Bro Tathan Utilities

B048494

Ground Investigation Report

V1

Welsh Government

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AOD	above Ordnance Datum
bgl	below ground level
BGS	British Geological Survey
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
C4SL	Category 4 Screening Levels
CIEH	Chartered Institute of Environmental Health
CLEA	Contaminated Land Exposure Assessment
CoC	Constituent of Concern
CSM	Conceptual Site Model
DEFRA	Department of Environment, food and Rural Affairs
DQRA	Detailed Quantitative Risk Assessment
DTS	Desktop Study
DRO	Diesel Range Organics
DWS	Drinking Water Standard
EA	Environment Agency (England)
EPH	Extractable Petroleum Hydrocarbons
EQS	Environmental Quality Standards
FOC	Fraction Organic Carbon
GPR	Ground Penetrating Radar
LOD	Limit of detection
LQM	Land Quality Management
NRW	Natural Resources Wales
OS	Ordnance Survey
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PPE	Personal Protection Equipment
ppm	parts per million
PRO	Petroleum Range Organics
SGV	Soil Guideline Values
SOM	Soil Organic Matter
SVOC	Semi-volatile organic compounds
TPH	Total Petroleum Hydrocarbon
TSV	Tier 1 Screening Values
VOC	Volatile Organic Carbon
VPH	Volatile Petroleum Hydrocarbons

1.0 INTRODUCTION

1.1 INSTRUCTION

Tetra Tech Ltd (Tetra Tech) was commissioned by Welsh Government (the client) to undertake a Ground Investigation for a site known as Bro Tathan Utilities (known hereafter as "the site").

The location of the site is shown on Figure 1.

1.2 BRIEF

The brief was to provide an intrusive ground investigation to provide information on the ground conditions and enable a geotechnical assessment and contaminated land risk assessment to support the proposed development of the site.

The work was designed to comprise the following elements:

- 32 hand dug pits maximum depth of 1.20m bgl;
- Four samples obtained from stockpiled materials on site.
- Two machine excavated trial pits to a maximum depth of 1.0m to investigate the relocation of a sub station facility (reported under separate cover).
- On-site inspection and logging of recovered samples;
- Representative soil samples taken and submitted for geotechnical classification testing to support the Earthworks Strategy;
- Representative soil samples submitted and tested for a suite of potential contaminants;
- Preparation of a Ground Investigation report;
- Drinking water pipe assessment.

1.3 PROPOSED DEVELOPMENT

It is understood that the proposed development will involve the upgrading and replacement of the buried services across the Bro Tathan site aligned along a series of trenches.

The arisings from this material will be utilised to raise site levels within the Y Porth area of the site. The reuse of material is covered in an Earthworks Specification document and Materials Management Plan presented under separate cover.

1.4 REPORT SCOPE

This report includes the following key elements:

- Full factual records of the site works carried out;
- Summary of the ground conditions encountered;
- Environmental laboratory testing results;
- Geotechnical laboratory testing results;

- Interpretation of Geotechnical and Environmental laboratory data, including a qualitative ground contamination risk assessment (compliant with CIRIA 552 (CIRIA, 2001) methodology);
- Drinking Water Pipe Assessment.
- An executive summary of the report to allow a rapid, layman's overview.

1.5 LIMITATIONS

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study or provided by others. Information provided from other sources is taken in good faith and Tetra Tech cannot guarantee its accuracy.

This report is subject to the report conditions presented in Appendix A.

The information contained in this report is intended for the use of the Welsh Government and Tetra Tech can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2.0 SITE INFORMATION

2.1 LOCATION

The site is located within the former Ministry of Defence (MoD) St. Athan airfield, which is located north-west of St. Athan village, Vale of Glamorgan, South Wales. St. Athan airfield is centred at National Grid Reference (NGR) SE 998 685 and is approximately 15km south-west of Cardiff City centre.

A site location plan is presented in Figure 1.

2.2 SITE DESCRIPTION

On site development consists of a number of commercial style and office buildings along with aircraft hangars, runways and taxiways.

It is proposed that the excavations to support the replacement of the utility infrastructure will predominantly run adjacent to existing roadways on the site, plus access routes to individual buildings.

2.3 GEOLOGY, HYDROGEOLOGY, HYDROLOGY

2.3.1 Geology

Details of the geology underlying the site have been obtained from the following sources:

- British Geological Survey (BGS) Sheet No. 262 (Bridgend) Solid and Drift Edition 1:50 000 scale;
- BGS website (British Geological Survey, 2023), accessed 06/09/2023.

No Made Ground deposits are shown to be recorded on site in available mapping, however, limited thicknesses of Made Ground are anticipated associated with the current development on site.

No superficial deposits are recorded to underlie the site.

Bedrock geology is recorded as strata associated with the Porthkerry Member, recorded to comprise limestone interbedded with thin beds of mudstone. This is anticipated to be at shallow depths across the site.

2.3.2 Hydrogeology

The bedrock geology of the Porthkerry Member is recorded to be a Secondary A Aquifer. The site does not lie within a Source Protection Zone, and there are no potable groundwater abstractions within 1km of the site.

2.3.3 Hydrology

There are no surface water bodies within the main areas of the site. The Nant y Stepsau steam flows in an easterly direction adjacent to the Northern Access Road in the northern extent of the site and discharges to the River Thaw which is located beyond the site to the east.

3.0 SITE INVESTIGATION

The site investigation was undertaken on 3rd to 14th July 2023. Details of the fieldwork methods are given in the notes section at the end of this report.

3.1 SCOPE

The scope of the site investigation included the following:

- 32 hand excavated trial pits to a maximum depth of 1.20m bgl
- Four samples obtained from stockpiled materials on site.
- On-site inspection and logging of recovered samples;
- Representative soil samples taken and submitted for geotechnical classification testing;
- Representative soil samples taken, submitted and tested for a suite of potential contaminants;

The ground investigation was designed to provide an overall assessment of ground conditions along the route of the utility trenches, specifically the new buried water pipe.

Figure 2 shows the layout of the exploratory holes advanced during the site investigation. Exploratory hole logs including photographic plates are presented in Appendix B.

4.0 GROUND CONDITIONS ENCOUNTERED

4.1 STRATA ENCOUNTERED

The sequence of strata encountered beneath the site was;

- *In-situ* Strata:
  - Topsoil
  - Made Ground
  - Weathered Porthkerry Member (fine- and coarse-grained).
- Stockpiled materials

A summary of each stratum depth is provided in the table below, with descriptions of each stratum detailed in the subsequent sections. Exploratory hole logs including photographic plates can also be seen in Appendix B.

Table 4-1 – Summary of Ground Conditions Encountered

Location	Depth to base of strata (m bgl)			
	Topsoil	Made Ground	Weathered Porthkerry Limestone	
			Fine grained	Coarse grained
TP01	-	GL – 0.3*	-	-
TP02	GL – 0.10	-	0.10-0.25*	-
TP03	-	GL – 0.25*	-	-
TP04	-	GL – 0.25*	-	-
TP05	-	GL – 0.25*	-	-
TP06	GL – 0.10	0.10-0.35*	-	-
TP06a	GL – 0.10	0.10-0.50*	-	-
TP07	-	GL – 1.20*	-	-
TP08	-	GL – 0.90*	-	-
TP09	-	GL – 0.30*	-	-
TP10	-	GL – 0.30	0.30 – 0.40*	-
TP11	GL – 0.10	0.10 – 0.60	0.60 – 1.20*	-
TP12	-	GL – 0.20	0.20 – 0.45*	-
TP13	-	GL – 0.60	0.60 – 0.80*	-
TP14	GL – 0.05	-	0.60 – 1.20*	0.05 – 0.60
TP15	GL – 0.20	0.20 -1.20*	-	-

Location	Depth to base of strata (m bgl)			
	Topsoil	Made Ground	Weathered Porthkerry Limestone	
			Fine grained	Coarse grained
TP16	-	GL – 0.30	0.30 – 0.80*	-
TP17	GL – 0.20	0.20 – 0.50	-	
TP18	-	GL – 0.70*	-	-
TP19	-	GL – 0.40*	-	-
TP20	-	GL – 0.30	0.30 – 0.50*	-
TP21	-	GL – 0.60*	-	-
TP22	-	GL – 0.30	0.30 – 0.70*	-
TP23	-	GL – 0.60	0.60 – 1.00*	-
TP24	-	GL – 0.50	0.50 – 1.20*	-
TP25	-	GL – 0.30	0.30 – 0.60*	-
TP26	GL – 0.10		0.10 – 0.60*	-
TP27	GL – 0.10	0.10 – 0.30	-	0.30 – 0.40*
TP28	GL – 0.10	0.10 – 0.20	-	0.20 – 0.60*
TP29	-	GL – 0.40	0.40 – 0.80*	-
TP30	-	GL – 0.20	0.20 – 0.50*	-
TP32	-	GL – 0.40	0.40 – 1.00*	-
Stockpile East 1	-	GL – 0.20*	-	-
Stockpile East 2	-	GL – 0.20*	-	-
Stockpile West 1	-	GL – 0.20*	-	-
Stockpile West 2	-	GL – 0.20*	-	-

* – base not proven

4.1.1 Topsoil

Topsoil was recorded in ten of the locations to a maximum depth of 0.2m bgl underlying grass cover. The stratum is described as light brownish grey sandy gravelly clay. Gravel content is noted to consist of angular to subangular, fine to coarse mudstone.

4.1.2 Made Ground

Made Ground was recorded in 29 of the investigation locations from ground level in the majority of locations (six locations indicate topsoil overlying Made Ground strata).

The base of the Made Ground is recorded between 0.2m and >1.2m bgl.

Due to the nature of Made Ground the description of this strata varies across the site, with the majority of locations recording predominantly clay based materials with varying anthropogenic components including brick, concrete, clinker and ash.

4.1.3 Weathered Porthkerry Member

The weathered Porthkerry Member is recovered as predominantly fine-grained material, with localised areas of more granular material.

Fine-grained material is noted to consist of dark greyish brown sandy gravelly CLAY with high cobble and boulder content. Gravel, cobble and boulder content is noted to comprise strong, angular to sub angular limestone.

Coarse grained strata are generally described as light brownish grey sandy gravel or sandy cobbles of limestone.

4.1.4 Stockpiled Materials

Four locations were situated on the existing stockpiles (identified as East and West) within the Keithrow area of Bro Tathan. The material in these stockpiles was described as the following:

- Eastern Stockpile - Dark brown and orange brown sandy gravelly CLAY with medium cobble content. Gravel is noted to be fine to coarse mudstone. Cobbles are limestone.
- Western Stockpile - Light brownish grey sandy gravelly CLAY with medium cobble content. Gravel is mudstone , cobbles are limestone.

4.2 GROUNDWATER

Groundwater was not encountered during the ground investigation.

4.3 VISUAL OR OLFACTORY EVIDENCE OF CONTAMINATION

No visual or olfactory signs of contamination were noted during the ground investigation.

4.4 OBSTRUCTIONS

Obstructions were not encountered during the ground investigation.

5.0 LABORATORY TESTING

5.1 GEOTECHNICAL TESTING

A programme of laboratory testing was carried out on samples taken from the various strata encountered during the site investigation. Geotechnical testing was scheduled by Tetra Tech and carried out by GSTL Ltd, an approved supplier in accordance with the requirements of Tetra Tech quality system and UKAS accredited for a range of geotechnical tests. The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 5-1. Laboratory geotechnical test results are given in Appendix C.

Table 5-1 - Summary of Geotechnical Testing

Test	No.	Test Method
Moisture Content	13	BS1377:1990 Part 2:3.2
4 Point Liquid & Plastic Limit	12	BS1377:1990 Part 2:4.3&5.3
Density by Linear Measurement	2	BS1377:1990 Part 2:7.2
PSD: Wet Sieve method	12	BS1377:1990 Part 2:9.2
PSD: Sedimentation by Pipette	9	BS1377:1990 Part 2:9.4
Dry Den/MC (2.5kg Rammer Method 1 Litre Mould)	4	BS1377:1990 Part 4 3.3
BRE Reduced Suite: pH, Acid Soluble Sulphate, Water Soluble Sulphate and Total Sulphur	3	BS1377:1990 Part 3 & BRE CP2/79 (non-accredited test)

Geotechnical Testing was scheduled to support the Earthworks Strategy for the site which is presented under separate cover.

5.2 ENVIRONMENTAL TESTING

Environmental chemistry was investigated by specialist chemical analysis of selected soil samples carried out by i2 Laboratories, an approved supplier in accordance with the requirements of Tetra Tech quality system and UKAS and MCERTS accredited for a range of chemical analyses. The testing was scheduled by Tetra Tech and is summarised in Table 5-2 for soil samples. The test results are included in Appendix D.

Table 5-2 - Summary of Environmental Testing

Test suite	No.

Soil Samples:
• Tetra Tech Suite C
  ○ Heavy metals including Chromium (Hexavalent), Boron (water soluble), Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium and Zinc;
  ○ Inorganics – including pH, Water soluble Sulphate as SO4 (2:1 Extract), Cyanide (Easily liberatable- low level);
  ○ Speciated Petroleum Hydrocarbons (TPH CWG);
  ○ Speciated Polyaromatic Hydrocarbons (USEPA 16);
  ○ BTEX and MTBE;
  ○ Asbestos Screen; and,
  ○ Phenol.
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Waste Acceptance Testing	6
Water Pipe Suite • VOC • SVOC • Speciated Phenols including cresols • Electrical Conductivity • Redox potential	34
PFAS Standard Suite	6

6.0 GROUND CONTAMINATION ASSESSMENT – HUMAN HEALTH

6.1 INTRODUCTION

The UK Contaminated Land Regime (CLR) allows for a tiered approach to the assessment of ground contamination which is designed to allow increasingly site-specific assessment. In order to assess the potential risk posed by contaminants contained within the soils at the study area a generic quantitative risk assessment (gQRA) has been undertaken by comparing recorded concentrations of chemical constituents in soil with Generic Assessment Criteria (GAC) to identify whether, at the concentrations recorded, the presence of the constituent has the potential to adversely affect the health of site users (a Tier 1 assessment). GAC are set at levels where potential exposure is deemed to be within acceptable limits.

If the recorded concentrations of a particular constituent are below the GAC then the risk is generally considered to be acceptable and further assessment / or mitigation measures are not required. Where a substance is recorded at concentrations higher than GAC this does not necessarily indicate that a particular risk is present, however, it does typically signify the requirement to undertake further assessment in line with the UK tiered risk assessment framework.

6.2 ASSESSMENT CRITERIA

6.2.1 Generic Assessment Criteria

The following GAC for soils have been utilised for the screening process, in order of preference:

- CL:AIRE published C4SL (DEFRA, 2014);
- CIEH/LQM published S4UL (LQM/CIEH, 2015);
- Tetra Tech internal Tier 1 Screening Criteria (issue 15) derived using the derivation tool CLEA version 1.06, in line with the current UK Contaminated Land Regime.

C4SL are currently available for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead[1]. The C4SL were originally developed to support the categorisation of sites in accordance with Part 2A are also, based on DEFRA guidance, considered suitable for use during the assessment of sites as part of the planning process.

Where C4SLs are not available, 'Suitable for Use Levels' (S4UL) developed by CIEH/LQM have been used. The S4UL provide GAC based on minimal or tolerable risk intended to be protective of human health for individual or mixtures of substances. It is considered conservative and appropriate to use these values for contaminants for which C4SL are unavailable. GAC for volatile and semi-volatile organic compounds (VOC and SVOC) not presented in the S4UL document are sourced from CL:AIRE (CL:AIRE, January 2010).

Where no published screening values are available Tetra Tech have derived their own values (easily liberatable cyanide).

The CLEA model states that "For most exposure pathways, the contamination is assumed to be at or within one metre of the surface" (Environment Agency, 2009). It is considered that at depths greater than

[1] Arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI, lead assuming 6% SOM (1% SOM C4SL also published for benzene).

1.0m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway with regard to human health risks. Typically, volatile compounds only significantly affect the indoor inhalation pathway. The same screening concentrations have been used for all depths at this stage, though it is noted that these are highly conservative for depths below 1.00m bgl.

6.2.2 Proposed End Use

Screening criteria have been developed for the following land use scenarios:

- Residential with plant uptake;
- Residential without plant uptake;
- Allotments;
- Public open space (park and residential);
- Commercial / Industrial.

The proposed development on site will consist of replacing the buried service infrastructure and re-using the arisings to raise levels in other areas of the site as such the following screening assessment has been undertaken against a commercial / industrial end use scenario to provide a representative assessment based on the current and assumed use of the site.

6.2.3 Soil Organic Matter

For organic contaminants, the generic soil screening values have been derived for a range of concentrations of soil organic matter (1%, 2.5%, 6%). In order to provide a conservative assessment the GAC derived for a 1% SOM have been adopted.

6.3 TIER 1 – SOIL SCREENING

A total of 38 soil samples (including four derived from the Eastern and Western Stockpiles) collected from across the site were submitted for chemical laboratory analysis. Full copies of laboratory certificates for all soil analysis are included in Appendix D.

Comparison of the chemical analysis results with the generic assessment criteria for a commercial / industrial end use did not identify any exceedances.

6.4 ASBESTOS

Asbestos containing materials were not identified in any samples scheduled for laboratory analysis.

6.5 PFOS / PFOA

Six samples were scheduled for analysis for a suite of PFOS / PFOA chemicals. These were scheduled on four samples from the stockpiled materials and two investigation locations associated with the route of the proposed utilities installation.

The two samples from the western stockpile showed all determinants to be below the relevant laboratory limit of detection. The two samples from the eastern stockpile recorded concentrations of 0.10µg/kg of PFOS, which is noted to be at the laboratory limit of detection.

Of the two samples obtained from in-situ locations, the sample from TP16 recorded no determinants above the relevant laboratory limit of detection. A number of determinants were noted above the laboratory limit of detection in the sample obtained from TP6a.

Risks to Human Health are generally considered via the ingestion of water or food contaminated with PFOS/PFOA rather than through direct exposure to contaminated soils. Direct exposure to, and ingestion of soil is considered to be unlikely given the current and ongoing use of the site.

Screening values for PFOS / PFOA are not available for soils to assess risk to human health, however the recorded concentrations in TP06A are considered to be notable, especially when consideration is given to the location of the site in the vicinity of the on-site firefighting facility.

The CL:AIRE Technical Bulletin 19. *"Managing Risks and Liabilities associated with Per- and Polyfluoroalkyl Substances (PFASs). February 2019"* presents screening values for PFOS (0.013mg/kg) and PFOA (0.019mg/kg) in soils. However, it should be noted that these values are presented within the context of assessing risk to wildlife from the placement of soils on the land, not to assess risks to human health.

The sample obtained from TP06A recorded the following concentrations.

Table 6-1 – Summary of PFOS / PFOA Concentration in sample TP06A at 0.3m bgl.

Analytical Parameter	Units	Concentration	Screening Value
PFBS C4 Sulphonate	µg/kg	<0.10	-
PHPS C5 Sulphonate	µg/kg	<0.10	-
PFHxS C6 Sulphonate	µg/kg	1.30	-
PFHpS C7 Sulphonate	µg/kg	<0.10	-
PFOS C8 Sulphonate	µg/kg	53.00	13 µg/kg
PFNS C9 Sulphonate	µg/kg	0.50	-
PFDS C10 Sulphonate	µg/kg	0.30	-
PFUdS C11 Sulphonate	µg/kg	<0.10	-
PFDoS C12 Sulphonate	µg/kg	0.20	-
PFBA C4 Carboxylic acid	µg/kg	0.80	-
PFPeA C5 Carboxylic acid	µg/kg	6.40	-
PFHxA C6 Carboxylic acid	µg/kg	1.20	-
PFHpA C7 Carboxylic acid	µg/kg	1.00	-
PFOA C8 Carboxylic acid	µg/kg	2.00	19 µg/kg
PFNA C9 Carboxylic acid	µg/kg	1.40	-
PFDA C10 Carboxylic acid	µg/kg	2.20	-
PFUdA C11 Carboxylic acid	µg/kg	0.70	-
PFDoA C12 Carboxylic acid	µg/kg	0.10	-

The recorded concentrations are considered further in the following sections.

7.0 WATER PIPE ASSESSMENT

7.1 UKWIR ASSESSMENT PROCESS

The UKWIR document *"Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, (Ref 10/WM/03/21)"* outlines a framework to assess potential ground contamination within the context of the requirement for upgraded water supply pipes on the site.

This assessment includes a desk-based review of current and historical activities which may have led to ground contamination. If the initial review highlights the requirement for further assessment the document presents a suite of contaminants which require on site testing as well as maximum allowable concentrations.

For uncontaminated sites, polyethylene (PE) pipes are generally considered acceptable, however, where contamination is suspected or known to be present, specialist barrier pipe of metal pipework may be required.

The following table summarises the required testing suite and threshold values for the selection of PE pipe. Exceedances of the threshold values may indicate the requirement to use metal or barrier pipes. The UKWIR assessment process requires a risk assessment to be undertaken to inform the decision-making process.

Table 7-1 – Summary of UKWIR Testing Suite

Determinants	Units	PE threshold
Total VOCs	mg/kg	0.5
Total BTEX and MTBE	mg/kg	0.1
Total SVOC	mg/kg	2
EC5 – EC10 aliphatic and aromatic hydrocarbons	mg/kg	2
EC10 – EC16 aliphatic and aromatic hydrocarbons	mg/kg	10
EC16 – EC40 aliphatic and aromatic hydrocarbons	mg/kg	500
Phenols	mg/kg	2
Cresols and chlorinated phenols	mg/kg	2
Additional testing suite if suspected to be on site (ethers, nitrobenzene, ketones, aldehydes, amines)	mg/kg	(0.5 per determinant)
Corrosive	-	Threshold: For wrapped steel, corrosive if pH 400µS/cm. For wrapped ductile iron corrosive if pH 400µS/cm. For copper, corrosive if pH8 and Eh positive.

7.2 BACKGROUND

A data review has previously been undertaken for the site, the findings of which were presented in the following report.

- ***B046553 Bro Tathan Water Pipe Data Review & Water Pipe Assessment. April 2023.***

The results of the data review indicated that insufficient data was available to undertake a comprehensive review of the ground conditions with respect to the water pipe infrastructure. The conclusions of the data review are summarised below.

In summary, it is considered that the data review presented herein indicates the potential for contaminants to be present along the proposed route of the water supply network, however the existing data does not represent a sufficiently targeted assessment of ground conditions to provide a comprehensive assessment in line with the requirement of UKWIR.

As such two options are presented for support the decision making process, either:

- *Upgraded infrastructure (barrier / metal pipes) are adopted across the site to reflect the potential for contaminants to be present on site.*
- *Further intrusive investigation and laboratory testing is undertaken, targeted along the route of the proposed water supply network to support a more detailed assessment. The frequency of testing will be determined by the potential sources identified within the desk-based review and will vary across the site. It is anticipated that barrier pipe will be required in the Beggars Pound area due to confirmation of contamination in the vicinity of the proposed network in this area. Based on the information reviewed as part of this assessment, it is considered likely that additional areas of the site may require upgraded infrastructure due to the presence of contamination.*

This report provides the results of the assessment process following the completion of an additional phase of ground investigation on the site focused on the proposed route of the new water pipe infrastructure. No further assessment was undertaken in the Beggars Pound area of the site due to the previous recommendation for the use of barrier pipe in this area.

7.2.1 Ground Investigation

33 samples were scheduled for laboratory testing for a suite of potential contaminants as outlined in the following documents.

