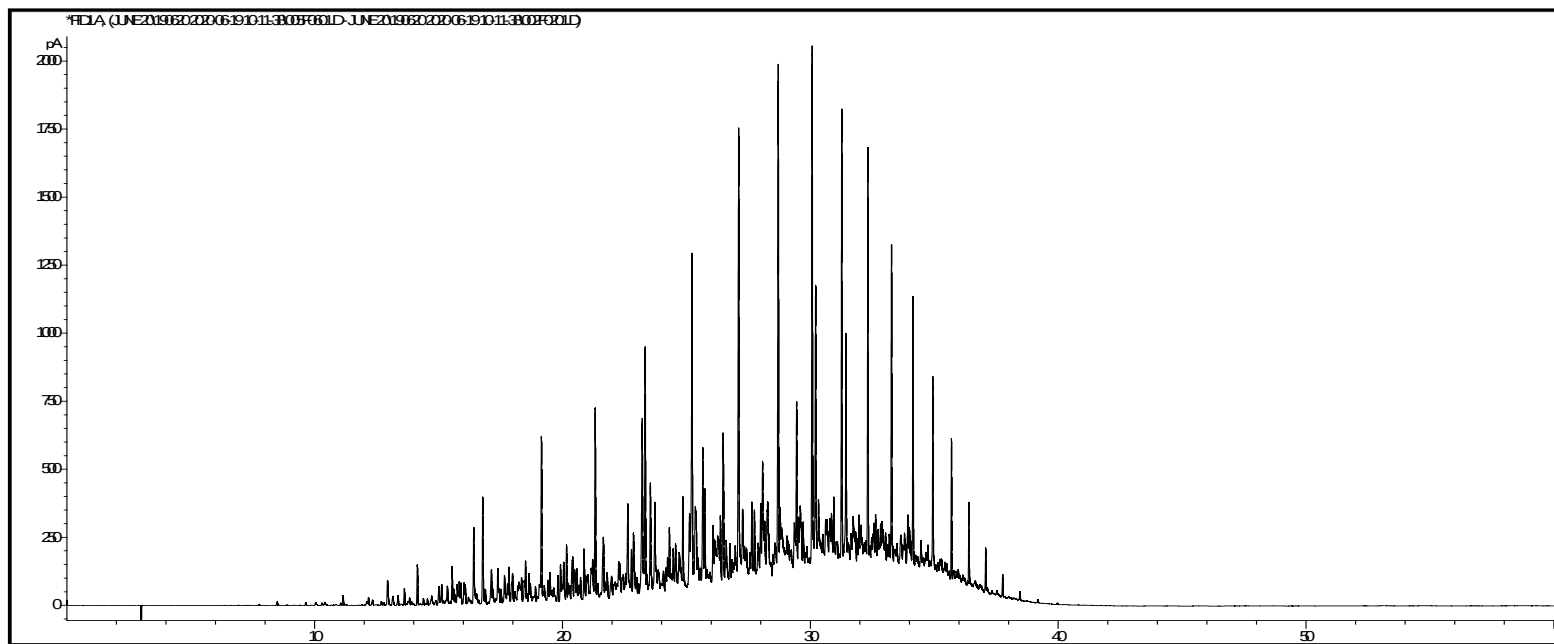
EMT Job No.: 20/7814
EMT Sample No.: 12
Sample Identity: IC8-S1
Depth:

Description: Red/Ambler Oil on Green Water
Carbon Range: 7-30
Boiling Point Range (°C): 98-450
Pristane/Phytane Ratio: 1.403
nC₁₇/Pristane Ratio: 1.713
Age of Diesel (+/- 2 years)*: 5

% Diesel: -
% Petrol: -
Estimated % Weathering of Petrol: -
Toluene/nC₈ ratio of Petrol: -
Age of Petrol (years) (schmidt et al 2002): -

Interpretation: Diesel

Chromatogram:



*The age of release estimated in this report 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 that the laboratory are not aware of.

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller

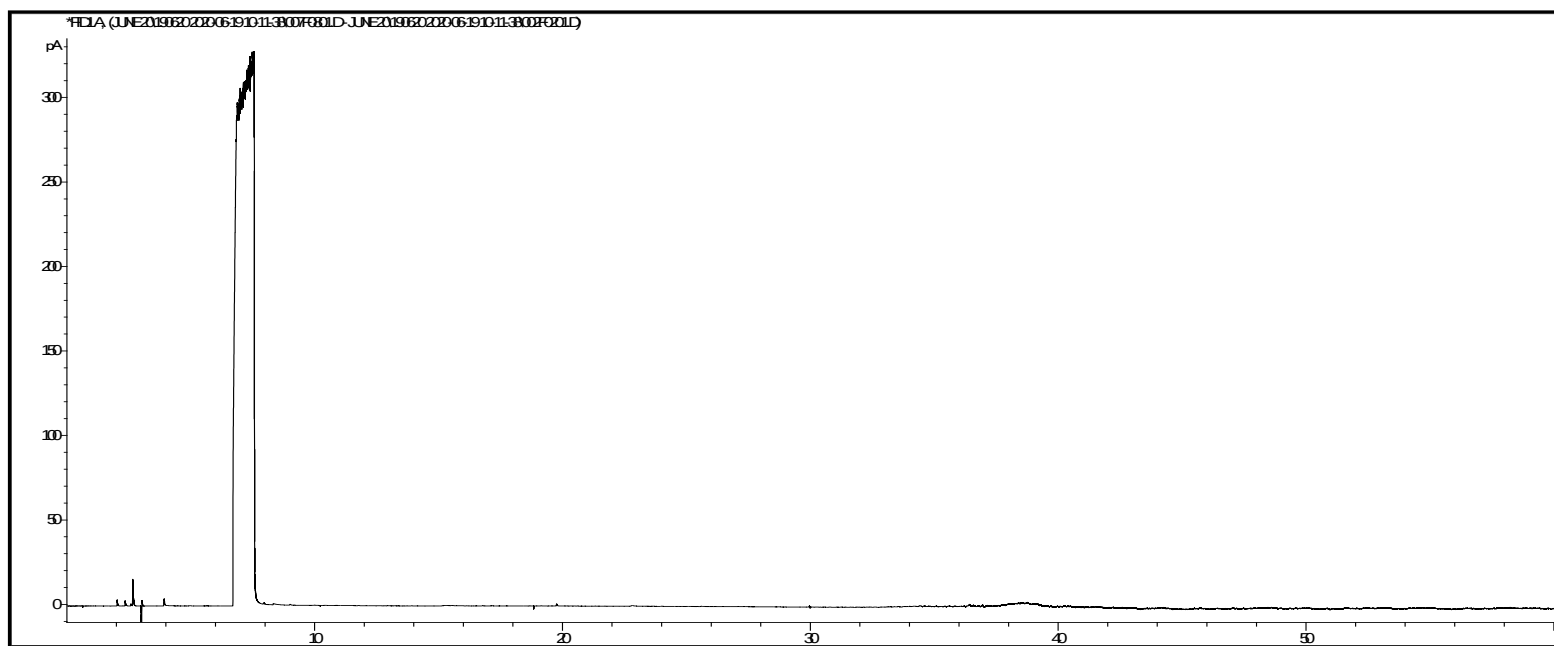
EMT Job No.: 20/7814
EMT Sample No.: 20
Sample Identity: IC10-S1
Depth:

Description: Green Liquid
Carbon Range: 6-7
Boiling Point Range (°C): 69-98
Pristane/Phytane Ratio: N/A
nC₁₇/Pristane Ratio: N/A
Age of Diesel (+/- 2 years)*: N/A

% Diesel: -
% Petrol: -
Estimated % Weathering of Petrol: -
Toluene/nC₈ ratio of Petrol: -
Age of Petrol (years) (schmidt et al 2002): -

Interpretation: Antifreeze (Ethylene Glycol)

Chromatogram:



*The age of release estimated in this report 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 that the laboratory are not aware of.

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller

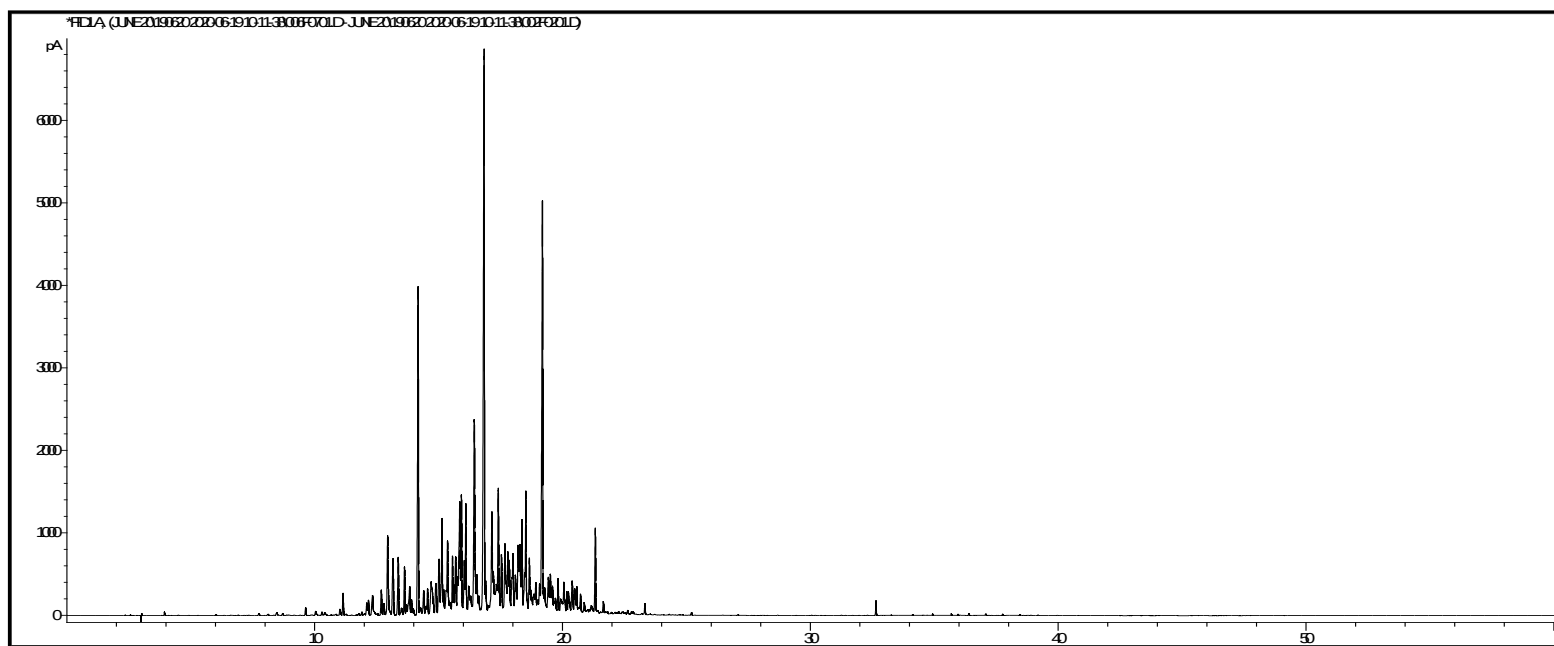
EMT Job No.: 20/7814
EMT Sample No.: 28
Sample Identity: IC12-S1
Depth:

Description: Red Amber Oil on Water
Carbon Range: 7-31
Boiling Point Range (°C): 98-459
Pristane/Phytane Ratio: N/A
nC₁₇/Pristane Ratio: N/A
Age of Diesel (+/- 2 years)*: N/A

% Diesel: -
% Petrol: -
Estimated % Weathering of Petrol: -
Toluene/nC₈ ratio of Petrol: -
Age of Petrol (years) (schmidt et al 2002): -

Interpretation: Kerosene Range Organics and Unknown Organics (30-42mins)

Chromatogram:



*The age of release estimated in this report 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 that the laboratory are not aware of.

Matrix : Product

[illegible]

Client Name: Smith Grant LLP

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/7814

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 20/7814

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM1	Modified USEPA 8015B v2:1996 method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.			AR	
TM1	Modified USEPA 8015B v2:1996 method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.	Yes		AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM0	No preparation is required.			AR	
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 20/7814

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
TM124	Modified USEPA 8260B v2:1996. Semi- Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM0	No preparation is required.			AR	

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Attention : Scott Miller
Date : 14th July, 2020
Your reference : R2174C
Our reference : Test Report 20/8505 Batch 1
Location : Tetrosyl, Bury
Date samples received : 1st July, 2020
Status : Final report
Issue : 1

Three samples were received for analysis on 1st July, 2020 of which three 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.

Authorised By:



Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

[illegible]

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

Report : Product

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	5-8	9-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	IC14-S1	IC15-S1											
Depth													
COC No / misc													
Containers	V G	V G											
Sample Date	17/06/2020	17/06/2020											
Sample Type	Liquid	Liquid											
Batch Number	1	1											
Date of Receipt	01/07/2020	01/07/2020									LOD/LOR	Units	Method No.
Whole Oil Trace	See Attached	NDP										None	TM1/PM0
TPH CWG													
Aliphatics													
>C5-C6	<0.1	-									<0.1	%	TM1/PM0
>C6-C8	0.4	-									<0.1	%	TM1/PM0
>C8-C10	39.6	-									<0.1	%	TM1/PM0
>C10-C12	57.5	-									<0.1	%	TM1/PM0
>C12-C16	0.9	-									<0.1	%	TM1/PM0
>C16-C21	<0.1	-									<0.1	%	TM1/PM0
>C21-C35	<0.1	-									<0.1	%	TM1/PM0
Aromatics													
>EC6-EC8	<0.1	-									<0.1	%	TM1/PM0
>EC8-EC10	0.4	-									<0.1	%	TM1/PM0
>EC10-EC12	0.8	-									<0.1	%	TM1/PM0
>EC12-EC16	0.3	-									<0.1	%	TM1/PM0
>EC16-EC21	0.1	-									<0.1	%	TM1/PM0
>EC21-EC35	<0.1	-									<0.1	%	TM1/PM0
SVOC TICs	See Attached	-										None	TM16/PM0

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyl, Bury
 Contact: Scott Miller
 EMT Job No: 20/8505

SVOC Report : Liquid

EMT Sample No.	1-4	9-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	IC13-S1	IC15-S1											
Depth													
COC No / misc													
Containers	V G	V G											
Sample Date	17/06/2020	17/06/2020											
Sample Type	Liquid	Liquid									LOD/LOR	Units	Method No.
Batch Number	1	1											
Date of Receipt	01/07/2020	01/07/2020											
SVOC MS													
Phenols													
2-Chlorophenol	<1	<1									<1	ug/l	TM16/PM30
2-Methylphenol	3.1	4.7									<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5									<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol	<0.5	<0.5									<0.5	ug/l	TM16/PM30
2,4-Dimethylphenol	<1	<1									<1	ug/l	TM16/PM30
2,4,5-Trichlorophenol	<0.5	<0.5									<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1									<1	ug/l	TM16/PM30
4-Chloro-3-methylphenol	<0.5	<0.5									<0.5	ug/l	TM16/PM30
4-Methylphenol	>>194	839									<1	ug/l	TM16/PM30
4-Nitrophenol	<10	<10									<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1									<1	ug/l	TM16/PM30
Phenol	17	87									<1	ug/l	TM16/PM30
PAHs													
2-Chloronaphthalene	<1	<1									<1	ug/l	TM16/PM30
2-Methylnaphthalene	<1	<1									<1	ug/l	TM16/PM30
Naphthalene	<1	7									<1	ug/l	TM16/PM30
Acenaphthylene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Acenaphthene	<1	<1									<1	ug/l	TM16/PM30
Fluorene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Phenanthrene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Anthracene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Fluoranthene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Pyrene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Benzo(a)anthracene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Chrysene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene	<1	<1									<1	ug/l	TM16/PM30
Benzo(a)pyrene	<1	<1									<1	ug/l	TM16/PM30
Indeno(123cd)pyrene	<1	<1									<1	ug/l	TM16/PM30
Dibenzo(ah)anthracene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Benzo(ghi)perylene	<0.5	<0.5									<0.5	ug/l	TM16/PM30
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5									<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1									<1	ug/l	TM16/PM30
Di-n-butyl phthalate	<1.5	<1.5									<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1									<1	ug/l	TM16/PM30
Diethyl phthalate	<1	28									<1	ug/l	TM16/PM30
Dimethyl phthalate	4	<1									<1	ug/l	TM16/PM30

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

Please see attached notes for all abbreviations and acronyms

QF-PM 3.1.3 v11

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

SVOC Report : Product

EMT Sample No.	5-8										Please see attached notes for all abbreviations and acronyms		
Sample ID	IC14-S1												
Depth													
COC No / misc													
Containers	V G												
Sample Date	17/06/2020												
Sample Type	Liquid												
Batch Number	1												
Date of Receipt	01/07/2020										LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol	<0.01										<0.01	%	TM16/PM0
2-Methylphenol	<0.01										<0.01	%	TM16/PM0
2-Nitrophenol	<0.01										<0.01	%	TM16/PM0
2,4-Dichlorophenol	<0.01										<0.01	%	TM16/PM0
2,4-Dimethylphenol	<0.01										<0.01	%	TM16/PM0
2,4,5-Trichlorophenol	<0.01										<0.01	%	TM16/PM0
2,4,6-Trichlorophenol	<0.01										<0.01	%	TM16/PM0
4-Chloro-3-methylphenol	<0.01										<0.01	%	TM16/PM0
4-Methylphenol	<0.01										<0.01	%	TM16/PM0
4-Nitrophenol	<0.01										<0.01	%	TM16/PM0
Pentachlorophenol	<0.01										<0.01	%	TM16/PM0
Phenol	<0.01										<0.01	%	TM16/PM0
PAHs													
2-Chloronaphthalene	<0.01										<0.01	%	TM16/PM0
2-Methylnaphthalene	<0.01										<0.01	%	TM16/PM0
Naphthalene	<0.01										<0.01	%	TM16/PM0
Acenaphthylene	<0.01										<0.01	%	TM16/PM0
Acenaphthene	<0.01										<0.01	%	TM16/PM0
Fluorene	<0.01										<0.01	%	TM16/PM0
Phenanthrene	<0.01										<0.01	%	TM16/PM0
Anthracene	<0.01										<0.01	%	TM16/PM0
Fluoranthene	<0.01										<0.01	%	TM16/PM0
Pyrene	<0.01										<0.01	%	TM16/PM0
Benzo(a)anthracene	<0.01										<0.01	%	TM16/PM0
Chrysene	<0.01										<0.01	%	TM16/PM0
Benzo(bk)fluoranthene	<0.01										<0.01	%	TM16/PM0
Benzo(a)pyrene	<0.01										<0.01	%	TM16/PM0
Indeno(123cd)pyrene	<0.01										<0.01	%	TM16/PM0
Dibenzo(ah)anthracene	<0.01										<0.01	%	TM16/PM0
Benzo(ghi)perylene	<0.01										<0.01	%	TM16/PM0
Phthalates													
Bis(2-ethylhexyl) phthalate	<0.01										<0.01	%	TM16/PM0
Butylbenzyl phthalate	<0.01										<0.01	%	TM16/PM0
Di-n-butyl phthalate	<0.01										<0.01	%	TM16/PM0
Di-n-Octyl phthalate	<0.01										<0.01	%	TM16/PM0
Diethyl phthalate	<0.01										<0.01	%	TM16/PM0
Dimethyl phthalate	<0.01										<0.01	%	TM16/PM0

Please see attached notes for all abbreviations and acronyms

[illegible]