- *"Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, (Ref 10/WM/03/21)" produced by the UK Water Industry Research (UKWIR)".*
- *Contaminated Land Guidance – protocols published by agreement between Water UK and Home Builders Federation. Water UK January 2014.*

This test suite included the following determinants:

- Total VOC
- Total BTEX and MTBE
- Total SVOC (excluding PAH)

- Aliphatic and aromatic hydrocarbons
  - C5 - C10
  - C10 – C16
  - C16 – C40
- Phenols
- Cresols and chlorinated phenols
- Conductivity, redox and pH.

A copy of the laboratory test data is presented Appendix D.

7.3 DATA ASSESSMENT

The following table provides a summary of the laboratory test data in comparison to the threshold values presented as part of the water pipe assessment.

Table 7-2 – Summary of Results

Determinant	PE threshold (mg/kg)	No of tests	Maximum (mg/kg)	Minimum (mg/kg)	Exceedances of threshold
Total VOC	0.5	33	<LOD	<LOD	All samples below laboratory limit of detection.
Total BTEX and MTBE	0.1	37	<LOD	<LOD	All samples below laboratory limit of detection.
Total SVOC (excluding PAH)	2	33	6.5	<LOD	*TP05, 0.25m -4.7mg/kg* *TP07, 0.2m - 6.5mg/kg* *TP11, 0.2m - 2.1mg/kg* *TP25, 0.6m - 4.6mg/kg*
Aliphatic & Aromatic hydrocarbons (C5 – C10)	2	37	<0.1	<LOD	All samples below laboratory limit of detection.
Aliphatic & Aromatic hydrocarbons (C10 – C16)	10	37	10.6	<LOD	*TP 6, 0.6m - 10.6mg/kg*
Aliphatic & Aromatic hydrocarbons (C16 – C40)	500	37	311.0	<LOD	None

Determinant	PE threshold (mg/kg)	No of tests	Maximum (mg/kg)	Minimum (mg/kg)	Exceedances of threshold
Phenols	2	33	<LOD	<LOD	All samples below laboratory limit of detection.
Cresols and chlorinated phenols	2	33	<LOD	<LOD	All samples below laboratory limit of detection.

7.4 CONCLUSIONS

The results of the additional testing indicate the majority of the determinants are below the threshold values for the requirement for PE barrier pipe and many are noted to be below the laboratory limit of detection.

The exception to this is the marginal exceedance of aliphatic and aromatic hydrocarbon (C10 to C16) in one location and exceedance of SVOC in four locations as summarised below:

- Aliphatic and aromatic hydrocarbon (C10 to C16)
  - TP06, 0.6m
- Total SVOC (excluding PAH)
  - TP05, 0.25m
  - TP07, 0.2m
  - TP11, 0.2m
  - TP25, 0.6m

Based on the highlighted exceedances, barrier pipe may be required in the vicinity of the locations listed above, however further ground investigation may be used to confirm ground conditions and negate the need for barrier pipe if these concentrations are shown to be localised and not representative of significant ground contamination.

8.0 CONCEPTUAL SITE MODEL & PRELIMINARY GROUND CONTAMINATION RISK ASSESSMENT

8.1 OVERVIEW

The information presented in the previous sections of this report have been collated and evaluated to establish an initial qualitative risk assessment for the site. A conceptual model of the site has been generated based on information derived from this Phase 1 Geo-environmental Assessment, supplemented by information attained during the Tetra Tech site walkover.

The site has been considered with regard to current UK legislation and guidance, namely Part 2A of the Environmental Protection Act 1990 and the Contaminated Land (England) Regulations 2006, as amended, and in accordance with current UK good practice guidelines (for example BS10175:2011).

In general, ground contamination can occur through several causes, particularly from historical operations and activities. Contamination can result from either on-site sources or from on-site migration from off-site sources, leading to long term liabilities under recent legislation for any site owner.

For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- Source, i.e. a substance that is capable of causing pollution or harm;
- Pathway, i.e. a route by which the contaminant can reach a target; and
- Receptor (target), i.e. something which could be adversely affected by the contaminant.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

8.2 CURRENT SITE USAGE AND PROPOSED DEVELOPMENT

The proposed development includes the replacement of buries services across the site.

8.3 CONCEPTUAL SITE MODEL

The key source, pathways and receptor model is outlined below within the context of potential development of the site.

8.3.1 Potential Sources of Contamination

The main potential sources of contamination on the site are associated with existing features as well as historical land uses on the site as summarised below.

On site Sources

- Made Ground associated with former development on the site;
  - General contaminants;
  - Potentially mobile contaminants and volatile components (within the context of new water pipe installations;

- PFOS/ PFOA within in-situ soils
- PFOS / PFOA within stockpiled materials.

8.3.2 Potential Contaminant Pathways

The following contaminant pathways are considered to potentially be active based on the current site use and proposed development:

Human Exposure Pathways

- Direct dermal contact or ingestion of soils, or inhalation of dust and/or vapours (i.e. human interaction with surface and sub-surface materials).

Environmental Pathways

- Leaching and horizontal or vertical migration through the unsaturated ground, either through permeable sub-surface materials and/or preferential pathways;
- Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways;
- Leaching to surface water run-off/drainage;
- The migration and accumulation of gases or vapours through permeable sub-surface materials and/ or preferential pathways.

8.3.3 Potential Receptors at Risk

The following potential receptors have been identified:

Human Health

- Current site users (commercial);
- Future site users (commercial);
- Site workers during the redevelopment of the site;
- Adjacent site users (commercial)

Wider Environment

- Secondary A Aquifer within superficial deposits;
- Surface waters;
- Building Infrastructure and supply pipes.

8.4 GROUND CONDITIONS RISK ASSESSMENT

The source, pathway, receptor linkages identified in the previous section are outlined and a qualitative risk assessment shown in the following tables.

The risk assessment considers the site within an area context and assesses potential risks to identified receptors in relation to the existing site setting and the proposed development. CIRIA C552 has been used

to define the risk rating presented in the Qualitative Risk Assessment matrix, the methodology for which is presented in Appendix E.

Table 8-1 – CIRIA C552 Qualitative Risk Assessment

This matrix is based on CIRIA C552 risk evaluation methodology, definitions for risk ratings is presented in Appendix E.						
Source	Pathway	Receptor	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Made Ground	Inhalation, injection and direct dermal contact	Current site users	Medium	Unlikely	Low risk	The samples obtained from the site were screened against a suite of generic assessment criteria for a commercial end use. No exceedances were identified and as such no risk management procedures are considered necessary within the context of the proposed development. Risks to construction workers should be managed through the Health and Safety at work regulations.
		Future site users		Unlikely	Low risk	
		Construction workers		Unlikely	Low risk	
	Leaching and lateral migration	Groundwater	Mild	Low likelihood	Low risk	No significant contamination was recorded on the site, as such no specific risk management procedures are recommended for the protection of the controlled waters of the wider environment.
		Surface water		Low likelihood	Low risk	

This matrix is based on CIRIA C552 risk evaluation methodology, definitions for risk ratings is presented in Appendix E.						
Source	Pathway	Receptor	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Contaminants specific to water supply pipes	Leaching and lateral migration	Water supply pipes	Mild	Likely	Moderate to Low Risk	Localised contamination has been identified within the context of the installation of new water supply pipes. Risks should be managed through the installation of barrier pipe or the undertaking of further ground investigation.
PFAS within shallow soils at TP06a	Leaching and lateral migration Ingestion	Human Health	Medium	Unlikely	Moderate to Low Risk	Whilst no specific screening values are available for PFOS / PFOA in soils the recorded concentrations are considered sufficient to require further investigation to assess the extent of any contamination. It is noted that this investigation location is situated within the on-site firefighting facility and is therefore anticipated to be associated with the use of firefighting foams for training purposes. The soils in this area of the site are considered to be unsuitable for re-use within the context of the proposed material movement without further ground investigation.
		Groundwater	Mild	Likely	Moderate to Low Risk	
		Surface waters		Likely	Moderate to Low Risk	

This matrix is based on CIRIA C552 risk evaluation methodology, definitions for risk ratings is presented in Appendix E.						
Source	Pathway	Receptor	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
PFAS in Eastern Stockpile	Ingestion Leaching and lateral migration	Human Health	Medium	Unlikely	Low Risk	Only PFOA is recorded at concentrations above the laboratory screening values, albeit at trace amounts. However, it is recommended that further testing should be undertaken of samples from this stockpile to confirm the extent of any PFOS / PFOA contamination and confirm suitability for re-use within the proposed development.
		Groundwater	Mild	Unlikely	Low Risk	
		Surface waters		Unlikely	Low Risk	

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 CONCLUSIONS

This assessment is presented to support the proposed works to replace and upgrade the buried utility network across the Bro Tathan development site.

To support this process a ground investigation has been undertaken to confirm ground conditions across the site under consideration and to facilitate a Water Pipe assessment in line with UKWIR guidance.

The information will also be used to inform the Materials Management Plan for the re-use of materials to raise site levels at Y Porth.

9.1.1 General Contamination

Samples submitted for laboratory testing did not indicate any contaminants at concentrations above the relevant screening criteria. As such no significant risks have been identified within the context of the proposed development.

Asbestos containing materials were not identified in any samples submitted for laboratory analysis.

9.1.2 UKWIR Water Pipe Assessment

Samples from across the site were scheduled for specialist contamination testing to assess the requirement for barrier pipe to be installed as part of the installation of new a water utility network.

The assessment presented herein indicates the majority of the site is suitable for the installation of standard water pipe. A number of localised areas have been highlighted as potentially requiring the use of barrier pipe. These areas are located around the following investigation locations;

- TP06, 0.6m – due to the presence of marginally elevated concentration of Aliphatic and aromatic hydrocarbon (C10 to C16)
- TP05, 0.25m, TP07, 0.2m, TP11, 0.2m, TP25, 0.6m due to the recorded concentrations of Total SVOC (excluding PAH).

It should also be noted that the previous desk based assessment had already identified that the Beggars Pound area of the site will require the use of barrier pipe.

9.1.3 PFAS

A soil sample from TP06A indicated the presence of a number of PFAS compounds and their derivatives at concentrations above their relevant laboratory limit of detection. This is likely to be associated with the location of the investigation location within the on-site firefighting facility.

Screening values for PFOS / PFOA are not available to assess risks to human health, however given the limited interaction with the near surface soils, risks to site workers are considered to be limited.

Due to the potential for these compounds to be mobilised into the controlled waters of the wider environment (groundwater, surface waters) soils derived from this area of the site are not considered to be suitable for re-use within the proposed development and any excavated soils will need to be disposed of to an off site disposal facility.

9.1.4 Stockpile Materials

With regards to general contaminants, no exceedances have been identified within the stockpiles located on the site (identified as East and West).

The two samples obtained from the eastern stockpile recorded trace concentrations of PFOA, whilst the concentrations are considered to be low, further testing is recommended to confirm the extent of any PFOS / PFOA contamination which may limit the suitability of the material for re-use within the proposed development.

An audit of on site stockpiles is presented in the following letter;

- Tetra Tech, 2023. Bro Tathan – Stockpile Walkover Survey Letter Report. Dated 26th October 2023.

Within the context of the above letter the Eastern and Western Stockpile referred to herein relate to Stockpiles 1 and 5 respectively.

9.2 RECOMMENDATIONS

The following recommendations are presented in the context of the proposed development.

- Further localised ground investigation in the immediate vicinity of the locations which indicated that barrier pipe may be required (TP06, 0.6m, TP05, 0.25m, TP07, 0.2m, TP11, 0.2m, TP25, 0.6m). Additional sampling and testing may be used to update the assessment presented in Section 7.0 to confirm the requirement for barrier pipe in these areas or to confirm that the contamination identified as part of this assessment relate to localised contamination which is not representative of the general ground conditions in these areas.
- Further testing of the materials from the eastern stockpile to confirm the extent of any PFOS / PFOA contamination.
- Development of a Reactive Remediation Strategy to provide a framework for the identification, assessment and management of previously unidentified contamination which may be encountered during the construction phase.
- Due to the identification of PFOS / PFOA compounds within shallow soils in the vicinity of TP06a further ground investigation is required to delineate the extent of the contamination in this area. Based on the recorded concentrations within TP6a this material is considered to be unsuitable for reuse on site within the proposed development plan and excess arisings will need to be removed from the site and disposed of at an off site disposal facility.

9.3 FURTHER REPORTING

It is understood that the arisings from the installation of the new utilities network are intended to be used to raise ground levels within the Y Porth area of the Bro Tathan development site. To support this process the following technical reports will be required.

- Earthworks Strategy
- Remediation Strategy
- Materials Management Plan

10.0 NOTES

1. Standards

All boring operations, sampling of soils, *in situ* testing and geotechnical laboratory testing have been carried out in accordance with the recommendations of the British Standards BS 5930(2015)[1], BS 1377 (1990)[2] and BS10175 (2001)[3].

Soil and rock descriptions follow the recommendations of BS 593. Where descriptions or classifications are based on other documents (e.g. BS 8004 (1986) or CIRIA Project Report 11 (1993)), this is stated in the report text.

2. Site methods

Unless specifically stated otherwise, the following methods are used for exploratory holes.

- Holes described as cable percussive are bored using a light cable percussive rig. Standard penetration tests are carried out where appropriate, as shown in the logs. Disturbed and undisturbed samples are taken from the exploratory holes at the depths on the records.
- Window sampling generally uses the windowless sampling method, using a tracked Geotool.
- Dynamic probes are usually heavy dynamic probes, using the same tracked Geotool used for window sampling.

3. Definitions and abbreviations

The following terms are used in the exploratory hole logs

Samples

U	Undisturbed 102mm dia. sample
TW	Thin Walled undisturbed 102mm dia. sample
B	Bulk sample
D	Small disturbed sample
W	Water sample
CBR	California Bearing Ratio test or CBR value obtained from Mexiprobe test

In situ tests

S	Standard penetration test (SPT)
N	SPT N value (blows/300mm)
HP	Hand penetrometer – shear strength
SV	Hand shear vane – shear strength
VOC	Volatile organic compounds (ppm)
PID	Photo-ionisation detector – used to detect the presence of VOCs.

Core recovery and rock quality

TCR	Total core recovery (%)
SCR	Solid core recovery (%)
RQD	Rock quality designation (%)
FI	Fracture index
NR	No recovery
NI	Not intact

Rotary drilling sizes

	Nominal diameter (mm)	
Index letter	**Borehole**	**Core**
N	75	54
H	99	76
P	120	92
S	146	113

Water strikes

▽	Level of water strike
▼	Water level rose to this level (see Remarks at foot of log for details)

Depth means depth below existing ground level unless otherwise specified. Values specified in soil descriptions given in the exploratory hole logs are depths unless otherwise specified.

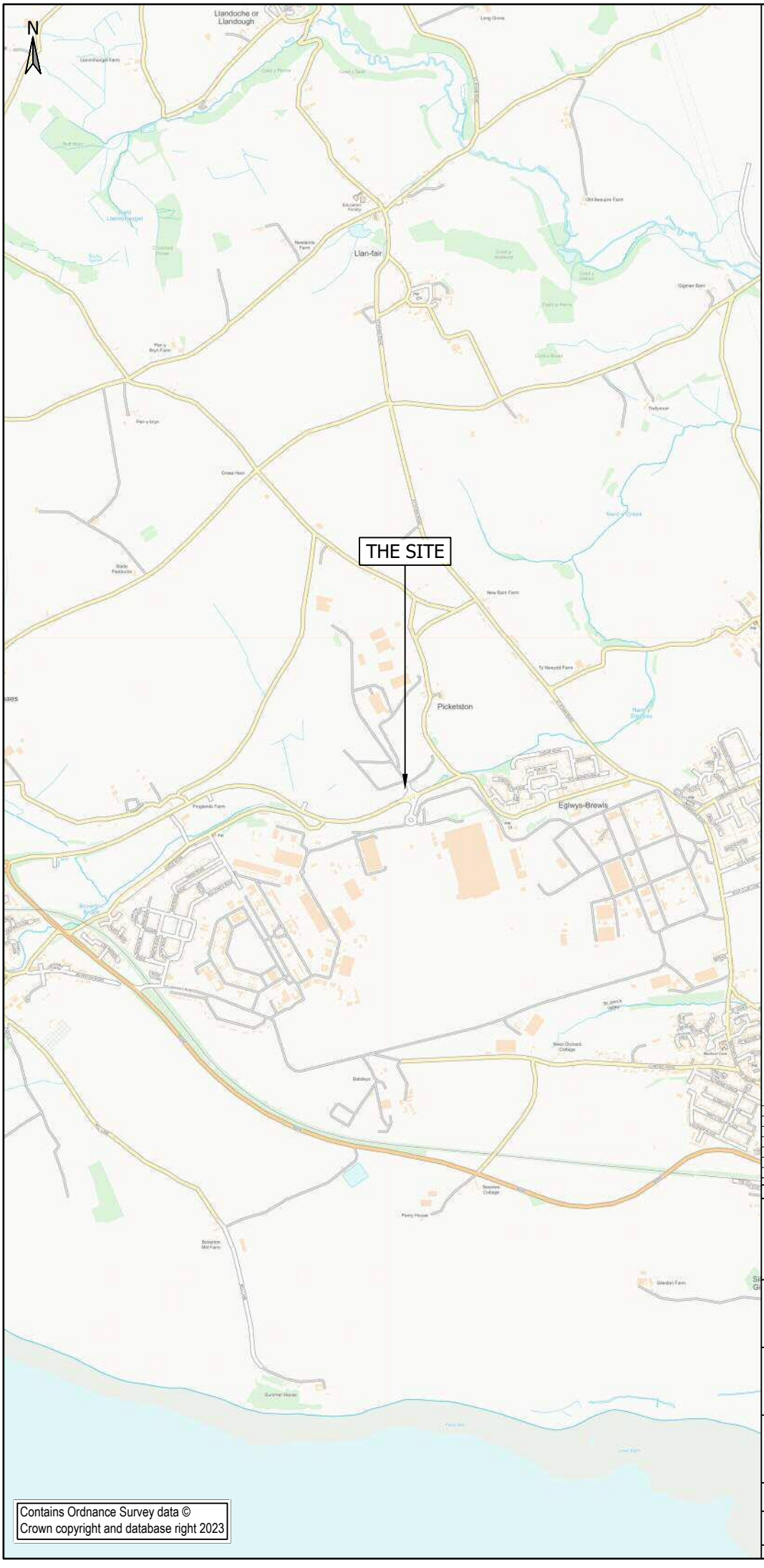
11.0 REFERENCES

British Geological Survey. (2021). *GeoIndex*. Retrieved from http://www.bgs.ac.uk/GeoIndex/

CIRIA. (2001). *Contaminated land risk assessment A guide to good practice.*

FIGURES

Figure 1 – Site Location Plan



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Rev	Description	Date	Drn / Chk / App
P01	PRELIMINARY FIRST ISSUE	04.07.2023	PP AJ SR

Document Control

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TETRA TECH

Client

WELSH GOVERNMENT

Project Name

BRO TATHAN

Sheet Title

SITE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
784-B048494	PP	04.07.23	AJ	04.07.23	SR	04.07.23	As Shown	S0

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B048494	TTE	00	XX	DR	U	0001	P01

TTE_MT_v1

Figure 2 – Site Investigation Layout Plan

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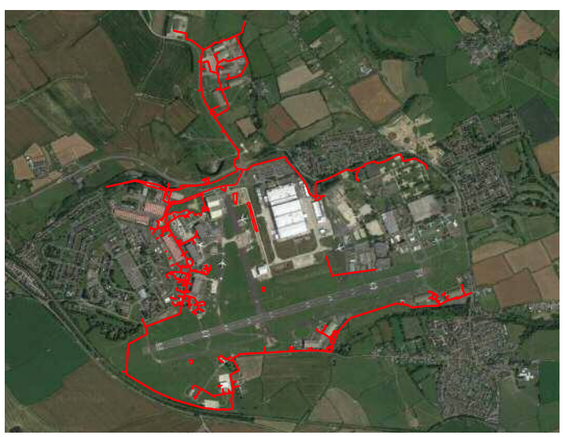
FIGURE 2a - GI Plan North

B048494 Bro Tathan Utilities

KEY

- Trial Pit Locations
- Stockpile Samples
- Utilities Corridor



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Date	By	Paper	Scale	Rev
10 2023	AJ	A3	1:7,500	1

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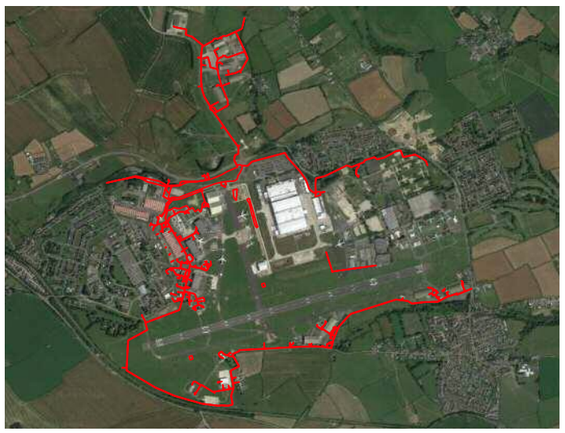
FIGURE 2b - GI Plan South

B048494 Bro Tathan Utilities

KEY

- Trial Pit Locations
- Stockpile Samples
- Utilities Corridor



0 100 200 300 400 m

Date	By	Paper	Scale	Rev
10 2023	AJ	A3	1:7,500	1

Figure 3 – Water Pipe Assessment - Location of Exceedances

Location ID	Depth of Exceedance	Contaminant
TP05	0.25m	Total SVOC (excluding PAH)
TP07	0.2m	Total SVOC (excluding PAH)
TP25	0.6m	Total SVOC (excluding PAH)
TP06	0.6m	TPH Aliphatic and Aromatic C10 to C16
TP11	0.2m	Total SVOC (excluding PAH)

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FIGURE 3 - Contaminant Exceedances

B048494 Bro Tathan Utilities

KEY

Exceedance Locations

Utilities Corridor

0 100 200 300 400 m

Date	By	Paper	Scale	Rev
10 2023	AJ	A3	1:7,500	1

APPENDIX A: REPORT CONDITIONS

APPENDIX A – REPORT CONDITIONS

GROUND INVESTIGATION

This report is produced solely for the benefit of Welsh Government *and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.*

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, reference to accessible referenced historical records, information supplied by those parties referenced in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. Where ground contamination is suspected but no physical site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question as such bodies often have unpublished, more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Tetra Tech. In time improved practices or amended legislation may necessitate a re-assessment.

The assessment of ground conditions within this report is based upon the findings of the study undertaken. We have interpreted the ground conditions in between locations on the assumption that conditions do not vary significantly. However, no investigation can inspect each and every part of the site and therefore changes or variances in the physical and chemical site conditions as described in this report cannot be discounted.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists further extensive research will be required before the effects can be better determined.

APPENDIX B: EXPLORATORY HOLE LOGS

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300081.95 Northing: 167941.46

Level: 47.42mAOD Depth: 0.30m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP01**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 07/07/2023

Finish Date: 07/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of limestone and brick. Cobbles are strong angular to subangular limestone. MGR						0.20 - 0.30	B	
		0.30	47.12			0.30	ES	
EOH at 0.30m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close,
Gate Business Park, Pontprennau,
Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

Plate 1 TP01

Plate 2 TP01

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Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.:	784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300047.54 Northing: 167815.89

Level: 47.26mAOD Depth: 0.25m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP02**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 07/07/2023

Finish Date: 07/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone with frequent rootlets (TOPSOIL)		0.10	47.16					
MGR						0.20 - 0.25	B	
Light orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular, fine to coarse limestone.		0.25	47.00			0.25	ES	
EOH at 0.25m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

Plate 3 TP02

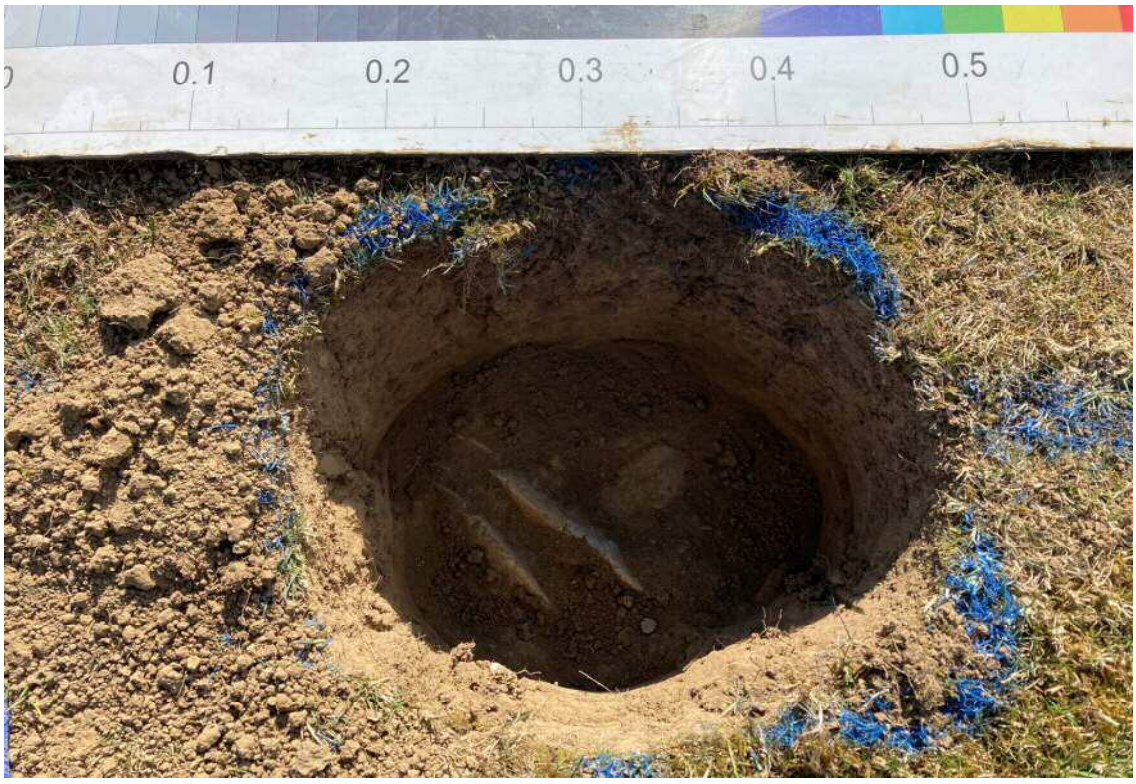

Plate 4 TP02

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Project No.:	784-B048494

Plate 5 TP02 spoil

Plate 6 blank

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Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300063.80 Northing: 168030.08

Level: 47.24mAOD Depth: 0.25m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP03**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 07/07/2023

Finish Date: 07/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse limestone, brick and tile. Cobbles are angular to subangular of strong limestone. MGR		0.25	47.00			0.20 - 0.25 0.25	B ES	
EOH at 0.25m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 7 TP03

Plate 8 blank

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300547.49 Northing: 168068.37

Level: 41.38mAOD Depth: 0.25m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP04**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 07/07/2023

Finish Date: 07/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey silty sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of limestone and rare very angular concrete. Cobbles are angular to subangular of strong limestone. MGR		0.25	41.13			0.20 - 0.25 0.25	B ES	
EOH at 0.25m -								

1

2

3

4

5

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

Plate 9 TP04

Plate 10 TP04

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Project :-
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Project No.: 784-B048494

Plate 11 TP04 spoil

Plate 12 blank

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300414.98 Northing: 168064.53

Level: 43.92mAOD Depth: 0.25m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP05**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 07/07/2023

Finish Date: 07/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of limestone and very angular concrete. Cobbles are angular to subangular of strong limestone. MGR		0.25	43.67			0.20 - 0.25 0.25	B ES	
EOH at 0.25m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close,
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Project Number

784-B048494

Plate 13 TP05

Plate 14 TP05

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Environmental Consultancy
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TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.:	784-B048494

Plate 15 TP05 spoil

Plate 16 blank

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299819.89 Northing: 168332.08

Level: 51.00mAOD Depth: 0.35m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP06**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 13/07/2023

Finish Date: 13/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone (TOPSOIL) MGR		0.10	50.90					
MADE GROUND: Light orangish greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mixed lithologies including mudstone, rare brick and clinker. MGR		0.35	50.65					
EOH at 0.35m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

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Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299819.89 Northing: 168377.19

Level: 51.00mAOD Depth: 0.50m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP06A**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 14/07/2023

Finish Date: 14/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone (TOPSOIL). MGR		0.10	50.90			0.30	B	
MADE GROUND: Light orangish greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mixed lithologies including mudstone, rare brick and clinker. MGR		0.50	50.50			0.30	ES	
EOH at 0.50m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

Plate 17 TP06A

Plate 18 TP06A

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Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299737.87 Northing: 168418.39

Level: 51.32mAOD Depth: 1.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP07**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 03/07/2023

Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. MGR		0.12	51.20			0.20	ES	
MADE GROUND: Light orangish greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone. MGR		0.25	51.07					
MADE GROUND, Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of limestone. Cobbles are very angular to subangular of strong mudstone. Reworked natural weathered Porthkerry Member: MGR						0.50 - 0.60	B	
MADE GROUND: Dark blackish grey slightly silty angular fine to medium GRAVEL of limestone. MGR		1.15	50.17					
EOH at 1.20m -		1.20	50.12					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close,
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Project Number

784-B048494

Plate 19 TP07

Plate 20 TP07

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.:	784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299673.30 Northing: 168526.84

Level: 52.20mAOD Depth: 0.90m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP08**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 03/07/2023

Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. MGR		0.20	52.00					
MADE GROUND: Light orangish greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone and clinker. MGR						0.30	ES	
						0.60	B	
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular fine to coarse of limestone. Cobbles are strong very angular to subangular of mudstone.		0.85	51.35					
EOH at 0.90m -		0.90	51.30					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number: **784-B048494**

Plate 21 TP08

Plate 22 TP08

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Project No.: 784-B048494

Plate 23 TP08 spoil

Plate 24 blank

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Project :-
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Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299758.99 Northing: 168558.66

Level: 50.89mAOD Depth: 0.30m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP09**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 03/07/2023

Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Dark orangish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular, fine to medium of limestone. MGR		0.16	50.73			0.10	B	
MADE GROUND: Light pinkish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular, fine to coarse of limestone MGR		0.30	50.59			0.20	ES	
EOH at 0.30m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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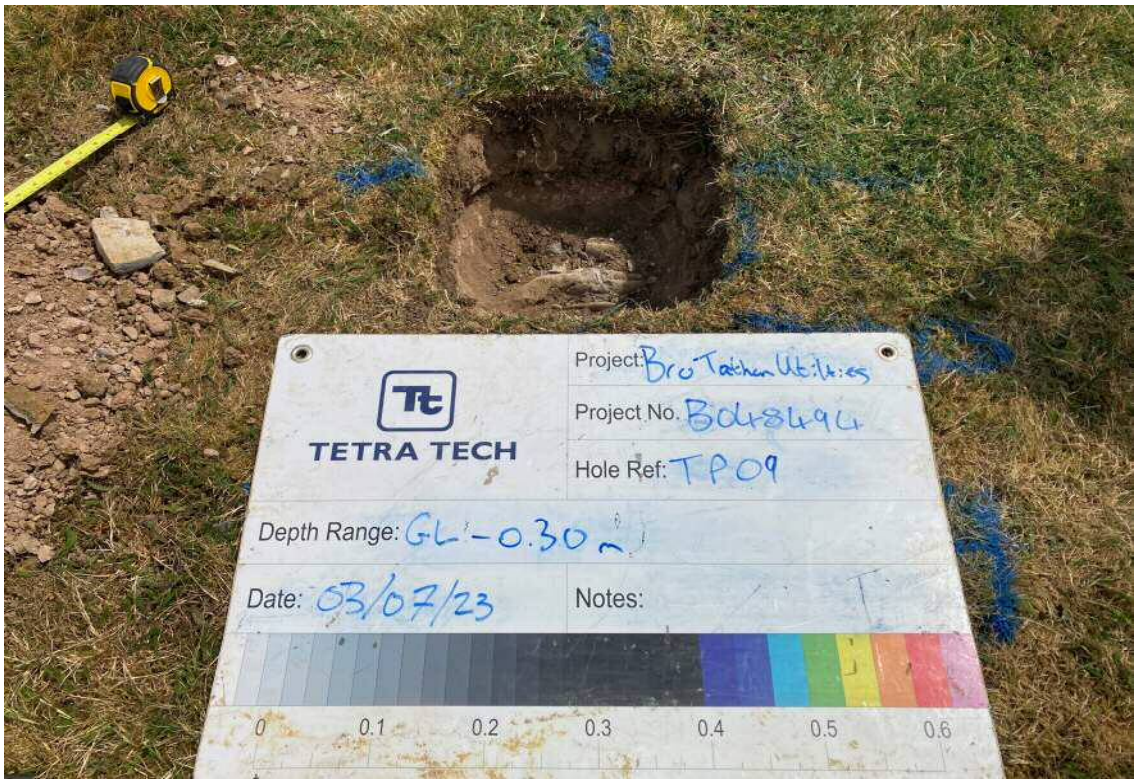

Plate 25 TP09

Plate 26 TP09

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details			
Easting:	299798.78	Northing:	168577.42
Level:	50.06mAOD	Depth:	0.40m
Logger:	CS	Type:	TP

Status: FINAL

Pit Number: **TP10**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°
Shoring: None
Stability: Stable
Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25
Checked By: SR
Approved By: CBP
Start Date: 03/07/2023
Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. MGR		0.20	49.86			0.20	B	
MADE GROUND: Light brownish grey slightly clayey sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse. MGR		0.30	49.76			0.30	ES	
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of limestone. Cobbles are strong very angular to subangular mudstone.		0.40	49.66					
EOH at 0.40m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number: **784-B048494**

Plate 27 TP10

Plate 28 TP10

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TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299856.30 Northing: 168542.89

Level: Depth: 1.20m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP11**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 13/07/2023

Finish Date: 13/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone (TOPSOIL) MGR		0.10						
MADE GROUND: Light orangish greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mixed lithologies including mudstone, rare brick and clinker. MGR		0.20 0.25				0.20	ES	
MADE GROUND: Dark brownish black sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone and ash. MGR		0.60						
MADE GROUND: Light orangish greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone, rare brick and clinker. MGR						1.00 - 1.20	B	
Dark orangish brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of limestone. Cobbles are strong, very angular to subangular mudstone.		1.20						
EOH at 1.20m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 29 TP11

Plate 30 TP11

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Project :-
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Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299753.01 Northing: 168625.57

Level: 49.86mAOD Depth: 0.45m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP12**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: °

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 03/07/2023

Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are strong angular limestone.								
MGR		0.20	49.66			0.30	B	
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse limestone. Cobbles are strong very angular to subangular mudstone.						0.30	ES	
EOH at 0.45m -		0.45	49.41					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

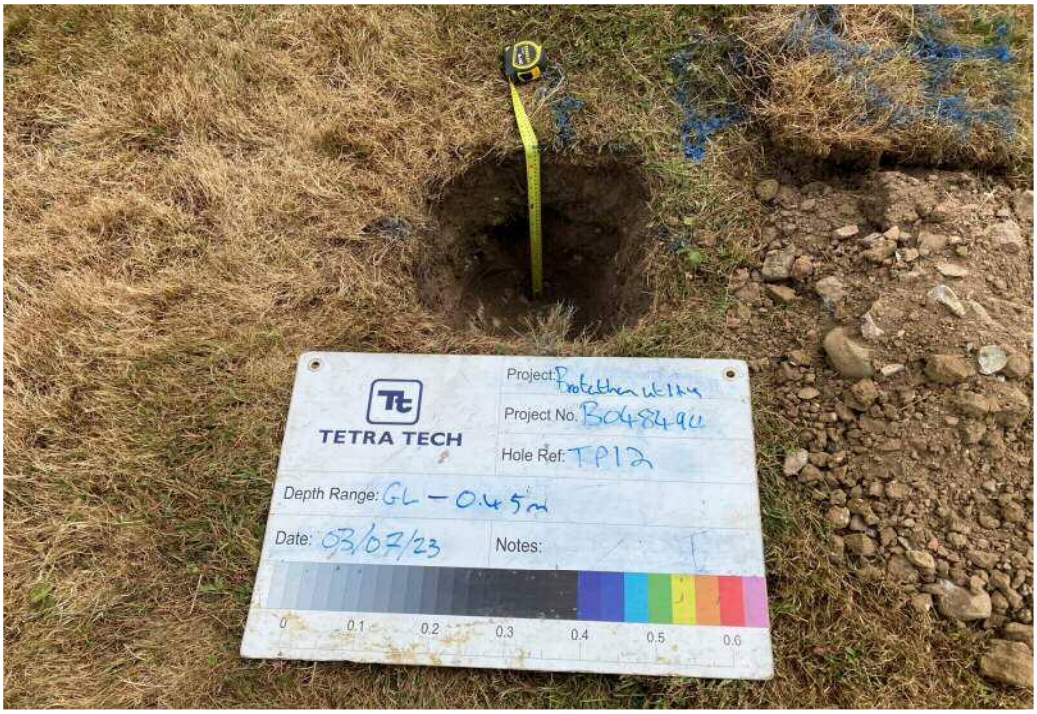

Plate 31 TP12

Plate 32 TP12

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TETRA TECH

Project :-
Bro Tathan Utilities

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Project No.:	784-B048494

Plate 33 TP12 spoil

Plate 34 blank

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Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**
Location: **St Athan**
Client: **Burroughs**

Location Details
Easting: 299681.53 Northing: 168767.30
Level: 48.70mAOD Depth: 0.80m
Logger: Type: TP

Status: FINAL

Pit Number: **TP13**
Sheet 1 of 1

Hole Information
Pit Dimensions: m x m
Orientation: °
Shoring:
Stability:
Plant:

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25
Checked By: SR
Approved By: CBP
Start Date: 04/07/2023
Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to angular, fine to medium of limestone. MGR		0.20	48.50			0.20 - 0.60	B	
MADE GROUND: Light brown to orangish brown silty sandy GRAVEL. Sand is fine to medium. Gravel is sub angular to angular, fine to coarse limestone with occasional black fragments of slag. MGR		0.60	48.10			0.60 - 0.80	B	
Orangish brown sandy clayey GRAVEL with frequent pockets of clay. Sand is fine to coarse. Gravel is subangular to angular, fine to coarse of limestone.		0.80	47.90					
EOH at 0.80m -								

Observations / Remarks
1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number
784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299625.75 Northing: 168927.09

Level: 45.66mAOD Depth: 1.20m

Logger: Type: TP

Status: FINAL

Pit Number: **TP14**

Sheet 1 of 1

Hole Information

Pit Dimensions: m x m

Orientation: °

Shoring:

Stability:

Plant:

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 04/07/2023

Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone (TOPSOIL). MGR Light brownish grey sandy slightly silty angular to subangular, fine to coarse GRAVEL of mudstone. Sand is fine to coarse.		0.05	45.61			0.05 - 0.60	B	
Orangish brown sandy CLAY with frequent pockets of clay. Sand is fine to medium becoming coarse with depth.		0.60	45.06			0.60 - 1.20	B	
EOH at 1.20m -		1.20	44.46					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**
Location: **St Athan**
Client: **Burroughs**

Location Details
Easting: 299737.98 Northing: 169041.68
Level: 42.84mAOD Depth: 1.20m
Logger: Type: TP

Status: FINAL

Pit Number: **TP15**
Sheet 1 of 1

Hole Information
Pit Dimensions: m x m
Orientation: °
Shoring:
Stability:
Plant:

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25
Checked By: SR
Approved By: CBP
Start Date: 04/07/2023
Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone (TOPSOIL)								
MADE GROUND: Pinkish red sandy GRAVEL of subangular fine to medium limestone. Sand is fine to medium.		0.20	42.64					
MADE GROUND: Pinkish reddish brown silty sandy subangular to angular, fine to coarse GRAVEL of limestone. Sand is fine to medium becoming coarse.		0.50	42.34			0.50 - 1.20	B	
EOH at 1.20m -		1.20	41.64					

Observations / Remarks
1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number
784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**	Location Details	Status	Pit Number
Location: **St Athan**	Easting: 299846.54 Northing: 169005.97	FINAL	**TP16**
Client: **Burroughs**	Level: 43.16mAOD Depth: 0.80m		Sheet 1 of 1
	Logger: Type: TP		

Hole Information		Groundwater				
Pit Dimensions	Orientation: °	Strike (m)	Rose To (m)	After (mins)	Remarks	Scale: 1:25
m	Shoring:					Checked By: SR
m	Stability:					Approved By: CBP
	Plant:					Start Date: 04/07/2023
						Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brown sandy CLAY with occasional rootlets. Sand is fine to coarse.						0.00 - 0.30	B	
Orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to coarse limestone.		0.30	42.86			0.30 - 0.80	B	
EOH at 0.80m -		0.80	42.36					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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029 2082 9200

Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**
Location: **St Athan**
Client: **Burroughs**

Location Details
Easting: 299944.63 Northing: 169117.41
Level: 43.15mAOD Depth: 0.50m
Logger: Type: TP

Status: FINAL

Pit Number: **TP17**
Sheet 1 of 1

Hole Information
Pit Dimensions: m x m
Orientation: °
Shoring:
Stability:
Plant:

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25
Checked By: SR
Approved By: CBP
Start Date: 04/07/2023
Finish Date: 03/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brown sandy SILT. Sand is fine to coarse.(TOPSOIL)						0.00 - 0.30	B	
Pinkish brown silty sandy GRAVEL with rare cobbles. Sand is fine to medium. Gravel is subangular to angular, fine to coarse limestone. Cobbles are strong sub angular to angular limestone.		0.20	42.95			0.20 - 0.50 0.30 - 0.70	B B	
EOH at 0.50m -		0.50	42.65					

Observations / Remarks
1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number
784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299971.34 Northing: 169113.45

Level: 42.29mAOD Depth: 0.70m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP18**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone, brick and concrete. Cobbles are strong angular limestone. MGR								
		0.50	41.79					
MADE GROUND: Light brownish yellowish grey slightly gravelly SAND. Sand is fine to medium. Gravel is angular fine to coarse limestone. MGR						0.60 - 0.70 0.65	B ES	
0.6m 100mm plastic 12.5bar water pipe		0.70	41.59					
EOH at 0.70m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number: **784-B048494**

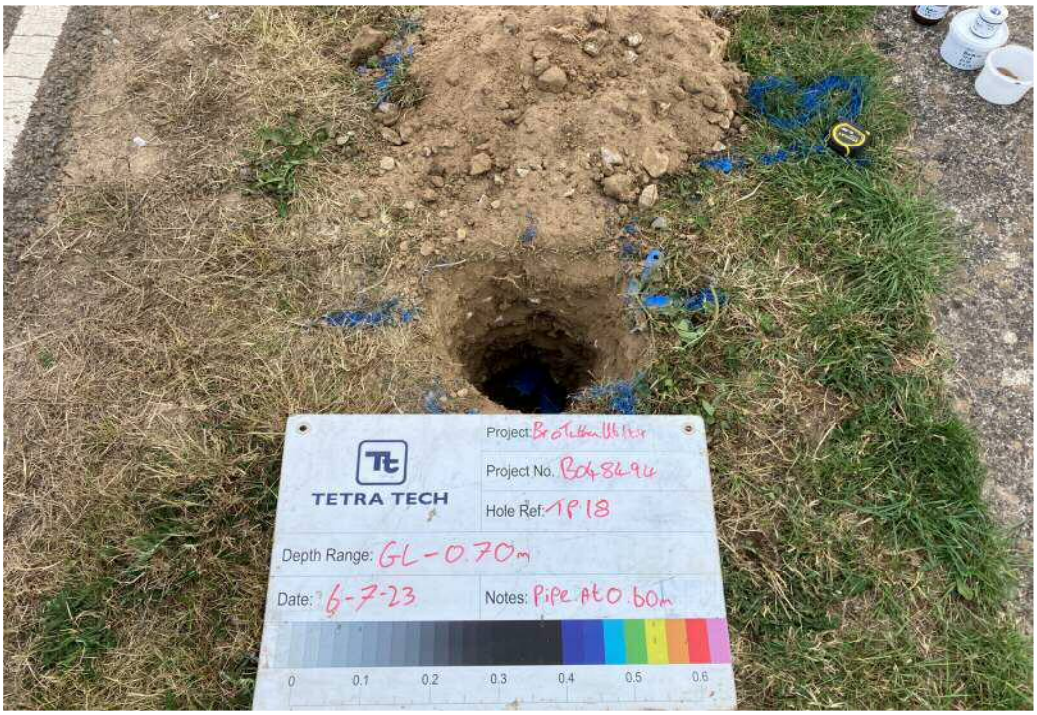

Plate 35 TP18

Plate 36 TP18

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TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300088.74 Northing: 168888.92

Level: Depth: 0.40m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP19**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 13/07/2023

Finish Date: 13/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light orangish greyish brown sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone. Cobbles are strong angular limestone. MGR		0.40				0.40 0.40	B ES	
EOH at 0.40m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 38 TP19

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TETRA TECH

Project :-
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Welsh Government

Project No.:	784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300269.96 Northing: 168607.96

Level: 47.75mAOD Depth: 0.50m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP20**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with abundant rootlets. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone and concrete. MGR								
		0.30	47.45					
Light greyish orangish brown very sandy very gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of limestone. Cobbles are strong angular limestone.						0.50	B	
		0.50	47.25			0.50	ES	
EOH at 0.50m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Plate 39 TP20

Plate 40 TP20

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Project No.:	784-B048494

Plate 41 TP20 spoil

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TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300273.45 Northing: 168590.46

Level: 47.48mAOD Depth: 0.60m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP21**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: °

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content and abundant rootlets. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone and concrete. Cobbles are strong subangular limestone. MGR								
EOH at 0.60m -		0.60	46.88			0.60 0.60	B ES	

1

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5

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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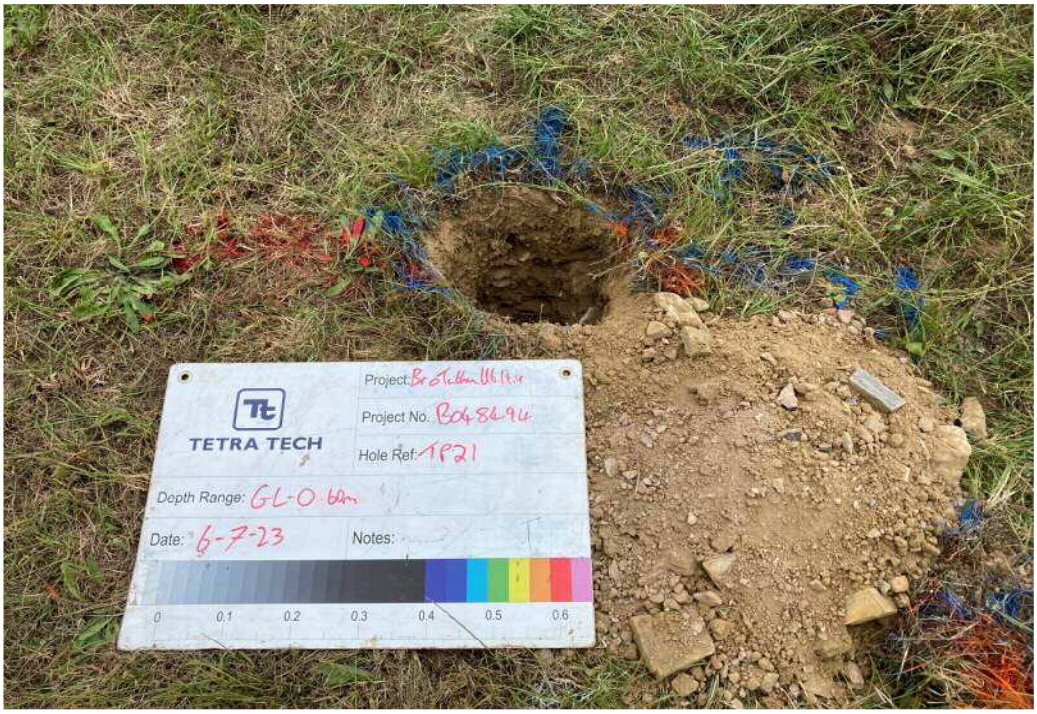