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

VOC Report : Liquid

EMT Sample No.	1-4	9-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	IC13-S1	IC15-S1											
Depth													
COC No / misc													
Containers	V G	V G											
Sample Date	17/06/2020	17/06/2020											
Sample Type	Liquid	Liquid											
Batch Number	1	1									LOD/LOR	Units	Method No.
Date of Receipt	01/07/2020	01/07/2020											
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	<0.1	10.3									<0.1	ug/l	TM15/PM10
Chloromethane	<3	<3									<3	ug/l	TM15/PM10
Vinyl Chloride	<0.1	1.0									<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1									<1	ug/l	TM15/PM10
Chloroethane	<3	<3									<3	ug/l	TM15/PM10
Trichlorofluoromethane	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	<3	<3									<3	ug/l	TM15/PM10
Dichloromethane (DCM)	<5	6									<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene	<3	<3									<3	ug/l	TM15/PM10
1,1-Dichloroethane	<3	<3									<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	<3	<3									<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1									<1	ug/l	TM15/PM10
Bromochloromethane	<2	<2									<2	ug/l	TM15/PM10
Chloroform	<2	<2									<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	<2	<2									<2	ug/l	TM15/PM10
1,1-Dichloropropene	<3	<3									<3	ug/l	TM15/PM10
Carbon tetrachloride	<2	<2									<2	ug/l	TM15/PM10
1,2-Dichloroethane	<2	<2									<2	ug/l	TM15/PM10
Benzene	6.8	4.2									<0.5	ug/l	TM15/PM10
Trichloroethene (TCE)	<3	<3									<3	ug/l	TM15/PM10
1,2-Dichloropropane	<2	<2									<2	ug/l	TM15/PM10
Dibromomethane	<3	<3									<3	ug/l	TM15/PM10
Bromodichloromethane	<2	<2									<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
Toluene	160	327									<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2									<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	<2	<2									<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	<3	<3									<3	ug/l	TM15/PM10
1,3-Dichloropropane	<2	<2									<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2									<2	ug/l	TM15/PM10
1,2-Dibromoethane	<2	<2									<2	ug/l	TM15/PM10
Chlorobenzene	<2	<2									<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<2	<2									<2	ug/l	TM15/PM10
Ethylbenzene	11	125									<1	ug/l	TM15/PM10
m/p-Xylene	37	368									<2	ug/l	TM15/PM10
o-Xylene	9	79									<1	ug/l	TM15/PM10
Styrene	<2	<2									<2	ug/l	TM15/PM10
Bromoform	<2	<2									<2	ug/l	TM15/PM10
Isopropylbenzene	<3	21									<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4									<4	ug/l	TM15/PM10
Bromobenzene	<2	<2									<2	ug/l	TM15/PM10
1,2,3-Trichloropropane	<3	<3									<3	ug/l	TM15/PM10
Propylbenzene	<3	63									<3	ug/l	TM15/PM10
2-Chlorotoluene	<3	<3									<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	4	197									<3	ug/l	TM15/PM10
4-Chlorotoluene	<3	<3									<3	ug/l	TM15/PM10
tert-Butylbenzene	<3	32									<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	13	710									<3	ug/l	TM15/PM10
sec-Butylbenzene	<3	62									<3	ug/l	TM15/PM10
4-Isopropyltoluene	<3	70									<3	ug/l	TM15/PM10
1,3-Dichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
n-Butylbenzene	<3	72									<3	ug/l	TM15/PM10
1,2-Dichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2									<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3									<3	ug/l	TM15/PM10
Naphthalene	<2	9									<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3									<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	100									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	97									<0	%	TM15/PM10

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/8505

VOC Report : Product

EMT Sample No.	5-8											
Sample ID	IC14-S1											
Depth												
COC No / misc												
Containers	V G											
Sample Date	17/06/2020											
Sample Type	Liquid											
Batch Number	1											
Date of Receipt	01/07/2020											
VOC MS												
Dichlorodifluoromethane	<0.01									<0.01	%	TM124/PM0
Methyl Tertiary Butyl Ether	<0.05									<0.05	%	TM124/PM0
Chloromethane	<0.01									<0.01	%	TM124/PM0
Vinyl Chloride	<0.01									<0.01	%	TM124/PM0
Bromomethane	<0.01									<0.01	%	TM124/PM0
Chloroethane	<0.01									<0.01	%	TM124/PM0
Trichlorofluoromethane	<0.01									<0.01	%	TM124/PM0
1,1-Dichloroethene (1,1 DCE)	<0.01									<0.01	%	TM124/PM0
Dichloromethane (DCM)	<0.01									<0.01	%	TM124/PM0
trans-1-2-Dichloroethene	<0.01									<0.01	%	TM124/PM0
1,1-Dichloroethane	<0.01									<0.01	%	TM124/PM0
cis-1-2-Dichloroethene	<0.01									<0.01	%	TM124/PM0
2,2-Dichloropropane	<0.01									<0.01	%	TM124/PM0
Bromochloromethane	<0.01									<0.01	%	TM124/PM0
Chloroform	<0.01									<0.01	%	TM124/PM0
1,1,1-Trichloroethane	0.07									<0.01	%	TM124/PM0
1,1-Dichloropropene	<0.01									<0.01	%	TM124/PM0
Carbon tetrachloride	<0.01									<0.01	%	TM124/PM0
1,2-Dichloroethane	<0.01									<0.01	%	TM124/PM0
Benzene	0.04									<0.01	%	TM124/PM0
Trichloroethene (TCE)	<0.01									<0.01	%	TM124/PM0
1,2-Dichloropropane	<0.01									<0.01	%	TM124/PM0
Dibromomethane	<0.01									<0.01	%	TM124/PM0
Bromodichloromethane	<0.01									<0.01	%	TM124/PM0
cis-1-3-Dichloropropene	<0.01									<0.01	%	TM124/PM0
Toluene	0.21									<0.01	%	TM124/PM0
trans-1-3-Dichloropropene	<0.01									<0.01	%	TM124/PM0
1,1,2-Trichloroethane	<0.01									<0.01	%	TM124/PM0
Tetrachloroethene (PCE)	<0.01									<0.01	%	TM124/PM0
1,3-Dichloropropane	<0.01									<0.01	%	TM124/PM0
Dibromochloromethane	<0.01									<0.01	%	TM124/PM0
1,2-Dibromoethane	<0.01									<0.01	%	TM124/PM0
Chlorobenzene	<0.01									<0.01	%	TM124/PM0
1,1,1,2-Tetrachloroethane	<0.01									<0.01	%	TM124/PM0
Ethylbenzene	<0.01									<0.01	%	TM124/PM0
m/p-Xylene	<0.01									<0.01	%	TM124/PM0
o-Xylene	<0.01									<0.01	%	TM124/PM0
Styrene	<0.01									<0.01	%	TM124/PM0
Bromoform	<0.01									<0.01	%	TM124/PM0
Isopropylbenzene	<0.01									<0.01	%	TM124/PM0
1,1,2,2-Tetrachloroethane	<0.01									<0.01	%	TM124/PM0
Bromobenzene	<0.01									<0.01	%	TM124/PM0
1,2,3-Trichloropropane	<0.01									<0.01	%	TM124/PM0
Propylbenzene	<0.01									<0.01	%	TM124/PM0
2-Chlorotoluene	<0.01									<0.01	%	TM124/PM0
1,3,5-Trimethylbenzene	<0.01									<0.01	%	TM124/PM0
4-Chlorotoluene	<0.01									<0.01	%	TM124/PM0
tert-Butylbenzene	<0.01									<0.01	%	TM124/PM0
1,2,4-Trimethylbenzene	<0.01									<0.01	%	TM124/PM0
sec-Butylbenzene	<0.01									<0.01	%	TM124/PM0
4-Isopropyltoluene	<0.01									<0.01	%	TM124/PM0
1,3-Dichlorobenzene	<0.01									<0.01	%	TM124/PM0
1,4-Dichlorobenzene	<0.01									<0.01	%	TM124/PM0
n-Butylbenzene	<0.01									<0.01	%	TM124/PM0
1,2-Dichlorobenzene	<0.01									<0.01	%	TM124/PM0
1,2-Dibromo-3-chloropropane	<0.01									<0.01	%	TM124/PM0
1,2,4-Trichlorobenzene	<0.01									<0.01	%	TM124/PM0
Hexachlorobutadiene	<0.01									<0.01	%	TM124/PM0
Naphthalene	<0.01									<0.01	%	TM124/PM0
1,2,3-Trichlorobenzene	<0.01									<0.01	%	TM124/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Method: VOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC

Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/8505
Sample number: 8
Sample identity: IC14-S1
Sample depth:
Sample Type: Liquid
Units: %

Method: SVOC
Matrix: Product

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	3.459	93	0.39
7667-60-9	Cyclohexane, 1,2,4-trimethyl-, (1.alpha.,2.beta.,4.beta.)-	3.619	95	1.36
2234-75-5	Cyclohexane, 1,2,4-trimethyl-	3.873	90	0.54
3728-55-0	1-Ethyl-3-methylcyclohexane (c,t)	3.991	90	2.21
111-84-2	Nonane	4.134	95	2.67
3728-56-1	1-Ethyl-4-methylcyclohexane	4.202	81	1.90
1678-98-4	Cyclohexane, (2-methylpropyl)-	4.463	83	3.07
15869-94-0	Octane, 3,6-dimethyl-	4.539	90	1.89
7045-67-2	Cyclohexane, 2-ethyl-1,3-dimethyl-	4.599	81	1.01
19689-18-0	4-Decene	4.784	81	1.59
5911-04-6	Nonane, 3-methyl-	4.953	87	2.62
7058-05-1	Cyclohexane, 1-ethyl-2,3-dimethyl-	5.029	87	0.42
4926-90-3	Cyclohexane, 1-ethyl-1-methyl-	5.080	80	2.18
124-18-5	Decane	5.274	95	8.95
17302-28-2	Nonane, 2,6-dimethyl-	5.511	90	3.64
1678-93-9	Cyclohexane, butyl-	5.573	94	2.76
17302-32-8	Nonane, 3,7-dimethyl-	5.657	81	2.31
493-02-7	Naphthalene, decahydro-, trans-	5.786	95	2.15
2847-72-5	Decane, 4-methyl-	5.864	95	1.52
13151-34-3	Decane, 3-methyl-	5.953	91	1.77
1120-21-4	Undecane	6.223	94	5.46
4292-92-6	Cyclohexane, pentyl-	6.507	83	0.45
38775-38-1	1-Hexadecanesulfonyl chloride	6.596	90	0.15
55045-09-5	Tridecane, 7-propyl-	6.749	93	0.21
1002-43-3	Undecane, 3-methyl-	6.800	91	0.16
1618-22-0	Naphthalene, decahydro-2,6-dimethyl-	6.892	83	0.06
112-40-3	Dodecane	7.018	93	0.41
29804-22-6	Disparlure	7.095	86	0.03
17301-23-4	Undecane, 2,6-dimethyl-	7.134	81	0.07
2437-56-1	1-Tridecene	7.329	83	<0.01

Element Materials Technology

Job number: 20/8505
Sample number: 8
Sample identity: IC14-S1
Sample depth:
Sample Type: Liquid
Units: %

Method: SVOC
Matrix: Product

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
150-86-7	Phytol	7.500	86	<0.01
1203-17-4	1H-Indene, 2,3-dihydro-1,1,2,3,3-pentamethyl-	7.718	98	0.07
765-05-9	Decane, 1-(ethenyloxy)-	8.333	93	0.01
35953-53-8	2-Tetradecene, (E)-	8.384	90	0.01
10374-74-0	7-Tetradecene	8.435	89	0.01
13360-61-7	1-Pentadecene	8.549	83	0.01
18435-45-5	1-Nonadecene	8.781	89	0.01
629-50-5	Tridecane	8.928	94	0.02
295-17-0	Cyclotetradecane	8.958	92	0.01
6222-06-6	Pentafluoropropionic acid, tetradecyl ester	8.999	87	<0.01
765-14-0	Vinyl lauryl ether	9.101	89	0.01
74339-52-9	Trichloroacetic acid, tetradecyl ester	9.142	83	<0.01
930-02-9	Octadecane, 1-(ethenyloxy)-	9.162	91	0.01
629-73-2	Cetene	9.234	90	0.02
3910-35-8	1H-Indene, 2,3-dihydro-1,1,3-trimethyl-3-phenyl-	10.028	98	0.03
60609-53-2	8-Hexadecenal, 14-methyl-, (Z)-	10.065	91	0.02
35507-09-6	7-Hexadecene, (Z)-	10.101	86	<0.01
112-88-9	1-Octadecene	10.284	95	0.02
6765-39-5	1-Heptadecene	10.330	97	0.02
295-48-7	Cyclopentadecane	10.431	91	0.01
629-59-4	Tetradecane	10.834	90	0.05
4860-03-1	Hexadecane, 1-chloro-	10.862	91	0.02
1560-92-5	Hexadecane, 2-methyl-	11.045	90	0.04
25269-17-4	Thunbergol	11.165	90	0.01
629-62-9	Pentadecane	11.302	96	0.05
297-03-0	Cyclotetracosane	11.686	97	0.03
544-76-3	Hexadecane	11.719	98	0.06
52078-56-5	11-Tricosene	12.116	97	0.04
629-78-7	Heptadecane	12.149	98	0.05
646-31-1	Tetracosane	12.596	97	0.04

Element Materials Technology

Method: SVOC

Matrix: **Product**

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

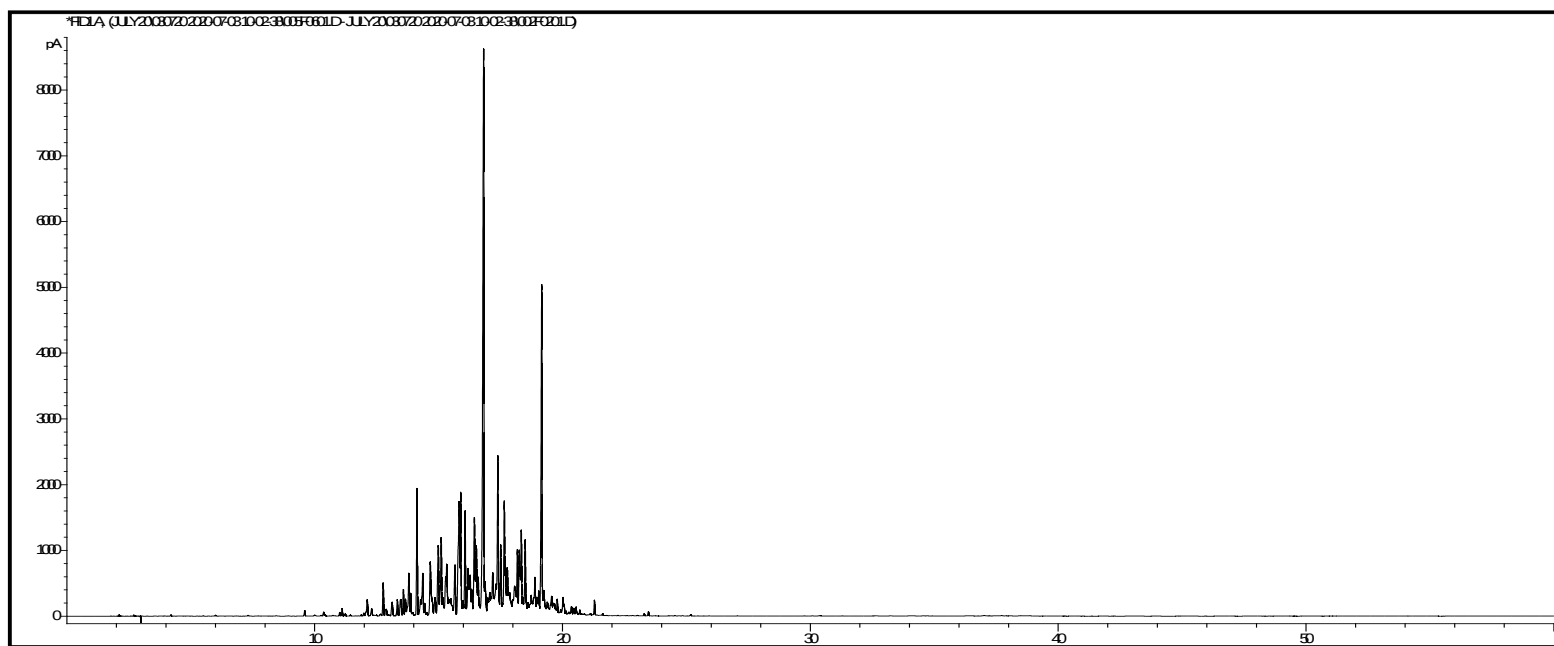
Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller

EMT Job No.: 20/8505
EMT Sample No.: 8
Sample Identity: IC14-S1
Depth:

Description: Clear Oil on Water
Carbon Range: 7-18
Boiling Point Range (°C): 98-317
Pristane/Phytane Ratio: N/A
nC₁₇/Pristane Ratio: N/A
Age of Diesel (+/- 2 years)*: N/A

Interpretation: White Spirit

Chromatogram:



*The age of release estimated in this report 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 that the laboratory are not aware of.

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller

EMT Job No.: 20/8505
EMT Sample No.: 12
Sample Identity: IC15-S1
Depth:

Description: NDP
Carbon Range: NDP
Boiling Point Range (°C): NDP
Pristane/Phytane Ratio: NDP
nC₁₇/Pristane Ratio: NDP
Age of Diesel (+/- 2 years)*: NDP
Interpretation: NDP

Chromatogram:

*The age of release estimated in this report 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 that the laboratory are not aware of.

Matrix : Product

[illegible]

Client Name: Smith Grant LLP

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/8505

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 20/8505

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM1	Modified USEPA 8015B v2:1996 method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM0	No preparation is required.			AR	
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM124	Modified USEPA 8260B v2:1996. Semi- Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM0	No preparation is required.			AR	

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 15th October, 2020
Your reference : R2174C
Our reference : Test Report 20/13273 Batch 1
Location : Tetrosyl, Bury
Date samples received : 28th September, 2020
Status : Final report
Issue : 2

Four samples were received for analysis on 28th September, 2020 of which four 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.

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: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/13273

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6	7-8							Please see attached notes for all abbreviations and acronyms		
Sample ID	QTT1-S1	QTT1-S2	QTT2-S1	QTT2-S2									
Depth	1.70-2.00	1.00-1.50	1.00-2.00	1.50-2.00									
COC No / misc													
Containers	V J	V J	V J	V J									
Sample Date	28/09/2020	28/09/2020	28/09/2020	28/09/2020									
Sample Type	Clay	Clay	Clay	Clay									
Batch Number	1	1	1	1									
Date of Receipt	28/09/2020	28/09/2020	28/09/2020	28/09/2020							LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	See Attached	ND								None	TM15/PM10
Methyl Tertiary Butyl Ether #	35	<2	<2	<2							<2	ug/kg	TM15/PM10
Benzene #	151	5	6	16							<3	ug/kg	TM15/PM10
Toluene #	>>43686	333	483	206							<3	ug/kg	TM15/PM10
Ethylbenzene #	>>54594	9	161	1912							<3	ug/kg	TM15/PM10
m/p-Xylene #	>>94576	38	362	>>5786							<5	ug/kg	TM15/PM10
o-Xylene #	>>38305	28	82	562							<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	56	85	80	89							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	60	73	67	75							<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached	See Attached								None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 #M	0.3 ^{SV}	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C6-C8 #M	8.8 ^{SV}	<0.1	0.1	0.1							<0.1	mg/kg	TM36/PM12
>C8-C10	16.7 ^{SV}	3.0	0.4	1.0							<0.1	mg/kg	TM36/PM12
>C10-C12 #M	189.7	<0.2	<0.2	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	101	<4	<4	<4							<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	59	<7	15	<7							<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	47	19	48	78							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	423	22	64	79							<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1 ^{SV}	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	44.4 ^{SV}	0.1	0.4	0.1							<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	67.0 ^{SV}	<0.1	0.4	4.9							<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	223.5	1.6	<0.2	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	58	<4	11	18							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	46	11	57	78							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	91	54	166	202							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	530	67	235	303							<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	953	89	299	382							<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Monoethylene glycol	<50	<50	<50	<50							<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50	<50	<50							<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50	<50							<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50	<50							<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50	<50							<50	ug/kg	TM179/PM8
Natural Moisture Content	43.8	25.1	16.7	21.4							<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clay	Clay								None	PM13/PM0
Sample Colour	Black	Dark Brown	Dark Brown	Dark Brown								None	PM13/PM0
Other Items	Sand, stones	Sand, stones, roots	Sand, stones, roots, brick	Sand, stones, roots								None	PM13/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/13273

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8							Please see attached notes for all abbreviations and acronyms		
Sample ID	QTT1-S1	QTT1-S2	QTT2-S1	QTT2-S2									
Depth	1.70-2.00	1.00-1.50	1.00-2.00	1.50-2.00									
COC No / misc													
Containers	V J	V J	V J	V J									
Sample Date	28/09/2020	28/09/2020	28/09/2020	28/09/2020									
Sample Type	Clay	Clay	Clay	Clay									
Batch Number	1	1	1	1									
Date of Receipt	28/09/2020	28/09/2020	28/09/2020	28/09/2020							LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylphenol	371	<10	23	35							<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	588	<10	43	86							<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Methylphenol	1112	48	167	93							<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Phenol ^{#M}	32	<10	<10	44							<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	1228	15	351	399							<10	ug/kg	TM16/PM8
Naphthalene	1133	40	428	317							<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10	104	410							<10	ug/kg	TM16/PM8
Acenaphthene	<10	18	810	446							<10	ug/kg	TM16/PM8
Fluorene	30	19	541	1042							<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	582	103	3383	4804							<10	ug/kg	TM16/PM8
Anthracene	<10	26	666	1310							<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	85	143	3895	5395							<10	ug/kg	TM16/PM8
Pyrene ^{#M}	62	131	3424	4584							<10	ug/kg	TM16/PM8
Benzo(a)anthracene	56	91	1678	2239							<10	ug/kg	TM16/PM8
Chrysene	106	75	1682	2040							<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	47	140	2684	3033							<10	ug/kg	TM16/PM8
Benzo(a)pyrene	<10	73	1705	1964							<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	<10	43	850	878							<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	15	289	313							<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	<10	60	962	977							<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	34	101	1932	2184							<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	13	39	752	849							<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	151	<100	<100	<100							<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100							<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	<100							<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100							<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100							<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100	<100							<100	ug/kg	TM16/PM8