Plate 43 TP21

Plate 44 TP21

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TETRA TECH

Project :-
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Project No.:	784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**	Location Details	Status	Pit Number
Location: **St Athan**	Easting: 300057.43 Northing: 169300.10	FINAL	**TP22**
Client: **Burroughs**	Level: 42.03mAOD Depth: 0.70m		Sheet 1 of 1
	Logger: Type: TP		

Hole Information		Groundwater				Scale: 1:25
Pit Dimensions	Orientation: °	Strike (m)	Rose To (m)	After (mins)	Remarks	Checked By: SR
m	Shoring:					Approved By: CBP
m	Stability:					Start Date: 04/07/2023
	Plant:					Finish Date:

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brown sandy CLAY with occasional rootlets. Sand is fine to coarse.								
Orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of limestone.		0.30	41.73					
EOH at 0.70m -		0.70	41.33					

1
2
3
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5

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300011.44 Northing: 169457.82

Level: 45.15mAOD Depth: 1.00m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP23**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone and rare clinker and brick. MGR *0-0.1m abundant rootlets*						0.30 0.40	ES B	
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular fine to coarse of limestone. Cobbles are strong very angular to subangular mudstone.		0.60	44.55					
EOH at 1.00m -		1.00	44.15					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 45 TP23

Plate 46 TP23

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TETRA TECH

Project :-
Bro Tathan Utilities

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Project No.:	784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299907.76 Northing: 169618.76

Level: 45.43mAOD Depth: 1.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP24**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: °

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone and rare clinker and brick. MGR		0.15	45.28					
MADE GROUND: Light orangish greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone, rare brick and clinker. MGR		0.50	44.93					
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of limestone. Cobbles are strong very angular to subangular mudstone.						0.80 0.80 - 0.90	ES B	
EOH at 1.20m -		1.20	44.23					

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 47 TP24

Plate 48 TP24

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Plate 49 TP24 spoil

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TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299999.56 Northing: 169815.03

Level: 47.18mAOD Depth: 0.60m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP25**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone Cobbles are strong angular limestone. MGR								
		0.30	46.88					
Dark orangish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of limestone. Cobbles are strong very angular to subangular mudstone.						0.50 - 0.60	B	
		0.60	46.58			0.60	ES	
EOH at 0.60m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 51 WS25

Plate 52 WS25

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TETRA TECH

Project :-
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Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299839.66 Northing: 169895.25

Level: 48.23mAOD Depth: 0.60m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP26**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: °

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. (TOPSOIL) MGR		0.10	48.13					
Dark greyish brown sandy gravelly CLAY with high cobble and boulder content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are strong angular limestone. Boulders are up to 300mm strong angular limestone.						0.30 - 0.40	B	
EOH at 0.60m -		0.60	47.63			0.60	ES	

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

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Plate 54 TP26

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Plate 55 TP26 spoil

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TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details			
Easting:	299787.48	Northing:	170055.94
Level:	51.66mAOD	Depth:	0.40m
Logger:	CS	Type:	TP

Status: FINAL

Pit Number: **TP27**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°
Shoring: None
Stability: Stable
Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25
Checked By: SR
Approved By: CBP
Start Date: 06/07/2023
Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY . Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. (TOPSOIL)		0.10	51.56					
MADE GROUND: Light orangish greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse mudstone, rare brick and clinker.		0.30	51.36			0.30 - 0.40	B	
Light brownish grey clayey sandy gravelly COBBLES with occasional boulders. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of limestone. Cobbles are strong angular limestone. Boulders are <300mm angular strong limestone. Weathered Porthkerry Member.		0.40	51.26			0.40	ES	
EOH at 0.40m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number: **784-B048494**

Plate 57 TP27

Plate 58 TP27

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Plate 59 TP27 spoil

Plate 60 blank

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Project :-
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Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299752.10 Northing: 170141.05

Level: 52.92mAOD Depth: 0.60m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP28**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with abundant rootlets. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. (TOPSOIL)		0.10	52.82					
MGR		0.20	52.72					
MADE GROUND: Dark greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse of mudstone, rare brick and clinker.						0.50 - 0.60	B	
MGR								
Dark orangish brown sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse limestone. Cobbles are strong very angular to subangular mudstone.		0.60	52.32			0.60	ES	
EOH at 0.60m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

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Project Number

784-B048494

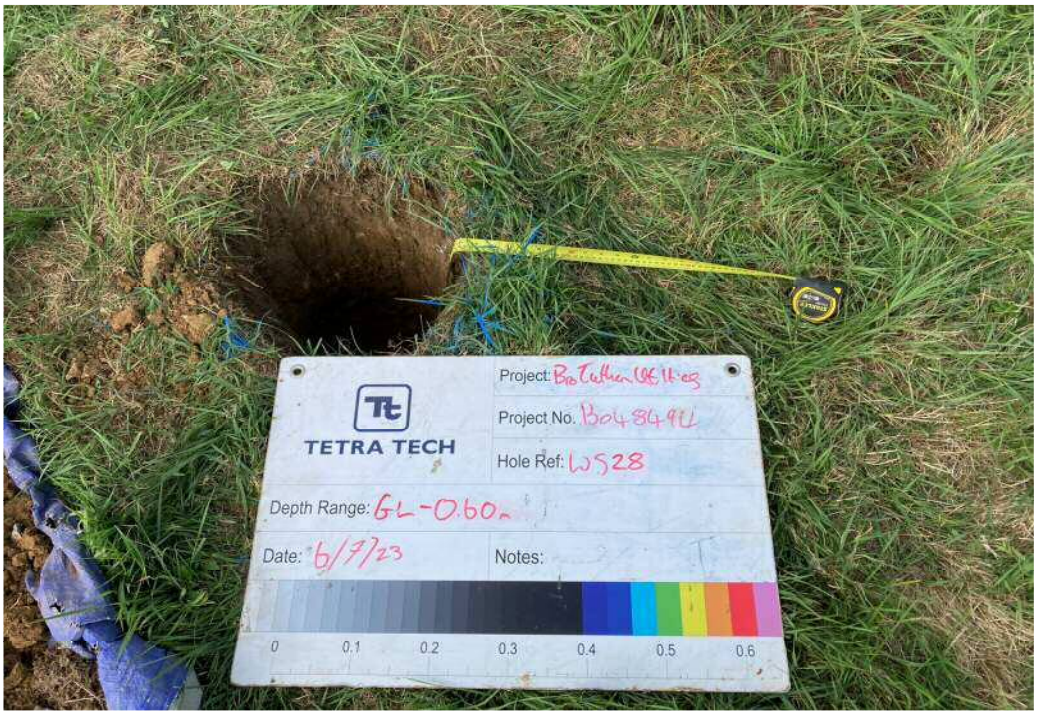

Plate 61 TP28

Plate 62 TP28

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Project :-
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Plate 63 TP28 spoil

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Project :-
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Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299938.96 Northing: 170049.95

Level: 51.20mAOD Depth: 0.80m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP29**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: °

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. MGR		0.20	51.00					
MADE GROUND: Light brownish grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone, clinker and brick. Cobbles are strong angular limestone. MGR		0.40	50.80			0.40 - 0.50	B	
Dark orangish brownish grey sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse mudstone.								
EOH at 0.80m -		0.80	50.40			0.80	ES	

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number: **784-B048494**

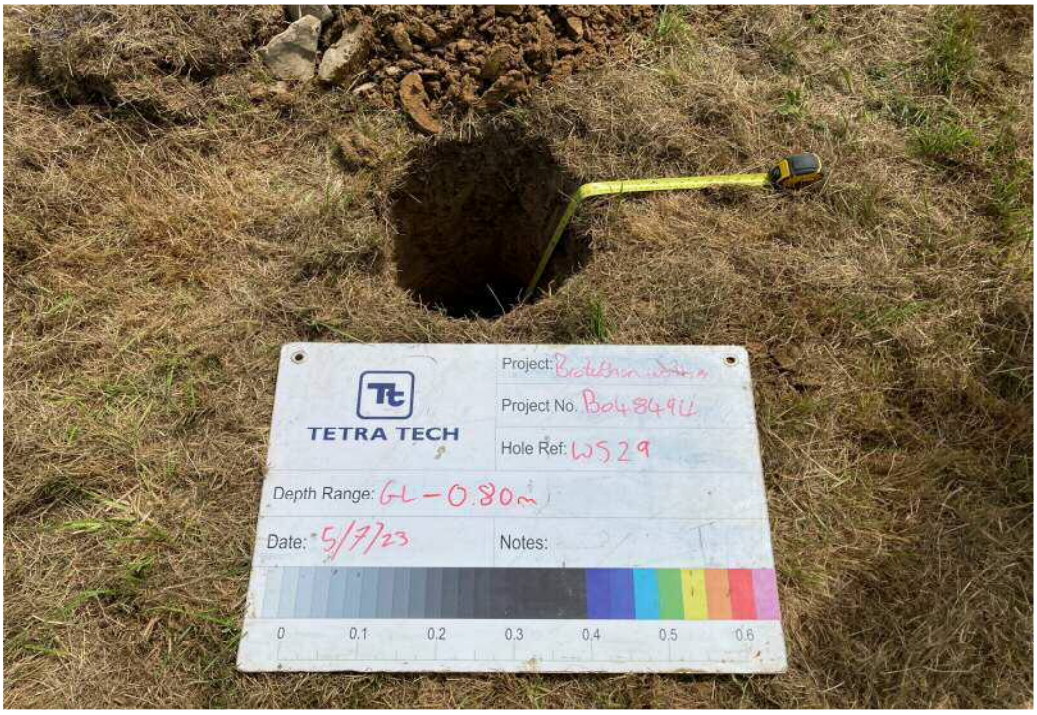

Plate 65 TP29

Plate 66 TP29

Tetra Tech
5th Floor, Longcross Court
47 Newport Road
Cardiff
CF24 0AD

Tel: 029 20 829200
Fax: 029 20 455321

Environmental Consultancy
Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

Plate 67 TP29 spoil

Plate 68

Tetra Tech
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Fax: 029 20 455321

Environmental Consultancy
Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300085.61 Northing: 170105.30

Level: 52.37mAOD Depth: 0.50m

Logger: CS Type: TP

Status: FINAL

Pit Number: **TP30**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 05/07/2023

Finish Date: 05/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. MGR								
Dark greyish brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are strong angular limestone.		0.20	52.17			0.40 - 0.50	B	
EOH at 0.50m -		0.50	51.87			0.50	ES	

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

Plate 69 TP30

Plate 70 TP30

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5th Floor, Longcross Court
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Environmental Consultancy
Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.:	784-B048494

Plate 71 TP30 spoil

Plate 72 blank

Tetra Tech
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Cardiff
CF24 0AD

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Environmental Consultancy
Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300921.73 Northing: 169276.19

Level: 45.56mAOD Depth: 1.00m

Logger: JC Type: TP

Status: FINAL

Pit Number: **TP32**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with occasional cobbles. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone and subangular to subrounded, medium to coarse of concrete. Cobbles are strong subrounded limestone. MGR *0.2m single piece 35mm rebar*						0.30 - 0.40	B	
Dark orange brown with slight orangish reddish brown mottling, very sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are strong angular limestone.		0.40	45.16					
EOH at 1.00m -		1.00	44.56			1.00	ES	

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

Plate 73 TP32

Plate 74 TP32

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Fax: 029 20 455321

Environmental Consultancy
Ground Technologies & Investigation

TETRA TECH

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

Plate 75 TP32 spoil

Plate 76 blank

Tetra Tech
5th Floor, Longcross Court
47 Newport Road
Cardiff
CF24 0AD

Tel: 029 20 829200
Fax: 029 20 455321

Environmental Consultancy
Ground Technologies & Investigation

Project :-
Bro Tathan Utilities

Welsh Government

Project No.: 784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300073.37 Northing: 169026.07

Level: Depth: 0.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **East Stockpile Sample 1 (ESS1)**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 13/07/2023

Finish Date: 13/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Dark brown sandy gravelly silty CLAY with medium cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse mudstone. Cobbles of strong angular limestone. MGR		0.20				0.00 - 0.10	B	
						0.20	ES	
EOH at 0.20m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 300071.33 Northing: 169028.84

Level: Depth: 0.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **East Stockpile Sample 2 (ESS2)**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.30m x 0.30m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 13/07/2023

Finish Date: 13/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Dark orangish greyish brown sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is very angular to angular, fine to coarse mudstone. Cobbles are strong angular limestone. MGR		0.20				0.00 - 0.20	B	
						0.20	ES	
EOH at 0.20m -								

1

2

3

4

5

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299831.70 Northing: 168839.14

Level: Depth: 0.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **West stockpile Sample 1 (WSS1)**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.20m x 0.20m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are angular to subangular of strong limestone. MGR		0.20				0.20	ESes +pfas	
EOH at 0.20m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number

784-B048494

TETRA TECH

Project: **Bro Tathan Utilities**

Location: **St Athan**

Client: **Burroughs**

Location Details

Easting: 299832.85 Northing: 168826.44

Level: Depth: 0.20m

Logger: CS Type: TP

Status: FINAL

Pit Number: **West stockpile sample 2 (WSS2)**

Sheet 1 of 1

Hole Information

Pit Dimensions: 0.20m x 0.20m

Orientation: 0°

Shoring: None

Stability: Stable

Plant: Hand Tools

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks

Scale: 1:25

Checked By: SR

Approved By: CBP

Start Date: 06/07/2023

Finish Date: 06/07/2023

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Light brownish grey sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of mudstone. Cobbles are angular to subangular of strong limestone. MGR		0.20				0.20	ESes +pfas	
EOH at 0.20m -								

Observations / Remarks

1. Backfilled with arisings on completion.
2. No groundwater encountered.
3. Location surveyed by Midland and CAT by TT prior to excavation

Atlantic House, Greenwood Close, Gate Business Park, Pontprennau, Cardiff, CF23 8RD

029 2082 9200

Project Number: **784-B048494**

APPENDIX C: GEOTECHNICAL TEST DATA

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 67761

Client Ref: **B048494**
Client PO:

Date Received: **20-07-2023**
Date Completed: **07-08-2023**
Report Date: **07-08-2023**

Client: **Tetra Tech**
5th Floor
Longcross Court
47 Newport Road
Cardiff
CF24 0AD

This report has been checked and approved by:

[redacted]

Brendan Evans
Office Administrator

Contract Title: **Bro Tathan Utilities**
For the attention of: **James Craddock**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	13
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	12
Density by Linear Measurement BS 1377:1990 - Part 2 : 7.2 - * UKAS	2
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	12
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	9
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	4
BRE Full Suite **includes pH, water & acid soluble sulphate, total sulphur, magnesium, chloride and nitrate** Sub-contracted Test	3

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd
Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 67761

Test Description	Qty
BRE Suite A Greenfield Site (pyrite absent) includes pH and water soluble sulphate Sub-contracted Test	2
BRE Suite C Brownfield Site (pyrite absent) includes pH, water soluble sulphate, magnesium, chloride and nitrate Sub-contracted Test	9
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd
Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	67761	
Project Name	Bro Tathan Utilities	
Date Tested	01/08/2023	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
ESS1		B	0.00	-	0.10	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)
ESS2		B	0.00	-	0.20	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)
SA01		B	0.20	-	0.30	Brown fine to coarse sandy fine to coarse gravelly clayey SILT
TP01		B	0.20	-	0.30	Brown slightly sandy silty clayey fine to coarse GRAVEL (with cobbles)
TP02/12		B	0.20	-	0.30	Brown slightly sandy clayey silty fine to coarse GRAVEL
TP08		B	0.60	-	0.60	Brown fine to coarse sandy fine to coarse gravelly silty CLAY
TP16		B	0.30	-	0.80	Brown slightly sandy clayey SILT
TP23		B	0.40	-	0.40	Brown fine to coarse sandy fine to coarse gravelly clayey SILT
TP24		B	0.80	-	0.90	Brown fine to coarse sandy fine to coarse gravelly clayey SILT
TP26		B	0.30	-	0.40	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)
TP29		B	0.40	-	0.50	Brown slightly sandy slightly gravelly clayey SILT
TP32		B	0.30	-	0.40	Brown fine to coarse sandy fine to coarse gravelly clayey SILT (with cobbles)
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		

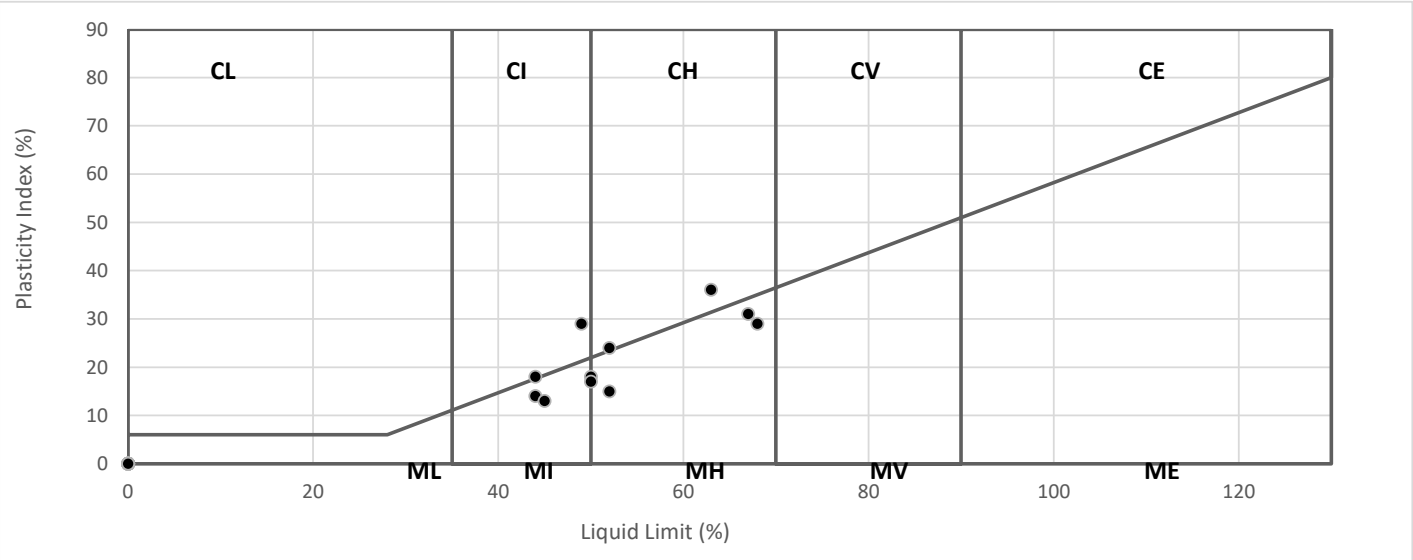
Operator
Aaron Hodge

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	67761	
Project Name	Bro Tathan Utilities	
Date Tested	01/08/2023	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
ESS1		B	0.00	-	0.10	23	44	26	18	11	CI Intermediate Plasticity
ESS2		B	0.00	-	0.20	26	49	20	29	10	CI Intermediate Plasticity
SA01		B	0.20	-	0.30	19	50	32	18	60	MI/H Inter/High Plasticity
TP01		B	0.20	-	0.30	16		NP		23	
TP02/12		B	0.20	-	0.30	16	44	30	14	33	MI Intermediate Plasticity
TP08		B	0.60	-	0.60	25	52	28	24	51	CH High Plasticity
TP16		B	0.30	-	0.80	27	68	39	29	99	MH High Plasticity
TP23		B	0.40	-	0.40	15	45	32	13	73	MI Intermediate Plasticity
TP24		B	0.80	-	0.90	41	52	37	15	87	MH High Plasticity
TP26		B	0.30	-	0.40	33	63	27	36	12	CH High Plasticity
TP29		B	0.40	-	0.50	24	67	36	31	96	MH High Plasticity
TP32		B	0.30	-	0.40	31	50	33	17	44	MI/H Inter/High Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

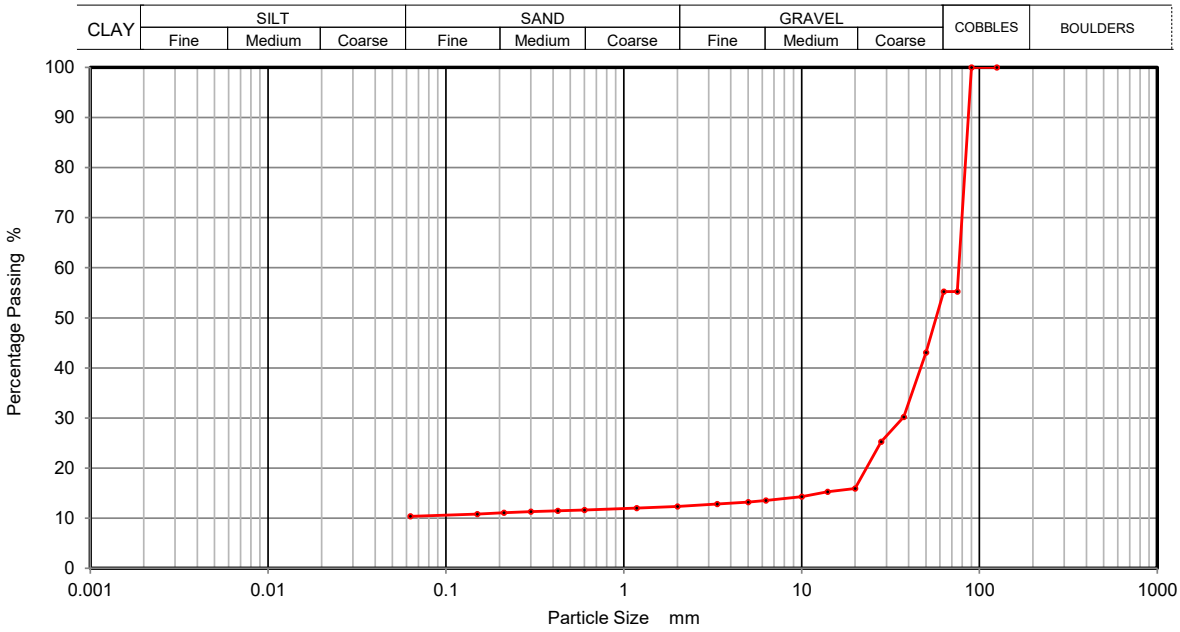
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:2015+A1:2020



Operator
Aaron Hodge

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2**	Contract Number	67761
		Borehole/Pit No.	ESS1
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)	Depth Top	0.00
		Depth Base	0.10
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	55		
63	55		
50	43		
37.5	30		
28	25		
20	16		
14	15		
10	14		
6.3	14		
5	13		
3.35	13		
2	12		
1.18	12		
0.6	12		
0.425	11		
0.3	11		
0.212	11		
0.15	11		
0.063	10		

Sample Proportions	% dry mass
Cobbles	45
Gravel	43
Sand	2
Silt and Clay	10

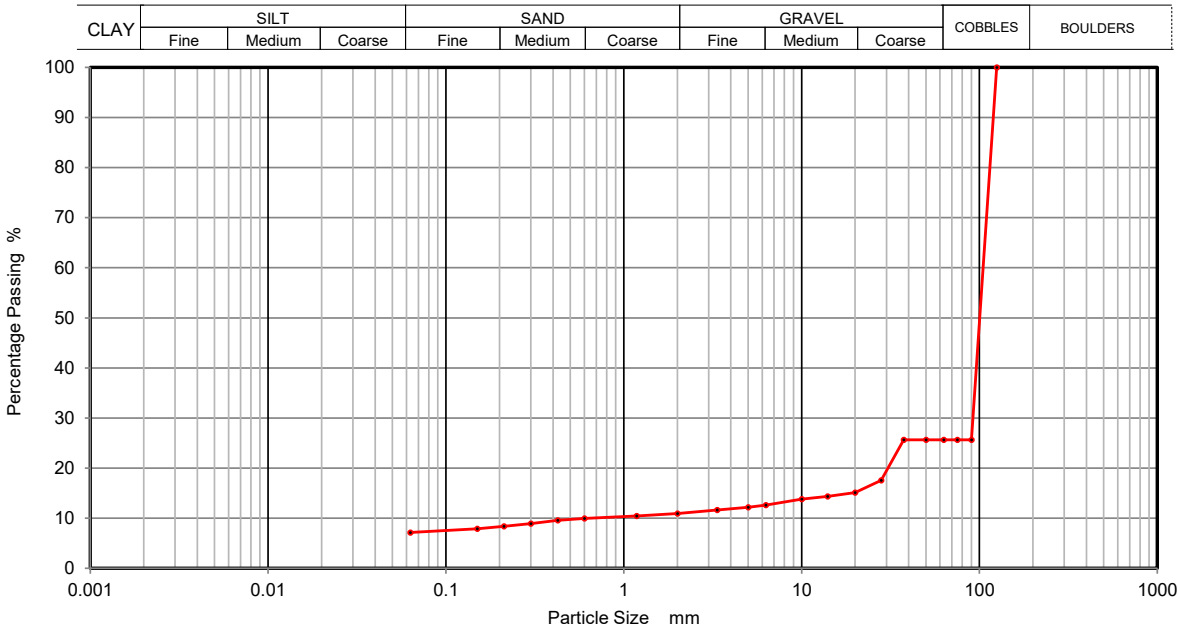
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2**	Contract Number	67761
		Borehole/Pit No.	ESS2
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)	Depth Top	0.00
		Depth Base	0.20
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	26		
75	26		
63	26		
50	26		
37.5	26		
28	18		
20	15		
14	14		
10	14		
6.3	13		
5	12		
3.35	12		
2	11		
1.18	10		
0.6	10		
0.425	10		
0.3	9		
0.212	8		
0.15	8		
0.063	7		

Sample Proportions	% dry mass
Cobbles	74
Gravel	15
Sand	4
Silt and Clay	7

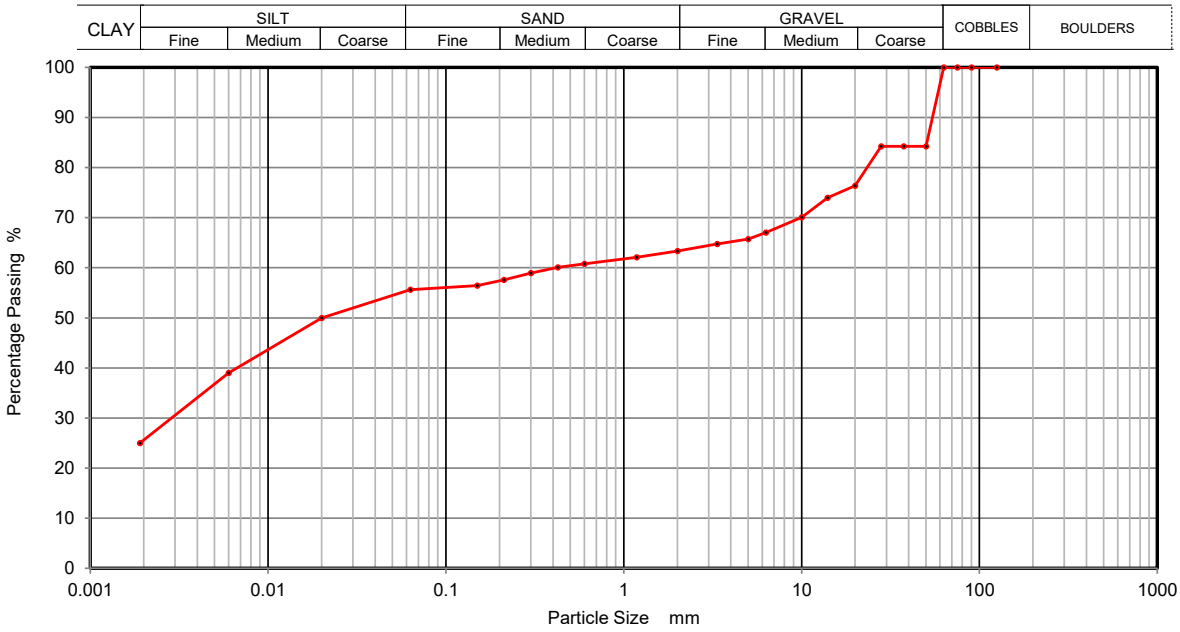
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	SA01
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown fine to coarse sandy fine to coarse gravelly clayey SILT	Depth Top	0.20
		Depth Base	0.30
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	50
90	100	0.0060	39
75	100	0.0020	25
63	100		
50	84		
37.5	84		
28	84		
20	76		
14	74		
10	70		
6.3	67		
5	66		
3.35	65		
2	63		
1.18	62		
0.6	61		
0.425	60		
0.3	59		
0.212	58		
0.15	56		
0.063	56		

Sample Proportions	% dry mass
Cobbles	0
Gravel	37
Sand	7
Silt	31
Clay	25

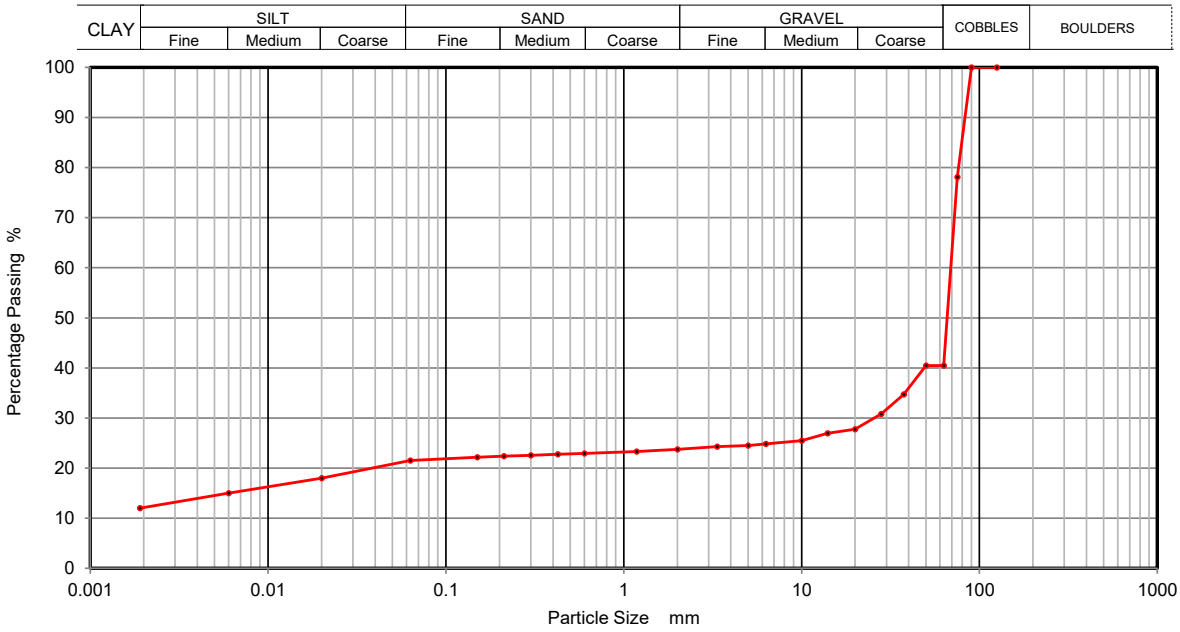
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP01
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy silty clayey fine to coarse GRAVEL (with cobbles)	Depth Top	0.20
		Depth Base	0.30
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	15
75	78	0.0020	12
63	40		
50	40		
37.5	35		
28	31		
20	28		
14	27		
10	25		
6.3	25		
5	24		
3.35	24		
2	24		
1.18	23		
0.6	23		
0.425	23		
0.3	23		
0.212	22		
0.15	22		
0.063	22		

Sample Proportions	% dry mass
Cobbles	60
Gravel	16
Sand	2
Silt	10
Clay	12

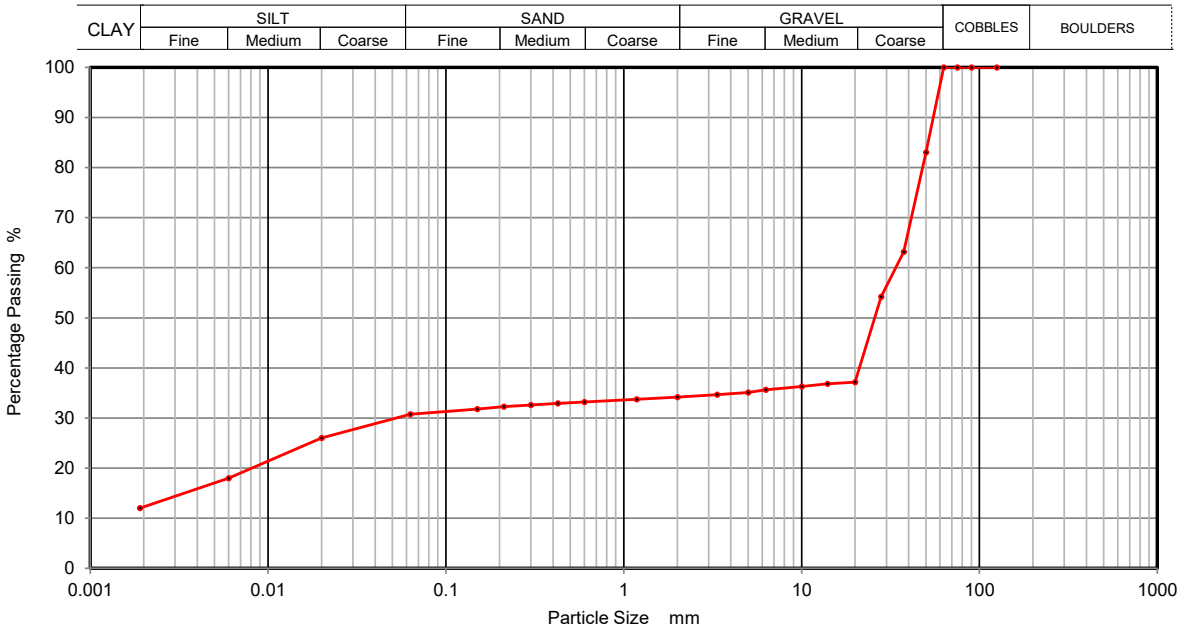
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP02/12
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy clayey silty fine to coarse GRAVEL	Depth Top	0.20
		Depth Base	0.30
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	26
90	100	0.0060	18
75	100	0.0020	12
63	100		
50	83		
37.5	63		
28	54		
20	37		
14	37		
10	36		
6.3	36		
5	35		
3.35	35		
2	34		
1.18	34		
0.6	33		
0.425	33		
0.3	33		
0.212	32		
0.15	32		
0.063	31		

Sample Proportions	% dry mass
Cobbles	0
Gravel	66
Sand	3
Silt	19
Clay	12

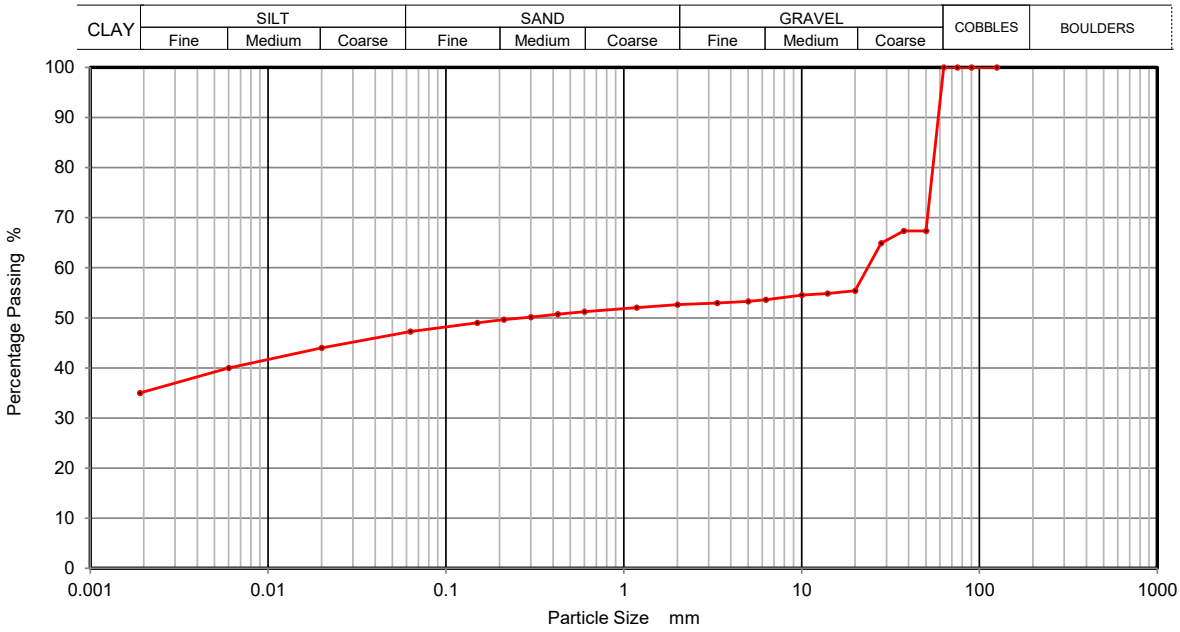
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP08
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown fine to coarse sandy fine to coarse gravelly silty CLAY	Depth Top	0.60
		Depth Base	
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	44
90	100	0.0060	40
75	100	0.0020	35
63	100		
50	67		
37.5	67		
28	65		
20	55		
14	55		
10	55		
6.3	54		
5	53		
3.35	53		
2	53		
1.18	52		
0.6	51		
0.425	51		
0.3	50		
0.212	50		
0.15	49		
0.063	47		

Sample Proportions	% dry mass
Cobbles	0
Gravel	47
Sand	6
Silt	12
Clay	35

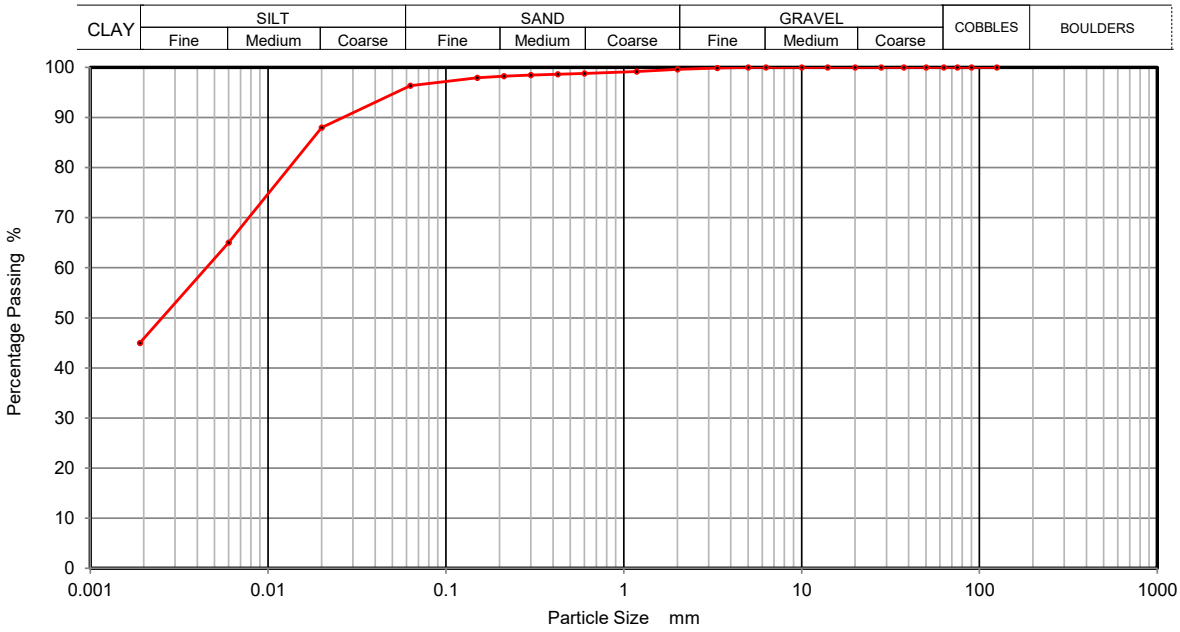
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP16
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy clayey SILT	Depth Top	0.30
		Depth Base	0.80
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	65
75	100	0.0020	45
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	98		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	51
Clay	45

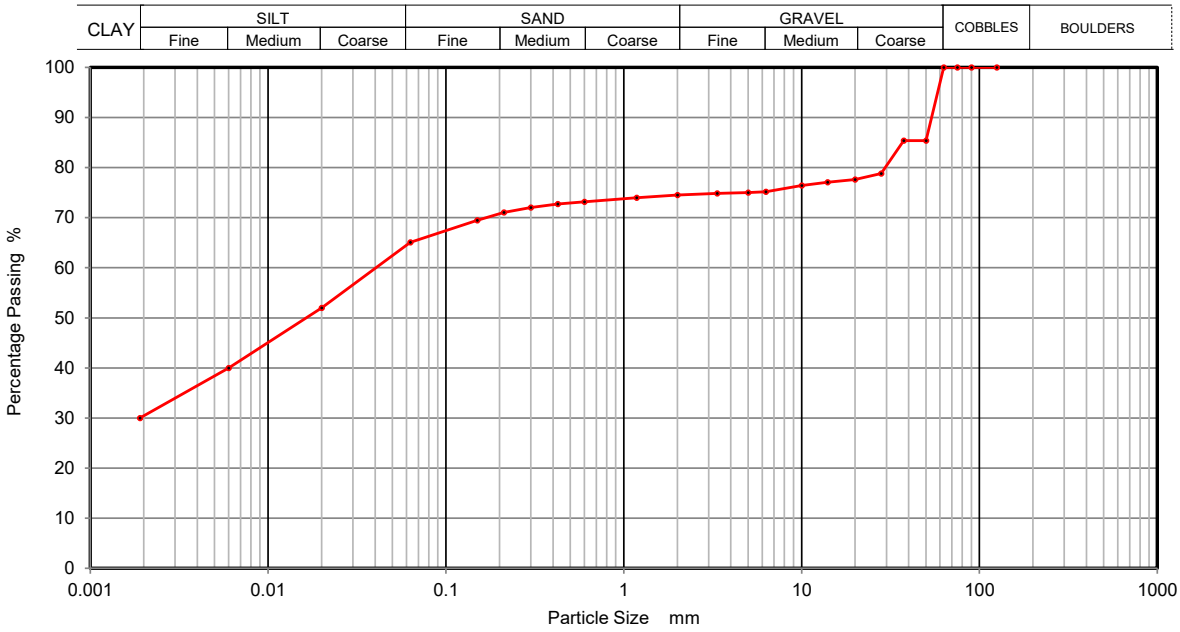
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP23
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown fine to coarse sandy fine to coarse gravelly clayey SILT	Depth Top	0.40
		Depth Base	
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	52
90	100	0.0060	40
75	100	0.0020	30
63	100		
50	85		
37.5	85		
28	79		
20	78		
14	77		
10	76		
6.3	75		
5	75		
3.35	75		
2	75		
1.18	74		
0.6	73		
0.425	73		
0.3	72		
0.212	71		
0.15	69		
0.063	65		

Sample Proportions	% dry mass
Cobbles	0
Gravel	25
Sand	10
Silt	35
Clay	30

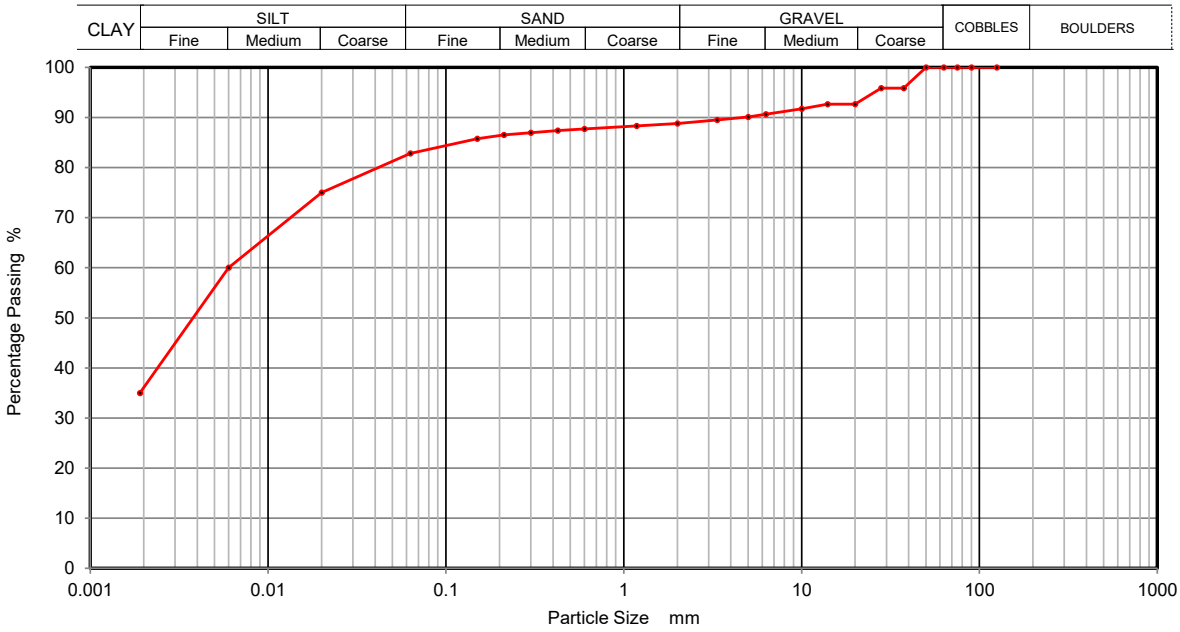
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP24
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown fine to coarse sandy fine to coarse gravelly clayey SILT	Depth Top	0.80
		Depth Base	0.90
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	75
90	100	0.0060	60
75	100	0.0020	35
63	100		
50	100		
37.5	96		
28	96		
20	93		
14	93		
10	92		
6.3	91		
5	90		
3.35	90		
2	89		
1.18	88		
0.6	88		
0.425	87		
0.3	87		
0.212	86		
0.15	86		
0.063	83		