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/13273

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8							Please see attached notes for all abbreviations and acronyms		
Sample ID	QTT1-S1	QTT1-S2	QTT2-S1	QTT2-S2									
Depth	1.70-2.00	1.00-1.50	1.00-2.00	1.50-2.00									
COC No / misc													
Containers	V J	V J	V J	V J									
Sample Date	28/09/2020	28/09/2020	28/09/2020	28/09/2020									
Sample Type	Clay	Clay	Clay	Clay									
Batch Number	1	1	1	1									
Date of Receipt	28/09/2020	28/09/2020	28/09/2020	28/09/2020							LOD/LOR	Units	Method No.
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Bromophenylphenylether ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Carbazole	<10	<10	261	477							<10	ug/kg	TM16/PM8
Dibenzofuran ^{#M}	68	14	408	732							<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachlorobutadiene ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Isophorone ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Nitrobenzene ^{#M}	<10	<10	<10	<10							<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	130	118	118	123							<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	123	120	124	123							<0	%	TM16/PM8

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/13273

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8							Please see attached notes for all abbreviations and acronyms		
Sample ID	QTT1-S1	QTT1-S2	QTT2-S1	QTT2-S2									
Depth	1.70-2.00	1.00-1.50	1.00-2.00	1.50-2.00									
COC No / misc													
Containers	V J	V J	V J	V J									
Sample Date	28/09/2020	28/09/2020	28/09/2020	28/09/2020									
Sample Type	Clay	Clay	Clay	Clay									
Batch Number	1	1	1	1									
Date of Receipt	28/09/2020	28/09/2020	28/09/2020	28/09/2020							LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	173	11	39	158							<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	35	<2	<2	<2							<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Vinyl Chloride	20	<2	<2	<2							<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1							<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	12	<2	<2	<2							<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6							<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30	<30	<30							<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	86	<3	9	<3							<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	119	<3	23	<3							<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	73	<4	<4	<4							<4	ug/kg	TM15/PM10
Benzene #	151	5	6	16							<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	70	<3	9	<3							<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6							<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Toluene #	>>43686	333	483	206							<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	52	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Chlorobenzene #	293	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Ethylbenzene #	>>54594	9	161	1912							<3	ug/kg	TM15/PM10
m/p-Xylene #	>>94576	38	362	5786							<5	ug/kg	TM15/PM10
o-Xylene #	>>38305	28	82	562							<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3							<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Isopropylbenzene #	1053	61	7	19							<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2							<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Propylbenzene #	2774	263	28	24							<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	4324	1035	92	38							<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3							<3	ug/kg	TM15/PM10
tert-Butylbenzene #	79	<5	16	<5							<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	>>36997	>>6688	467	175							<6	ug/kg	TM15/PM10
sec-Butylbenzene #	756	35	<4	<4							<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	600	46	8	13							<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
n-Butylbenzene #	660	40	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7							<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4							<4	ug/kg	TM15/PM10
Naphthalene	301	79	<27	59							<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7							<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	56	85	80	89							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	60	73	67	75							<0	%	TM15/PM10

Element Materials Technology

Method: VOC

Matrix: Solid

Sample depth: 1.70-2.00

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC

Matrix: Solid

Sample depth: 1.00-1.50

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC

Matrix: Solid

Sample depth: 1.00-2.00

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13273 **Method:** SVOC
Sample number: 2 **Matrix:** Solid
Sample identity: QTT1-S1
Sample depth: 1.70-2.00
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
1678-92-8	Cyclohexane, propyl-	4.515	87	1041
2051-30-1	Octane, 2,6-dimethyl-	4.581	94	870
526-73-8	Benzene, 1,2,3-trimethyl-	5.098	95	25254
124-18-5	Decane	5.277	95	7538
496-11-7	Indane	5.501	81	1684
2847-72-5	Decane, 4-methyl-	5.529	91	1737
1074-43-7	Benzene, 1-methyl-3-propyl-	5.682	87	3950
1074-17-5	Benzene, 1-methyl-2-propyl-	5.840	81	2390
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.934	96	5483
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	6.007	93	3973
527-84-4	o-Cymene	6.193	94	2220
1120-21-4	Undecane	6.240	93	4987
488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.296	95	1424
66633-38-3	Cyclodecene, 1-methyl-	6.504	89	1050
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.600	93	2256
1595-16-0	Benzene, 1-methyl-4-(1-methylpropyl)-	6.674	87	746
1002-43-3	Undecane, 3-methyl-	6.841	91	644
112-40-3	Dodecane	7.064	96	3477
6117-97-1	Dodecane, 4-methyl-	7.503	93	512
1560-97-0	Dodecane, 2-methyl-	7.533	96	962
629-50-5	Tridecane	7.782	93	4407
3891-98-3	Dodecane, 2,6,10-trimethyl-	8.287	86	1191
629-59-4	Tetradecane	8.410	97	2793
582-16-1	Naphthalene, 2,7-dimethyl-	8.473	96	485
581-42-0	Naphthalene, 2,6-dimethyl-	8.498	96	723
629-62-9	Pentadecane	8.999	95	2217
544-76-3	Hexadecane	9.532	97	2413
13287-24-6	Nonadecane, 9-methyl-	9.795	89	821
629-78-7	Heptadecane	10.037	98	2486
54105-67-8	Heptadecane, 2,6-dimethyl-	10.089	94	2282

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 1.70-2.00

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 1.00-1.50

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13273 **Method:** SVOC
Sample number: 6 **Matrix:** Solid
Sample identity: QTT2-S1
Sample depth: 1.00-2.00
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
620-14-4	Benzene, 1-ethyl-3-methyl-	4.937	92	133
526-73-8	Benzene, 1,2,3-trimethyl-	5.098	95	364
934-74-7	Benzene, 1-ethyl-3,5-dimethyl-	5.944	93	153
1120-21-4	Undecane	6.240	81	159
91-57-6	Naphthalene, 2-methyl-	7.762	94	494
92-52-4	Biphenyl	8.182	94	280
939-27-5	Naphthalene, 2-ethyl-	8.308	94	177
581-42-0	Naphthalene, 2,6-dimethyl-	8.385	97	274
629-59-4	Tetradecane	8.410	93	149
575-41-7	Naphthalene, 1,3-dimethyl-	8.473	97	364
581-40-8	Naphthalene, 2,3-dimethyl-	8.598	95	246
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.131	98	371
13287-24-6	Nonadecane, 9-methyl-	9.532	92	443
7320-53-8	Dibenzofuran, 4-methyl-	9.606	87	392
3218-36-8	[1,1'-Biphenyl]-4-carboxaldehyde	9.679	91	289
1730-37-6	9H-Fluorene, 1-methyl-	10.037	93	274
31295-56-4	Dodecane, 2,6,11-trimethyl-	10.089	91	344
486-25-9	9H-Fluorene-9-one	10.142	92	169
132-65-0	Dibenzothiophene	10.257	83	446
629-94-7	Heneicosane	10.509	96	224
832-69-9	Phenanthrene, 1-methyl-	10.925	95	457
2531-84-2	Phenanthrene, 2-methyl-	10.950	97	762
610-48-0	Anthracene, 1-methyl-	11.001	96	383
612-94-2	Naphthalene, 2-phenyl-	11.229	91	415
10544-50-0	Cyclic octaatomic sulfur	11.516	93	568
313-80-4	Naphtho(2,1,8-def)quinoline	12.023	90	204
243-42-5	Benzo[b]naphtho[2,3-d]furan	12.048	94	476
112-95-8	Eicosane	12.234	95	328
33543-31-6	Fluoranthene, 2-methyl-	12.293	96	1518
243-17-4	11H-Benzo[b]fluorene	12.378	93	771

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 1.00-2.00

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13273 **Method:** SVOC
Sample number: 8 **Matrix:** Solid
Sample identity: QTT2-S2
Sample depth: 1.50-2.00
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
91-57-6	Naphthalene, 2-methyl-	7.762	94	511
582-16-1	Naphthalene, 2,7-dimethyl-	8.385	96	580
571-58-4	Naphthalene, 1,4-dimethyl-	8.473	97	456
581-42-0	Naphthalene, 2,6-dimethyl-	8.498	95	267
20294-32-0	6-Methyl-4-indanol	8.548	89	390
575-41-7	Naphthalene, 1,3-dimethyl-	8.598	96	481
629-62-9	Pentadecane	8.999	86	490
829-26-5	Naphthalene, 2,3,6-trimethyl-	9.131	96	539
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.218	96	341
2131-41-1	Naphthalene, 1,4,5-trimethyl-	9.239	95	278
2131-42-2	Naphthalene, 1,4,6-trimethyl-	9.312	95	498
629-50-5	Tridecane	9.532	90	379
1430-97-3	9H-Fluorene, 2-methyl-	10.005	92	288
1730-37-6	9H-Fluorene, 1-methyl-	10.037	89	291
132-65-0	Dibenzothiophene	10.257	94	442
629-59-4	Tetradecane	10.509	90	492
834-14-0	Benzene, 1-methoxy-4-(phenylmethyl)-	10.803	90	435
832-69-9	Phenanthrene, 1-methyl-	10.925	96	1032
610-48-0	Anthracene, 1-methyl-	11.001	96	288
10544-50-0	Cyclic octaatomic sulfur	11.516	93	424
2789-88-0	di-p-Tolylacetylene	11.533	92	441
243-42-5	Benzo[b]naphtho[2,3-d]furan	12.048	94	565
2381-21-7	Pyrene, 1-methyl-	12.192	95	725
629-78-7	Heptadecane	12.234	95	344
33543-31-6	Fluoranthene, 2-methyl-	12.293	96	1518
238-84-6	11H-Benzo[a]fluorene	12.378	93	785
479-79-8	11H-Benzo[a]fluoren-11-one	12.901	91	416
646-31-1	Tetracosane	13.618	95	327
3351-28-8	Chrysene, 1-methyl-	13.989	97	836
50861-05-7	9H-Cyclopenta[a]pyrene	14.157	90	1019

Element Materials Technology

Method: SVOC

Matrix: Solid

Sample depth: 1.50-2.00

Sample Type: Clay

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP **Matrix : Solid**

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/13273

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 20/13273

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes

EMT Job No: 20/13273

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 15th October, 2020
Your reference : R2174C
Our reference : Test Report 20/13383 Batch 1
Location : Tetrosyl, Bury (URL)
Date samples received : 30th September, 2020
Status : Final report
Issue : 1

Four samples were received for analysis on 30th September, 2020 of which four 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.

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: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6									
Sample ID	HS13-TP1-S1	HS10-TP1-S1	HS10-TP2-S1									
Depth	1.20	0.50	0.50-0.70									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	30/09/2020	30/09/2020	30/09/2020									
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand									
Batch Number	1	1	1									
Date of Receipt	30/09/2020	30/09/2020	30/09/2020									
										Please see attached notes for all abbreviations and acronyms		
										LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	See Attached								None	TM15/PM10
Methyl Tertiary Butyl Ether #	<2 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
Benzene #	46 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Toluene #	133 ^{SV}	>>12256	>>53891							<3	ug/kg	TM15/PM10
Ethylbenzene #	>>58461	2279	>>54705							<3	ug/kg	TM15/PM10
m/p-Xylene #	>>155835	>>15365	>>55316							<5	ug/kg	TM15/PM10
o-Xylene #	2209 ^{SV}	5600	>>40547							<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	38 ^{SV}	103	84							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	58 ^{SV}	88	67							<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached								None	TM16/PM8
TPH CWG												
Aliphatics												
>C5-C6 #M	>>0.2	<1.0 ^{AA}	>>2.9							<0.1	mg/kg	TM36/PM12
>C6-C8 #M	>>5.1	12.9 ^{AA}	>>278.4							<0.1	mg/kg	TM36/PM12
>C8-C10	>>191.9	8.4 ^{AA}	>>150.3							<0.1	mg/kg	TM36/PM12
>C10-C12 #M	1964.1	10.8	708.4							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	253	<4	328							<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	113	<7	61							<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	110	23	134							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	2637	55	1663							<19	mg/kg	TM5/PM36/PM8/PM12/PM16
Aromatics												
>C5-EC7 #	>><0.1	<1.0 ^{AA}	>><0.1							<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	>><0.1	3.9 ^{AA}	>>291.4							<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	>>35.9	9.9 ^{AA}	>>192.6							<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	442.7	16.3	197.2 ^{SV}							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	89	12	84 ^{SV}							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	73	13	128 ^{SV}							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	77	<7	96 ^{SV}							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	718	55	989							<19	mg/kg	TM5/PM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	3355	110	2652							<38	mg/kg	TM5/PM36/PM8/PM12/PM16
Monoethylene glycol	<50	<50	65							<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50	657							<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50							<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50							<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50							<50	ug/kg	TM179/PM8
Natural Moisture Content	22.0	15.1	22.8							<0.1	%	PM4/PM0
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand								None	PM13/PM0
Sample Colour	Dark Brown	Light Brown	Dark Brown								None	PM13/PM0
Other Items	Stones, Brick	Stones	Stones, brick								None	PM13/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	7-9										Please see attached notes for all abbreviations and acronyms		
Sample ID	HS10-TP4-WS1												
Depth	1.10												
COC No / misc													
Containers	V G												
Sample Date	30/09/2020												
Sample Type	Surface Water												
Batch Number	1												
Date of Receipt	30/09/2020												
VOC TICs	ND											None	TM15/PM10
Methyl Tertiary Butyl Ether #	69.6										<0.1	ug/l	TM15/PM10
Benzene #	16.9										<0.5	ug/l	TM15/PM10
Toluene #	>>10351										<5	ug/l	TM15/PM10
Ethylbenzene #	>>1173										<1	ug/l	TM15/PM10
m/p-Xylene #	>>5662										<2	ug/l	TM15/PM10
o-Xylene #	>>1865										<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	93										<0	%	TM15/PM10
SVOC TICs	See Attached											None	TM16/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	2450										<10	ug/l	TM36/PM12
>C6-C8 #	7940										<10	ug/l	TM36/PM12
>C8-C10 #	2931										<10	ug/l	TM36/PM12
>C10-C12 #	728										<5	ug/l	TM5/PM16/PM30
>C12-C16 #	230										<10	ug/l	TM5/PM16/PM30
>C16-C21 #	260										<10	ug/l	TM5/PM16/PM30
>C21-C35 #	820										<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	15359										<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	617										<10	ug/l	TM36/PM12
>EC7-EC8 #	>>15021										<10	ug/l	TM36/PM12
>EC8-EC10 #	11150										<10	ug/l	TM36/PM12
>EC10-EC12 #	1385										<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	20										<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10										<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10										<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	28193										<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) *	43552										<10	ug/l	TM5/PM16/PM30
Monoethylene glycol	15										<10	ug/l	TM179/PM0
Propylene glycol	<10										<10	ug/l	TM179/PM0
Diethylene glycol	11										<10	ug/l	TM179/PM0
Triethylene glycol	<10										<10	ug/l	TM179/PM0
Thiodiglycol	<10										<10	ug/l	TM179/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6								Please see attached notes for all abbreviations and acronyms		
Sample ID	HS13-TP1-S1	HS10-TP1-S1	HS10-TP2-S1										
Depth	1.20	0.50	0.50-0.70										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	30/09/2020	30/09/2020	30/09/2020										
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand										
Batch Number	1	1	1								LOD/LOR	Units	Method No.
Date of Receipt	30/09/2020	30/09/2020	30/09/2020										
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10	<10								<10	ug/kg	TM16/PM8
2-Methylphenol	<10	76	2959								<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10								<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10								<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	24	833								<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10								<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10								<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10								<10	ug/kg	TM16/PM8
4-Methylphenol	<10	24	3043								<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10								<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10								<10	ug/kg	TM16/PM8
Phenol ^{#M}	<10	<10	<10								<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10	<10								<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	1829	<10	2316								<10	ug/kg	TM16/PM8
Naphthalene	2367	17	1994								<10	ug/kg	TM16/PM8
Acenaphthylene	27	<10	<10								<10	ug/kg	TM16/PM8
Acenaphthene	<10	<10	725								<10	ug/kg	TM16/PM8
Fluorene	500	<10	598								<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	1276	98	2947								<10	ug/kg	TM16/PM8
Anthracene	176	<10	426								<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	666	71	2946								<10	ug/kg	TM16/PM8
Pyrene ^{#M}	763	115	2535								<10	ug/kg	TM16/PM8
Benzo(a)anthracene	449	81	1024								<10	ug/kg	TM16/PM8
Chrysene	334	67	1035								<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	511	55	1550								<10	ug/kg	TM16/PM8
Benzo(a)pyrene	314	29	933								<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	138	12	406								<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	43	<10	131								<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	188	18	544								<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	368	40	1116								<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	143	15	434								<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	126	<100	1293								<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100								<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	179	<100	<100								<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100								<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100								<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100								<100	ug/kg	TM16/PM8

Please see attached notes for all abbreviations and acronyms

[illegible]

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

SVOC Report : Liquid

EMT Sample No.	7-9										Please see attached notes for all abbreviations and acronyms			
Sample ID	HS10-TP4-WS1													
Depth	1.10													
COC No / misc														
Containers	V G													
Sample Date	30/09/2020													
Sample Type	Surface Water													
Batch Number	1													
Date of Receipt	30/09/2020											LOD/LOR	Units	Method No.
SVOC MS														
Phenols														
2-Chlorophenol #	<1										<1	ug/l	TM16/PM30	
2-Methylphenol #	81.3										<0.5	ug/l	TM16/PM30	
2-Nitrophenol	<0.5										<0.5	ug/l	TM16/PM30	
2,4-Dichlorophenol #	<0.5										<0.5	ug/l	TM16/PM30	
2,4-Dimethylphenol	68										<1	ug/l	TM16/PM30	
2,4,5-Trichlorophenol #	<0.5										<0.5	ug/l	TM16/PM30	
2,4,6-Trichlorophenol	<1										<1	ug/l	TM16/PM30	
4-Chloro-3-methylphenol #	<0.5										<0.5	ug/l	TM16/PM30	
4-Methylphenol	>>189										<1	ug/l	TM16/PM30	
4-Nitrophenol	<10										<10	ug/l	TM16/PM30	
Pentachlorophenol	<1										<1	ug/l	TM16/PM30	
Phenol	13										<1	ug/l	TM16/PM30	
PAHs														
2-Chloronaphthalene #	<1										<1	ug/l	TM16/PM30	
2-Methylnaphthalene #	4										<1	ug/l	TM16/PM30	
Naphthalene #	12										<1	ug/l	TM16/PM30	
Acenaphthylene #	<0.5										<0.5	ug/l	TM16/PM30	
Acenaphthene #	<1										<1	ug/l	TM16/PM30	
Fluorene #	<0.5										<0.5	ug/l	TM16/PM30	
Phenanthrene #	1.0										<0.5	ug/l	TM16/PM30	
Anthracene #	<0.5										<0.5	ug/l	TM16/PM30	
Fluoranthene #	<0.5										<0.5	ug/l	TM16/PM30	
Pyrene #	0.6										<0.5	ug/l	TM16/PM30	
Benzo(a)anthracene #	<0.5										<0.5	ug/l	TM16/PM30	
Chrysene #	<0.5										<0.5	ug/l	TM16/PM30	
Benzo(bk)fluoranthene #	<1										<1	ug/l	TM16/PM30	
Benzo(a)pyrene	<1										<1	ug/l	TM16/PM30	
Indeno(123cd)pyrene	<1										<1	ug/l	TM16/PM30	
Dibenzo(ah)anthracene #	<0.5										<0.5	ug/l	TM16/PM30	
Benzo(ghi)perylene #	<0.5										<0.5	ug/l	TM16/PM30	
Phthalates														
Bis(2-ethylhexyl) phthalate	41										<5	ug/l	TM16/PM30	
Butylbenzyl phthalate	<1										<1	ug/l	TM16/PM30	
Di-n-butyl phthalate #	<1.5										<1.5	ug/l	TM16/PM30	
Di-n-Octyl phthalate	<1										<1	ug/l	TM16/PM30	
Diethyl phthalate #	<1										<1	ug/l	TM16/PM30	
Dimethyl phthalate	<1										<1	ug/l	TM16/PM30	

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6									
Sample ID	HS13-TP1-S1	HS10-TP1-S1	HS10-TP2-S1									
Depth	1.20	0.50	0.50-0.70									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	30/09/2020	30/09/2020	30/09/2020									
Sample Type	Clayey Sand	Clayey Sand	Clayey Sand									
Batch Number	1	1	1									
Date of Receipt	30/09/2020	30/09/2020	30/09/2020									
	LOD/LOR	Units	Method No.									
VOC MS												
Dichlorodifluoromethane	44 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
Chloromethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Vinyl Chloride	<2 ^{SV}	<2	10							<2	ug/kg	TM15_A/PM10
Bromomethane	<1 ^{SV}	<1	<1							<1	ug/kg	TM15/PM10
Chloroethane #	<2 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6 ^{SV}	<6	<6							<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30 ^{SV}	<30	<30							<30	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3 ^{SV}	<3	112							<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
Bromochloromethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Chloroform #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
Benzene #	46 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3 ^{SV}	<3	20							<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6 ^{SV}	<6	<6							<6	ug/kg	TM15/PM10
Dibromomethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
Toluene #	133 ^{SV}	>>12256	>>53891							<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3 ^{SV}	18	117							<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Chlorobenzene #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Ethylbenzene #	>>58461	2279	>>54705							<3	ug/kg	TM15/PM10
m/p-Xylene #	>>155835	>>15365	>>55316							<5	ug/kg	TM15/PM10
o-Xylene #	2209 ^{SV}	5600	>>40547							<3	ug/kg	TM15/PM10
Styrene	<3 ^{SV}	<3	<3							<3	ug/kg	TM15_A/PM10
Bromoform	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Isopropylbenzene #	2368 ^{SV}	99	1816							<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
Bromobenzene	<2 ^{SV}	<2	<2							<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
Propylbenzene #	>>5624	214	>>3657							<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	>>12672	1332	>>6038							<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3 ^{SV}	<3	<3							<3	ug/kg	TM15/PM10
tert-Butylbenzene #	>>8523	312	2026							<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	>>162448	5761	>>51828							<6	ug/kg	TM15/PM10
sec-Butylbenzene #	>>18266	107	>>3502							<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	>>17602	94	2404							<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
n-Butylbenzene #	>>19779	82	>>4339							<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4 ^{SV}	<4	451							<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7 ^{SV}	<7	<7							<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4 ^{SV}	<4	<4							<4	ug/kg	TM15/PM10
Naphthalene	>>3509	36	1144							<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7 ^{SV}	<7	<7							<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	38 ^{SV}	103	84							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	58 ^{SV}	88	67							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
Contact: Scott Miller
EMT Job No: 20/13383

VOC Report : Liquid

EMT Sample No.	7-9										Please see attached notes for all abbreviations and acronyms		
Sample ID	HS10-TP4-WS1												
Depth	1.10												
COC No / misc													
Containers	V G												
Sample Date	30/09/2020												
Sample Type	Surface Water												
Batch Number	1												
Date of Receipt	30/09/2020										LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	10										<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	69.6										<0.1	ug/l	TM15/PM10
Chloromethane #	<3										<3	ug/l	TM15/PM10
Vinyl Chloride #	1.6										<0.1	ug/l	TM15/PM10
Bromomethane	<1										<1	ug/l	TM15/PM10
Chloroethane #	<3										<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3										<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<5										<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3										<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3										<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	5										<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1										<1	ug/l	TM15/PM10
Bromochloromethane #	<2										<2	ug/l	TM15/PM10
Chloroform #	<2										<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2										<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3										<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2										<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2										<2	ug/l	TM15/PM10
Benzene #	16.9										<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3										<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2										<2	ug/l	TM15/PM10
Dibromomethane #	<3										<3	ug/l	TM15/PM10
Bromodichloromethane #	<2										<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
Toluene #	>>10351										<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2										<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2										<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3										<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2										<2	ug/l	TM15/PM10
Dibromochloromethane #	<2										<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2										<2	ug/l	TM15/PM10
Chlorobenzene #	<2										<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2										<2	ug/l	TM15/PM10
Ethylbenzene #	>>1173										<1	ug/l	TM15/PM10
m/p-Xylene #	>>5662										<2	ug/l	TM15/PM10
o-Xylene #	>>1865										<1	ug/l	TM15/PM10
Styrene	<2										<2	ug/l	TM15/PM10
Bromoform #	<2										<2	ug/l	TM15/PM10
Isopropylbenzene #	26										<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4										<4	ug/l	TM15/PM10
Bromobenzene #	<2										<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3										<3	ug/l	TM15/PM10
Propylbenzene #	50										<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3										<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	275										<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3										<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3										<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	>>1014										<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3										<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3										<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
n-Butylbenzene #	<3										<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3										<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2										<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3										<3	ug/l	TM15/PM10
Naphthalene	13										<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3										<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	92										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	93										<0	%	TM15/PM10

Element Materials Technology

Job number:	20/13383	Method:	VOC
Sample number:	1	Matrix:	Solid
Sample identity:	HS13-TP1-S1		
Sample depth:	1.20		
Sample Type:	Clayey Sand		
Units:	ug/kg		

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13383 **Method:** VOC
Sample number: 3 **Matrix:** Solid
Sample identity: HS10-TP1-S1
Sample depth: 0.50
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
67-64-1	Acetone	2.497	80	351
96-14-0	Pentane, 3-methyl-	3.010	91	551
590-35-2	Pentane, 2,2-dimethyl-	3.460	83	444
108-08-7	Pentane, 2,4-dimethyl-	3.508	91	356
96-37-7	Cyclopentane, methyl-	3.560	91	363
562-49-2	Pentane, 3,3-dimethyl-	3.785	83	718
565-59-3	Pentane, 2,3-dimethyl-	3.903	91	1392
142-82-5	Heptane	4.139	91	4979
108-87-2	Cyclohexane, methyl-	4.396	91	2635
1640-89-7	Cyclopentane, ethyl-	4.471	91	1165
15890-40-1	Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-	4.559	81	519
592-27-8	Heptane, 2-methyl-	4.641	87	1153
589-81-1	Heptane, 3-methyl-	4.705	91	887
108-10-1	Methyl Isobutyl Ketone	4.768	80	449
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.973	94	528
589-90-2	Cyclohexane, 1,4-dimethyl-	5.022	90	421
926-82-9	Heptane, 3,5-dimethyl-	5.159	90	429
1678-91-7	Cyclohexane, ethyl-	5.235	94	905
2216-34-4	Octane, 4-methyl-	5.350	81	654
2216-33-3	Octane, 3-methyl-	5.408	87	638
696-29-7	Cyclohexane, (1-methylethyl)-	5.853	81	297
1678-92-8	Cyclohexane, propyl-	5.901	87	305
611-14-3	Benzene, 1-ethyl-2-methyl-	6.203 - 6.347	93,94	4232
99-87-6	p-Cymene	6.696	93	326
1074-17-5	Benzene, 1-methyl-2-propyl-	6.885	90	436
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.928	96	729
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	6.976 - 7.136	93,96	1233
488-23-3	Benzene, 1,2,3,4-tetramethyl-	7.178	97	355
527-53-7	Benzene, 1,2,3,5-tetramethyl-	7.208	94	344

Element Materials Technology

Job number: 20/13383 **Method:** VOC
Sample number: 5 **Matrix:** Solid
Sample identity: HS10-TP2-S1
Sample depth: 0.50-0.70
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
67-64-1	Acetone	2.493	80	2115
107-83-5	Pentane, 2-methyl-	2.832	91	1222
96-14-0	Pentane, 3-methyl-	3.011	87	1644
3944-37-4	1-Propanol, 2-(1-methylethoxy)-	3.325	80	273
590-35-2	Pentane, 2,2-dimethyl-	3.460	83	544
108-08-7	Pentane, 2,4-dimethyl-	3.508	91	850
96-37-7	Cyclopentane, methyl-	3.561	94	2639
78-92-2	2-Butanol	3.699	83	301
562-49-2	Pentane, 3,3-dimethyl-	3.786	83	3209
589-34-4	Hexane, 3-methyl-	3.943	95	55153
142-82-5	Heptane	4.140	91	95622
107-39-1	1-Pentene, 2,4,4-trimethyl-	4.291	91	1859
108-87-2	Cyclohexane, methyl-	4.396	91	94754
1640-89-7	Cyclopentane, ethyl-	4.472	94	14958
15890-40-1	Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-	4.559	87	4405
592-27-8	Heptane, 2-methyl-	4.641	94	28827
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.974	95	3856
2207-03-6	Cyclohexane, 1,3-dimethyl-, trans-	5.022	94	3032
2216-30-0	Heptane, 2,5-dimethyl-	5.152	87	1431
1678-91-7	Cyclohexane, ethyl-	5.235	91	6775
2216-33-3	Octane, 3-methyl-	5.408	83	3425
1678-92-8	Cyclohexane, propyl-	5.901	81	14899
7058-05-1	Cyclohexane, 1-ethyl-2,3-dimethyl-	6.104	81	2188
611-14-3	Benzene, 1-ethyl-2-methyl-	6.347	92	16682
21195-59-5	1,3,8-p-Menthatriene	6.784	93	6985
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	6.933	91	9721
527-84-4	o-Cymene	6.976	94	7203
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	7.136 - 7.426	83,87	11811
527-53-7	Benzene, 1,2,3,5-tetramethyl-	7.181	83	3583
2958-76-1	Naphthalene, decahydro-2-methyl-	7.234	86	6252

Element Materials Technology

Job number:	20/13383
Sample number:	7
Sample identity:	HS10-TP4-WS1
Sample depth:	1.10
Sample Type:	Surface Water
Units:	ug/l

Method: VOC
Matrix: Liquid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13383 **Method:** SVOC
Sample number: 2 **Matrix:** Solid
Sample identity: HS13-TP1-S1
Sample depth: 1.20
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-84-2	Nonane	4.161	95	8646
15869-93-9	Octane, 3,5-dimethyl-	4.459	80	2147
1678-92-8	Cyclohexane, propyl-	4.499	81	2852
2051-30-1	Octane, 2,6-dimethyl-	4.559	95	7806
620-14-4	Benzene, 1-ethyl-3-methyl-	4.728	91	3815
17301-94-9	Nonane, 4-methyl-	4.857	81	9504
871-83-0	Nonane, 2-methyl-	4.887	93	6953
622-96-8	Benzene, 1-ethyl-4-methyl-	4.917	93	6977
5911-04-6	Nonane, 3-methyl-	4.956	81	12287
526-73-8	Benzene, 1,2,3-trimethyl-	5.080	95	28596
124-18-5	Decane	5.260	95	63264
17302-28-2	Nonane, 2,6-dimethyl-	5.512	91	36912
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	5.560	81	3960
1678-93-9	Cyclohexane, butyl-	5.584	87	12566
1074-55-1	Benzene, 1-methyl-4-propyl-	5.819	80	15610
2847-72-5	Decane, 4-methyl-	5.874	90	10289
6975-98-0	Decane, 2-methyl-	5.907	93	31609
13151-34-3	Decane, 3-methyl-	5.973	91	18948
1120-21-4	Undecane	6.239	95	76488
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.312	93	6372
2958-76-1	Naphthalene, decahydro-2-methyl-	6.343	91	3660
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	6.448	92	5806
1002-43-3	Undecane, 3-methyl-	6.826	93	6899
112-40-3	Dodecane	7.054	95	32808
1680-51-9	Naphthalene, 1,2,3,4-tetrahydro-6-methyl-	7.451	94	4387
85-44-9	Phthalic anhydride	7.496	90	8863
629-50-5	Tridecane	7.764	94	5181
1129-29-9	Benzene, 1-(1-methylethenyl)-3-(1-methylethyl)-	7.854	90	2564
91-08-7	Benzene, 1,3-diisocyanato-2-methyl-	7.952	98	3393
584-84-9	Benzene, 2,4-diisocyanato-1-methyl-	7.974	96	38116

Element Materials Technology

Job number:	20/13383
Sample number:	2
Sample identity:	HS13-TP1-S1
Sample depth:	1.20
Sample Type:	Clayey Sand
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/13383 **Method:** SVOC
Sample number: 6 **Matrix:** Solid
Sample identity: HS10-TP2-S1
Sample depth: 0.50-0.70
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-84-2	Nonane	4.161	95	10448
15869-89-3	Octane, 2,5-dimethyl-	4.459	87	1689
1678-92-8	Cyclohexane, propyl-	4.499	93	3239
611-14-3	Benzene, 1-ethyl-2-methyl-	4.728	91	7734
526-73-8	Benzene, 1,2,3-trimethyl-	4.807	94	9594
871-83-0	Nonane, 2-methyl-	4.887	93	5081
622-96-8	Benzene, 1-ethyl-4-methyl-	4.917	90	4253
5911-04-6	Nonane, 3-methyl-	4.956	87	6799
124-18-5	Decane	5.260	95	37561
2847-72-5	Decane, 4-methyl-	5.512	90	16717
1678-93-9	Cyclohexane, butyl-	5.584	91	12629
6975-98-0	Decane, 2-methyl-	5.907	93	7513
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.918	95	8627
13151-34-3	Decane, 3-methyl-	5.962	91	3614
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.984	93	7611
4126-78-7	Cycloheptane, methyl-	6.103	81	5370
527-84-4	o-Cymene	6.165	90	11831
1120-21-4	Undecane	6.228	95	42842
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.312	97	6216
2958-76-1	Naphthalene, decahydro-2-methyl-	6.343	96	3363
1632-70-8	Undecane, 5-methyl-	6.396	83	5869
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	6.636	95	14725
1002-43-3	Undecane, 3-methyl-	6.826	87	8036
112-40-3	Dodecane	7.054	95	31452
66660-43-3	trans, cis-3-Ethylbicyclo[4.4.0]decane	7.283	89	4303
1680-51-9	Naphthalene, 1,2,3,4-tetrahydro-6-methyl-	7.451	96	11034
1560-97-0	Dodecane, 2-methyl-	7.523	95	7916
2051-30-1	Octane, 2,6-dimethyl-	7.603	86	7084
629-50-5	Tridecane	7.764	95	22697
4175-54-6	Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	7.836	93	5808

Element Materials Technology

Job number:	20/13383
Sample number:	6
Sample identity:	HS10-TP2-S1
Sample depth:	0.50-0.70
Sample Type:	Clayey Sand
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC

Matrix: Liquid

Sample depth: 1.10

Sample Type: Surface Water

Units: ug/l

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury (URL)
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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/13383

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

Please include all sections of this report if it is reproduced

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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
AA	x10 Dilution

EMT Job No: 20/13383

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 20/13383

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes

EMT Job No: 20/13383

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
TM179	Determination of Glycols using LCMS	PM0	No preparation is required.				
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 4th December, 2020
Your reference : R2174C
Our reference : Test Report 20/16413 Batch 1
Location : Tetrosyl Bury, URL
Date samples received : 23rd November, 2020
Status : Final report
Issue : 1

Three samples were received for analysis on 23rd November, 2020 of which three 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.

Authorised By:



Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury, URL
Contact: Scott Miller
EMT Job No: 20/16413

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6								Please see attached notes for all abbreviations and acronyms		
Sample ID	HS14-TP1-S1	HS14-TP3-S1	HS14-TP4-S1										
Depth	0.20-1.20	0.40-1.60	1.70-2.40										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	23/11/2020 11:15	23/11/2020 12:00	23/11/2020 12:30										
Sample Type	Clay	Clay	Clay										
Batch Number	1	1	1										
Date of Receipt	23/11/2020	23/11/2020	23/11/2020								LOD/LOR	Units	Method No.
VOC TICs	ND	ND	ND									None	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2								<2	ug/kg	TM15/PM10
Benzene #	<3	<3	<3								<3	ug/kg	TM15/PM10
Toluene #	6	<3	<3								<3	ug/kg	TM15/PM10
Ethylbenzene #	6	<3	<3								<3	ug/kg	TM15/PM10
m/p-Xylene #	36	<5	<5								<5	ug/kg	TM15/PM10
o-Xylene #	8	<3	<3								<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	93	90	108								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	78	63	81								<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached									None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 #M	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 #M	0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C10-C12 #M	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	<4	<4	<4								<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	<7	<7	<7								<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	<7	<7	<7								<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	<19	<19	<19								<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4								<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	8	<7	9								<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	38	<7	48								<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	46	<19	57								<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	46	<38	57								<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Monoethylene glycol	<50	<50	<50								<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50	<50								<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50								<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50								<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50								<50	ug/kg	TM179/PM8
Natural Moisture Content	19.0	40.9	33.1								<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clay									None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown									None	PM13/PM0
Other Items	stones	stones	stones									None	PM13/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury, URL
Contact: Scott Miller
EMT Job No: 20/16413

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6									
Sample ID	HS14-TP1-S1	HS14-TP3-S1	HS14-TP4-S1									
Depth	0.20-1.20	0.40-1.60	1.70-2.40									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	23/11/2020 11:15	23/11/2020 12:00	23/11/2020 12:30									
Sample Type	Clay	Clay	Clay									
Batch Number	1	1	1									
Date of Receipt	23/11/2020	23/11/2020	23/11/2020									
	LOD/LOR	Units	Method No.									
SVOC MS												
Phenols												
2-Chlorophenol ^{#M}	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10							<10	ug/kg	TM16/PM8
4-Methylphenol	<10	18	<10							<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10							<10	ug/kg	TM16/PM8
Phenol ^{#M}	<10	<10	<10							<10	ug/kg	TM16/PM8
PAHs												
2-Chloronaphthalene ^{#M}	<10	<10	<10							<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	<10	<10	60							<10	ug/kg	TM16/PM8
Naphthalene	<10	18	80							<10	ug/kg	TM16/PM8
Acenaphthylene	<10	25	<10							<10	ug/kg	TM16/PM8
Acenaphthene	<10	41	104							<10	ug/kg	TM16/PM8
Fluorene	<10	31	83							<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	38	365	776							<10	ug/kg	TM16/PM8
Anthracene	<10	96	160							<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	62	783	1121							<10	ug/kg	TM16/PM8
Pyrene ^{#M}	60	751	1090							<10	ug/kg	TM16/PM8
Benzo(a)anthracene	52	438	568							<10	ug/kg	TM16/PM8
Chrysene	37	438	630							<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	55	652	889							<10	ug/kg	TM16/PM8
Benzo(a)pyrene	31	395	574							<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	17	206	281							<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	68	96							<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	25	249	391							<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	40	469	640							<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	15	183	249							<10	ug/kg	TM16/PM8
Phthalates												
Bis(2-ethylhexyl) phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	3094	356	<100							<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100							<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100							<100	ug/kg	TM16/PM8

Please see attached notes for all abbreviations and acronyms

QF-PM 3.1.3 v11

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury, URL
Contact: Scott Miller
EMT Job No: 20/16413

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6									
Sample ID	HS14-TP1-S1	HS14-TP3-S1	HS14-TP4-S1									
Depth	0.20-1.20	0.40-1.60	1.70-2.40									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	23/11/2020 11:15	23/11/2020 12:00	23/11/2020 12:30									
Sample Type	Clay	Clay	Clay									
Batch Number	1	1	1									
Date of Receipt	23/11/2020	23/11/2020	23/11/2020									
VOC MS										LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<2	<2	3							<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2							<2	ug/kg	TM15/PM10
Chloromethane #	<3	6	<3							<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2							<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1							<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2							<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2							<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6							<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30	<30							<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3							<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4							<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1-Dichloropropene #	<3	<3	<3							<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4							<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3							<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	488	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6							<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4							<4	ug/kg	TM15/PM10
Toluene #	6	<3	<3							<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Ethylbenzene #	6	<3	<3							<3	ug/kg	TM15/PM10
m/p-Xylene #	36	<5	<5							<5	ug/kg	TM15/PM10
o-Xylene #	8	<3	<3							<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3							<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3							<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3	<3							<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3							<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2							<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4							<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3							<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3							<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3							<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5							<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6							<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4							<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7							<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4							<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27							<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7							<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	93	90	108							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	78	63	81							<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16413
Sample number:	4
Sample identity:	HS14-TP3-S1
Sample depth:	0.40-1.60
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16413
Sample number:	6
Sample identity:	HS14-TP4-S1
Sample depth:	1.70-2.40
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury, URL
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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/16413

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

Please include all sections of this report if it is reproduced

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 20/16413

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes

EMT Job No: 20/16413

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
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 4th December, 2020
Your reference : R2174C
Our reference : Test Report 20/16571 Batch 1
Location : Tetrosyl, Bury
Date samples received : 25th November, 2020
Status : Final report
Issue : 1

Seven samples were received for analysis on 25th November, 2020 of which seven 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.