Sample Proportions	% dry mass
Cobbles	0
Gravel	11
Sand	6
Silt	48
Clay	35

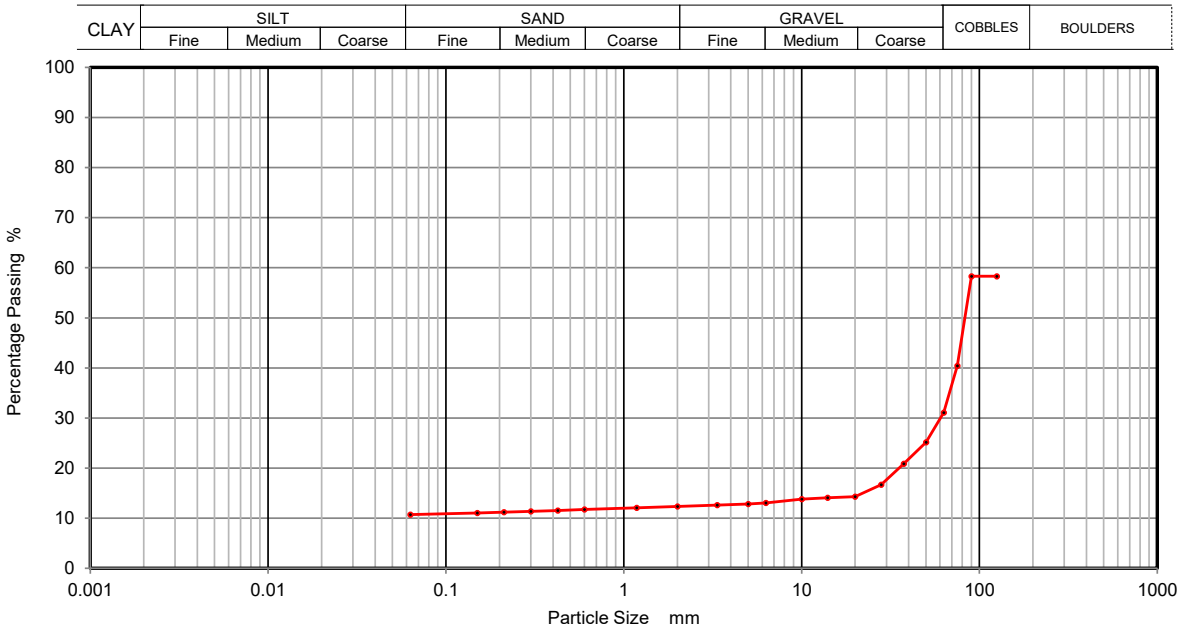
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2**	Contract Number	67761
		Borehole/Pit No.	TP26
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy silty/clayey fine to coarse GRAVEL (with cobbles)	Depth Top	0.30
		Depth Base	0.40
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	58		
90	58		
75	40		
63	31		
50	25		
37.5	21		
28	17		
20	14		
14	14		
10	14		
6.3	13		
5	13		
3.35	13		
2	12		
1.18	12		
0.6	12		
0.425	12		
0.3	11		
0.212	11		
0.15	11		
0.063	11		

Sample Proportions	% dry mass
Cobbles	69
Gravel	19
Sand	1
Silt and Clay	11

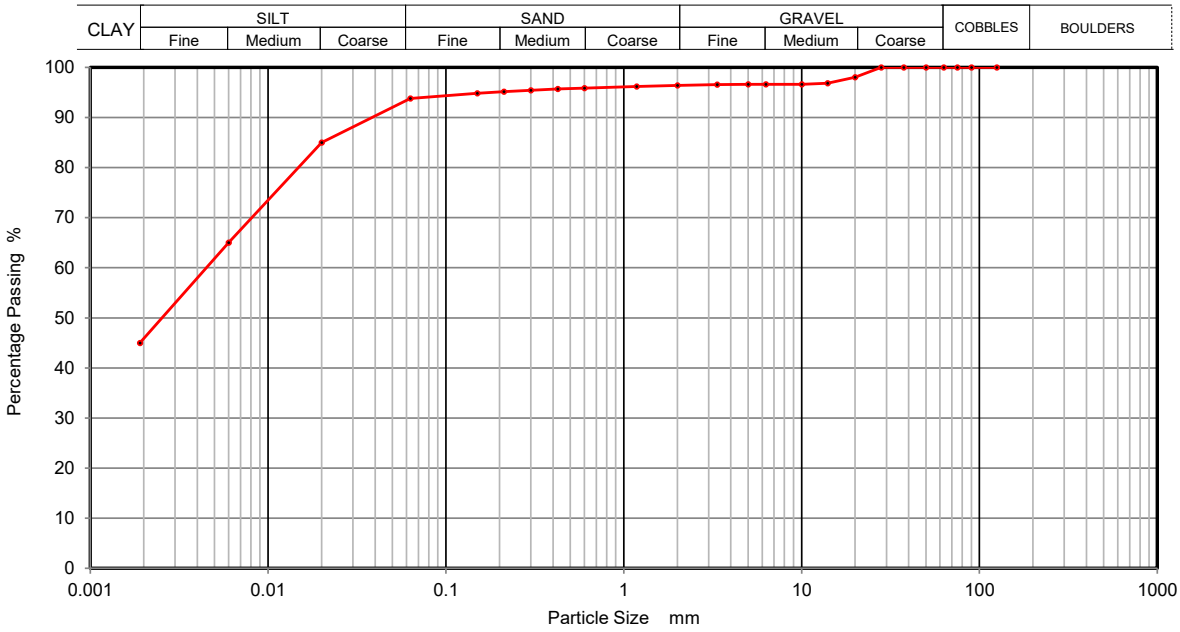
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP29
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown slightly sandy slightly gravelly clayey SILT	Depth Top	0.40
		Depth Base	0.50
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	65
75	100	0.0020	45
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	97		
10	97		
6.3	97		
5	97		
3.35	97		
2	96		
1.18	96		
0.6	96		
0.425	96		
0.3	95		
0.212	95		
0.15	95		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	4
Sand	2
Silt	49
Clay	45

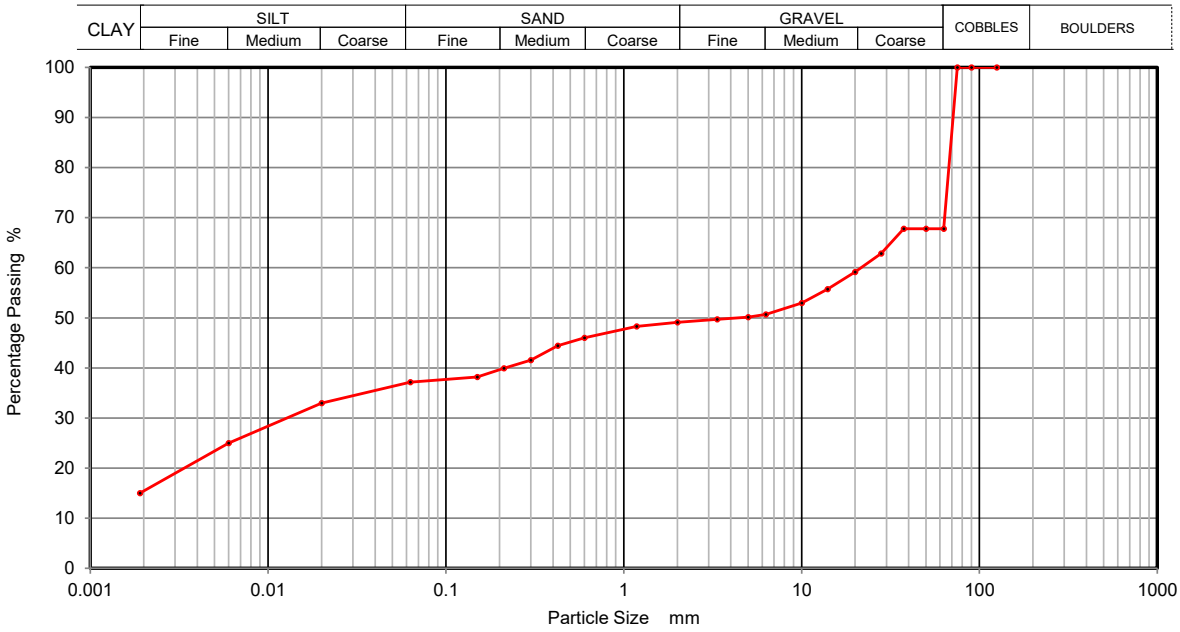
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	67761
		Borehole/Pit No.	TP32
Project Name	Bro Tathan Utilities	Sample No.	
Soil Description	Brown fine to coarse sandy fine to coarse gravelly clayey SILT (with cobbles)	Depth Top	0.30
		Depth Base	0.40
Date Tested	02/08/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	33
90	100	0.0060	25
75	100	0.0020	15
63	68		
50	68		
37.5	68		
28	63		
20	59		
14	56		
10	53		
6.3	51		
5	50		
3.35	50		
2	49		
1.18	48		
0.6	46		
0.425	44		
0.3	42		
0.212	40		
0.15	38		
0.063	37		

Sample Proportions	% dry mass
Cobbles	32
Gravel	19
Sand	12
Silt	22
Clay	15

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

SUMMARY OF SOIL DENSITY TESTS
(BS 1377 : PART 2 : 7.2 : 1990)

Contract Number	67761	
Project Name	Bro Tathan Utilities	
Date Tested	31/07/2023	

Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content	Bulk Density	Dry Density	Compaction Method /Natural Condition		Estimated Air Voids	Remarks
ESS1		B	0.00	-	0.10	24	2.01	1.62	2.5kg Rammer			
ESS2		B	0.00	-	0.20	21	2.04	1.69	2.5kg Rammer			
				-								
				-								
				-								
				-								
				-								
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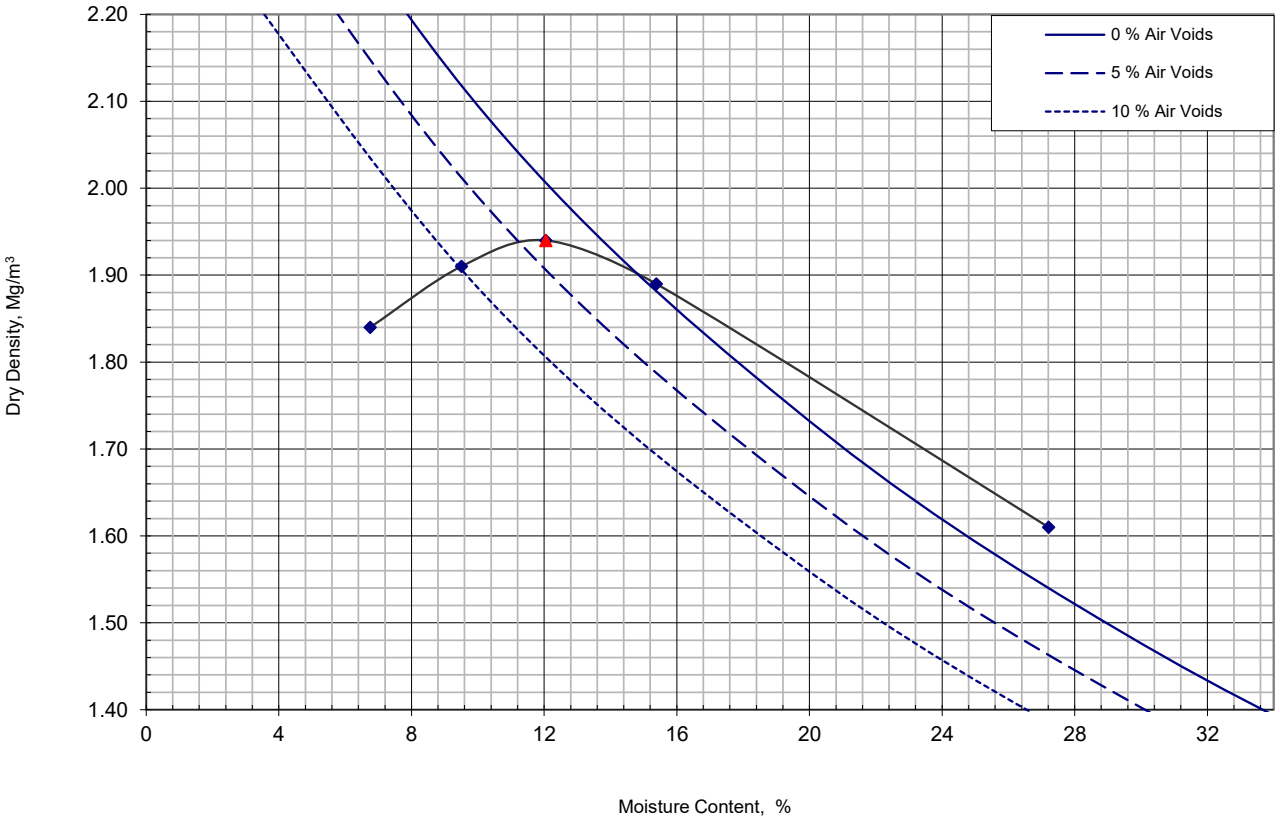
Key	**Reported As**
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

Operator
Conor Davison

2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	67761
		Borehole / Pit No	TP02/12
Project Name	Bro Tathan Utilities	Sample No	
Date Tested	31/07/2023	Depth Top	0.20
Compaction Method	4.5 Kg Rammer	Depth Base	0.30
Compaction Clause	BS1377:Part 4:1990, Clause 3.5	Sample Type	B
Sample Description	*See Sample Description Sheet	Single or Separate Sample Used	Single



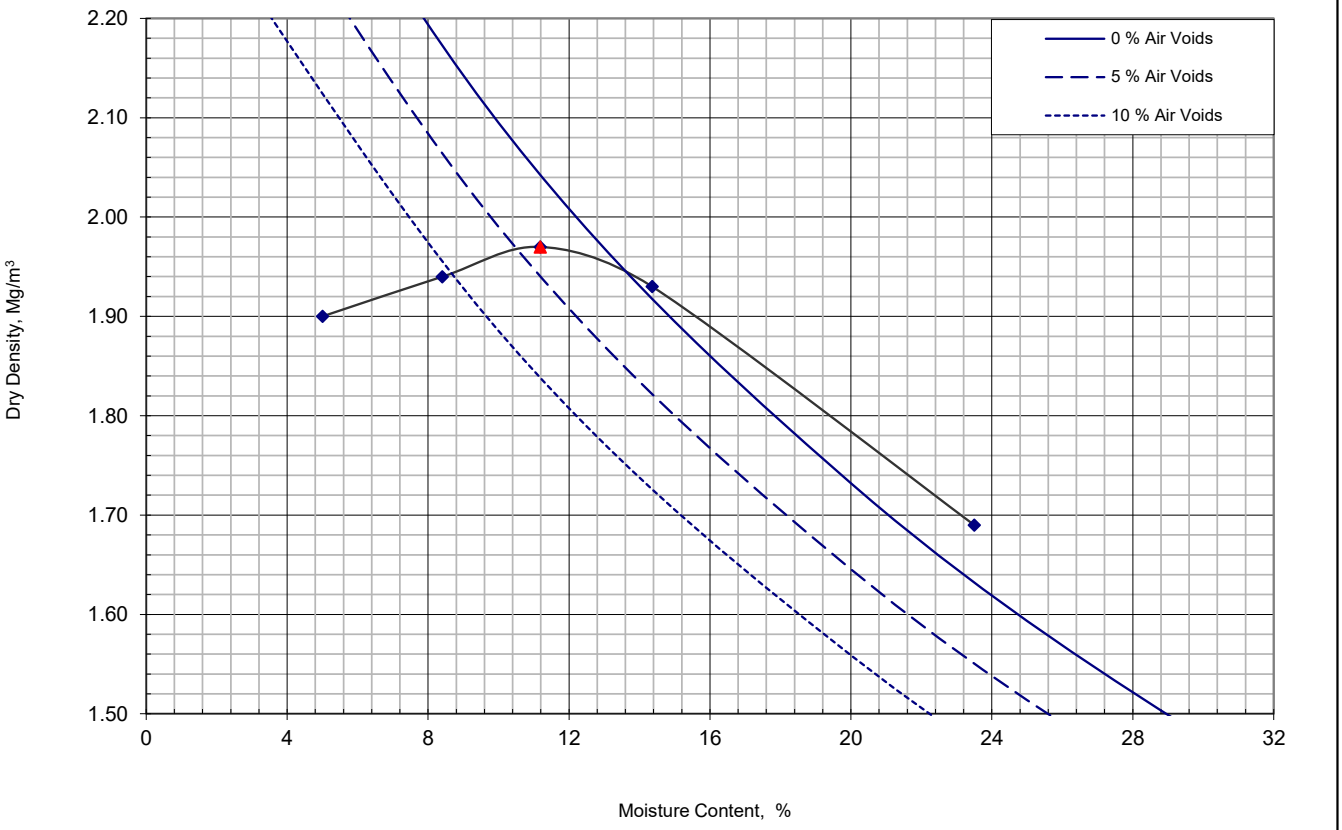
Compaction Point	1	2	3	4	5							
Moisture Content	6.8	9.5	12	15	27							
Bulk Density	1.96	2.09	2.17	2.18	2.05							
Dry Density	1.84	1.91	1.94	1.89	1.61							

Initial Moisture Content	27	%
Maximum Dry Density	1.94	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	37	%
Material Retained 20mm	26	%

Operator
Conal

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	67761
		Borehole / Pit No	TP08
Project Name	Bro Tathan Utilities	Sample No	
Date Tested	31/07/2023	Depth Top	0.60
Compaction Method	4.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.5	Sample Type	B
Sample Description	*See Sample Description Sheet	Single or Separate Sample Used	Single



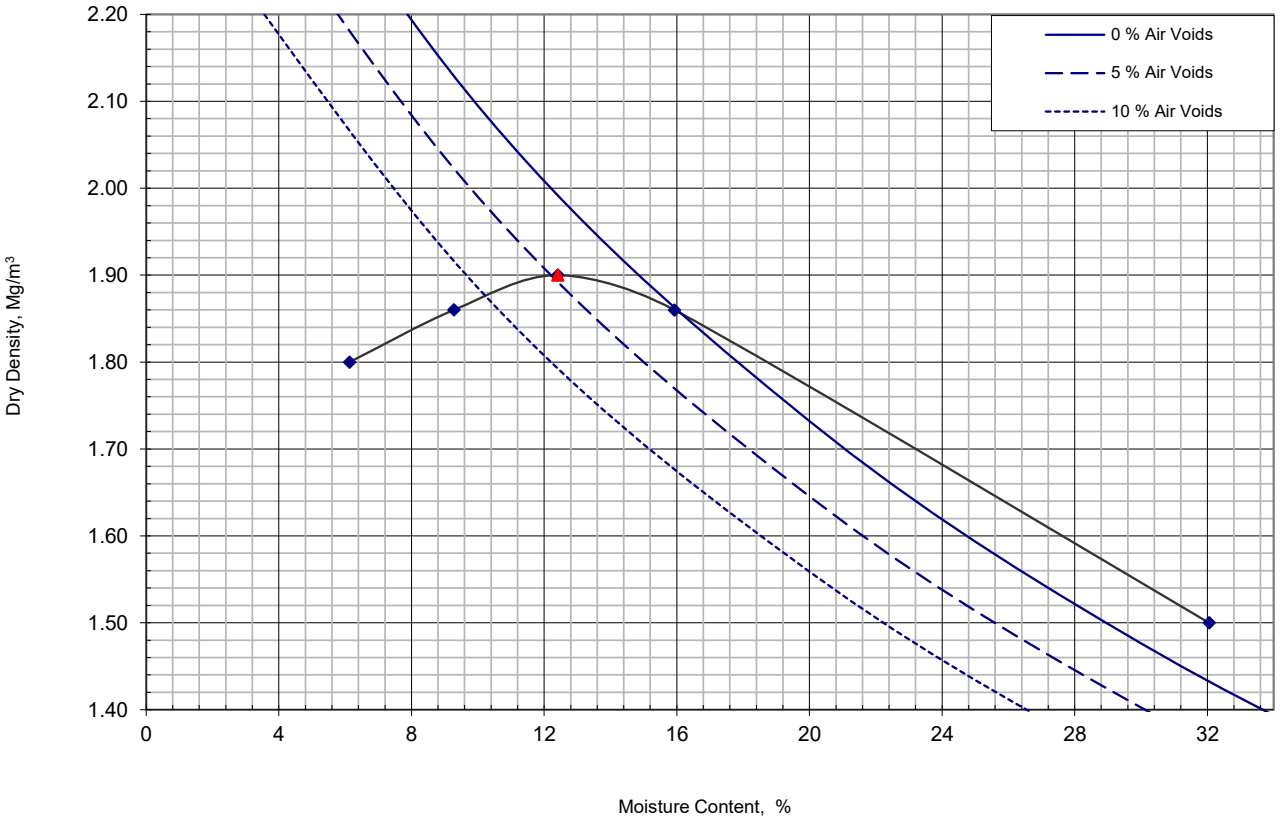
Compaction Point	1	2	3	4	5							
Moisture Content	5.0	8.4	11	14	24							
Bulk Density	1.99	2.10	2.19	2.21	2.09							
Dry Density	1.90	1.94	1.97	1.93	1.69							

Initial Moisture Content	24	%
Maximum Dry Density	1.97	Mg/m3
Optimum Moisture Content	11	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	33	%
Material Retained 20mm	12	%

Operator
Conal

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	67761
		Borehole / Pit No	TP16
Project Name	Bro Tathan Utilities	Sample No	
Date Tested	31/07/2023	Depth Top	0.30
Compaction Method	4.5 Kg Rammer	Depth Base	0.80
Compaction Clause	BS1377:Part 4:1990, Clause 3.5	Sample Type	B
Sample Description	*See Sample Description Sheet	Single or Separate Sample Used	Single



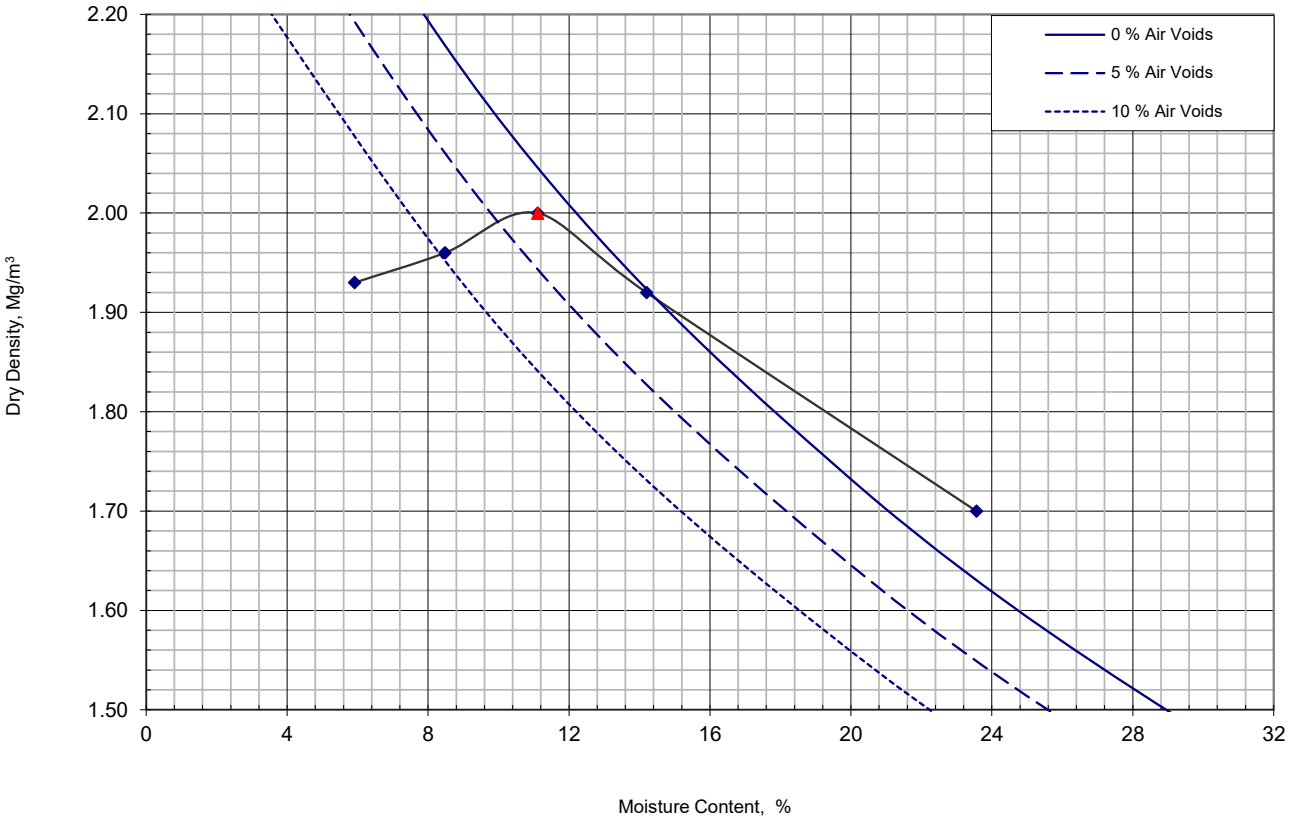
Compaction Point	1	2	3	4	5							
Moisture Content	6.1	9.3	12	16	32							
Bulk Density	1.91	2.03	2.14	2.16	1.98							
Dry Density	1.80	1.86	1.90	1.86	1.50							