Authorised By:



Phil Sommerton BSc
Senior Project Manager

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Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/16571

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS13-TP2-S1	HS11-TP1-S1	HS11-TP1-S2	HS11-TP2-S1	HS11-TP2-S2	HS11-TP3-S1	HS11-TP3-S2						
Depth	1.20-1.60	0.15-0.40	1.90-2.30	0.25-0.50	1.00-1.50	0.15-0.45	1.00-1.30						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020						
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020				LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	ND					None	TM15/PM10
Methyl Tertiary Butyl Ether #	5 ^{SV}	26 ^{SV}	22	8	4	<2	<2				<2	ug/kg	TM15/PM10
Benzene #	5 ^{SV}	37 ^{SV}	<3	16	<3	5	20				<3	ug/kg	TM15/PM10
Toluene #	>>8569	>>50491	3012	6494	1194	102	-				<3	ug/kg	TM15/PM10
Ethylbenzene #	402 ^{SV}	>>64551	708	>>8912	364	1042	304				<3	ug/kg	TM15/PM10
m/p-Xylene #	3546 ^{SV}	>>153308	2990	>>22359	1808	3766	265				<5	ug/kg	TM15/PM10
o-Xylene #	2471 ^{SV}	>>69244	907	>>7139	434	368	-				<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	76 ^{SV}	74 ^{SV}	113	103	99	90	91				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	48 ^{SV}	47 ^{SV}	98	64	87	69	70				<0	%	TM15/PM10
SVOC TICs	See Attached ^{AA}	See Attached	ND	See Attached	ND	See Attached	ND					None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 # ^M	<0.1 ^{SV}	>>9.0	0.3	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C6-C8 # ^M	1.1 ^{SV}	>>195.8	0.1	0.7	0.2	7.7	0.3				<0.1	mg/kg	TM36/PM12
>C8-C10	25.1 ^{SV}	>>233.9	0.2	3.5	0.4	5.3	0.3				<0.1	mg/kg	TM36/PM12
>C10-C12 # ^M	570.9	1981.9	<0.2	20.9	<0.2	18.1	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 # ^M	616	68	<4	<4	<4	13	<4				<4	mg/kg	TM5/PM8/PM16
>C16-C21 # ^M	379	31	<7	<7	<7	25	<7				<7	mg/kg	TM5/PM8/PM16
>C21-C35 # ^M	386	385	<7	17	<7	79	<7				<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	1978	2905	<19	42	<19	148	<19				<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1 ^{SV}	>><0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	3.0 ^{SV}	>>183.9	0.1	1.1	0.3	0.2	<0.1				<0.1	mg/kg	TM36/PM12
>EC8-EC10 # ^M	2.0 ^{SV}	>>360.2	0.2	4.0	0.7	1.9	0.5				<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	102.4	410.4	<0.2	21.4	<0.2	9.5	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	185	16	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	504	28	<7	<7	<7	30	<7				<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	925	505	<7	<7	<7	60	<7				<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	1721	1504	<19	27	<19	102	<19				<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	3699	4409	<38	69	<38	250	<38				<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Monoethylene glycol	<50	<50	<50	1293	1165	123	<50				<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50	223	184	<50	<50	<50				<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50	69	<50	<50	<50				<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Natural Moisture Content	24.1	22.1	8.9	14.4	7.0	18.6	13.1				<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay	Clay					None	PM13/PM0
Sample Colour	Dark Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown					None	PM13/PM0
Other Items	stones	stones	stones	stones	stones	stones, brick	stones					None	PM13/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/16571

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS13-TP2-S1	HS11-TP1-S1	HS11-TP1-S2	HS11-TP2-S1	HS11-TP2-S2	HS11-TP3-S1	HS11-TP3-S2						
Depth	1.20-1.60	0.15-0.40	1.90-2.30	0.25-0.50	1.00-1.50	0.15-0.45	1.00-1.30						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020						
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020				LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylphenol	5776 _{AA}	<10	280	56	28	<10	<10				<10	ug/kg	TM16/PM8
2-Nitrophenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	7923 _{AA}	<10	201	62	44	<10	<10				<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Methylphenol	11945 _{AA}	<10	362	88	33	59	<10				<10	ug/kg	TM16/PM8
4-Nitrophenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Pentachlorophenol	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Phenol ^{#M}	1998 _{AA}	<10	<10	21	<10	<10	<10				<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	4056 _{AA}	150	<10	51	<10	87	<10				<10	ug/kg	TM16/PM8
Naphthalene	2466 _{AA}	469	<10	156	<10	196	<10				<10	ug/kg	TM16/PM8
Acenaphthylene	<500 _{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Acenaphthene	<500 _{AA}	65	<10	13	<10	102	<10				<10	ug/kg	TM16/PM8
Fluorene	<500 _{AA}	114	<10	13	<10	117	<10				<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	5707 _{AA}	385	<10	74	<10	1056	<10				<10	ug/kg	TM16/PM8
Anthracene	3271 _{AA}	66	<10	14	<10	234	<10				<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	2896 _{AA}	399	<10	80	<10	1360	<10				<10	ug/kg	TM16/PM8
Pyrene ^{#M}	3260 _{AA}	302	<10	80	<10	1257	<10				<10	ug/kg	TM16/PM8
Benzo(a)anthracene	3312 _{AA}	149	<10	64	<10	714	<10				<10	ug/kg	TM16/PM8
Chrysene	1724 _{AA}	121	<10	48	<10	681	<10				<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	2497 _{AA}	120	<10	81	<10	1039	<10				<10	ug/kg	TM16/PM8
Benzo(a)pyrene	1418 _{AA}	44	<10	38	<10	606	<10				<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	632 _{AA}	21	<10	22	<10	270	<10				<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<500 _{AA}	<10	<10	<10	<10	104	<10				<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	774 _{AA}	33	<10	33	<10	362	<10				<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	1798 _{AA}	86	<10	58	<10	748	<10				<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	699 _{AA}	34	<10	23	<10	291	<10				<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<5000 _{AA}	1905	<100	116	<100	<100	<100				<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<5000 _{AA}	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<5000 _{AA}	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<5000 _{AA}	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Diethyl phthalate	<5000 _{AA}	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<5000 _{AA}	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyl, Bury
 Contact: Scott Miller
 EMT Job No: 20/16571

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS13-TP2-S1	HS11-TP1-S1	HS11-TP1-S2	HS11-TP2-S1	HS11-TP2-S2	HS11-TP3-S1	HS11-TP3-S2						
Depth	1.20-1.60	0.15-0.40	1.90-2.30	0.25-0.50	1.00-1.50	0.15-0.45	1.00-1.30						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020						
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020				LOD/LOR	Units	Method No.
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<500 ^{AA}	<10	<10	26	<10	<10	<10				<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Nitroaniline	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
3-Nitroaniline	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Bromophenylphenylether ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chloroaniline	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Nitroaniline	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Azobenzene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Carbazole	5633 ^{AA}	20	<10	<10	<10	140	<10				<10	ug/kg	TM16/PM8
Dibenzofuran ^{#M}	<500 ^{AA}	44	<10	11	<10	78	<10				<10	ug/kg	TM16/PM8
Hexachlorobenzene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachlorobutadiene ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachloroethane	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Isophorone ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Nitrobenzene ^{#M}	<500 ^{AA}	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	141 ^{SV} AA	115	120	113	122	111	107				<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	134 ^{SV} AA	116	122	109	114	116	92				<0	%	TM16/PM8

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/16571

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS13-TP2-S1	HS11-TP1-S1	HS11-TP1-S2	HS11-TP2-S1	HS11-TP2-S2	HS11-TP3-S1	HS11-TP3-S2						
Depth	1.20-1.60	0.15-0.40	1.90-2.30	0.25-0.50	1.00-1.50	0.15-0.45	1.00-1.30						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020						
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020				LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	1750 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	3				<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	5 ^{SV}	26 ^{SV}	22	8	4	<2	<2				<2	ug/kg	TM15/PM10
Chloromethane #	11 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Vinyl Chloride	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2				<2	ug/kg	TM15_A/PM10
Bromomethane	<1 ^{SV}	<1 ^{SV}	<1	<1	<1	<1	<1				<1	ug/kg	TM15/PM10
Chloroethane #	9 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2				<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2				<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6 ^{SV}	<6 ^{SV}	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30 ^{SV}	<30 ^{SV}	<30	<30	<30	<30	<30				<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	7				<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3 ^{SV}	15 ^{SV}	<3	17	<3	<3	6				<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Bromochloromethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Chloroform #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,1-Dichloropropene #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Benzene #	5 ^{SV}	37 ^{SV}	<3	16	<3	5	20				<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3 ^{SV}	10 ^{SV}	<3	8	<3	<3	9				<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6 ^{SV}	<6 ^{SV}	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Dibromomethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Toluene #	>>8569	>>50491	>>3012	>>6494	1194	102	17				<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	31 ^{SV}	106 ^{SV}	<3	41	<3	<3	<3				<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Chlorobenzene #	9 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Ethylbenzene #	402 ^{SV}	>>64551	708	>>8912	364	1042	304				<3	ug/kg	TM15/PM10
m/p-Xylene #	3546 ^{SV}	>>153308	2990	>>22359	1808	3766	265				<5	ug/kg	TM15/PM10
o-Xylene #	2471 ^{SV}	>>69244	907	>>7139	434	368	7				<3	ug/kg	TM15/PM10
Styrene	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15_A/PM10
Bromoform	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Isopropylbenzene #	78 ^{SV}	>>3283	21	662	12	132	5				<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Bromobenzene	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2				<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Propylbenzene #	93 ^{SV}	>>6491	71	1822	45	464	<4				<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	1003 ^{SV}	>>11156	159	>>3955	113	>>2517	3				<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
tert-Butylbenzene #	740 ^{SV}	1107 ^{SV}	7	191	7	97	<5				<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	8407 ^{SV}	>>142303	678	>>21421	485	>>5137	9				<6	ug/kg	TM15/PM10
sec-Butylbenzene #	779 ^{SV}	>>3889	11	566	7	294	<4				<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	896 ^{SV}	>>3105	10	476	7	289	<4				<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4 ^{SV}	<4 ^{SV}	<4	8	<4	<4	<4				<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4 ^{SV}	<4 ^{SV}	<4	8	<4	<4	<4				<4	ug/kg	TM15/PM10
n-Butylbenzene #	594 ^{SV}	>>4352	17	690	13	439	<4				<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4 ^{SV}	<4 ^{SV}	<4	76	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7 ^{SV}	<7 ^{SV}	<7	<7	<7	<7	<7				<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Naphthalene	279 ^{SV}	287 ^{SV}	<27	476	<27	59	<27				<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7 ^{SV}	<7 ^{SV}	<7	<7	<7	<7	<7				<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	76 ^{SV}	74 ^{SV}	113	103	99	90	91				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	48 ^{SV}	47 ^{SV}	98	64	87	69	70				<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Element Materials Technology

Job number: 20/16571 **Method:** VOC
Sample number: 1 **Matrix:** Solid
Sample identity: HS13-TP2-S1
Sample depth: 1.20-1.60
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
96-37-7	Cyclopentane, methyl-	3.308	86	252
589-34-4	Hexane, 3-methyl-	3.733	94	256
108-87-2	Cyclohexane, methyl-	4.201	94	439
592-27-8	Heptane, 2-methyl-	4.452	87	139
583-57-3	Cyclohexane, 1,2-dimethyl- (cis/trans)	4.779	95	527
2207-04-7	Cyclohexane, 1,4-dimethyl-, trans-	4.827	97	694
1072-05-5	Heptane, 2,6-dimethyl-	4.909	91	479
2216-30-0	Heptane, 2,5-dimethyl-	4.957	87	1073
7667-60-9	Cyclohexane, 1,2,4-trimethyl-, (1.alpha.,2.beta.,4.beta.)-	5.002	90	1682
1678-91-7	Cyclohexane, ethyl-	5.030	94	1472
2216-33-3	Octane, 3-methyl-	5.206	91	3558
3728-54-9	Cyclohexane, 1-ethyl-2-methyl-	5.425	90	2712
2051-30-1	Octane, 2,6-dimethyl-	5.624	94	4873
5911-04-6	Nonane, 3-methyl-	5.867	81	8652
1678-98-4	Cyclohexane, (2-methylpropyl)-	6.341	80	8505
3282-53-9	Cyclohexene, 1-butyl-	6.473	86	7076
1074-43-7	Benzene, 1-methyl-3-propyl-	6.530	86	4960
91-17-8	Naphthalene, decahydro-	6.597	91	6577
	Nonadecyl pentafluoropropionate	6.726	86	6565
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	6.754	87	6750
	trans-Decalin, 2-methyl-	6.915	98	5855
	cis-Decalin, 2-syn-methyl-	7.055 - 7.145	94,96	11999
	cis,trans-1,6-Dimethylspiro[4.5]decane	7.344	92	4000

Element Materials Technology

Job number: 20/16571 **Method:** VOC
Sample number: 3 **Matrix:** Solid
Sample identity: HS11-TP1-S1
Sample depth: 0.15-0.40
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
109-66-0	Pentane	1.808	90	636
107-83-5	Pentane, 2-methyl-	2.550	91	18402
96-14-0	Pentane, 3-methyl-	2.728	91	17256
592-47-2	3-Hexene	3.022	86	145
464-06-2	Butane, 2,2,3-trimethyl-	3.200	83	1653
108-08-7	Pentane, 2,4-dimethyl-	3.260	91	1574
96-37-7	Cyclopentane, methyl-	3.303	90	13890
562-49-2	Pentane, 3,3-dimethyl-	3.566	83	3980
110-82-7	Cyclohexane	3.670	90	46527
589-34-4	Hexane, 3-methyl-	3.732	91	47009
822-50-4	Cyclopentane, 1,2-dimethyl-, trans-	3.902	94	5967
142-82-5	Heptane	3.938	94	54847
108-87-2	Cyclohexane, methyl-	4.201	91	22159
1640-89-7	Cyclopentane, ethyl-	4.271	96	3105
16883-48-0	Cyclopentane, 1,2,4-trimethyl-, (1.alpha.,2.beta.,4.alpha.)-	4.306	90	714
592-27-8	Heptane, 2-methyl-	4.452	94	2004
589-81-1	Heptane, 3-methyl-	4.510	83	1634
111-65-9	Octane	4.695	81	2243
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.779	95	835
2207-03-6	Cyclohexane, 1,3-dimethyl-, trans-	4.827	94	687
1072-05-5	Heptane, 2,6-dimethyl-	4.909	83	680
2216-30-0	Heptane, 2,5-dimethyl-	4.957	87	896
2234-75-5	Cyclohexane, 1,2,4-trimethyl-	4.997	81	828
1678-91-7	Cyclohexane, ethyl-	5.030	94	1538
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	5.064	86	1714
3074-71-3	Heptane, 2,3-dimethyl-	5.116	80	1153
2216-33-3	Octane, 3-methyl-	5.206	91	3096
3728-54-9	Cyclohexane, 1-ethyl-2-methyl-	5.425	90	1204
2051-30-1	Octane, 2,6-dimethyl-	5.624	95	6497
17301-94-9	Nonane, 4-methyl-	5.796	87	13258

Element Materials Technology

Job number:	20/16571
Sample number:	3
Sample identity:	HS11-TP1-S1
Sample depth:	0.15-0.40
Sample Type:	Clay
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16571
Sample number:	5
Sample identity:	HS11-TP1-S2
Sample depth:	1.90-2.30
Sample Type:	Clayey Sand
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/16571 **Method:** VOC
Sample number: 7 **Matrix:** Solid
Sample identity: HS11-TP2-S1
Sample depth: 0.25-0.50
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
590-35-2	Pentane, 2,2-dimethyl-	3.200	83	200
108-08-7	Pentane, 2,4-dimethyl-	3.260	91	357
562-49-2	Pentane, 3,3-dimethyl-	3.566	83	467
565-59-3	Pentane, 2,3-dimethyl-	3.688	94	950
589-34-4	Hexane, 3-methyl-	3.732	94	2223
121-44-8	Triethylamine	3.857	91	945
822-50-4	Cyclopentane, 1,2-dimethyl-, trans-	3.902	94	138
142-82-5	Heptane	3.938	94	895
108-87-2	Cyclohexane, methyl-	4.201	94	1228
592-27-8	Heptane, 2-methyl-	4.452	94	386
589-81-1	Heptane, 3-methyl-	4.510	80	293
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.779	95	219
2207-03-6	Cyclohexane, 1,3-dimethyl-, trans-	4.827	94	146
1678-91-7	Cyclohexane, ethyl-	5.030	94	327
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	5.059	90	142
2216-33-3	Octane, 3-methyl-	5.206	91	164
15869-94-0	Octane, 3,6-dimethyl-	5.630	87	214
620-14-4	Benzene, 1-ethyl-3-methyl-	5.987	94	11074
611-14-3	Benzene, 1-ethyl-2-methyl-	6.131	93	2651
527-84-4	o-Cymene	6.467	92	160
1074-43-7	Benzene, 1-methyl-3-propyl-	6.531	93	2218
1074-17-5	Benzene, 1-methyl-2-propyl-	6.655	94	620
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	6.699	95	1510
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	6.751 - 6.902	94,94	1454
488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.981	97	572
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	7.120	94	157

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/16571 **Method:** VOC
Sample number: 11 **Matrix:** Solid
Sample identity: HS11-TP3-S1
Sample depth: 0.15-0.45
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
565-59-3	Pentane, 2,3-dimethyl-	3.688	91	202
589-34-4	Hexane, 3-methyl-	3.732	94	280
121-44-8	Triethylamine	3.857	91	3684
142-82-5	Heptane	3.938	95	364
107-39-1	1-Pentene, 2,4,4-trimethyl-	4.091	90	153
108-87-2	Cyclohexane, methyl-	4.201	94	1416
1640-89-7	Cyclopentane, ethyl-	4.271	94	121
589-81-1	Heptane, 3-methyl-	4.510	83	139
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.779	95	168
1678-91-7	Cyclohexane, ethyl-	5.030	94	278
3073-66-3	Cyclohexane, 1,1,3-trimethyl-	5.059	90	153
2216-33-3	Octane, 3-methyl-	5.213	91	121
2051-30-1	Octane, 2,6-dimethyl-	5.630	83	180
1678-92-8	Cyclohexane, propyl-	5.692	83	677
620-14-4	Benzene, 1-ethyl-3-methyl-	5.986	95	3433
611-14-3	Benzene, 1-ethyl-2-methyl-	6.131	93	1228
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	6.342	93	727
527-84-4	o-Cymene	6.467	92	241
1074-17-5	Benzene, 1-methyl-2-propyl-	6.531 - 6.655	91,91	2210
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	6.713 - 6.751	94,95	2138
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	6.902	94	293
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.958 - 6.981	94,95	893
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	7.018	86	138

Element Materials Technology

Job number: 20/16571 **Method:** SVOC
Sample number: 2 **Matrix:** Solid
Sample identity: HS13-TP2-S1
Sample depth: 1.20-1.60
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
124-18-5	Decane	5.204	87	16065
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.859	91	15580
527-84-4	o-Cymene	5.934	90	14737
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.263	94	8703
2958-75-0	1-Methyldecahydronaphthalene	6.430	92	7970
526-75-0	Phenol, 2,3-dimethyl-	6.532	89	17375
2958-76-1	Naphthalene, decahydro-2-methyl-	6.604	83	14485
1618-22-0	Naphthalene, decahydro-2,6-dimethyl-	6.953	90	10853
112-40-3	Dodecane	7.001	95	25000
629-50-5	Tridecane	7.719	96	39507
1470-94-6	1H-Inden-5-ol, 2,3-dihydro-	7.796	97	22695
491-35-0	Quinoline, 4-methyl-	8.071	92	20339
1455-18-1	3-Methylbenzothiophene	8.397	83	6476
20294-32-0	6-Methyl-4-indanol	8.489	93	146679
18272-83-8	Benzene, 1-methoxy-4-(1-methyl-2-propenyl)-	8.619	92	40918
18657-09-5	Benzene, 1-(1-butenyl)-4-methoxy-, trans-	8.802	87	17166
580-51-8	3-Hydroxybiphenyl	9.862	93	109486
629-59-4	Tetradecane	9.972	90	72908
91902-42-0	4-Cyclohepta-2,4,6-trienyl-phenol	10.257	87	80350
629-62-9	Pentadecane	10.444	91	56433
483-78-3	Naphthalene, 1,6-dimethyl-4-(1-methylethyl)-	10.708	87	11819
71153-40-7	2,5-Dimethyl-4-(4-aminophenyl)pyridine	10.730	87	89496
19817-12-0	1,2,3,4-Tetrahydrophenanthren-9-ol	10.774	87	128314
51557-26-7	2-Propenoic acid, 3-(2-naphthalenyl)-	10.796	90	23122
1689-64-1	9H-Fluoren-9-ol	10.862	84	28213
7372-88-5	Dibenzothiophene, 4-methyl-	10.972	90	70452
838-88-0	Benzenamine, 4,4'-methylenebis[2-methyl-	11.686	86	8310
36093-99-9	4-Thiazolemethanol, 2-(4-chlorophenyl)-	11.990	90	26135
544-76-3	Hexadecane	12.167	91	24116
22037-06-5	Selenocyanic acid, p-(ethylmethylamino)phenyl ester	12.378	90	19603

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/16571 **Method:** SVOC
Sample number: 4 **Matrix:** Solid
Sample identity: HS11-TP1-S1
Sample depth: 0.15-0.40
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
124-18-5	Decane	5.204	95	35356
527-84-4	o-Cymene	5.347	90	2701
17302-28-2	Nonane, 2,6-dimethyl-	5.458	90	56376
3891-98-3	Dodecane, 2,6,10-trimethyl-	5.508	87	3984
1678-93-9	Cyclohexane, butyl-	5.533	91	15415
13151-35-4	Decane, 5-methyl-	5.796	87	5493
2847-72-5	Decane, 4-methyl-	5.821	90	7258
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.859	94	9065
13151-34-3	Decane, 3-methyl-	5.909	93	2676
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	5.934	93	23203
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	6.116	83	15645
1120-21-4	Undecane	6.179	93	21125
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.231	94	7264
527-53-7	Benzene, 1,2,3,5-tetramethyl-	6.263	94	6054
1632-70-8	Undecane, 5-methyl-	6.347	87	8590
1595-16-0	Benzene, 1-methyl-4-(1-methylpropyl)-	6.604	87	1869
2980-69-0	Undecane, 4-methyl-	6.689	80	960
53172-84-2	Benzene, (1-methyl-1-butenyl)-	6.833	96	1028
112-40-3	Dodecane	7.002	93	3155
66660-43-3	trans, cis-3-Ethylbicyclo[4.4.0]decane	7.230	93	761
1560-97-0	Dodecane, 2-methyl-	7.476	83	482
629-50-5	Tridecane	7.719	95	1451
629-59-4	Tetradecane	8.358	95	364
112-95-8	Eicosane	9.972	90	418
1921-70-6	Pentadecane, 2,6,10,14-tetramethyl-	10.023	93	767
6566-19-4	10,18-Bisnorabieta-5,7,9(10),11,13-pentaene	11.745	99	1194

Element Materials Technology

Job number:	20/16571
Sample number:	8
Sample identity:	HS11-TP2-S1
Sample depth:	0.25-0.50
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/16571 **Method:** SVOC
Sample number: 12 **Matrix:** Solid
Sample identity: HS11-TP3-S1
Sample depth: 0.15-0.45
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
17302-28-2	Nonane, 2,6-dimethyl-	5.458	87	836
141-93-5	Benzene, 1,3-diethyl-	5.583	93	238
1074-43-7	Benzene, 1-methyl-3-propyl-	5.608	89	295
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.871	94	600
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.934	93	589
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.231	95	126
102-82-9	Tributylamine	6.953	94	1505
128-37-0	Butylated Hydroxytoluene	8.932	95	234
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.245	80	168
629-50-5	Tridecane	9.465	86	171
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	10.023	89	285
132-65-0	Dibenzothiophene	10.191	83	193
629-59-4	Tetradecane	10.444	95	246
3891-99-4	2,6,10-Trimethyltridecane	10.510	92	263
2531-84-2	Phenanthrene, 2-methyl-	10.862	93	171
203-64-5	4H-Cyclopenta[def]phenanthrene	10.961	81	370
10544-50-0	Cyclic octaatomic sulfur	11.450	96	3585
6566-19-4	10,18-Bisnorabieta-5,7,9(10),11,13-pentaene	11.745	99	9607
112-95-8	Eicosane	12.167	90	359
2381-21-7	Pyrene, 1-methyl-	12.226	93	789
483-65-8	Retene	12.268	97	853
213-10-5	9H-Tribenzo[a,c,e]cycloheptene	13.910	90	272

Matrix : Solid

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/16571

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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
AA	x50 Dilution

EMT Job No: 20/16571

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes

EMT Job No: 20/16571

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
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 17th December, 2020
Your reference : R2174C
Our reference : Test Report 20/16893 Batch 1
Location : Tetrosyl
Date samples received : 1st December, 2020
Status : Final report
Issue : 1

Eight samples were received for analysis on 1st December, 2020 of which eight 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.