Initial Moisture Content	32	%
Maximum Dry Density	1.90	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator
Conal

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	67761
		Borehole / Pit No	TP26
Project Name	Bro Tathan Utilities	Sample No	
Date Tested	31/07/2023	Depth Top	0.30
Compaction Method	4.5 Kg Rammer	Depth Base	0.40
Compaction Clause	BS1377:Part 4:1990, Clause 3.5	Sample Type	B
Sample Description	*See Sample Description Sheet	Single or Separate Sample Used	Single



Compaction Point	1	2	3	4	5							
Moisture Content	5.9	8.5	11	14	24							
Bulk Density	2.04	2.13	2.22	2.19	2.10							
Dry Density	1.93	1.96	2.00	1.92	1.70							

Initial Moisture Content	24	%
Maximum Dry Density	2.00	Mg/m3
Optimum Moisture Content	11	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	79	%
Material Retained 20mm	7	%

Operator
Conal

UKAS TESTING 2788

2531

ANALYTICAL TEST REPORT

Contract no: 125189

Contract name: Bro Tathan Utilities

Client reference: 67761

Clients name: Geo Site and Testing Services

Clients address: Unit 3 and 4 Heol Aur
Dafen Industrial Estate, Dafen
Llanelli, Carmarthenshire
SA14 8QN

Samples received: 26 July 2023

Analysis started: 26 July 2023

Analysis completed: 04 August 2023

Report issued: 04 August 2023

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by: [redacted]

Abbie Neasham-Bourn
Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			125189-1	125189-2	125189-3	125189-4	125189-5	125189-6
Sample id			East Stockpile 1	East Stockpile 2	SA01	SA01	TP01	TP02
Depth (m)			0.00-0.10	0.00-0.20	0.20-0.30	0.80-0.90	0.220-0.30	0.20-0.25
Sample Type			B	B	B	B	B	B
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	8.3	8.1	7.6	8.2	8.3	6.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	-	9.1	2.2	2.8	8.5
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	-	-	14	4.2	23	3.4
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	-	-	<1	<1	<1	<1
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	72	45	22	12	14	13
Sulphate (acid extractable)	CE062 [U]	mg/kg SO_4	-	-	1772	210	228	-
Sulphate (acid extractable)	CE062 [U]	% w/w SO_4	-	-	0.18	0.02	0.02	-
Sulphur (total)	CE119	mg/kg S	-	-	1006	<100	180	-
Sulphur (total)	CE119	% w/w S	-	-	0.10	<0.01	0.02	-

Chemtech Environmental Limited

SOILS

Lab number			125189-7	125189-8	125189-9	125189-10	125189-11	125189-12
Sample id			TP08	TP12	TP16	TP23	TP24	TP26
Depth (m)			0.60	0.30	0.30-0.80	0.40	0.80-0.90	0.30-0.40
Sample Type			B	B	B	B	B	B
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	7.7	8.0	7.8	7.8	7.7	8.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	4.9	2.3	<1	<1	<1	3.0
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	1.9	2.0	1.4	2.1	2.0	5.4
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	<1	<1	<1	<1	<1	<1
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	160	29	<10	42	<10	12
Sulphate (acid extractable)	CE062 [U]	mg/kg SO_4	-	-	-	-	-	-
Sulphate (acid extractable)	CE062 [U]	% w/w SO_4	-	-	-	-	-	-
Sulphur (total)	CE119	mg/kg S	-	-	-	-	-	-
Sulphur (total)	CE119	% w/w S	-	-	-	-	-	-

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SOILS

Lab number			125189-13	125189-14
Sample id			TP29	TP32
Depth (m)			0.40-0.50	0.30-0.40
Sample Type			B	B
Date sampled			-	-
Test	**Method**	**Units**		
pH	CE004 U	units	7.6	8.1
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.1	1.2
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	1.1	18
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	<1	<1
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	<10	172
Sulphate (acid extractable)	CE062 U	mg/kg SO_4	-	-
Sulphate (acid extractable)	CE062 U	% w/w SO_4	-	-
Sulphur (total)	CE119	mg/kg S	-	-
Sulphur (total)	CE119	% w/w S	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (acid extractable)	HCl extract, analysed by ICP-OES	Dry	U	100	mg/kg SO4
CE062	Sulphate (acid extractable)	HCl extract, analysed by ICP-OES	Dry	U	0.01	% w/w SO4
CE119	Sulphur (total)	Aqua regia digest, analysed by ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Aqua regia digest, analysed by ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
125189-1	East Stockpile 1	0.00-0.10	Y	All (NSD)
125189-2	East Stockpile 2	0.00-0.20	Y	All (NSD)
125189-3	SA01	0.20-0.30	Y	All (NSD)
125189-4	SA01	0.80-0.90	Y	All (NSD)
125189-5	TP01	0.220-0.30	Y	All (NSD)
125189-6	TP02	0.20-0.25	Y	All (NSD)
125189-7	TP08	0.60	Y	All (NSD)
125189-8	TP12	0.30	Y	All (NSD)
125189-9	TP16	0.30-0.80	Y	All (NSD)
125189-10	TP23	0.40	Y	All (NSD)
125189-11	TP24	0.80-0.90	Y	All (NSD)
125189-12	TP26	0.30-0.40	Y	All (NSD)
125189-13	TP29	0.40-0.50	Y	All (NSD)
125189-14	TP32	0.30-0.40	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

APPENDIX D: CHEMICAL LABORATORY TEST RESULTS

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Analytical Report Number : 23-44048

Project / Site name:	Bro Tathan	**Samples received on:**	10/07/2023
Your job number:		**Samples instructed on/ Analysis started on:**	10/07/2023
Your order number:	7011750	**Analysis completed by:**	24/07/2023
Report Issue Number:	1	**Report issued on:**	25/07/2023
Samples Analysed:	32 soil samples		

Signed: [redacted]

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-44048
Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	8	8.9	4.2	7.4
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	PDO	N/A	PDO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.8	8.1	-	7.9
Electrical Conductivity	µS/cm	10	ISO 17025	190	210	130	190	120
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	16	47	11	-	8.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.008	0.023	0.0054	-	0.0041
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8	23.4	5.4	-	4.1
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.026	0.043	0.018	-	0.014
Redox Potential	mV	-800	NONE	258.2	250.1	261.6	242	244

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3

Analytical Report Number: 23-44048
Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.28	0.08	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	0.75	0.07	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06	0.59	0.09	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.81	4.7	0.86	-	0.24
Anthracene	mg/kg	0.05	MCERTS	0.15	1.2	0.22	-	0.05
Fluoranthene	mg/kg	0.05	MCERTS	2	9.9	2.1	-	0.5
Pyrene	mg/kg	0.05	MCERTS	1.6	7.3	1.8	-	0.36
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1	5.1	1.2	-	0.24
Chrysene	mg/kg	0.05	MCERTS	1.2	6	1.2	-	0.35
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.3	6.6	1.5	-	0.29
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.53	2.7	0.44	-	0.14
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.81	4.5	0.94	-	0.19
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.51	2.8	0.56	-	0.13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.15	0.9	0.16	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.51	2.7	0.6	-	0.13
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	10.7	56	11.7	-	2.62
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	11	14	-	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.91	0.91	1	-	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	1.2	0.6	-	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.9	0.8	-	0.7
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	-	< 1.2
Chromium (III)	mg/kg	1	NONE	21	22	28	-	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	22	29	-	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	31	34	-	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	51	140	-	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	23	28	-	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	23	28	-	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	96	66	-	52
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	-	< 5.0

Analytical Report Number: 23-44048
Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	-	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	-	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	-	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	-	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	16	< 10	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	11	45	< 10	-	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	-	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	14	62	10	-	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	14	66	10	-	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 23-44048
Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	0.7	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.28	0.08	0.1	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	0.75	0.07	0.46	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	1	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	0.06	0.59	0.09	0.27	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.81	4.7	0.86	2.2	0.24
Anthracene	mg/kg	0.05	MCERTS	0.15	1.2	0.22	0.39	0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	1.2	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	1.8	< 0.3	0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	2	9.9	2.1	4.9	0.5
Pyrene	mg/kg	0.05	MCERTS	1.6	7.3	1.8	3.7	0.36
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1	5.1	1.2	2.8	0.24
Chrysene	mg/kg	0.05	MCERTS	1.2	6	1.2	2.9	0.35
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.3	6.6	1.5	3.6	0.29
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.53	2.7	0.44	1.4	0.14
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.81	4.5	0.94	2.2	0.19
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.51	2.8	0.56	1.3	0.13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.15	0.9	0.16	0.42	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.51	2.7	0.6	1.4	0.13

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Lab Sample Number				2742340	2742341	2742342	2742343	2742344
Sample Reference				TP23	TP07	TP26	TP09	TP10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	27	< 0.1
Moisture Content	%	0.01	NONE	10	15	16	5	11
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	PDO	PDO	PDO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	8	7.7	8.9	7.5
Electrical Conductivity	µS/cm	10	ISO 17025	120	140	140	160	120
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	8.9	85	6.5	270	7.8
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0045	0.042	0.0033	0.13	0.0039
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	4.5	42.4	3.3	133	3.9
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.012	0.016	0.0067	0.02	0.012
Redox Potential	mV	-800	NONE	255.4	245.9	300.9	266.5	287.5

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3

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Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.72
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.5
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.24	0.23
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.13	1
Phenanthrene	mg/kg	0.05	MCERTS	0.59	0.29	< 0.05	1.5	2.8
Anthracene	mg/kg	0.05	MCERTS	0.17	0.05	< 0.05	0.22	1
Fluoranthene	mg/kg	0.05	MCERTS	1.4	0.52	< 0.05	3.4	1.3
Pyrene	mg/kg	0.05	MCERTS	1.1	0.4	< 0.05	2.6	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.55	0.27	< 0.05	1.8	0.54
Chrysene	mg/kg	0.05	MCERTS	0.61	0.37	< 0.05	2	0.5
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.71	0.27	< 0.05	2.4	0.31
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.19	0.17	< 0.05	0.93	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.51	0.18	< 0.05	1.4	0.26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.26	0.12	< 0.05	0.82	0.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	0.26	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.27	0.13	< 0.05	0.91	0.11
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.46	2.77	< 0.80	18.5	10.7
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	15	13	15	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	1.1	2	0.95	1.6
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.6	0.4	0.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.6	0.6	1.2	0.7
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	21	24	30	28	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	25	30	29	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	35	27	29	110	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	130	16	99	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	24	35	23	37
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	31	34	29	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	79	60	120	60
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Your Order No: 7011750

Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	21	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	28	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	28	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	0.6	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	0.7	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.72
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	4.3	< 0.1	< 0.1	< 0.1	1.2
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.5
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.24	0.23
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	1.4	< 0.2	< 0.2	< 0.2	0.6
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.13	1
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.59	0.29	< 0.05	1.5	2.8
Anthracene	mg/kg	0.05	MCERTS	0.17	0.05	< 0.05	0.22	1
Carbazole	mg/kg	0.3	MCERTS	0.8	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1.4	0.52	< 0.05	3.4	1.3
Pyrene	mg/kg	0.05	MCERTS	1.1	0.4	< 0.05	2.6	1.2
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.55	0.27	< 0.05	1.8	0.54
Chrysene	mg/kg	0.05	MCERTS	0.61	0.37	< 0.05	2	0.5
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.71	0.27	< 0.05	2.4	0.31
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.19	0.17	< 0.05	0.93	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.51	0.18	< 0.05	1.4	0.26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.26	0.12	< 0.05	0.82	0.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	0.26	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.27	0.13	< 0.05	0.91	0.11

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Lab Sample Number				2742345	2742346	2742347	2742348	2742349
Sample Reference				TP25	TP08	TP24	TP12	TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.80	0.30	0.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	26
Moisture Content	%	0.01	NONE	16	6.7	8.6	14	3.6
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	WEM	WEM	WEM	WEM
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	8.4	7.4	7.9	8.9
Electrical Conductivity	µS/cm	10	ISO 17025	91	120	140	92	130
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	7	21	16	8.4	17
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0035	0.011	0.0081	0.0042	0.0087
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.5	10.7	8.1	4.2	8.7
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0082	0.019	0.023	0.0035	0.0034
Redox Potential	mV	-800	NONE	222.7	262.2	268.2	297.3	225.4
Phenols by HPLC								
Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3

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Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.12	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.27	0.81	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.44	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	1.5	4.7	< 0.05	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.28	0.74	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.5	11	< 0.05	0.24
Pyrene	mg/kg	0.05	MCERTS	< 0.05	2.7	8.4	< 0.05	0.19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	2.1	5.7	< 0.05	0.11
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.4	6.2	< 0.05	0.23
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	3.1	7.4	< 0.05	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.1	2.8	< 0.05	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.6	4.5	< 0.05	0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.2	2.7	< 0.05	0.09
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.41	0.85	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.3	3	< 0.05	0.1
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	21.6	59.5	< 0.80	1.44
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	12	14	11	2.3
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8	0.86	1	1.1	0.13
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.8	0.9	0.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	1.2	1.2	< 0.2	0.4
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	38	21	25	27	7.9
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	21	26	27	7.9
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	42	34	24	9.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	37	39	14	5.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	42	22	22	26	3.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42	25	30	32	3.8
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	70	100	110	50	25
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Your Order No: 7011750

Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	3.9	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	19	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	24	48	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	30	70	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	30	75	< 10	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Your Order No: 7011750

Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.12	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.27	0.81	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.44	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	1.5	4.7	< 0.05	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.28	0.74	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	0.5	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.5	11	< 0.05	0.24
Pyrene	mg/kg	0.05	MCERTS	< 0.05	2.7	8.4	< 0.05	0.19
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	2.1	5.7	< 0.05	0.11
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.4	6.2	< 0.05	0.23
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	3.1	7.4	< 0.05	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.1	2.8	< 0.05	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.6	4.5	< 0.05	0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.2	2.7	< 0.05	0.09
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.41	0.85	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.3	3	< 0.05	0.1

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Project / Site name: Bro Tathan
Your Order No: 7011750

Lab Sample Number				2742350	2742351	2742352	2742353	2742354
Sample Reference				TP29	TP13	TP14	TP14	TP15
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	0.40	1.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	41	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.9	14	15	9.8	11
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	1.3	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	N/A	WEM	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	-	8.1	7.4	8.1
Electrical Conductivity	µS/cm	10	ISO 17025	220	160	98	160	120
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	21	-	7.1	19	6.9
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	-	0.0036	0.0097	0.0035
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.7	-	3.6	9.7	3.5
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.01	-	0.0048	0.025	0.0087
Redox Potential	mV	-800	NONE	273.2	262.8	267.4	258.5	258.6

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3

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Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.44	-	< 0.05	0.44	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.1	-	< 0.05	0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.3	-	< 0.05	0.95	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1	-	< 0.05	0.72	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.84	-	< 0.05	0.5	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1	-	< 0.05	0.87	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.2	-	< 0.05	0.59	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.5	-	< 0.05	0.35	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.72	-	< 0.05	0.33	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.53	-	< 0.05	0.23	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	-	< 0.05	0.07	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.67	-	< 0.05	0.28	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	8.49	-	< 0.80	5.38	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	-	15	15	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.41	-	1.4	0.97	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	-	1.3	1.7	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	-	< 0.2	0.7	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	-	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	11	-	32	23	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	-	32	23	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	38	-	28	22	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	-	14	33	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.2	-	35	19	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	-	38	32	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44	-	58	59	40
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	-	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	-	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	-	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	-	5	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	-	5.6	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	-	13	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	15	-	31	27	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	-	15	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	20	-	55	31	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	20	-	70	35	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Your Order No: 7011750

Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0##	< 5.0##	< 5.0##	< 5.0##
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.44	0.07	< 0.05	0.44	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1.3	0.14	< 0.05	0.95	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1	0.1	< 0.05	0.72	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.84	0.07	< 0.05	0.5	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1	0.1	< 0.05	0.87	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.2	< 0.05	< 0.05	0.59	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.5	< 0.05	< 0.05	0.35	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.72	< 0.05	< 0.05	0.33	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.53	< 0.05	< 0.05	0.23	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	< 0.05	< 0.05	0.07	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.67	< 0.05	< 0.05	0.28	< 0.05

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Lab Sample Number				2742355	2742356	2742357	2742358	2742359
Sample Reference				TP17	TP16	TP16	TP22	TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.60	0.20	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	< 0.1	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.3	7.8	4.5	11	6.6
Total mass of sample received	kg	0.001	NONE	1.3	0.8	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	SCA	SCA	SCA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.3	8	8	7.7
Electrical Conductivity	µS/cm	10	ISO 17025	85	140	180	120	190
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	5.6	38	32	8.2	11
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0028	0.019	0.016	0.0041	0.0056
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	2.8	19	16.2	4.1	5.6
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0048	0.017	0.016	0.018	0.025
Redox Potential	mV	-800	NONE	279	263.1	228.8	232.5	238.3

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.47	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.75	0.3	2	0.08
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.1	< 0.05	0.35	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.08	1.1	0.42	3.8	0.18
Pyrene	mg/kg	0.05	MCERTS	0.05	0.83	0.32	2.9	0.14
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.55	0.16	2	0.08
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.71	0.32	2.3	0.15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.59	0.23	2.3	0.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.27	0.09	0.98	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.45	0.11	1.3	0.06
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.22	0.08	0.81	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.05	< 0.05	0.27	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.26	0.1	0.97	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	5.91	2.13	20.6	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	12	9.6	16	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.38	0.87	0.65	1.1	0.96
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.5	0.5	0.7	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5	0.6	0.7	0.6
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	6.5	20	16	20	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	6.9	20	16	21	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	22	16	27	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	22	21	32	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	19	14	23	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	25	20	26	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	55	54	63	55
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	17	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	23	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	23	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0##	< 5.0##	< 5.0##	< 5.0##	< 5.0##
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.47	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.75	0.3	2	0.08
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.1	< 0.05	0.35	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	0.08	1.1	0.42	3.8	0.18
Pyrene	mg/kg	0.05	MCERTS	0.05	0.83	0.32	2.9	0.14
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.55	0.16	2	0.08
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.71	0.32	2.3	0.15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.59	0.23	2.3	0.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.27	0.09	0.98	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.45	0.11	1.3	0.06
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.22	0.08	0.81	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.05	< 0.05	0.27	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.26	0.1	0.97	< 0.05

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Lab Sample Number				2742360	2742361	2742362	2742363	2742364
Sample Reference				TP18	TP21	TP20	TP32	TP27
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.65-0.65	0.60-0.60	0.50-0.50	1.00-1.00	0.40-0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	-	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	4.4	4.2	6.9	6
Total mass of sample received	kg	0.001	NONE	0.8	1.3	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA	SCA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.4	8.7	6.6	7.8
Electrical Conductivity	µS/cm	10	ISO 17025	120	-	-	130	240
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	6.4	15	110	12	25
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0032	0.0074	0.053	0.0058	0.012
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.2	7.4	52.8	5.8	12.4
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.015	0.01	0.012	0.032	0.035
Redox Potential	mV	-800	NONE	226.7	-	-	280.3	263.6

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	-	-	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	-	-	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	-	-	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	-	-	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	-	-	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	-	-	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	-	-	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	-	-	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	-	-	< 1.3	< 1.3

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.18	0.07	< 0.05	0.09
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.2	0.07	< 0.05	0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.52	1.7	0.59	0.06	0.51
Anthracene	mg/kg	0.05	MCERTS	0.06	0.34	0.11	< 0.05	0.07
Fluoranthene	mg/kg	0.05	MCERTS	1	2.4	1.1	0.1	1.2
Pyrene	mg/kg	0.05	MCERTS	0.91	1.8	0.85	0.08	0.96
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.45	1.4	0.69	0.05	0.66
Chrysene	mg/kg	0.05	MCERTS	0.62	1.8	1	0.09	0.92
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.43	1.7	0.92	< 0.05	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.25	0.88	0.51	< 0.05	0.67
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.29	0.99	0.54	< 0.05	0.63
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.17	0.66	0.42	< 0.05	0.47
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.15	< 0.05	0.13
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.22	0.79	0.48	< 0.05	0.56
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.95	14.9	7.53	< 0.80	7.97
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	9.7	9.7	15	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.89	0.92	1.1	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	0.9	1	0.9	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.5	0.5	0.7	0.7
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	25	18	18	24	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	18	19	24	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	21	21	33	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	19	17	42	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	19	20	25	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	21	22	29	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58	68	58	93	80
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0~	< 5.0~	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0~	< 5.0~	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0^	< 5.0^	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0^	< 5.0^	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0^	< 5.0^	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0~	< 5.0~	< 5.0	< 5.0

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	10	< 10	< 10	12
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	14	< 10	< 10	15
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	14	< 10	< 10	15
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0##	-	-	< 5.0##	< 5.0##
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.09
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.52	-	-	0.06	0.51
Anthracene	mg/kg	0.05	MCERTS	0.06	-	-	< 0.05	0.07
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1	-	-	0.1	1.2
Pyrene	mg/kg	0.05	MCERTS	0.91	-	-	0.08	0.96
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.45	-	-	0.05	0.66
Chrysene	mg/kg	0.05	MCERTS	0.62	-	-	0.09	0.92
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.43	-	-	< 0.05	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.25	-	-	< 0.05	0.67
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.29	-	-	< 0.05	0.63
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.17	-	-	< 0.05	0.47
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.13
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.22	-	-	< 0.05	0.56

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Lab Sample Number				2742365	2742366	2742367	2742368	2742369
Sample Reference				TP28	WSS1	WSS2	TP02	TP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.60	0.20-0.20	0.20-0.20	0.25-0.25	0.30-0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.4	2.5
Total mass of sample received	kg	0.001	NONE	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	8.8
Electrical Conductivity	µS/cm	10	ISO 17025	220	590
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	32	150
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	0.075
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16	75.3
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.054	0.049
Redox Potential	mV	-800	NONE	260.4	214.5

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	< 0.30	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	< 1.3	< 1.3

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.08
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.68
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.32
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.39
Phenanthrene	mg/kg	0.05	MCERTS	0.22	4.3
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.2
Fluoranthene	mg/kg	0.05	MCERTS	0.54	15
Pyrene	mg/kg	0.05	MCERTS	0.43	11
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.39	8.3
Chrysene	mg/kg	0.05	MCERTS	0.69	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.7	14
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.28	4.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.32	8.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.09	2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.29	6.6
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.16	93.3
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	7.8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.98	5
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	0.6
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	21	24
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	47	44
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	57
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180	210
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	38
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	23
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	41
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	64
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	4.8
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	32
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	11	150
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	60
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	13	190
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	14	250
VOCs					
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0##	< 5.0##
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.08
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.68
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.32
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.39
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.22	4.3
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.2
Carbazole	mg/kg	0.3	MCERTS	< 0.3	0.5
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	1.6
Fluoranthene	mg/kg	0.05	MCERTS	0.54	15
Pyrene	mg/kg	0.05	MCERTS	0.43	11
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.39	8.3
Chrysene	mg/kg	0.05	MCERTS	0.69	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.7	14
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.28	4.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.32	8.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.09	2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.29	6.6

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Lab Sample Number				2742370	2742371
Sample Reference				TP03	TP05
Sample Number				None Supplied	None Supplied
Depth (m)				0.25-0.25	0.25-0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
PFAS Suite 3					
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2742340	TP23	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2742341	TP07	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2742342	TP26	None Supplied	0.6	Brown loam and clay with gravel and vegetation.
2742343	TP09	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2742344	TP10	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2742345	TP25	None Supplied	0.6	Brown loam and clay with gravel and vegetation.
2742346	TP08	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2742347	TP24	None Supplied	0.8	Brown loam and clay with gravel and vegetation.
2742348	TP12	None Supplied	0.3	Brown loam and clay with vegetation and stones.
2742349	TP30	None Supplied	0.5	Brown loam and clay with gravel and vegetation.
2742350	TP29	None Supplied	0.8	Brown loam and clay with gravel and vegetation.
2742351	TP13	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2742352	TP14	None Supplied	0.4	Brown loam and clay with gravel and vegetation.
2742353	TP14	None Supplied	1.2	Brown loam and clay with gravel and vegetation.
2742354	TP15	None Supplied	0.6	Brown loam and sand with gravel and stones.
2742355	TP17	None Supplied	0.3	Brown loam and sand with vegetation and stones.
2742356	TP16	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2742357	TP16	None Supplied	0.6	Brown clay with gravel.
2742358	TP22	None Supplied	0.2	Brown clay and loam with gravel and vegetation.
2742359	TP22	None Supplied	0.6	Brown clay and loam with gravel and vegetation.
2742360	TP18	None Supplied	0.65-0.65	Brown sand with gravel.
2742361	TP21	None Supplied	0.60-0.60	Brown loam and sand with gravel and vegetation.
2742362	TP20	None Supplied	0.50-0.50	Brown loam and sand with gravel and vegetation.
2742363	TP32	None Supplied	1.00-1.00	Brown loam and sand with gravel and vegetation.
2742364	TP27	None Supplied	0.40-0.40	Brown loam and sand with gravel and vegetation.
2742365	TP28	None Supplied	0.60-0.60	Brown loam and sand with gravel and vegetation.
2742366	WSS1	None Supplied	0.20-0.20	Brown loam and sand with gravel and vegetation.
2742367	WSS2	None Supplied	0.20-0.20	Brown loam and sand with gravel and vegetation.
2742368	TP02	None Supplied	0.25-0.25	Brown loam and sand with gravel and vegetation.
2742369	TP01	None Supplied	0.30-0.30	Brown loam and clay with gravel and vegetation.
2742370	TP03	None Supplied	0.25-0.25	Brown loam and sand with gravel and vegetation.
2742371	TP05	None Supplied	0.25-0.25	Brown loam and sand with gravel and vegetation.