Authorised By:



Lucas Halliwell
Project Co-ordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl
Contact: Scott Miller
EMT Job No: 20/16893

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 11-TP4-51	HS 11-TP4-52	HS 11-TP5-51	HS 11-TP5-52	HS 11-TP6-51	HS 9-TP1-51	HS 9-TP1-52						
Depth	0.15-0.50	1.80-2.10	0.40-0.85	2.00-2.40	0.40-0.70	0.10-0.60	2.20-2.50						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020						
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020				LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	ND	See Attached					None	TM15/PM10
Methyl Tertiary Butyl Ether ^{#M}	9	17	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Benzene ^{#M}	<5	169	7	154	<5	<5	<5				<5	ug/kg	TM15/PM10
Toluene ^{#M}	>>5811	>>24813	>>2864	>>30189	407	589	79 ^{SV}				<3	ug/kg	TM15/PM10
Ethylbenzene ^{#M}	>>5305	>>9126	2183	>>20959	42	91	8 ^{SV}				<3	ug/kg	TM15/PM10
m/p-Xylene ^{#M}	>>22372	>>23824	>>19437	>>39045	30	301	30 ^{SV}				<4	ug/kg	TM15/PM10
o-Xylene ^{#M}	>>4569	>>8598	>>5497	>>17478	<4	51	<4				<4	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	113	109	108	92	73	74	105				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	79	81	83	66	53	56	81				<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	ND					None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 ^{#M}	0.2	>>1.0	<0.1	>>0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C6-C8 ^{#M}	8.2	>>40.5	0.2	>>9.7	0.6	0.1	<0.1				<0.1	mg/kg	TM36/PM12
>C8-C10	9.6	>>28.6	4.6	>>17.0	<0.1	0.3	0.1				<0.1	mg/kg	TM36/PM12
>C10-C12 ^{#M}	15.2	<0.2	67.6	13.6	<0.2	<0.2	27.4				<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 ^{#M}	<4	<4	<4	<4	<4	<4	6				<4	mg/kg	TM5/PM8/PM16
>C16-C21 ^{#M}	<7	<7	<7	<7	<7	10	<7				<7	mg/kg	TM5/PM8/PM16
>C21-C35 ^{#M}	<7	<7	50	<7	<7	68	<7				<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	33	70	122	40	<19	78	34				<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 [#]	<0.1	>>0.2	<0.1	>><0.1	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC7-EC8 [#]	2.0	>>154.3	1.2	>>44.8	0.4	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC8-EC10 ^{#M}	17.2	>>101.1	13.7	>>54.2	<0.1	<0.1	<0.1				<0.1	mg/kg	TM36/PM12
>EC10-EC12 [#]	20.9	7.9	37.8	11.1	<0.2	<0.2	10.0				<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 [#]	<4	<4	16	<4	<4	8	5				<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 [#]	14	<7	24	<7	<7	14	<7				<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 [#]	67	<7	92	<7	51	91	<7				<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 [#]	121	264	185	110	51	113	<19				<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	154	334	307	150	51	191	<38				<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Monoethylene glycol	<50	<50	<50	162	<50	<50	<50				<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50	<50	<50	<50	<50				<50	ug/kg	TM179/PM8
Natural Moisture Content	23.7	14.4	20.1	14.0	38.5	28.5	16.3				<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay	Clay					None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown					None	PM13/PM0
Other Items	stones	stones	stones, brick	stones	stones, vegetation	stones	stones					None	PM13/PM0

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl
Contact: Scott Miller
EMT Job No: 20/16893

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	15-17												
Sample ID	HS 12/WS311-SUMP												
Depth													
COC No / misc													
Containers	V G												
Sample Date	01/12/2020												
Sample Type	Surface Water												
Batch Number	1												
Date of Receipt	01/12/2020												
											Please see attached notes for all abbreviations and acronyms		
											LOD/LOR	Units	Method No.
MTBE #	<5										<5	ug/l	TM36/PM12
Benzene #	<5										<5	ug/l	TM36/PM12
Toluene #	<5										<5	ug/l	TM36/PM12
Ethylbenzene #	<5										<5	ug/l	TM36/PM12
m/p-Xylene #	<5										<5	ug/l	TM36/PM12
o-Xylene #	<5										<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 #	<10										<10	ug/l	TM36/PM12
>C6-C8 #	<10										<10	ug/l	TM36/PM12
>C8-C10 #	<10										<10	ug/l	TM36/PM12
>C10-C12 #	<5										<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10										<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10										<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10										<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10										<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	<10										<10	ug/l	TM36/PM12
>EC7-EC8 #	<10										<10	ug/l	TM36/PM12
>EC8-EC10 #	<10										<10	ug/l	TM36/PM12
>EC10-EC12 #	<5										<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10										<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10										<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10										<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10										<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10										<10	ug/l	TM5/PM16/PM30

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 11-TP4-51	HS 11-TP4-52	HS 11-TP5-51	HS 11-TP5-52	HS 11-TP6-51	HS 9-TP1-51	HS 9-TP1-52						
Depth	0.15-0.50	1.80-2.10	0.40-0.85	2.00-2.40	0.40-0.70	0.10-0.60	2.20-2.50						
COC No / misc Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020						
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020				LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	101	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	31	<10	376	<10	<10	18	<10				<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Methylphenol	87	<10	193	<10	409	17	<10				<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Phenol ^{#M}	96	<10	<10	<10	51	<10	<10				<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	210	<10	55	31	21	189	<10				<10	ug/kg	TM16/PM8
Naphthalene	231	43	161	115	14	126	<10				<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Acenaphthene	31	<10	64	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Fluorene	33	<10	90	<10	<10	50	<10				<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	120	<10	483	14	71	501	<10				<10	ug/kg	TM16/PM8
Anthracene	21	<10	88	<10	<10	129	<10				<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	101	<10	532	<10	82	621	<10				<10	ug/kg	TM16/PM8
Pyrene ^{#M}	106	<10	503	<10	82	595	<10				<10	ug/kg	TM16/PM8
Benzo(a)anthracene	78	<10	317	<10	69	293	<10				<10	ug/kg	TM16/PM8
Chrysene	57	<10	253	<10	54	278	<10				<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	84	<10	324	<10	89	351	<10				<10	ug/kg	TM16/PM8
Benzo(a)pyrene	46	<10	186	<10	43	144	<10				<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	16	<10	74	<10	22	71	<10				<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	<10	23	<10	<10	27	<10				<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	25	<10	103	<10	30	91	<10				<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	60	<10	233	<10	64	253	<10				<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	24	<10	91	<10	25	98	<10				<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	304	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	<100	<100	389	<100				<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100	<100	<100	<100	<100				<100	ug/kg	TM16/PM8

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl
Contact: Scott Miller
EMT Job No: 20/16893

SVOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 11-TP4-51	HS 11-TP4-52	HS 11-TP5-51	HS 11-TP5-52	HS 11-TP6-51	HS 9-TP1-51	HS 9-TP1-52						
Depth	0.15-0.50	1.80-2.10	0.40-0.85	2.00-2.40	0.40-0.70	0.10-0.60	2.20-2.50						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020						
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020				LOD/LOR	Units	Method No.
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	13	<10	<10	<10				<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Bromophenylphenylether ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Carbazole	<10	<10	60	<10	<10	60	<10				<10	ug/kg	TM16/PM8
Dibenzofuran ^{#M}	17	<10	48	<10	<10	67	<10				<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachlorobutadiene ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Isophorone ^{#M}	168	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Nitrobenzene ^{#M}	<10	<10	<10	<10	<10	<10	<10				<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	118	110	117	118	110	117	114				<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	126	110	129	110	114	126	109				<0	%	TM16/PM8

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl
Contact: Scott Miller
EMT Job No: 20/16893

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14				Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 11-TP4-51	HS 11-TP4-52	HS 11-TP5-51	HS 11-TP5-52	HS 11-TP6-51	HS 9-TP1-51	HS 9-TP1-52						
Depth	0.15-0.50	1.80-2.10	0.40-0.85	2.00-2.40	0.40-0.70	0.10-0.60	2.20-2.50						
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J						
Sample Date	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020						
Sample Type	Clay	Clay	Clay	Clay	Clay	Clay	Clay						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020	01/12/2020				LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	8	<2	86	<2	<2	<2				<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether ^{#M}	9	17	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Chloromethane [#]	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2	<2	<2				<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1				<1	ug/kg	TM15/PM10
Chloroethane ^{#M}	<6	<6	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Trichlorofluoromethane ^{#M}	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) ^{#M}	<6	<6	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
Dichloromethane (DCM) [#]	<30	140	<30	108	<30	<30	<30				<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene [#]	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1-Dichloroethane ^{#M}	<6	<6	<6	<6	<6	<6	<6				<6	ug/kg	TM15/PM10
cis-1,2-Dichloroethene ^{#M}	<7	11	<7	10	<7	<7	<7				<7	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Bromochloromethane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Chloroform ^{#M}	<5	58	<5	<5	<5	<5	<5				<5	ug/kg	TM15/PM10
1,1,1-Trichloroethane ^{#M}	<5	10	<5	15	<5	<5	<5				<5	ug/kg	TM15/PM10
1,1,1-Dichloropropene [#]	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Carbon tetrachloride ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dichloroethane ^{#M}	<5	69	<5	144	<5	<5	<5				<5	ug/kg	TM15/PM10
Benzene ^{#M}	<5	169	7	154	<5	<5	<5				<5	ug/kg	TM15/PM10
Trichloroethene (TCE) ^{#M}	<5	148	<5	173	<5	<5	<5				<5	ug/kg	TM15/PM10
1,2-Dichloropropane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Dibromomethane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Bromodichloromethane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Toluene ^{#M}	>>5811	>>24813	>>2864	>>30189	407	589	79 ^{SV}				<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Tetrachloroethene (PCE) [#]	<3	51	<3	103	<3	<3	<3				<3	ug/kg	TM15/PM10
1,3-Dichloropropane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Dibromochloromethane ^{#M}	<5	<5	<5	<5	<5	<5	<5				<5	ug/kg	TM15/PM10
1,2-Dibromoethane [#]	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Chlorobenzene ^{#M}	<4	81	<4	89	<4	<4	<4				<4	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane ^{#M}	<5	<5	<5	<5	<5	<5	<5				<5	ug/kg	TM15/PM10
Ethylbenzene ^{#M}	>>5305	>>9126	2183	>>20959	42	91	8 ^{SV}				<3	ug/kg	TM15/PM10
m/p-Xylene ^{#M}	>>22372	>>23824	>>19437	>>39045	30	301	30 ^{SV}				<4	ug/kg	TM15/PM10
o-Xylene ^{#M}	>>4569	>>8598	>>5497	>>17478	<4	51	<4				<4	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15_A/PM10
Bromoform	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Isopropylbenzene [#]	288	148	82	454	<3	<3	<3				<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane ^{#M}	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2				<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Propylbenzene [#]	935	423	163	1247	<4	<4	<4				<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene [#]	2806	818	1416	>>2401	<3	9	<3				<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3				<3	ug/kg	TM15/PM10
tert-Butylbenzene [#]	388	<5	37	91	<5	<5	9				<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene [#]	>>20758	>>5198	>>7676	>>15509	<6	40	<6 ^{SV}				<6	ug/kg	TM15/PM10
sec-Butylbenzene [#]	568	73	78	295	<4	<4	<4				<4	ug/kg	TM15/PM10
4-Isopropyltoluene [#]	503	56	193	234	<4	80	13				<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene [#]	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
n-Butylbenzene [#]	736	78	113	342	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene ^{#M}	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane [#]	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene [#]	<7	<7	<7	<7	<7	<7	<7				<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4	<4	<4				<4	ug/kg	TM15/PM10
Naphthalene	354	<27	54	139	<27	<27	<27				<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene [#]	<7	<7	<7	<7	<7	<7	<7				<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	113	109	108	92	73	74	105				<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	79	81	83	66	53	56	81				<0	%	TM15/PM10

Element Materials Technology

Job number:	20/16893
Sample number:	1
Sample identity:	HS 11-TP4-51
Sample depth:	0.15-0.50
Sample Type:	Clay
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893
Sample number:	3
Sample identity:	HS 11-TP4-52
Sample depth:	1.80-2.10
Sample Type:	Clay
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893
Sample number:	7
Sample identity:	HS 11-TP5-52
Sample depth:	2.00-2.40
Sample Type:	Clay
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893	Method:	SVOC
Sample number:	2	Matrix:	Solid
Sample identity:	HS 11-TP4-51		
Sample depth:	0.15-0.50		
Sample Type:	Clay		
Units:	ug/kg		

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893
Sample number:	4
Sample identity:	HS 11-TP4-52
Sample depth:	1.80-2.10
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893	Method:	SVOC
Sample number:	6	Matrix:	Solid
Sample identity:	HS 11-TP5-51		
Sample depth:	0.40-0.85		
Sample Type:	Clay		
Units:	ug/kg		

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893
Sample number:	8
Sample identity:	HS 11-TP5-52
Sample depth:	2.00-2.40
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893	Method:	SVOC
Sample number:	10	Matrix:	Solid
Sample identity:	HS 11-TP6-51		
Sample depth:	0.40-0.70		
Sample Type:	Clay		
Units:	ug/kg		

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/16893
Sample number:	12
Sample identity:	HS 9-TP1-51
Sample depth:	0.10-0.60
Sample Type:	Clay
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP **Matrix :** Solid

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/16893

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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: 20/16893

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

EMT Job No: 20/16893

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 18th December, 2020
Your reference : R2174C
Our reference : Test Report 20/17261 Batch 1
Location : Tetrosyl, Bury
Date samples received : 7th December, 2020
Status : Final report
Issue : 1

Eight samples were received for analysis on 7th December, 2020 of which eight 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.

Authorised By:

A handwritten signature in black ink, appearing to read 'Phil', is written over a light blue horizontal line.

Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/17261

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16			Please see attached notes for all abbreviations and acronyms		
Sample ID	HS11-TP7-S1	HS11-TP8-S1	HS11-TP8-S2	HS11-TP9-S1	HS11-TP9-S2	HS11-TP10-S1	HS14-TP5-S1	HS14-TP6-S1					
Depth	0.20-0.40	0.20-0.40	1.10-1.60	0.20-0.40	1.00-1.50	0.40-1.60	0.30-0.80	0.20-1.00					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
Sample Type	Sand	Clay	Clayey Sand	Clayey Sand	Sand	Clay	Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
											LOD/LOR	Units	Method No.
VOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	ND	ND				None	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	8	42	51	220	<2	<2			<2	ug/kg	TM15/PM10
Benzene #	<3	14	96	361	<3	114	<3	<3			<3	ug/kg	TM15/PM10
Toluene #	>>19919	1845	>>27442	>>30105	869	>>46811	228	<3			<3	ug/kg	TM15/PM10
Ethylbenzene #	>>20436	2915	>>28404	>>34293	111	>>37679	19	<3			<3	ug/kg	TM15/PM10
m/p-Xylene #	>>37603	13979	>>46957	>>48997	544	>>67836	75	<5			<5	ug/kg	TM15/PM10
o-Xylene #	>>30589	1200	>>35427	>>39267	166	>>49345	18	<3			<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	102	116	93	82	121	91	94	100			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	106	113	87	64	114	97	82	99			<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached				None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 #M	>>0.5	<0.1	0.5	2.9	<1.0 _{AA}	>>3.8 _{AA}	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C6-C8 #M	>>53.2	1.6	59.8	224.7	<1.0 _{AA}	>>368.0 _{AA}	<0.1	0.1			<0.1	mg/kg	TM36/PM12
>C8-C10	>>88.4	14.1	116.0	147.5	<1.0 _{AA}	>>199.6 _{AA}	<0.1	0.7			<0.1	mg/kg	TM36/PM12
>C10-C12 #M	73.5	21.2	39.1	593.7	6.0	15.1	<0.2	12.4			<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	<4	<4	<4	20	<4	<4	<4	6			<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	<7	<7	<7	10	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	216	37	215	999	<19	587	<19	19			<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	>><0.1	<0.1	<0.1	0.1	<1.0 _{AA}	>><1.0 _{AA}	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	>>51.7	1.7	236.5	817.2	<1.0 _{AA}	>>557.3 _{AA}	0.1	0.2			<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	>>274.4	17.4	400.0	576.6	1.3 _{AA}	>>616.2 _{AA}	<0.1	0.9			<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	33.3	38.9	51.7	320.7	<0.2	10.3	<0.2	<0.2			<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	32	15	11	<4	<4	<4	<4			<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	359	90	703	1726	<19	1184	<19	<19			<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	575	127	918	2725	<38	1771	<38	<38			<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Monoethylene glycol	<50	<50	<50	151	<50	111	<50	169			<50	ug/kg	TM179/PM8
Propylene glycol	56	<50	<50	122	55	424	<50	<50			<50	ug/kg	TM179/PM8
Diethylene glycol	<50	<50	<50	<50	<50	<50	<50	<50			<50	ug/kg	TM179/PM8
Triethylene glycol	<50	<50	<50	<50	<50	<50	<50	<50			<50	ug/kg	TM179/PM8
Thiodiglycol	<50	<50	<50	<50	<50	<50	<50	<50			<50	ug/kg	TM179/PM8
Natural Moisture Content	7.3	13.0	8.2	11.0	8.2	14.7	17.0	13.7			<0.1	%	PM4/PM0
Sample Type	Sand	Clay	Clayey Sand	Clayey Sand	Sand	Clay	Clay	Clay				None	PM13/PM0
Sample Colour	Light Brown	Medium Grey	Medium Brown	Medium Brown	Light Brown	Medium Brown	Medium Brown	Medium Brown				None	PM13/PM0
Other Items	stones	stones and sand	stones	stones	stones	stones	stones	stones				None	PM13/PM0

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16			Please see attached notes for all abbreviations and acronyms		
Sample ID	HS11-TP7-S1	HS11-TP8-S1	HS11-TP8-S2	HS11-TP9-S1	HS11-TP9-S2	HS11-TP10-S1	HS14-TP5-S1	HS14-TP6-S1					
Depth	0.20-0.40	0.20-0.40	1.10-1.60	0.20-0.40	1.00-1.50	0.40-1.60	0.30-0.80	0.20-1.00					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
Sample Type	Sand	Clay	Clayey Sand	Clayey Sand	Sand	Clay	Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
2-Methylphenol	46	41	692	114	<10	1116	<10	<10			<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	114	156	490	77	<10	320	<10	<10			<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	769	<10	<10	1425	<10	<10			<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Phenol ^{#M}	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	76	2015	5473	174	<10	16	<10	40			<10	ug/kg	TM16/PM8
Naphthalene	193	402	2555	684	17	45	<10	20			<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Acenaphthene	40	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Fluorene	25	107	128	12	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	98	66	31	37	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Anthracene	30	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	80	<10	12	12	<10	<10	16	<10			<10	ug/kg	TM16/PM8
Pyrene ^{#M}	73	14	12	14	<10	<10	16	<10			<10	ug/kg	TM16/PM8
Benzo(a)anthracene	54	<10	<10	<10	<10	<10	39	<10			<10	ug/kg	TM16/PM8
Chrysene	31	<10	<10	<10	<10	<10	14	<10			<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	48	12	<10	<10	<10	<10	25	<10			<10	ug/kg	TM16/PM8
Benzo(a)pyrene	26	<10	<10	<10	<10	<10	14	<10			<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	16	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	35	<10	<10	<10	<10	<10	18	<10			<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	13	<10	<10	<10	<10	<10	<10	<10			<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	126	<100	159	1709	<100	<100	<100	<100			<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	<100	<100	<100	<100			<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	193	<100	<100	413	<100			<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100	<100	<100	<100			<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100	<100	<100	<100			<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100	<100	<100	<100	<100	<100	<100			<100	ug/kg	TM16/PM8

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/17261

Please see attached notes for all abbreviations and acronyms

QF-PM 3.1.3 v11

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl, Bury
Contact: Scott Miller
EMT Job No: 20/17261

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16			Please see attached notes for all abbreviations and acronyms		
Sample ID	HS11-TP7-S1	HS11-TP8-S1	HS11-TP8-S2	HS11-TP9-S1	HS11-TP9-S2	HS11-TP10-S1	HS14-TP5-S1	HS14-TP6-S1					
Depth	0.20-0.40	0.20-0.40	1.10-1.60	0.20-0.40	1.00-1.50	0.40-1.60	0.30-0.80	0.20-1.00					
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J					
Sample Date	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
Sample Type	Sand	Clay	Clayey Sand	Clayey Sand	Sand	Clay	Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020					
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	8	42	51	220	<2	<2			<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1			<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6	<6	<6	<6	<6			<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30	<30	<30	<30	<30	<30	<30			<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	14	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	172	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Benzene #	<3	14	96	361	<3	114	<3	<3			<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	11	<3	122	784	<3	70	<3	<3			<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<6	<6	<6	<6			<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Toluene #	>>19919	1845	>>27442	>>30105	869	>>46811	228	<3			<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	146	<3	349	519	<3	181	<3	<3			<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Chlorobenzene #	235	14	238	668	<3	106	<3	<3			<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Ethylbenzene #	>>20436	2915	>>28404	>>34293	111	>>37679	19	<3			<3	ug/kg	TM15/PM10
m/p-Xylene #	>>37603	13979	>>46957	>>48997	544	>>67836	75	<5			<5	ug/kg	TM15/PM10
o-Xylene #	>>30589	1200	>>35427	>>39267	166	>>49345	18	<3			<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Isopropylbenzene #	982	90	1768	1830	<3	1261	<3	<3			<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2	<2			<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
Propylbenzene #	2068	356	>>4845	>>3362	10	>>3045	<4	<4			<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	>>8144	1217	>>10885	>>7097	32	>>7391	<3	<3			<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3			<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	>>37677	12496	>>78999	>>77128	186	>>36765	8	<6			<6	ug/kg	TM15/PM10
sec-Butylbenzene #	451	131	1097	1960	<4	493	<4	<4			<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	495	168	944	1683	<4	400	<4	<4			<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	162	<4	26	<4	<4			<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	26	<4	6	<4	<4			<4	ug/kg	TM15/PM10
n-Butylbenzene #	490	210	1601	>>2446	30	725	<4	<4			<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	33	<4	58	196	8	41	<4	<4			<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7	<7	<7	<7	<7			<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4	<4	<4	<4			<4	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7	<7	<7	<7	<7			<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	102	116	93	82	121	91	94	100			<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	106	113	87	64	114	97	82	99			<0	%	TM15/PM10

Element Materials Technology

Job number:	20/17261
Sample number:	1
Sample identity:	HS11-TP7-S1
Sample depth:	0.20-0.40
Sample Type:	Sand
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17261 **Method:** VOC
Sample number: 5 **Matrix:** Solid
Sample identity: HS11-TP8-S2
Sample depth: 1.10-1.60
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
107-83-5	Pentane, 2-methyl-	2.832	91	689
110-54-3	n-Hexane	3.195	94	3257
96-37-7	Cyclopentane, methyl-	3.561	91	1134
110-82-7	Cyclohexane	3.893	94	4569
589-34-4	Hexane, 3-methyl-	3.943	94	1923
142-82-5	Heptane	4.140	91	3022
107-39-1	1-Pentene, 2,4,4-trimethyl-	4.291	90	199
108-87-2	Cyclohexane, methyl-	4.396	91	4627
1640-89-7	Cyclopentane, ethyl-	4.472	94	673
2815-57-8	Cyclopentane, 1,2,3-trimethyl-	4.559	90	145
592-27-8	Heptane, 2-methyl-	4.641	95	929
589-81-1	Heptane, 3-methyl-	4.705	91	692
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.974	94	320
624-29-3	Cyclohexane, 1,4-dimethyl-, cis-	5.022	95	214
1678-91-7	Cyclohexane, ethyl-	5.235	95	595
2216-33-3	Octane, 3-methyl-	5.408	83	286
1678-92-8	Cyclohexane, propyl-	5.901	81	1201
103-65-1	Benzene, propyl-	6.159	91	4178
95-63-6	Benzene, 1,2,4-trimethyl-	6.208 - 6.438	91,91	58513
622-96-8	Benzene, 1-ethyl-4-methyl-	6.347	91	6848
526-73-8	Benzene, 1,2,3-trimethyl-	6.652	95	5927
527-84-4	o-Cymene	6.697 - 6.937	93,94	2824
1074-17-5	Benzene, 1-methyl-2-propyl-	6.885	91	894
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	6.976 - 7.294	91,96	3357
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	7.086	96	159
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	7.136	96	504
95-93-2	Benzene, 1,2,4,5-tetramethyl-	7.181 - 7.207	94,97	1741
2039-89-6	Benzene, 2-ethenyl-1,4-dimethyl-	7.351	92	428
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	7.524	95	111
13632-94-5	Benzene, 1,4-diethyl-2-methyl-	7.606	91	174

Element Materials Technology

Job number: 20/17261 **Method:** VOC
Sample number: 7 **Matrix:** Solid
Sample identity: HS11-TP9-S1
Sample depth: 0.20-0.40
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
107-83-5	Pentane, 2-methyl-	2.832	91	477
110-54-3	n-Hexane	3.195	94	1183
562-49-2	Pentane, 3,3-dimethyl-	3.785	83	188
110-82-7	Cyclohexane	3.893	91	1795
2532-58-3	Cyclopentane, 1,3-dimethyl-, cis-	4.082	94	199
142-82-5	Heptane	4.139	91	2537
107-39-1	1-Pentene, 2,4,4-trimethyl-	4.291	91	186
108-87-2	Cyclohexane, methyl-	4.396	91	2520
1640-89-7	Cyclopentane, ethyl-	4.471	91	403
592-27-8	Heptane, 2-methyl-	4.641	91	745
589-81-1	Heptane, 3-methyl-	4.710	91	522
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.980	93	198
624-29-3	Cyclohexane, 1,4-dimethyl-, cis-	5.028	94	137
1678-91-7	Cyclohexane, ethyl-	5.235	95	335
2216-33-3	Octane, 3-methyl-	5.408	91	160
1678-92-8	Cyclohexane, propyl-	5.901	81	639
622-96-8	Benzene, 1-ethyl-4-methyl-	6.208	91	2764
611-14-3	Benzene, 1-ethyl-2-methyl-	6.347	91	1221
108-67-8	Mesitylene	6.438	91	2668
527-84-4	o-Cymene	6.933	94	278
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.976 - 7.136	94,95	317
95-93-2	Benzene, 1,2,4,5-tetramethyl-	7.178 - 7.208	93,95	140

Element Materials Technology

Job number:	20/17261
Sample number:	9
Sample identity:	HS11-TP9-S2
Sample depth:	1.00-1.50
Sample Type:	Sand
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17261 **Method:** VOC
Sample number: 11 **Matrix:** Solid
Sample identity: HS11-TP10-S1
Sample depth: 0.40-1.60
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
67-64-1	Acetone	2.493	86	1431
67-63-0	Isopropyl Alcohol	2.598	86	921
107-83-5	Pentane, 2-methyl-	2.832	91	3097
98277-76-0	Ether, 2-chloro-1-methylethyl isopropyl	3.325	83	253
590-35-2	Pentane, 2,2-dimethyl-	3.460	90	424
108-08-7	Pentane, 2,4-dimethyl-	3.508	91	574
96-37-7	Cyclopentane, methyl-	3.561	94	3416
78-92-2	2-Butanol	3.714	83	151
562-49-2	Pentane, 3,3-dimethyl-	3.786	83	2158
110-82-7	Cyclohexane	3.893	94	56841
589-34-4	Hexane, 3-methyl-	3.943	94	26257
2532-58-3	Cyclopentane, 1,3-dimethyl-, cis-	4.082	94	2798
142-82-5	Heptane	4.140	91	32298
107-39-1	1-Pentene, 2,4,4-trimethyl-	4.291	93	625
108-87-2	Cyclohexane, methyl-	4.396	91	20702
1640-89-7	Cyclopentane, ethyl-	4.472	90	2785
15890-40-1	Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-	4.559	80	437
592-27-8	Heptane, 2-methyl-	4.641	95	3549
589-81-1	Heptane, 3-methyl-	4.705	83	2619
108-10-1	Methyl Isobutyl Ketone	4.774	80	1456
6876-23-9	Cyclohexane, 1,2-dimethyl-, trans-	4.974	96	462
2207-03-6	Cyclohexane, 1,3-dimethyl-, trans-	5.022	90	377
926-82-9	Heptane, 3,5-dimethyl-	5.152	81	271
1678-91-7	Cyclohexane, ethyl-	5.235	94	898
2216-33-3	Octane, 3-methyl-	5.408	91	697
622-96-8	Benzene, 1-ethyl-4-methyl-	6.208	91	40092
620-14-4	Benzene, 1-ethyl-3-methyl-	6.347	91	10537
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	6.697	91	379
1074-17-5	Benzene, 1-methyl-2-propyl-	6.885	90	1546
527-84-4	o-Cymene	6.937	95	3938

Element Materials Technology

Job number:	20/17261
Sample number:	11
Sample identity:	HS11-TP10-S1
Sample depth:	0.40-1.60
Sample Type:	Clay
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/17261
Sample number:	2
Sample identity:	HS11-TP7-S1
Sample depth:	0.20-0.40
Sample Type:	Sand
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17261 **Method:** SVOC
Sample number: 4 **Matrix:** Solid
Sample identity: HS11-TP8-S1
Sample depth: 0.20-0.40
Sample Type: Clay
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-84-2	Nonane	4.032	81	234
622-96-8	Benzene, 1-ethyl-4-methyl-	4.599	94	1339
108-67-8	Mesitylene	4.688	94	880
124-18-5	Decane	5.137	91	810
556-67-2	Cyclotetrasiloxane, octamethyl-	5.170	86	223
2847-72-5	Decane, 4-methyl-	5.391	90	1587
105-05-5	Benzene, 1,4-diethyl-	5.517	95	667
1074-43-7	Benzene, 1-methyl-3-propyl-	5.554	89	1001
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	5.617	96	1495
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.868	94	2137
99-87-6	p-Cymene	6.050	93	777
527-53-7	Benzene, 1,2,3,5-tetramethyl-	6.165	95	664
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	6.384	96	367
4706-89-2	Benzene, 2,4-dimethyl-1-(1-methylethyl)-	6.924	93	510
17057-82-8	1H-Indene, 2,3-dihydro-1,2-dimethyl-	7.237	93	334
2809-64-5	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	7.336	91	293
700-12-9	Benzene, pentamethyl-	7.461	92	599
4175-54-6	Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	7.723	95	513
827-54-3	Naphthalene, 2-ethenyl-	8.053	93	324
1127-76-0	Naphthalene, 1-ethyl-	8.185	94	869
581-42-0	Naphthalene, 2,6-dimethyl-	8.259	97	1054
571-58-4	Naphthalene, 1,4-dimethyl-	8.338	96	606
582-16-1	Naphthalene, 2,7-dimethyl-	8.364	96	1130
581-40-8	Naphthalene, 2,3-dimethyl-	8.468	97	675
575-43-9	Naphthalene, 1,6-dimethyl-	8.546	95	347
13798-23-7	Hexathiane	8.729	94	521
829-26-5	Naphthalene, 2,3,6-trimethyl-	9.003	96	409
2245-38-7	Naphthalene, 1,6,7-trimethyl-	9.107	96	425
2131-41-1	Naphthalene, 1,4,5-trimethyl-	9.185	95	530
612-75-9	3,3'-Dimethylbiphenyl	9.483	91	313

Element Materials Technology

Job number: 20/17261 **Method:** SVOC
Sample number: 6 **Matrix:** Solid
Sample identity: HS11-TP8-S2
Sample depth: 1.10-1.60
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
100-42-5	Styrene	3.783	94	882
111-84-2	Nonane	4.032	91	1990
98-82-8	Benzene, (1-methylethyl)-	4.191	87	809
1678-92-8	Cyclohexane, propyl-	4.370	81	620
2051-30-1	Octane, 2,6-dimethyl-	4.430	94	837
620-14-4	Benzene, 1-ethyl-3-methyl-	4.599	91	14451
108-67-8	Mesitylene	4.688	95	6136
526-73-8	Benzene, 1,2,3-trimethyl-	4.797	93	4464
5911-04-6	Nonane, 3-methyl-	4.837	81	1291
124-18-5	Decane	5.137	95	4996
17302-28-2	Nonane, 2,6-dimethyl-	5.391	87	3810
54105-66-7	Cyclohexane, undecyl-	5.466	91	688
105-05-5	Benzene, 1,4-diethyl-	5.517	95	3659
1074-43-7	Benzene, 1-methyl-3-propyl-	5.554	81	3957
1074-55-1	Benzene, 1-methyl-4-propyl-	5.692	86	1727
13151-35-4	Decane, 5-methyl-	5.730	87	206
2847-72-5	Decane, 4-methyl-	5.755	87	299
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	5.792	93	2032
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.817	94	2336
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.868	95	6614
1120-21-4	Undecane	6.112	93	3507
527-53-7	Benzene, 1,2,3,5-tetramethyl-	6.165	95	2089
488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.196	95	2937
3333-13-9	Benzene, 1-methyl-4-(2-propenyl)-	6.343	86	898
3454-07-7	Benzene, 1-ethenyl-4-ethyl-	6.426	92	1071
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.458	95	413
6682-71-9	1H-Indene, 2,3-dihydro-4,7-dimethyl-	6.719	80	281
4706-90-5	Benzene, 1,3-dimethyl-5-(1-methylethyl)-	6.840	90	936
112-40-3	Dodecane	6.936	95	1148
1075-22-5	1H-Indene, 2,3-dihydro-5,6-dimethyl-	7.237	94	698

Element Materials Technology

Job number:	20/17261
Sample number:	6
Sample identity:	HS11-TP8-S2
Sample depth:	1.10-1.60
Sample Type:	Clayey Sand
Units:	ug/kg

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17261 **Method:** SVOC
Sample number: 8 **Matrix:** Solid
Sample identity: HS11-TP9-S1
Sample depth: 0.20-0.40
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
111-84-2	Nonane	4.032	94	5937
15869-89-3	Octane, 2,5-dimethyl-	4.330	87	588
1678-92-8	Cyclohexane, propyl-	4.370	93	1371
2051-30-1	Octane, 2,6-dimethyl-	4.430	94	3253
611-14-3	Benzene, 1-ethyl-2-methyl-	4.599	91	15536
108-67-8	Mesitylene	4.688	95	5820
871-83-0	Nonane, 2-methyl-	4.768	93	3064
622-96-8	Benzene, 1-ethyl-4-methyl-	4.797	90	5066
5911-04-6	Nonane, 3-methyl-	4.837	87	2822
526-73-8	Benzene, 1,2,3-trimethyl-	4.951	95	20468
124-18-5	Decane	5.137	95	14744
17302-28-2	Nonane, 2,6-dimethyl-	5.391	87	7923
135-01-3	Benzene, 1,2-diethyl-	5.517	94	2849
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	5.617	95	3245
13151-35-4	Decane, 5-methyl-	5.730	90	1637
2847-72-5	Decane, 4-methyl-	5.755	86	2161
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	5.868	93	4353
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	6.052	94	3443
1120-21-4	Undecane	6.114	93	7982
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.167	95	1302
488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.198	95	1998
3221-61-2	Octane, 2-methyl-	6.282	87	1466
769-57-3	Benzene, (1,2-dimethyl-1-propenyl)-	6.758	91	451
20294-32-0	6-Methyl-4-indanol	6.842	87	592
112-40-3	Dodecane	6.938	97	1228
2809-64-5	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	7.338	89	171
88-99-3	1,2-Benzenedicarboxylic acid	7.383	90	460
1203-17-4	1H-Indene, 2,3-dihydro-1,1,2,3,3-pentamethyl-	7.642	96	683
584-84-9	Benzene, 2,4-diisocyanato-1-methyl-	7.857	95	329
41604-19-7	4-Bromo-2-fluorobiphenyl	9.477	93	201

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Matrix : Solid

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/17261

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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
AA	x10 Dilution

EMT Job No: 20/17261

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GC/FID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes

EMT Job No: 20/17261

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
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Scott Miller
Date : 29th December, 2020
Your reference : R2174C
Our reference : Test Report 20/17443 Batch 1
Location : Tetrosyl Bury
Date samples received : 9th December, 2020
Status : Final report
Issue : 1

Twelve samples were received for analysis on 9th December, 2020 of which twelve 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.

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: R2174C
Location: Tetrosyl Bury
Contact: Scott Miller
EMT Job No: 20/17443

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 5 - TP2 - S1	HS 5 - TP1 - S1	HS 7 - TP1 - S1	HS 6 - TP1 - S1	HS 6 - TP3 - S1	HS 6 - TP4 - S1	HS 6 - TP5 - S1	HS 6 - TP6 - S1	HS 2 - TP1 - S1	HS 2 - TP2 - S1			
Depth	0.20-0.60	1.20-2.00	0.20-1.00	0.25-0.60	0.15-0.30	0.20-0.50	0.15-0.40	0.40-1.60	0.20-0.50	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	09/12/2020	09/12/2020			
Sample Type	Clayey Sand	Clayey Sand	Sand	Clayey Sand	Sand	Clayey Sand	Clayey Sand	Clayey Sand	Loamy Sand	Clay			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	LOD/LOR	Units	Method No.
VOC TICs	See Attached	ND	ND	ND	See Attached	See Attached	See Attached	See Attached	See Attached	ND		None	TM15/PM10
Methyl Tertiary Butyl Ether ^{#M}	<6	<6 ^{SV}	<6 ^{SV}	<6	<6	<6	<6	<6	<6 ^{SV}	<6	<6	ug/kg	TM15/PM10
Benzene ^{#M}	<5	<5 ^{SV}	<5 ^{SV}	<5	12	<5	<5	<5	<5 ^{SV}	<5	<5	ug/kg	TM15/PM10
Toluene ^{#M}	29	<3 ^{SV}	8 ^{SV}	3	1008	12	201	112	116 ^{SV}	<3	<3	ug/kg	TM15/PM10
Ethylbenzene ^{#M}	189	114 ^{SV}	37 ^{SV}	8	262	204	37323	793	81 ^{SV}	<3	<3	ug/kg	TM15/PM10
m/p-Xylene ^{#M}	175	12 ^{SV}	23 ^{SV}	6	629	115	727	1067	341 ^{SV}	<4	<4	ug/kg	TM15/PM10
o-Xylene ^{#M}	44	5 ^{SV}	10 ^{SV}	<4	298	55	229	723	86 ^{SV}	<4	<4	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	89	42 ^{SV}	45 ^{SV}	71	54	73	86	69	38 ^{SV}	95	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	74	41 ^{SV}	39 ^{SV}	68	62	63	83	60	54 ^{SV}	90	<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	ND		None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 ^{#M}	0.2	<0.1	<0.1	<0.1	2.1 ^{SV}	>>0.2	0.2	<0.1	<0.1 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 ^{#M}	<0.1	<0.1	<0.1	<0.1	23.1 ^{SV}	>>3.3	0.2	<0.1	<0.1 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	1.7	0.2	0.6	<0.1	2.3 ^{SV}	>>88.0	10.4	16.8	0.9 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 ^{#M}	42.0	<0.2	19.6	<0.2	16.9	<0.2	57.4	730.2	11.8	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 ^{#M}	71	9	43	<4	25	<4	52	349	41	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 ^{#M}	62	13	59	<7	51	20	22	21	72	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 ^{#M}	520	9	444	91	191	76	108	67	677	114	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	697	31	566	91	311	188	250	1184	803	114	<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 [#]	<0.1	<0.1	<0.1	<0.1	<0.1 ^{SV}	>><0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 [#]	<0.1	<0.1	<0.1	<0.1	0.2 ^{SV}	>><0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 ^{#M}	4.1	0.9	0.4	<0.1	10.7 ^{SV}	>>573.1	66.7	0.8	0.6 ^{SV}	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 [#]	8.7	<0.2	<0.2	<0.2	182.2	<0.2	13.8	153.0	9.1	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 [#]	22	7	13	<4	4486	<4	14	57	19	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 [#]	61	17	48	10	70	<7	26	<7	64	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 [#]	369	16	885	105	176	<7	115	<7	615	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 [#]	465	41	946	115	4925	573	236	211	708	<19	<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	1162	72	1512	206	5236	761	486	1395	1511	114	<38	mg/kg	TM5/PM8/PM16/PM12/PM10
PCB 28 [#]	-	-	33	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 [#]	-	-	8	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 [#]	-	-	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 [#]	-	-	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 [#]	-	-	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 [#]	-	-	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 [#]	-	-	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs [#]	-	-	41	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8
Monoethylene glycol	<50	<50	<50	<50	3965 ^{AC}	146	8084 ^{AA}	<50	1301	<50	<50	ug/kg	TM179/PM8
Propylene glycol	222	<50	<50	<50	6644 ^{AC}	250	20343 ^{AA}	<50	755	<50	<50	ug/kg	TM179/PM8

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury
Contact: Scott Miller
EMT Job No: 20/17443

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury
Contact: Scott Miller
EMT Job No: 20/17443

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	21-22	23-24									Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 2 - TP3 - S1	HS 4 - TP1 - S1											
Depth	0.20-0.50	0.45-1.00											
COC No / misc													
Containers	V J	V J											
Sample Date	09/12/2020	09/12/2020											
Sample Type	Loamy Sand	Loamy Sand											
Batch Number	1	1											
Date of Receipt	09/12/2020	09/12/2020											
VOC TICs	ND	See Attached										None	TM15/PM10
Methyl Tertiary Butyl Ether ^{#M}	<6	<6									<6	ug/kg	TM15/PM10
Benzene ^{#M}	<5	<5									<5	ug/kg	TM15/PM10
Toluene ^{#M}	8	<3									<3	ug/kg	TM15/PM10
Ethylbenzene ^{#M}	63	<3									<3	ug/kg	TM15/PM10
m/p-Xylene ^{#M}	25	<4									<4	ug/kg	TM15/PM10
o-Xylene ^{#M}	16	<4									<4	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	55	71									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	60	58									<0	%	TM15/PM10
SVOC TICs	See Attached	See Attached										None	TM16/PM8
TPH CWG													
Aliphatics													
>C5-C6 ^{#M}	<0.1 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C6-C8 ^{#M}	0.3 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C8-C10	0.6 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C10-C12 ^{#M}	55.8	23.6									<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 ^{#M}	94	198									<4	mg/kg	TM5/PM8/PM16
>C16-C21 ^{#M}	132	509									<7	mg/kg	TM5/PM8/PM16
>C21-C35 ^{#M}	270	394									<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	553	1125									<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 [#]	<0.1 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC7-EC8 [#]	<0.1 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC8-EC10 ^{#M}	3.1 ^{SV}	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC10-EC12 [#]	54.4	10.4									<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 [#]	160	31									<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 [#]	215	161									<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 [#]	339	181									<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 [#]	772	383									<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	1325	1508									<38	mg/kg	TM5/PM8/PM16/PM12/PM10
PCB 28 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 52 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 101 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 118 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 138 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 153 [#]	-	-									<5	ug/kg	TM17/PM8
PCB 180 [#]	-	-									<5	ug/kg	TM17/PM8
Total 7 PCBs [#]	-	-									<35	ug/kg	TM17/PM8
Monoethylene glycol	<50	<50									<50	ug/kg	TM179/PM8
Propylene glycol	<50	<50									<50	ug/kg	TM179/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyl Bury
 Contact: Scott Miller
 EMT Job No: 20/17443

SVOC Report : Solid

EMT Sample No.	21-22	23-24									Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 2 - TP3 - S1	HS 4 - TP1 - S1											
Depth	0.20-0.50	0.45-1.00											
COC No / misc													
Containers	V J	V J											
Sample Date	09/12/2020	09/12/2020											
Sample Type	Loamy Sand	Loamy Sand											
Batch Number	1	1											
Date of Receipt	09/12/2020	09/12/2020									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol ^{#M}	<10	<10									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol ^{#M}	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10									<10	ug/kg	TM16/PM8
Phenol ^{#M}	<10	<10									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene ^{#M}	<10	<10									<10	ug/kg	TM16/PM8
2-Methylnaphthalene ^{#M}	117	243									<10	ug/kg	TM16/PM8
Naphthalene	31	117									<10	ug/kg	TM16/PM8
Acenaphthylene	<10	<10									<10	ug/kg	TM16/PM8
Acenaphthene	82	<10									<10	ug/kg	TM16/PM8
Fluorene	63	64									<10	ug/kg	TM16/PM8
Phenanthrene ^{#M}	1810	333									<10	ug/kg	TM16/PM8
Anthracene	226	<10									<10	ug/kg	TM16/PM8
Fluoranthene ^{#M}	1735	258									<10	ug/kg	TM16/PM8
Pyrene ^{#M}	2429	361									<10	ug/kg	TM16/PM8
Benzo(a)anthracene	1139	109									<10	ug/kg	TM16/PM8
Chrysene	1632	146									<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	1218	157									<10	ug/kg	TM16/PM8
Benzo(a)pyrene	760	75									<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	288	33									<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	136	<10									<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	414	59									<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	877	113									<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	341	44									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Dimethyl phthalate ^{#M}	<100	<100									<100	ug/kg	TM16/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyl Bury
 Contact: Scott Miller
 EMT Job No: 20/17443

SVOC Report : Solid

EMT Sample No.	21-22	23-24										
Sample ID	HS 2 - TP3 - S1	HS 4 - TP1 - S1										
Depth	0.20-0.50	0.45-1.00										
COC No / misc												
Containers	V J	V J										
Sample Date	09/12/2020	09/12/2020										
Sample Type	Loamy Sand	Loamy Sand										
Batch Number	1	1										
Date of Receipt	09/12/2020	09/12/2020										
	LOD/LOR	Units	Method No.									
SVOC MS												
Other SVOCs												
1,2-Dichlorobenzene	<10	<10								<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10								<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10								<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10								<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10								<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10								<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10								<10	ug/kg	TM16/PM8
4-Bromophenylphenylether ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10								<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10								<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10								<10	ug/kg	TM16/PM8
Azobenzene	<10	<10								<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10								<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10								<10	ug/kg	TM16/PM8
Carbazole	33	<10								<10	ug/kg	TM16/PM8
Dibenzofuran ^{#M}	40	<10								<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10								<10	ug/kg	TM16/PM8
Hexachlorobutadiene ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10								<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10								<10	ug/kg	TM16/PM8
Isophorone ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
Nitrobenzene ^{#M}	<10	<10								<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	115	104								<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	92	130								<0	%	TM16/PM8

Please see attached notes for all abbreviations and acronyms

[illegible]

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174C
Location: Tetrosyl Bury
Contact: Scott Miller
EMT Job No: 20/17443

VOC Report : Solid

EMT Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Please see attached notes for all abbreviations and acronyms		
Sample ID	HS 5 - TP2 - S1	HS 5 - TP1 - S1	HS 7 - TP1 - S1	HS 6 - TP1 - S1	HS 6 - TP3 - S1	HS 6 - TP4 - S1	HS 6 - TP5 - S1	HS 6 - TP6 - S1	HS 2 - TP1 - S1	HS 2 - TP2 - S1			
Depth	0.20-0.60	1.20-2.00	0.20-1.00	0.25-0.60	0.15-0.30	0.20-0.50	0.15-0.40	0.40-1.60	0.20-0.50	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	09/12/2020	09/12/2020			
Sample Type	Clayey Sand	Clayey Sand	Sand	Clayey Sand	Sand	Clayey Sand	Clayey Sand	Clayey Sand	Loamy Sand	Clay			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2	<2 ^{SV}	<2	<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2	<2 ^{SV}	<2	<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	353	<3	<3	<3	29 ^{SV}	<3	<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2	<2 ^{SV}	<2	<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1 ^{SV}	<1 ^{SV}	<1	<1	<1	<1	<1	<1 ^{SV}	<1	<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2 ^{SV}	<2 ^{SV}	<2	>>16859	<2	<2	<2	35 ^{SV}	<2	<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2 ^{SV}	<2 ^{SV}	<2	<2	8	<2	<2	<2 ^{SV}	<2	<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6 ^{SV}	<6 ^{SV}	<6	<6	<6	<6	<6	<6 ^{SV}	<6	<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30 ^{SV}	<30 ^{SV}	<30	34	<30	179	956	<30 ^{SV}	<30	<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Chloroform #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	116 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
Benzene #	<3	<3 ^{SV}	<3 ^{SV}	<3	12	<3	3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3 ^{SV}	<3 ^{SV}	10	70	11	26	<3	120 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6 ^{SV}	<6 ^{SV}	<6	<6	<6	<6	<6	<6 ^{SV}	<6	<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
Toluene #	29	<3 ^{SV}	8 ^{SV}	3	1008	12	201	112	116 ^{SV}	<3	<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	138	<3	360 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Ethylbenzene #	189	114 ^{SV}	37 ^{SV}	8	262	204	>>37323	244	92	<3	<3	ug/kg	TM15/PM10
m/p-Xylene #	175	12 ^{SV}	23 ^{SV}	6	629	115	727	1067	341 ^{SV}	<5	<5	ug/kg	TM15/PM10
o-Xylene #	44	5 ^{SV}	10 ^{SV}	5	298	55	229	723	86 ^{SV}	<3	<3	ug/kg	TM15/PM10
Styrene	2999	>>2970	240 ^{SV}	38	>>76423	>>105888	>>29086	339	1448	76	<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3 ^{SV}	<3 ^{SV}	<3	32	61	191	283	64 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2 ^{SV}	<2 ^{SV}	<2	<2	<2	<2	<2	<2 ^{SV}	<2	<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4 ^{SV}	<4 ^{SV}	<4	35	105	143	937	156 ^{SV}	<4	<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	29	6 ^{SV}	8 ^{SV}	<3	47	14	280	>>3194	438 ^{SV}	<3	<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3 ^{SV}	<3 ^{SV}	<3	<3	<3	<3	<3	<3 ^{SV}	<3	<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5	168	212	<5 ^{SV}	<5	<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	129	21 ^{SV}	33 ^{SV}	<6	350	116	1828	>>29490	2134	<6	<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4 ^{SV}	5 ^{SV}	<4	<4	<4	259	>>3255	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	33	<4 ^{SV}	7 ^{SV}	<4	<4	<4	171	>>4357	176 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4 ^{SV}	7 ^{SV}	<4	111	<4	227	>>5534	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7 ^{SV}	<7 ^{SV}	<7	<7	<7	<7	<7	<7 ^{SV}	<7	<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4 ^{SV}	<4 ^{SV}	<4	<4	<4	<4	<4	<4 ^{SV}	<4	<4	ug/kg	TM15/PM10
Naphthalene	<27	<27 ^{SV}	<27 ^{SV}	<27	44	<27	56	629	<27 ^{SV}	<27	<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7 ^{SV}	<7 ^{SV}	<7	<7	<7	<7	<7	<7 ^{SV}	<7	<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	89	42 ^{SV}	45 ^{SV}	71	54	73	86	69	38 ^{SV}	95	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	74	41 ^{SV}	39 ^{SV}	68	62	63	83	60	54 ^{SV}	90	<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Client Name: Smith Grant LLP
 Reference: R2174C
 Location: Tetrosyl Bury
 Contact: Scott Miller
 EMT Job No: 20/17443

VOC Report : Solid

EMT Sample No.	21-22	23-24										
Sample ID	HS 2 - TP3 - S1	HS 4 - TP1 - S1										
Depth	0.20-0.50	0.45-1.00										
COC No / misc												
Containers	V J	V J										
Sample Date	09/12/2020	09/12/2020										
Sample Type	Loamy Sand	Loamy Sand										
Batch Number	1	1										
Date of Receipt	09/12/2020	09/12/2020										
VOC MS										LOD/LOR	Units	Method No.
Dichlorodifluoromethane	<2	<2								<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2								<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3								<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2								<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1								<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2								<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2								<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6								<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<30	<30								<30	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3								<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3								<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4								<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3								<3	ug/kg	TM15/PM10
Chloroform #	<3	<3								<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	11	<3								<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4								<4	ug/kg	TM15/PM10
Benzene #	<3	<3								<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6								<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3								<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4								<4	ug/kg	TM15/PM10
Toluene #	5	<3								<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3								<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3								<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3								<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3								<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3								<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3								<3	ug/kg	TM15/PM10
Ethylbenzene #	63	<3								<3	ug/kg	TM15/PM10
m/p-Xylene #	25	<5								<5	ug/kg	TM15/PM10
o-Xylene #	16	<3								<3	ug/kg	TM15/PM10
Styrene	>>13684	69								<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3								<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3								<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3								<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2								<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4								<4	ug/kg	TM15/PM10
Propylbenzene #	14	<4								<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3								<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	25	<3								<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3								<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5								<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	173	<6								<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4								<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4								<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4								<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7								<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4								<4	ug/kg	TM15/PM10
Naphthalene	<27	<27								<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7								<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	55	71								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	60	58								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/17443
Sample number:	17
Sample identity:	HS 2 - TP1 -S1
Sample depth:	0.20-0.50
Sample Type:	Loamy Sand
Units:	ug/kg

Method: VOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: VOC

Matrix: Solid

Sample depth: 0.45-1.00

Sample Type: Loamy Sand

Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/17443	Method:	SVOC
Sample number:	4	Matrix:	Solid
Sample identity:	HS 5 - TP1 -S1		
Sample depth:	1.20-2.00		
Sample Type:	Clayey Sand		
Units:	ug/kg		

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/17443	Method:	SVOC
Sample number:	8	Matrix:	Solid
Sample identity:	HS 6 - TP1 -S1		
Sample depth:	0.25-0.60		
Sample Type:	Clayey Sand		
Units:	ug/kg		

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number:	20/17443	Method:	SVOC
Sample number:	12	Matrix:	Solid
Sample identity:	HS 6 - TP4 -S1		
Sample depth:	0.20-0.50		
Sample Type:	Clayey Sand		
Units:	ug/kg		

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17443 **Method:** SVOC
Sample number: 16 **Matrix:** Solid
Sample identity: HS 6 - TP6 -S1
Sample depth: 0.40-1.60
Sample Type: Clayey Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
1678-93-9	Cyclohexane, butyl-	5.462	81	8909
934-74-7	Benzene, 1-ethyl-3,5-dimethyl-	5.605	94	14917
527-84-4	o-Cymene	5.793	91	21256
13151-34-3	Decane, 3-methyl-	5.848	95	12793
78-40-0	Triethyl phosphate	5.991	91	9554
1120-21-4	Undecane	6.111	94	41692
95-93-2	Benzene, 1,2,4,5-tetramethyl-	6.188	94	7590
1632-70-8	Undecane, 5-methyl-	6.276	87	7705
112-40-3	Dodecane	6.928	95	29983
17301-28-9	Undecane, 3,6-dimethyl-	7.048	87	11670
54676-39-0	Cyclohexane, 2-butyl-1,1,3-trimethyl-	7.148	86	4615
61142-20-9	Cyclohexane, (4-methylpentyl)-	7.228	83	9824
1680-51-9	Naphthalene, 1,2,3,4-tetrahydro-6-methyl-	7.327	90	9657
6117-97-1	Dodecane, 4-methyl-	7.367	94	6250
17312-57-1	Dodecane, 3-methyl-	7.447	86	6700
629-50-5	Tridecane	7.641	94	29008
4175-54-6	Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	7.871	87	4544
26730-12-1	Tridecane, 4-methyl-	8.031	92	2318
1560-96-9	Tridecane, 2-methyl-	8.060	93	5571
4536-30-5	Ethanol, 2-(dodecyloxy)-	8.102	80	3719
3891-98-3	Dodecane, 2,6,10-trimethyl-	8.158	91	4987
629-59-4	Tetradecane	8.285	97	11319
582-16-1	Naphthalene, 2,7-dimethyl-	8.355	84	4351
13151-84-3	Dodecane, 4-cyclohexyl-	8.574	80	2764
629-62-9	Pentadecane	8.861	96	3546
544-76-3	Hexadecane	9.396	95	804
3910-35-8	1H-Indene, 2,3-dihydro-1,1,3-trimethyl-3-phenyl-	9.955	95	445

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Element Materials Technology

Job number: 20/17443 **Method:** SVOC
Sample number: 22 **Matrix:** Solid
Sample identity: HS 2 - TP3 -S1
Sample depth: 0.20-0.50
Sample Type: Loamy Sand
Units: ug/kg

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

CAS No.	Tentative Compound Identification	Retention Time (minutes)	% Match	Concentration
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.045	87	249
629-92-5	Nonadecane	6.100	83	610
2958-75-0	1-Methyldecahydronaphthalene	6.354	95	363
1595-16-0	Benzene, 1-methyl-4-(1-methylpropyl)-	6.575	83	365
112-40-3	Dodecane	6.928	95	795
2051-30-1	Octane, 2,6-dimethyl-	7.477	80	318
629-50-5	Tridecane	7.641	93	1168
54833-48-6	Heptadecane, 2,6,10,15-tetramethyl-	8.158	80	497
575-41-7	Naphthalene, 1,3-dimethyl-	8.327	96	456
581-42-0	Naphthalene, 2,6-dimethyl-	8.355	95	600
582-16-1	Naphthalene, 2,7-dimethyl-	8.453	95	402
629-59-4	Tetradecane	8.861	83	1333
2131-42-2	Naphthalene, 1,4,6-trimethyl-	8.953	97	281
2245-38-7	Naphthalene, 1,6,7-trimethyl-	8.987	97	441
2131-41-1	Naphthalene, 1,4,5-trimethyl-	9.068	98	555
504-44-9	Hexadecane, 2,6,11,15-tetramethyl-	9.955	90	953
593-45-3	Octadecane	10.374	93	379
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	10.440	94	639
832-64-4	Phenanthrene, 4-methyl-	10.782	96	531
610-48-0	Anthracene, 1-methyl-	10.884	90	579
2531-84-2	Phenanthrene, 2-methyl-	10.909	97	443
612-94-2	Naphthalene, 2-phenyl-	11.078	90	379
629-62-9	Pentadecane	11.255	93	531
781-43-1	9,10-Dimethylantracene	11.382	96	325
2381-21-7	Pyrene, 1-methyl-	12.125	97	231

Element Materials Technology

Method: SVOC
Matrix: Solid

Note: Only samples with TICs (if requested) are reported. If TICs were requested but no compounds found they are not reported.

[illegible]

Client Name: Smith Grant LLP

Matrix : Solid

Reference: R2174C

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.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/17443

SOILS

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.

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.

Where Mineral Oil or Fats, Oils and Grease 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 or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

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 UKAS requirement 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.

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.

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 calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
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
AA	x10 Dilution

AB	x20 Dilution
AC	x50 Dilution
AD	x200 Dilution

EMT Job No: 20/17443

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

EMT Job No: 20/17443

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM179	Determination of Glycols using LCMS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Appendix D

Instrument Calibration Certification



CERTIFICATE OF CALIBRATION
Phocheck Tiger

CALIBRATION CERTIFICATE NO: 69743

ISSUED BY: SHAWCITY LIMITED
DATE: 01.12.20
APPROVED SIGNATORY: 
NAME: Ben Challenger
CUSTOMER: Shawcity Ltd -Exhibition equipment
INSTRUMENT: PhoCheck Tiger
SERIAL NUMBER: T-115610
CALIBRATION METHOD: CM03
AMBIENT CONDITIONS: 20°C ± 2°C and 50% (± 20%) RH

Prior to calibration the instrument was allowed to stabilise in the laboratory for at least 30 minutes.
The instrument was calibrated by exposing the sensor to known values of gas concentrations.
All gases were sampled through the complete probe and in line filter, where applicable.
The reference value is that generated by the certified source and the indicated value is that measured by the instrument.

CALIBRATION RESULTS

GAS	LOT No	REF. VALUE	INDICATED VALUE
Isobutylene	WO262581-2	100 ppm	100 ppm
Isobutylene	WO224476-2	1000 ppm	1000 ppm

COMMENTS:

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$.
This provides a level of confidence of uncertainty of approximately 95%.
The uncertainty of measurement is $\pm 2\%$
The results indicate that the instrument conforms to the applicable parts of the published specification.

HEALTH & SAFETY, OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING INSTRUMENTS

Tel: 01793 780622
www.shawcity.co.uk

Instrument House, 91-92 Shrivenham Hundred Business Park
Watchfield, Oxfordshire, SN6 8TY

Fax: 01793 784466
service@shawcity.co.uk



Certificate of Calibration

Customer: Smith Grant Ltd

Instrument: MiniRAE 3000

Job: Service, Test & Calibration

Serial number: 592-915404

Fleet Number: N/A

Certificate no: 915404/221119

Next calibration due date: 22.11.2020

Tested on: 22.11.2019

Calibrated for: VOC

<u>Applied Gas Concentration:</u>	<u>Cylinder Reference:</u>	<u>Initial Sensor Reading</u>	<u>Final Sensor Reading</u>	<u>Accuracy Limits</u>
Isobutylene 100ppm	AGG3234-3-3	127.3ppm	100.0ppm	+/- 10%

The Instrument has been calibrated after Re-Zeroing & Introducing Span Calibration Gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO6145-6:2017

Calibration Engineer: Michael Stronach

Sign: 

Quality Assessed by (Print):	R.L. BAINBRIDGE	Sign:	
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