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Phenols, speciated, in soil, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Electrical conductivity of soil	Determination of electrical conductivity in soil by electrometric measurement.	In-house method	L031-PL	D	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Redox Potential of soil	Determination of redox potential in soil by electrometric measurement.	In house method.	L084-PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Analytical Report Number : 23-44048
Project / Site name: Bro Tathan

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
EF - PFAS in soil by LC-MS/MS	PFAS suite 3 by LC-MS/MS	In-house method	UK	W	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE

Analytical Report Number : 23-44048
Project / Site name: Bro Tathan

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
~ - Quality control surrogate recovery outside of limits, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
^ - Data reported unaccredited due to quality control parameter failure associated with this result; The result should be considered as being deviating and may be compromised.

Sample Deviation Report

Analytical Report Number : 23-44048

Project / Site name: Bro Tathan

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP01	None Supplied	S	2742369	a	None Supplied	None Supplied	None Supplied
TP02	None Supplied	S	2742368	a	None Supplied	None Supplied	None Supplied
TP03	None Supplied	S	2742370	a	None Supplied	None Supplied	None Supplied
TP05	None Supplied	S	2742371	a	None Supplied	None Supplied	None Supplied
TP05	None Supplied	S	2742372	a	None Supplied	None Supplied	None Supplied
TP07	None Supplied	S	2742341	a	None Supplied	None Supplied	None Supplied
TP08	None Supplied	S	2742346	a	None Supplied	None Supplied	None Supplied
TP09	None Supplied	S	2742343	a	None Supplied	None Supplied	None Supplied
TP10	None Supplied	S	2742344	a	None Supplied	None Supplied	None Supplied
TP12	None Supplied	S	2742348	a	None Supplied	None Supplied	None Supplied
TP13	None Supplied	S	2742351	a	None Supplied	None Supplied	None Supplied
TP14	None Supplied	S	2742352	a	None Supplied	None Supplied	None Supplied
TP14	None Supplied	S	2742353	a	None Supplied	None Supplied	None Supplied
TP15	None Supplied	S	2742354	a	None Supplied	None Supplied	None Supplied
TP16	None Supplied	S	2742356	a	None Supplied	None Supplied	None Supplied
TP16	None Supplied	S	2742357	a	None Supplied	None Supplied	None Supplied
TP17	None Supplied	S	2742355	a	None Supplied	None Supplied	None Supplied
TP18	None Supplied	S	2742360	a	None Supplied	None Supplied	None Supplied
TP20	None Supplied	S	2742362	a	None Supplied	None Supplied	None Supplied
TP21	None Supplied	S	2742361	a	None Supplied	None Supplied	None Supplied
TP22	None Supplied	S	2742358	a	None Supplied	None Supplied	None Supplied
TP22	None Supplied	S	2742359	a	None Supplied	None Supplied	None Supplied
TP23	None Supplied	S	2742340	a	None Supplied	None Supplied	None Supplied
TP24	None Supplied	S	2742347	a	None Supplied	None Supplied	None Supplied
TP25	None Supplied	S	2742345	a	None Supplied	None Supplied	None Supplied
TP26	None Supplied	S	2742342	a	None Supplied	None Supplied	None Supplied
TP27	None Supplied	S	2742364	a	None Supplied	None Supplied	None Supplied
TP28	None Supplied	S	2742365	a	None Supplied	None Supplied	None Supplied
TP29	None Supplied	S	2742350	a	None Supplied	None Supplied	None Supplied
TP30	None Supplied	S	2742349	a	None Supplied	None Supplied	None Supplied
TP32	None Supplied	S	2742363	a	None Supplied	None Supplied	None Supplied
WSS1	None Supplied	S	2742366	a	None Supplied	None Supplied	None Supplied
WSS2	None Supplied	S	2742367	a	None Supplied	None Supplied	None Supplied

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Analytical Report Number : 23-45284

Project / Site name:	Bro Tathan Utilities Schedule 2	**Samples received on:**	17/07/2023
Your job number:	B048494	**Samples instructed on/ Analysis started on:**	17/07/2023
Your order number:		**Analysis completed by:**	25/07/2023
Report Issue Number:	1	**Report issued on:**	25/07/2023
Samples Analysed:	7 soil samples		

Signe[redacted]

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.3	19	13	13	24
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI	MWI	MWI	MWI
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.3	8.3	7.5	7.4	7.8
Electrical Conductivity	µS/cm	10	ISO 17025	-	-	180	240	200
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	47	15	9.4	33	19
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.024	0.0076	0.0047	0.016	0.0097
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23.7	7.6	4.7	16.4	9.7
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0072	0.0061	0.02	0.055	0.0064
Redox Potential	mV	-800	NONE	-	-	218.9	226.4	215.7
Phenols by HPLC								
Catechol	mg/kg	0.1	MCERTS	-	-	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	MCERTS	-	-	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	-	-	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	-	-	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	MCERTS	-	-	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	MCERTS	-	-	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	-	-	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	-	-	< 0.30	< 0.30	< 0.30
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	-	-	< 1.3	< 1.3	< 1.3
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.13	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.28	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	1.4	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	1.5	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.1	0.4	0.15	12	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.63	0.11	< 0.05	2.4	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	6.3	0.77	0.28	18	0.09
Pyrene	mg/kg	0.05	MCERTS	4.6	0.57	0.24	12	0.09
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.9	0.46	0.13	8.7	< 0.05
Chrysene	mg/kg	0.05	MCERTS	3.6	0.62	0.18	10	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.1	0.5	0.17	10	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2	0.2	0.08	4.4	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.6	0.28	0.12	6.2	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2	0.33	0.09	3.8	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.52	0.08	< 0.05	1.4	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.9	0.34	0.09	3.9	< 0.05

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	35.6	4.66	1.53	96.9	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.3	13	13	48	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.53	1.8	0.95	1.3	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.3	0.8	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	0.7	0.6	< 0.2	0.5
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	12	25	21	19	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	25	21	20	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	29	25	48	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44	19	25	100	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	39	21	34	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	21	26	35	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	43	71	100	54
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0~	< 5.0~	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	3.4	2.4	< 2.0	4.9	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	17	< 10	< 10	35	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	41	13	< 10	99	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	39	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	61	24	< 10	140	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	68	24	< 10	180	< 10

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,2-dichloroethane##	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Dibromomethane##	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane##	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	< 5.0	< 5.0

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Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	0.13	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	0.5	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	0.28	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	1.4	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	0.5	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	1.5	< 0.05
Azobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	0.15	12	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	2.4	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	1.1	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	0.5	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	-	< 0.3	2	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	0.28	18	0.09
Pyrene	mg/kg	0.05	MCERTS	-	-	0.24	12	0.09
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	0.13	8.7	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	0.18	10	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	0.17	10	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	0.08	4.4	< 0.05

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Lab Sample Number				2749785	2749786	2749787	2749788	2749789
Sample Reference				TP101	SA101	TP06A	TP11	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.00	0.30	0.20	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	0.12	6.2	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	0.09	3.8	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	1.4	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	0.09	3.9	< 0.05
PFAS Suite 3								
PFBS C4 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PHPS C5 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	-	-	1.3	-	-
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFOS C8 Sulphonate	µg/kg	0.1	NONE	-	-	53	-	-
PFNS C9 Sulphonate	µg/kg	0.1	NONE	-	-	0.5	-	-
PFDS C10 Sulphonate	µg/kg	0.1	NONE	-	-	0.3	-	-
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	-	-	< 0.1	-	-
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	-	-	0.2	-	-
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	-	-	0.8	-	-
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	-	-	6.4	-	-
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	-	-	1.2	-	-
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	-	-	1	-	-
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	-	-	2	-	-
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	-	-	1.4	-	-
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	-	-	2.2	-	-
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	-	-	0.7	-	-
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	-	-	0.1	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	15
Total mass of sample received	kg	0.001	NONE	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.2
Electrical Conductivity	µS/cm	10	ISO 17025	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	30	53
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.015	0.026
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	15.2	26.3
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0077	0.019
Redox Potential	mV	-800	NONE	-	-

Phenols by HPLC

Catechol	mg/kg	0.1	MCERTS	-	-
Resorcinol	mg/kg	0.1	MCERTS	-	-
Cresols (o-, m-, p-)	mg/kg	0.3	MCERTS	-	-
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	MCERTS	-	-
2-Isopropylphenol	mg/kg	0.1	MCERTS	-	-
Phenol	mg/kg	0.1	MCERTS	-	-
Trimethylphenol (2,3,5-)	mg/kg	0.1	MCERTS	-	-
Total Xylenols and Ethylphenols	mg/kg	0.3	MCERTS	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Phenols (HPLC)	mg/kg	1.3	NONE	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.08
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.1	0.89
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.19
Fluoranthene	mg/kg	0.05	MCERTS	0.2	2.6
Pyrene	mg/kg	0.05	MCERTS	0.2	2.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.13	2
Chrysene	mg/kg	0.05	MCERTS	0.23	2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.19	2.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.09	0.95
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.14	1.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.14	1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.26
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.2	1.1

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Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.62	17.6
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.93	0.76
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.7
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	20	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	41
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	58
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	140
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	< 5.0~	< 5.0~
Toluene	µg/kg	5	MCERTS	< 5.0~	< 5.0~
Ethylbenzene	µg/kg	5	MCERTS	< 5.0~	< 5.0~
p & m-xylene	µg/kg	5	MCERTS	< 5.0~	< 5.0~
o-xylene	µg/kg	5	MCERTS	< 5.0~	< 5.0~
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0~	< 5.0~
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.1	NONE	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	37
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	30
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	45
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	75

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Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/kg	5	ISO 17025	-	-
Chloroethane	µg/kg	5	NONE	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-
1,1-dichloroethene	µg/kg	5	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	-
1,1-dichloroethane	µg/kg	5	ISO 17025	-	-
2,2-Dichloropropane	µg/kg	5	ISO 17025	-	-
Chloroform	µg/kg	5	NONE	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,2-dichloroethane##	µg/kg	5	ISO 17025	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-
Benzene	µg/kg	5	MCERTS	-	-
Carbontetrachloride	µg/kg	5	NONE	-	-
1,2-dichloropropane	µg/kg	5	ISO 17025	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-
Dibromomethane##	µg/kg	5	ISO 17025	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Toluene	µg/kg	5	MCERTS	-	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-
1,2-Dibromoethane##	µg/kg	5	ISO 17025	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-
p & m-xylene	µg/kg	5	MCERTS	-	-
Styrene	µg/kg	5	ISO 17025	-	-
Bromoform	µg/kg	5	NONE	-	-
o-xylene	µg/kg	5	MCERTS	-	-
Isopropylbenzene	µg/kg	5	ISO 17025	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Bromobenzene	µg/kg	5	NONE	-	-
N-Propylbenzene	µg/kg	5	ISO 17025	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	-	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	-	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	-	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	-	-

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Butylbenzene	µg/kg	5	NONE	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Azobenzene	mg/kg	0.3	NONE	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-

Analytical Report Number: 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Lab Sample Number				2749790	2749791
Sample Reference				ESS1	ESS2
Sample Number				None Supplied	None Supplied
Depth (m)				0.20	0.20
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-

PFAS Suite 3

PFBS C4 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PHPS C5 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFHxS C6 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFHpS C7 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFOS C8 Sulphonate	µg/kg	0.1	NONE	0.1	0.1
PFNS C9 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFDS C10 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFUdS C11 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFDoS C12 Sulphonate	µg/kg	0.1	NONE	< 0.1	< 0.1
PFBA C4 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFPeA C5 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFHxA C6 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFHpA C7 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFOA C8 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFNA C9 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFDA C10 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFUdA C11 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1
PFDoA C12 Carboxylic acid	µg/kg	0.1	NONE	< 0.1	< 0.1

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2749785	TP101	None Supplied	0.4	Brown loam and sand with gravel and vegetation.
2749786	SA101	None Supplied	1	Brown clay and loam with vegetation.
2749787	TP06A	None Supplied	0.3	Brown clay and loam with gravel and vegetation.
2749788	TP11	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
2749789	TP19	None Supplied	0.4	Brown clay and sand.
2749790	ESS1	None Supplied	0.2	Brown clay and sand with gravel.
2749791	ESS2	None Supplied	0.2	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Phenols, speciated, in soil, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Electrical conductivity of soil	Determination of electrical conductivity in soil by electrometric measurement.	In-house method	L031-PL	D	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Redox Potential of soil	Determination of redox potential in soil by electrometric measurement.	In house method.	L084-PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Analytical Report Number : 23-45284
Project / Site name: Bro Tathan Utilities Schedule 2

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
EF - PFAS in soil by LC-MS/MS	PFAS suite 3 by LC-MS/MS	In-house method	UK	W	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
~ - Quality control surrogate recovery outside of limits, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Sample Deviation Report

Analytical Report Number : 23-45284

Project / Site name: Bro Tathan Utilities Schedule 2

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
ESS1	None Supplied	S	2749790	a	None Supplied	None Supplied	None Supplied
ESS2	None Supplied	S	2749791	a	None Supplied	None Supplied	None Supplied
SA101	None Supplied	S	2749786	a	None Supplied	None Supplied	None Supplied
TP06A	None Supplied	S	2749787	a	None Supplied	None Supplied	None Supplied
TP101	None Supplied	S	2749785	a	None Supplied	None Supplied	None Supplied
TP11	None Supplied	S	2749788	a	None Supplied	None Supplied	None Supplied
TP19	None Supplied	S	2749789	a	None Supplied	None Supplied	None Supplied

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Analytical Report Number : 23-45291

Project / Site name:	Bro Tathan Utilities Schedule 2	**Samples received on:**	17/07/2023
Your job number:	B048494	**Samples instructed on/ Analysis started on:**	17/07/2023
Your order number:		**Analysis completed by:**	25/07/2023
Report Issue Number:	1	**Report issued on:**	25/07/2023
Samples Analysed:	6 10:1 WAC samples		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749838 / 2749839				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP101						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	2.3				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	34.4				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.2				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0038			0.0379	0.5	2	25
Barium *	0.140			1.40	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	< 0.0004			< 0.0040	0.5	10	70
Copper *	0.0057			0.057	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0048			0.0478	0.5	10	30
Nickel *	0.0012			0.012	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0039			0.039	4	50	200
Chloride *	1.0			10	800	15000	25000
Fluoride*	0.84			8.4	10	150	500
Sulphate *	7.6			76	1000	20000	50000
TDS*	69			690	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.89			88.9	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	97						
Moisture (%)	3.3						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749840 / 2749841				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SA101						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	0.7				3%	5%	6%
Loss on Ignition (%) **	3.2				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	3.33				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.1				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0036			0.0359	0.5	2	25
Barium *	0.0046			0.0459	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0014			0.014	0.5	10	70
Copper *	0.0022			0.022	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0016			0.0161	0.5	10	30
Nickel *	0.0007			0.0066	0.4	10	40
Lead *	0.0017			0.017	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0038			0.038	4	50	200
Chloride *	1.7			17	800	15000	25000
Fluoride*	0.27			2.7	10	150	500
Sulphate *	0.91			9.1	1000	20000	50000
TDS*	34			340	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	14.6			146	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	81						
Moisture (%)	19						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749842 / 2749843				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP06A						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	2.2				3%	5%	6%
Loss on Ignition (%) **	5.8				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	1.01				100	--	--
pH (units)**	7.1				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.55				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.0035			0.0345	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0008			0.0078	0.5	10	70
Copper *	0.0053			0.054	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0009			0.0092	0.5	10	30
Nickel *	0.0004			0.0037	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0027			0.027	4	50	200
Chloride *	1.5			15	800	15000	25000
Fluoride*	0.52			5.2	10	150	500
Sulphate *	0.80			8.0	1000	20000	50000
TDS*	62			620	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	17.5			175	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749844 / 2749845				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP11						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	4.9				3%	5%	6%
Loss on Ignition (%) **	20.8				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	15				500	--	--
Total PAH (WAC-17) (mg/kg)	91.9				100	--	--
pH (units)**	7.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.20				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0045			0.0453	0.5	2	25
Barium *	0.0375			0.375	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0086	0.5	10	70
Copper *	0.012			0.12	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0025			0.0248	0.5	10	30
Nickel *	0.0016			0.016	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0050			0.050	4	50	200
Chloride *	1.6			16	800	15000	25000
Fluoride*	0.17			1.7	10	150	500
Sulphate *	1.9			19	1000	20000	50000
TDS*	92			920	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	12.0			120	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749846 / 2749847				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	ESS1						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	3.5				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	1.47				100	--	--
pH (units)**	7.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.2				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0037			0.0367	0.5	2	25
Barium *	0.0075			0.0749	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0008			0.0079	0.5	10	70
Copper *	0.0078			0.078	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0020			0.0204	0.5	10	30
Nickel *	0.0008			0.0081	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0057			0.057	4	50	200
Chloride *	0.94			9.4	800	15000	25000
Fluoride*	0.38			3.8	10	150	500
Sulphate *	1.6			16	1000	20000	50000
TDS*	67			670	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.5			115	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	85						
Moisture (%)	15						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

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Waste Acceptance Criteria Analytical Results

Report No:	**23-45291**						
					Client:	**TETRATECH**	
Location	**Bro Tathan Utilities Schedule 2**						
Lab Reference (Sample Number)	2749848 / 2749849				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	ESS2						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	1.9				3%	5%	6%
Loss on Ignition (%) **	4.7				--	--	10%
BTEX (µg/kg)**~	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	12.5				100	--	--
pH (units)**	7.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	6.3				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0025			0.0249	0.5	2	25
Barium *	0.0269			0.269	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0004			0.0043	0.5	10	70
Copper *	0.0095			0.095	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0022			0.0225	0.5	10	30
Nickel *	0.0009			0.0091	0.4	10	40
Lead *	0.0019			0.019	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0040			0.040	4	50	200
Chloride *	1.3			13	800	15000	25000
Fluoride*	0.38			3.8	10	150	500
Sulphate *	3.3			33	1000	20000	50000
TDS*	71			710	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.4			114	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	85						
Moisture (%)	15						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

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Analytical Report Number : 23-45291
Project / Site name: Bro Tathan Utilities Schedule 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2749838	TP101	None Supplied	0.4	Brown loam and sand with gravel and vegetation.
2749840	SA101	None Supplied	1	Brown clay and loam with vegetation.
2749842	TP06A	None Supplied	0.3	Brown clay and loam with gravel and vegetation.
2749844	TP11	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
2749846	ESS1	None Supplied	0.2	Brown clay and sand with gravel.
2749848	ESS2	None Supplied	0.2	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 23-45291
Project / Site name: Bro Tathan Utilities Schedule 2

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025

Analytical Report Number : 23-45291
Project / Site name: Bro Tathan Utilities Schedule 2

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W	ISO 17025
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

~ - Quality control surrogate recovery outside of limits, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Sample Deviation Report

Analytical Report Number : 23-45291

Project / Site name: Bro Tathan Utilities Schedule 2

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
ESS1	None Supplied	L	2749847	a	None Supplied	None Supplied	None Supplied
ESS1	None Supplied	S	2749846	a	None Supplied	None Supplied	None Supplied
ESS2	None Supplied	L	2749849	a	None Supplied	None Supplied	None Supplied
ESS2	None Supplied	S	2749848	a	None Supplied	None Supplied	None Supplied
SA101	None Supplied	L	2749841	a	None Supplied	None Supplied	None Supplied
SA101	None Supplied	S	2749840	a	None Supplied	None Supplied	None Supplied
TP06A	None Supplied	L	2749843	a	None Supplied	None Supplied	None Supplied
TP06A	None Supplied	S	2749842	a	None Supplied	None Supplied	None Supplied
TP101	None Supplied	L	2749839	a	None Supplied	None Supplied	None Supplied
TP101	None Supplied	S	2749838	a	None Supplied	None Supplied	None Supplied
TP11	None Supplied	L	2749845	a	None Supplied	None Supplied	None Supplied
TP11	None Supplied	S	2749844	a	None Supplied	None Supplied	None Supplied

APPENDIX E: CIRIA C552 RISK METHODOLOGY

The following tables are derived from CIRIA C552 and have been used to define the risk rating presented in the Qualitative Risk Assessment matrix.

Classification of consequence

Classification	Definition
Severe	Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution (note; Water Resources Act contains no scope for considering significant pollution) of sensitive water resource. Catastrophic damage to building/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Medium	Chronic damage to human health ('significant harm', as defined In DETR, 2000). Pollution of sensitive water resources (note; Water Resources Act contains no scope for considering significant pollution). A significant change in a particular ecosystem, or an organism forming part of such an ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm', as defined In DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Classification of probability

Classification	**Definition**
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period that such an event would take place, and is even less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Matrix of consequence against probability to gain a risk classification

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High Likelihood**	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low likelihood	Moderate Risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk