Network Space Developments Limited B029129

Shaw Lane, Carlton

Ground Investigation Report

TETRA TECH

Version 1

January 2022

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Ground Investigation Report

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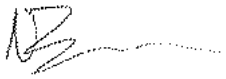

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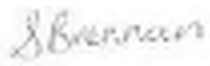

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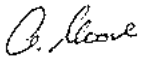

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EXECUTIVE SUMMARY

The Site	The site is located north of Shaw Lane, Carlton, Barnsley S71 3HJ and comprises an agricultural field with a pond located to the centre north onsite.
Ground Investigation	The Ground investigation comprised: • Five window sample boreholes to a maximum depth of 5.18m bgl; • Seven trial pits to a maximum depth of 3.40m bgl • Three soakaway pits to a maximum depth of 1.60m bgl testing in accordance with DG BRE365:2016 • Three gas monitoring visits
Ground Conditions	• Made Ground was encountered across site on average 0.60m thick and comprised reworked topsoil of sandy gravelly clay underlain by reworked natural strata comprising of brown sandy gravelly clay. • Evidence of infilled ground was encountered as brown grey sandy gravelly clay to a maximum depth of 1.60m bgl located to the north onsite. • Made Ground is underlain by Superficial glacial strata comprising firm to stiff, orange brown sandy gravelly clay and locally grey orange brown gravelly silty sand recorded up to 3.00m bgl. • Weathered bedrock was encountered in thirteen of fifteen exploratory holes between 0.40m and 2.50m bgl, observed as shallower toward the south onsite.
Geotechnical Assessment	Based on the proposed residential end-use, encountered strata and testing: • Traditional strip foundations are recommended. However, deeper trench fill should be utilised in areas of deep Made Ground. • A minimum foundation depth of 1.00m is required due to high volume change potential of cohesive strata. • Ground bearing floor slabs may be practicable subject to rigorous preparation of the sub-grade. • Soakaway drainage is not considered to be feasible. • The design classification for concrete is DS-2 and an ACEC class of AC-2. • Contractors should make an allowance for pumping operations to maintain dry working conditions.
Contamination Screening	Environmental laboratory testing indicates that: • Elevated Benzo(a)pyrene was identified from two samples in DS04. • Trace asbestos (<0.001%) was detected in one of five samples.
Hazwaste Assessment	Selected samples indicate soils should be classified as non-hazardous with respect to off-site disposal. Soils may be reclassified as inert subject to additional testing.
Preliminary Ground Gas Assessment	A preliminary ground gas risk assessment classifies the site as CS2 / Amber 1. However, further gas monitoring is recommended in accordance with NHBC guidance.
Refined Risk Assessment	The risk posed by on site sources of contamination is considered to be **low to locally moderate** to future site users. The risk to construction workers is considered to be **high** due to on site sources of contamination.
Conclusions & Recommendations	Recommended further works comprise: • Additional ground gas monitoring; • Targetted investigation along routes of proposed water supply pipelines; • CBR testing to inform pavement design; • Further dynamic sampling to inform detailed foundation design; and • Geotechnical laboratory testing to determine the volume change potential and assess whether heave precautions are required.

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B029129-TTE-00-00-DR-U-0002 (Exploratory Hole Location Plan)

APPENDICES

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 Hydrocarbons
PCB	Poly Chlorinated Biphenyl
PPE	Personal Protective 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 Hydrocarbons
TSV	Tier 1 Screening Values
VOC	Volatile Organic Compounds
VPH	Volatile Petroleum Hydrocarbons

1.0 INTRODUCTION

1.1 INSTRUCTION

Following completion of a Desk Top Study (DTS) for the site in August 2019 by WYG (now Tetra Tech), Tetra Tech was commissioned by Network Space Developments Limited (the Client) to undertake Ground Investigation works at Shaw Lane, Carlton, S71 3HJ hereafter referred to as “the site”.

The location of the site is shown on Drawing: B029129-TTE-00-00-DR-U-0001 – Site Location Plan.

1.2 BRIEF & SCOPE OF SERVICES

The brief was to provide a Phase 2 Ground Investigation Report detailing the encountered ground conditions and provide a geotechnical and contamination risk assessment to support the planning application for a new residential development with private gardens, public open space and areas of hard and soft landscaping.

This report includes the following key elements:

- Full factual records of the site works carried out;
- Summary of the ground conditions encountered;
- In-situ test results;
- Environmental laboratory test results;
- Geotechnical laboratory test results;
- Interpretation of geo-environmental laboratory data, including a qualitative ground contamination risk assessment (compliant with CIRIA 552 (CIRIA, 2001) methodology); and
- An executive summary of the report to allow a rapid, layman's overview.

1.3 PROPOSED DEVELOPMENT

It is understood that the site is to be developed with a residential development with private gardens and areas of public open space as well as areas of soft and hard landscaping in line with the proposed masterplan drawing P3921-SPA-XX-ZZ-00-M2-MP-10-005-Illustrative Masterplan produced by Spawforths dated January 2022 and the landuse table as detailed below provided by the client.

Table 1-1 – Landuse Table

Total	**7.57**				
Land Use	Area (ha)	Area (Acres)	Homes	Density (DPH)	Area %
Residential (Medium Density)	2.46	6.07	82	33.4	32%
Residential (High Density)	3.28	8.10	133	40.6	43%
POS inc Local Area of Equipped Play	1.14	2.82			15%
SUDS	0.293	0.72			4%
Infrastructure	0.402	0.99			5%
Total	7.57	18.71	215		

1.4 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.

The information contained in this report is intended for the use of Network Space Developments Limited 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. This report is subject to the conditions presented in Appendix A.

2.0 SUMMARY OF SITE INFORMATION

2.1 LOCATION

Key details for the site are provided in Table 2.1 below and a full summary of the site is provided within the Geo Environmental Desk Top Study dated August 2019 and is described on Drawing B029129-TTE-00-XX-DR-U-0001 (Site Location Plan).

Table 2-1 – Site Address and Size

Item	Detail
Address	Shaw Lane, Barnsley, S71 3HJ
National Grid Reference	SE374102
Area of Proposed Development	Approximately 7.6 Hectares

2.2 SITE DESCRIPTION

The site comprises an agricultural field with a vegetated pond to the centre north. The site is bound to the east by a palisade fence and vegetated railway embankment, to the north, south and west by a vegetated drainage ditch which was noted as being dry during the ground investigation.

Overhead cables were noted to the centre east onsite running from the north to south toward a Yorkshire Water pumping station. To the east onsite is a recorded 4" rising water main, with raised chambers dotted along the field, which runs north to south toward the Yorkshire Water pumping station. Both service providers were contacted prior to works who delineated clearance parameters for plant and the Ground Investigation works. A 6.00m stand off and 6.60m clearance was set for the overhead lines by Northern Powergrid and a 3.00m standoff was delineated by Safe Move of Yorkshire Water for the rising main.

Anecdotal evidence described an 18" diameter land drain running from the pond to the drainage ditch on the southern boundary which was installed by the current tenant farmer. As part of the prestart site walkover this was found on the eastern side of the pond and in the southern drainage ditch with the approximate route shown on Drawing B029129-TTE-00-XX-DR-U-0002 (Exploratory Hole Location Plan).

The surrounding land uses are summarised in Table 2.2 below.

Table 2-2 – Site Surrounds

Item	Detail
North	Agricultural fields
East	A railway line orientated north to south beyond which, there is an industrial yard
South	Shaw Lane, beyond which, open land is located with a small number of residential properties and a Yorkshire Water pumping station.
West	Agricultural land, beyond which, Barnsley Canal is located.

3.0 TETRA TECH 2021 SITE INVESTIGATION

Tetra Tech undertook a Ground Investigation onsite between 13th and 15th September 2021. Following the Ground Investigation works preliminary ground gas monitoring comprising of three visits were undertaken and completed on the 19th October 2021.

3.1 SCOPE

The works were undertaken in general accordance with BS 10175: Code of Practice for Site Investigations of Potentially Contaminative Sites, BS 5930, BS EN1997-2, BS EN ISO 14688/9 and BS 8576.

The scope of the completed Ground Investigation works were as follows

- Five window sample boreholes to a maximum depth of 5.18m bgl with insitu testing;
- Seven trial pits to a maximum depth of 3.40m bgl
- Three soakaway test pits to a maximum depth of 1.60m bgl testing in accordance with DG BRE365:2016
- Installation of five 50mm dia. ground gas and groundwater monitoring wells;
- On-site inspection and logging of recovered samples;
- Representative soil sampling for geotechnical laboratory classification testing;
- Representative soil sampling for chemical laboratory analyses;
- Three return visits to monitor ground gas composition and groundwater levels.

Drawing No. B029129-TTE-00-XX-DR-U-0002 (Exploratory Hole Location Plan) shows the layout of the exploratory holes advanced during the site investigation in relation to the existing known services.

Exploratory borehole logs are presented in Appendix B.

4.0 ENCOUNTERED GROUND CONDITIONS

4.1 STRATA ENCOUNTERED

A summary of each strata is detailed in the subsequent sections. Exploratory hole logs are described in Appendix B with photographic plates available in Appendix C.

4.2 MADE GROUND

Made Ground was encountered across site in all exploratory hole locations during this investigation typically comprising of a reworked topsoil due to the current landuse as an agricultural field. The topsoil typically comprised sandy gravelly clay and was locally a clayey gravelly sand in TP02. The Topsoil was found to be between 0.20m and 0.55m thick. The gravels within the topsoil across the site were found to comprise of sandstone, mudstone, brick, quartzite, coal and ceramic with local cobbles of sandstone and brick. In DS04, clinker was described within the topsoil strata between ground level and 0.20m bgl. Sand is locally described as ash in DS01 and DS02 located along the southern boundary.

The Topsoil was typically underlain by natural strata and locally reworked natural strata comprising of brown sandy gravelly clay to a depth of 0.80m bgl.

Locally evidence of deeper infilled ground was present in the central northern area of the site and as identified by the desk study as a historic marsh. Infill is recorded as underlying the Topsoil and typically described as cohesive strata of brown-grey sandy gravelly clay in TP02 and TP03 to a maximum depth of 1.40m bgl with localized fragments of plastic, timber and metal. In DS04, it is described as silty sand and gravel with cobbles overlying grey sandy gravelly clay with cobbles of brick and gravels of clinker, ceramic, brick, sandstone, mudstone and coal.

The infilled ground is underlain by natural strata in DS04 at 1.30m, reworked natural strata in TP02 described as having an organic odour and in TP02 between 0.70 and 1.00m bgl. The Made Ground is described as overlying a Relic Topsoil in TP03 between 1.40m and 1.60m bgl with the engineer describing decaying cropped vegetation with a similar appearance as to present vegetation.

Typically, the Made Ground was on average 0.60m in thickness.

4.3 SUPERFICIAL DEPOSITS

Superficial glacial strata was encountered in the majority of exploratory holes and comprised of granular and cohesive beds. The cohesive strata was more abundant across site and typically comprised a firm to stiff orange brown sandy gravelly clay with the granular strata comprising grey orange brown gravelly silty sand. The superficial strata was noted as being recorded up to 3.00m bgl in TP03 where the trial pit was terminated due to being unable to progress.

4.4 BEDROCK

Weathered bedrock of the Pennine Middle Coal Measures (PMCM) was encountered across site predominantly as stiff grey-brown sandy gravelly clay and was locally recovered as clayey sandy gravel (TP01, TP05, TP07 and DS03). Weathered bedrock strata was encountered from 0.40m bgl in SA03 with bedrock recorded as being generally shallower toward the south onsite. Bedrock was not encountered within SA01 and TP03 which were located to the north onsite which was consistent with the BGS sheet 87 for Barnsley.

4.5 VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

Visual and olfactory evidence of contamination was noted in two boreholes and describes ash material in DS01 between ground level and 0.40m bgl and in DS02 between ground level and 0.40m bgl.

No elevated PID readings were recorded in any of the samples tested.

4.6 GROUNDWATER

Groundwater seepage was observed during the Ground Investigation in TP01 from 1.70m bgl with more significant inflow from 2.05m before rising back to 1.70m bgl. Seepage was also recorded in TP03 from 2.20m bgl with more significant inflow from 3.00m bgl before rising to 2.80m bgl.

Groundwater monitoring has been monitored as part of the gas monitoring works with three visits being undertaken following the completion of the Ground Investigation. The groundwater monitoring data is presented in Appendix J and is summarised in Table 4.1 below.

Table 4-1 – Groundwater Levels Post Investigation

Location	Base of borehole (m bgl)	Depth to water (m bgl)		
		Shallowest	Mean	Deepest
DS01	2.85	1.75	1.89	2.00
DS02	2.78	1.42	1.49	1.58
DS03	2.84	DRY	DRY	DRY
DS04	2.84	1.69	1.75	1.86
DS05	2.38	1.09	1.15	1.21

4.7 OBSTRUCTIONS

No obstructions were encountered in any of the exploratory holes during the investigation.

5.0 LABORATORY TESTING

5.1 ENVIRONMENTAL TESTING

Environmental chemistry was investigated by specialist chemical analysis of selected soil samples carried out by Element Materials Technology, an approved supplier in accordance with the requirements of Tetra Tech's 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 5.1 for soil samples. The test results are included in Appendix E.

Table 5-1 - Summary of Environmental Testing

Test Suite	No.
Soil Samples: ○ Heavy metals including Chromium (Hexavalent), Boron (water soluble), Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium and Zinc; ○ Inorganics – including pH, Water soluble Sulphate as SO_4 (2:1 Extract), Cyanide (free); ○ Speciated Polyaromatic Hydrocarbons (USEPA 16); and, ○ Phenol.	10
Speciated Petroleum Hydrocarbons (TPH CWG); BTEX and MTBE;	5
Asbestos Screen	5
Asbestos Quantification Testing	1
Two Stage Waste Acceptance Criteria testing (S)	3

5.2 GEOTECHNICAL TESTING

A programme of laboratory classification 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 Professional Soils Laboratory (PSL) and their sub-contractor Chemtech Environmental Ltd, approved suppliers in accordance with the requirements of Tetra Tech's 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 5.2. Laboratory geotechnical test result certificates are presented in Appendix D.

Table 5-2 –Geotechnical Testing

Test	No.	Test Method
Moisture Content	10	BS1377:1990 Part 2:3.2
Atterberg Limits	10	BS1377:1990 Part 2:4.3&5.3
Particle Size Distribution (PSD) – Wet Sieve	9	BS1377:1990 Part 2:9.2
Sedimentation Analysis (Pipette)	9	BS1377:1990 Part 2:9.4
pH and Water-Soluble Sulphate	5	BS1377:1990 Part 3 & BRE CP2/79 (non-accredited test)

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 1.0m, 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.

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

Assessment of Total Petroleum Hydrocarbons (TPH-CWG) concentrations has been made with reference to the UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils (Science Report P5-080/TR5), Environment Agency, 2005. This calculates the combined toxicological effects of the TPH fractions by calculation of a Hazard Index, which if greater than one may indicate a potential risk to human health.

6.2.2 Proposed End Use

The proposed development on site will consist of residential properties with private gardens and areas of public open space. As such the following screening assessment has been undertaken against a residential with plant uptake end use scenario.

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%).

The Total Organic Carbon (TOC) of the samples tested with an average value of 2.28. Soil Organic Matter (SOM) is calculated as *SOM* (%) = (Average *TOC)*/0.58

The above equation gives SOM of 3.93%. To this end, a SOM of 2.5% has been applied. If required following the initial screening the SOM will be reviewed in light of applying more site-specific screening criteria.

6.3 TIER 1 – SOIL SCREENING

The Culp Study was utilized for screening of the soil PAH against benzo(a)pyrene which is provided in Appendix G.

Elevated benzo(a)pyrene was reported in DS04 at 0.1m (11.17mg/kg) and 0.5m bgl (5.04mg/kg). As the level of benzo(a)pyrene at 0.5m bgl only marginally exceeds the screening criteria of 5.0 mg/kg, a risk to human health is considered unlikely.

The elevated benzo(a)pyrene concentration at DS04 is likely linked with the presence of clinker within the soil at this location (see exploratory boreholes logs in Appendix B) and may be considered a risk to human health. If soil in this area is not removed from site, it should be placed beneath hardstanding or, if used in soft landscaped areas, it should be placed beneath a ‘suitably clean’ cover system to break any pathway to contamination.

A summary table of all the data is also presented in Appendix G.

6.4 ASBESTOS

The asbestos screening process undertaken by Tetra Tech EPT identified asbestos in one of the five tested samples of Made Ground strata. Chrysotile asbestos fibre bundle were detected in SA01 ES1 at 0.30m.

Quantification testing found the concentration to be <0.001% of chrysotile of asbestos containing materials in SA01. Soil containing asbestos or asbestos containing materials is not suitable for re-use unless placed beneath hardstanding, or if placed beneath soft standing, it must be placed beneath a ‘suitably clean’ cover system with geotextile membrane to break any pathways to the receptor. Due to the nature and historic land use of the site, asbestos is not considered to pose a significant risk to development, however, it may likely pose a risk to construction workers where redevelopment is taking place.

6.5 PRELIMINARY WATER PIPES ASSESSMENT

Based on the geo-environmental testing undertaken onsite, it is anticipated that no special precautions are like to be required for water supply pipes. However, targeted testing along the proposed supply routes, in accordance with the water provider’s specifications and UKWIR, is recommended.

7.0 PRELIMINARY WASTE ASSESSMENT

Waste classification is a two-stage process, with the first step comprising a hazard assessment of the soil quality data in line with the guidance set out in the Environment Agency waste classification technical guidance WM32 document. Once the hazardous properties of the materials are known, the second step is to assess the potential performance of the materials in a landfill, undertaken by considering the results of waste acceptance criteria (WAC) testing.

7.1 WASTE CHARACTERISATION

Tetra Tech has undertaken a preliminary exercise using the proprietary web-based tool HazWasteOnline™ to characterise the soils encountered in the investigation. The software follows Environment Agency guidance and European regulations. Assessment sheets are presented in Appendix I.

Based on the HazWasteOnline™ output, the soils sampled in the Made Ground may be classified as non-hazardous (10 samples). Three samples within the natural ground are classified as non-hazardous. The results of the output are included in Appendix I.

One soil sample (DS04 at 0.50m) showed elevated concentrations of Extractable Petroleum Hydrocarbon (EPH) however, this value is representative of both natural organic and petroleum based material. The TPH values, at DS04, were below the hazardous threshold and therefore not considered to be hazardous.

This assessment is based on non-targeted samples i.e. may not be representative of soils to be disposed of and further testing and waste classification would be required when / if material identified as requiring removal and disposal is confirmed.

7.2 ASBESTOS

A manual review of the laboratory asbestos data was undertaken which indicated asbestos has been identified in one sample SA01 ES1 at 0.30m. Quantification has been undertaken which shows the Total Gravimetric Quantification to be <0.001% which is below the hazardous threshold of 0.1% so therefore non-hazardous.

7.3 WASTE ACCEPTANCE CRITERIA TESTING

As part of the laboratory analysis, three samples were scheduled for Waste Acceptance Criteria (WAC) testing. The WAC analysis results are used by waste facilities to determine whether that facility can accept the material. The results of the WAC testing are included in Appendix E.

WAC testing was undertaken on two samples of Made Ground (DS04 at 0.1m bgl and TP03 at 1.0m bg) and one sample of natural strata (SA02 at 0.6m bgl). These three samples were all classified as non-hazardous during the waste characterisation. The results for samples SA02 and TP03 are compliant with inert landfill criteria. The results for sample DS04 exceeded inert criteria for sum of PAHs and Total Organic Carbon (TOC).

The initial WAC testing indicates that, if suitable segregation of the waste is undertaken, some of the non-hazardous material may be accepted by an inert waste landfill. However, additional testing when soils are to be disposed of off-site should be undertaken and liaison undertaken with the landfill to discuss the results of the testing to ensure soils are designated to their suitable facility.

[2] Environment Agency 2018. Technical Guidance WM3: Guidance on the classification and assessment of waste (Version 1.1).

7.4 MATERIALS MANAGEMENT

Any material excavated on site may be classified as waste and it is the responsibility of the holder of a material to form their own view on whether or not it is waste. This includes determining when waste that has been treated in some way can cease to be classed as waste for a particular purpose.

If site-won material is to be reused on site, or soils other than primary aggregate or aggregates produced under the WRAP Protocol, imported to site, a Materials Management Plan will be required, signed off by a Qualified Person as defined in the 'Development Industry Code of Practice' (CL:AIRE, 2011).

8.0 PRELIMINARY GROUND GAS ASSESSMENT

8.1 INTRODUCTION

Following the Ground Investigation works preliminary ground gas monitoring comprising of three visits have been undertaken between 21st September and 19th October 2021.

All of the dynamic sampled boreholes were installed with dual purpose ground gas and groundwater monitoring installations, the locations of which are shown on the Drawing B029129-TTE-00-00-DR-U-0002 (Exploratory Hole Location Plan).

8.2 GROUND GAS RESULTS

Table 8.2 below summarises ground gas monitoring to date. Full results are presented in Appendix J along with calibration certificates for the GA5000 gas analyser and Mini Rae 3000 PID used for gas and VOC monitoring respectively.

Table 8-2 – Summary of Ground Gas Monitoring Data

Location	Max. Methane (peak) (% vol)	Max. Carbon Dioxide (peak) (% vol)	Min. Oxygen (steady) (% vol)	Max. Carbon Monoxide (steady) (ppm)	Max. Hydrogen Sulphide (steady) (ppm)	Max. Borehole flow (Steady) (l/h)
DS01	0.10	7.90	1.20	3.00	1.00	0.20
DS02	0.10	3.10	17.00	1.00	0.00	0.30
DS03	0.10	2.60	19.00	1.00	0.00	0.30
DS04	0.10	3.40	16.80	1.00	0.00	0.30
DS05	0.10	1.30	18.80	1.00	0.00	0.30

Note: Results based on steady readings.

No elevated PID recordings were detected.

8.3 CARBON MONOXIDE AND HYDROGEN SULPHIDE

Maximum concentrations of carbon monoxide (3ppm in DS01) and hydrogen sulphide (1ppm in DS01). The recorded concentrations are considered to be suitably low to negate the requirement for additional risk assessment.

8.4 ATMOSPHERIC PRESSURE TRENDS

The gas monitoring undertaken to date have been obtained in varied atmospheric conditions with one result from each rising, falling and steady atmospheric conditions with one visit undertaken in low pressure conditions.

8.5 PRELIMINARY GROUND GAS ASSESSMENT

Ground gas results have been assessed using the CIRIA C665 document Assessing Risks posed by Hazardous Ground Gases to Buildings (2007) and BS:8485(2015) +A1:2019 and NHBC Traffic Light guidance. The assessment methodology is based on both volume percentages and volume flow rate of gases. In accordance with the CIRIA and BS:8485 methodology, a conservative Gas Screening Value (GSV) has been calculated

using a worst-case scenario (i.e. highest peak gas concentration combined with highest steady state flow rate). Where readings are not recorded above the instrument detection limit, the value of the instrument detection limit is used to calculate the GSV. The calculation of the GSV is as follows:

- Gas Screening Value = Gas Concentration in % divided by 100 then multiplied by flow rate in l/h.

Steady State Emission (0.30l/h) Flow Rate

- 7.90% CO_2 x 0.30 l/hr = 0.0237 l/hr CO2
- 0.10% CH_4 x 0.30 l/hr = 0.0003 l/hr CH4

The above GSV for Carbon Dioxide results in a ground gas risk classification of Characteristic Situation 1 (CS1) i.e. no special precautions are required.

However, a peak concentration of CO_2 at 7.9% is recorded as the worst case for the whole site. CIRIA C665 and NHBC guidance indicates that where concentrations exceed 5% for carbon dioxide then it may be appropriate to adopt a conservative approach and increase the CS by one class. This results in the site being classified as Characteristic Situation 2 (CS2) and “Amber 1” which means that the site will require low level protection measures comprising of a membrane and a subfloor void.

The likelihood for this site, based on the lines of evidence available, is that CS1 can be justified but a further three monitoring visits are recommended to ensure a suitable dataset is available to make this judgement.

The ground gas risk classification is Characteristic Situation 2 (CS2) ie gas protection measures are required unless further testing and professional judgement allows for a reduction to CS1.

9.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

9.1 INTRODUCTION

The preliminary geotechnical assessment is based on a proposed residential development with lightly loaded residential properties.

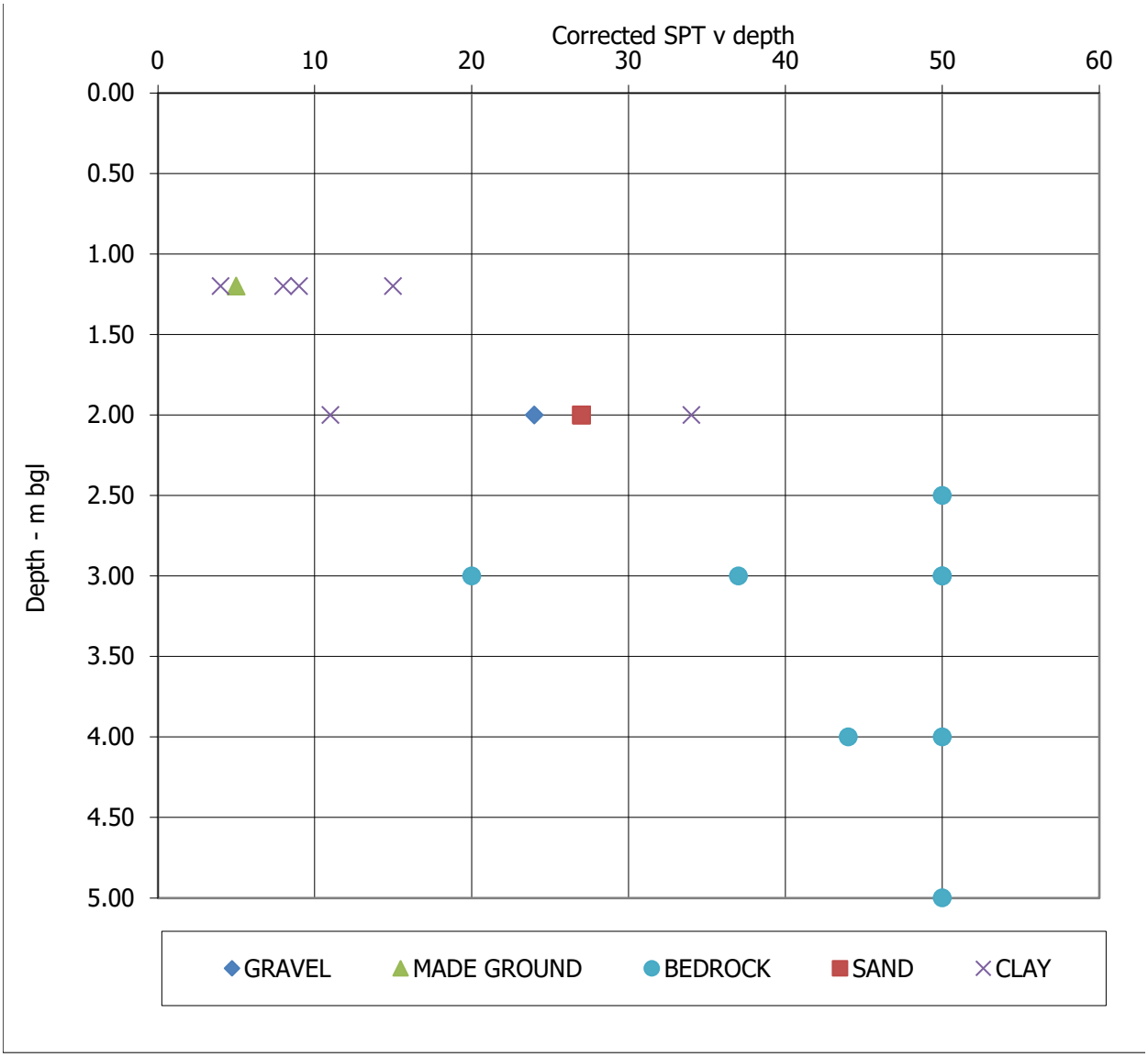
The underlying ground conditions comprise of Made Ground to a depth of 0.60m (average thickness) overlying predominantly cohesive superficial strata to a maximum encountered depth of 3.00m bgl overlying weathered bedrock recovered as predominantly stiff clays encountered to a maximum depth of 5.18m bgl.

9.2 STANDARD PENETRATION TESTS

A graph of the corrected N_{60} SPT data is presented below. The graph shows that in-situ soil density generally increased with depth.

Graph 9.1 –N_{60} SPT over Depth (m bgl)

The Made Ground was only deep enough in one exploratory hole (DS04) with one SPT N value of 5.



The Superficial strata displayed SPT N_{60} values ranged between 24 and 27 within the granular strata recovered from three locations, sand at 2.00m bgl in DS02 and DS04 and gravel at 2.00m in DS03. The remainder of SPT N values were determined from the dominant cohesive strata with N values of between 4 and 34 typically becoming higher with depth.

The weathered bedrock described corrected N60 SPT N values ranging from 20 to 50.

The corrected SPT data is shown in Appendix F.

9.3 MATERIAL PROPERTIES

Samples retrieved from the ground investigation were submitted to a suite of geotechnical laboratory classification testing, a summary of which is provided below as Tables 9.2 and 9.3. Full geotechnical testing results are presented in Appendix D.

Table 9-2 – Summary of Geotechnical Test Results

	No. of results	Range (min-max)
Natural moisture content (%)	10	12-31
Liquid limit (LL %)	10	32-69
Plastic limit (PL %)	10	18-30
Plasticity index (PI %)	10	14-40
SPT N_{60} Values	18	4 - 50 (Refusal)

The clay onsite is indicated to be of varying plasticity, with test result classifications ranging between CL (low) and CH (high). The clay is considered to have a low to high volume change potential in accordance with NHBC Chapter 4.2: Building near trees.

Table 9-3 – Summary of Particle Size Distribution Test Results

Location	Depth to Top of Sample (mbgl)	Soil Type	Cobbles (%)	Gravel (%)	Sand (%)	Silt (%) (Sedimentation fines >10%)	Clay (%) (Sedimentation fines >10%)
DS03	1.90	Clay	0	27	22	30	21
DS04	2.30	Clay	0	6	18	41	35
DS05	1.70	Clay	0	10	35	32	23
TP01	1.50	Clay	0	15	50	23	12
TP02	0.45	Clay	0	15	26	34	25
TP02	2.50	Clay	0	13	23	39	25
TP04	1.80	Clay	0	47	15	23	15
TP06	2.50	Clay	0	8	2	46	44
TP07	0.45	Clay	0	3	10	47	40

9.4 FOUNDATION AND FLOOR SLAB DESIGN

Foundations are not considered suitable in the Made Ground due to the risk of large total or differential settlement in the soils.

It is considered that traditional strip foundations founded on natural firm clay may be suitable where consistent firm clay is found at the proposed founding depth at the proposed properties and subject to the likely loading.

In areas of deep Made Ground or softer strata, deeper trench fill foundations will likely be required founded on the natural firm clays or weathered bedrock due however not both due to possible differential settlement risk.

Alternatively, raft foundations with reinforced concrete and thickened edge beams may be considered appropriate.

Due to localised granular strata across site, it is considered that foundations should not be placed across a cohesive/granular boundary due to potential differential settlement.

Excavations for the potential, strip, trench, raft foundations are to be inspected by a qualified engineer to confirm the expected founding conditions are present at the base.

Should significant planting / vegetation removal be undertaken, future assessment of heave potential may be required given the high plasticity / high volume change potential of the cohesive strata with foundations to be placed at a minimum of 1.00m bgl in accordance with NHBC Chapter 4.2: Building near trees.

Ground bearing floor slabs may be practicable subject to rigorous preparation of the sub-grade. Engineered fill used as floor slab sub-grade material will require inspection and validation testing in accordance with the Engineer's specification. In-situ testing e.g. Plate Load CBR tests are recommended to validate the prepared sub-grade and confirm it is sufficient for the calculated floor slab loadings.

9.5 CHEMICAL ATTACK ON BURIED CONCRETE

Chemical tests undertaken on representative samples from the glacial deposits was assessed in accordance with BRE Special Digest 1:2005 3rd Edition with Amendments (2017) to provide design values for in ground concrete. The assessment is presented on Table 9.4.

Table 9-4 – Soil Sulphate Concentration & pH Level Assessment

Strata	No. of results	pH	Characteristic pH (mean)	Sulphate (mg/l)	Characteristic Sulphate Value (mg/l)
MADE GROUND	8	7.51 – 8.47	7.76	63 - 518	800**
Natural Ground	6	5.00 – 7.98	7.11	12 – 1560	1000**

**mean of the highest two results rounded to the nearest 100mg/l

Based on the groundwater levels identified in the Ground Investigation and in accordance with BRE SD1:2005 Concrete in Aggressive Ground, "mobile" groundwater has been assumed. The above results indicate, that for the Made Ground and natural strata a design classification of DS-2 and an ACEC class of AC-2 should be adopted.

9.6 DRAINAGE

Soakaway testing has been undertaken onsite in three trial pits SA01 – SA03 as shown on the exploratory hole location plan in Drawings. The trial pits were undertaken to target the low points onsite due to no invert level being provided and were undertaken in the natural strata.

The soakaway results showed that an infiltration rate was not able to be generated as the water level did not fall below 75% empty within 24 hours in accordance with DG BRE365:2016. This has been attributed to the cohesive superficial and weathered bedrock strata.

As such, soakaway drainage is not considered suitable for this site and alternative forms of drainage should be utilised. See Appendix H for the soakaway results tables.

9.7 EXCAVATIONS AND GROUNDWATER CONTROL

Based on site observations it is considered that shallow excavations should be generally feasible with normal plant. Where access to the excavations is required, these should be supported in accordance with CIRIA RR97.

Significant de-watering is not anticipated however, during the groundwater monitoring works, groundwater was detected within the exploratory hole installations across site and noted as rising over the monitoring period. However, it was noted within DS03 that the borehole remained dry to a depth of 2.84m as such it is considered that the water levels are perched filling the install and not representative of the underlying water table. However, contractors should make an allowance for pumping operations to maintain dry working conditions.

10.0 CONCEPTUAL SITE MODEL AND REFINED GROUND CONTAMINATION RISK ASSESSMENT

10.1 OVERVIEW

The information presented in the previous sections of this report have been collated and evaluated to establish a refined qualitative risk assessment for the site.

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.

10.2 CURRENT SITE USAGE AND PROPOSED DEVELOPMENT

The site currently comprises of an agricultural field and is to be developed with residential properties with private gardens, public open space and areas of soft and hard landscaping described on drawing P3921-SPA-XX-ZZ-00-M2-MP-10-005-Illustrative Masterplan by Spawforths dated January 2022.

10.3 CONCEPTUAL SITE MODEL

The key source, pathways and receptor model is outlined below within the context of potential development of the site. The following risk assessment is undertaken in the context of a residential with plant uptake end use scenario.

10.3.1 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.

Onsite Sources

- Asbestos (chrysotile) fibres in soil (single detection at <0.001%).
- Elevated levels of hydrocarbons (DS04).
- Elevated Ground Gas levels in DS01 (CO_2).

Off Site Sources

Off-site sources of contamination including ground gas are likely to be similar to those within the realms of the site and have therefore not been considered further.

10.3.2 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,
- 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;
- Vertical migration of ground gases into proposed buildings.

10.3.3 Potential Receptors at Risk

The following potential receptors have been identified:

Human Health

- Future site users (Residential).
- Construction / Maintenance Workers (during and post construction).

Wider Environment

- Secondary A Aquifer within Glaciofluvial Deposits and Secondary Undifferentiated Aquifer in the Glacial Till
- Secondary A Aquifer within Pennine Middle Coal Measures.
- Surface watercourse comprising a drainage ditch on the southern boundary.
- Building Infrastructure and supply pipes.

10.4 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 K.

Table 10-1 – CIRIA C552 Qualitative Risk Assessment

This matrix is based on CIRIA C552 risk evaluation methodology, definitions for risk ratings is presented in Appendix K						
Source	Pathway	Receptor	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Justification & Potential Risk Management (if required)
Ground Conditions – Asbestos within the Made Ground	Dermal contact, ingestion and/or inhalation of or dusts	Human Health – Future Visitors and Workers	Severe	Unlikely	Moderate/Low	Soil containing asbestos or asbestos containing materials is not suitable for re-use unless placed beneath hardstanding, or if placed beneath soft standing, it must be placed beneath a 'suitably clean' cover system with geotextile membrane to break any pathways to the receptor.
		Human Health (Construction and Maintenance Workers with PPE)		Likely	High	Asbestos has been identified from the ground investigation as such a remedial strategy is proposed outlining how asbestos is to be dealt with. It is assumed that, in line with good practice, appropriate working procedures (dampening down dry materials, watching brief during excavations etc.) will be adopted during construction works to mitigate this risk. The asbestos risk associated with the site should be noted in the Health & Safety File compiled for future facilities management of the site.
Raised PAHs within the Made Ground	Dermal contact, ingestion and/or inhalation of vapours or dusts	Human Health (Current / Future Site Users)	Medium	Unlikely	Low	Raised benzo(a)pyrene was detected in DS04 which is likely associated with clinker. If soil in this area is not to be removed from site, it should be placed beneath hardstanding or, if used in soft landscaped areas, it should be placed beneath a 'suitably clean' cover system to break any pathway to contamination.
		Human Health (Construction and Maintenance Workers with PPE)	Medium	Unlikely	Low	Raised benzo(a)pyrene against the limits of detection has been identified in a hotspot onsite (DS04) on the site. The risk rating is based on the use of Personal Protective Equipment (PPE) and appropriate working procedures.
	Leaching to groundwater, drainage and lateral / vertical migration.	Secondary A Bedrock Aquifer	Medium	Unlikely	Low	Based on the identified underlying ground conditions (cohesive strata) and level of groundwater, it is considered that there is unlikely to be a suitable pathway for the elevated PAHs and any impact is likely to be localised.
		Secondary A Aquifer Superficial Deposits	Medium	Unlikely	Low	

		Secondary Undifferentiated Aquifer Superficial Deposits	Medium	Unlikely	low	
		Surface Waters	Medium	Unlikely	Low	
		Building Infrastructure and supply pipes	Medium	Unlikely	Low	Contamination has been identified as a localised hotspot however, testing of the soil in the locations of proposed service supply lines should be undertaken once known in order to determine the level and nature of contaminants along proposed supply routes and propose mitigation as necessary.
Ground Gas associated with local infilled marsh and Made Ground.	Generation and migration / accumulation of ground gases	Human Health – Future site users (Residential)	Severe (Explosion & Asphyxiation)	Low Likelihood	Moderate	The ground investigation has identified deep Made Ground with a raised gas levels of CO_2 of 7.9% as such the site is classified as CS2 and Amber 1. Therefore, low level gas protection measures are recommended.
		Buildings and Services	Severe (Explosion)	Low Likelihood	Moderate	

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

11.1.1 Contamination Summary

The risk posed the development by on site sources of contamination is considered to be **low** to **locally moderate** to future site users due to the detection of asbestos in the underlying Made Ground and a localised elevation of hydrocarbons. If soil in this area is not removed from site, it should be placed beneath hardstanding or, if used in soft landscaped areas, it should be placed beneath a 'suitably clean' cover system to break any pathway to contamination. The risk to construction workers is considered to be **high** due to the low-level quantities of asbestos within the underlying Made Ground soils as well as due to the identified hotspot area (DS04) for PAHs. It is assumed that, in line with good practice, appropriate working procedures will be adopted during construction works to mitigate this risk. The asbestos risk associated with the site should be noted in the Health & Safety File compiled for future facilities management of the site.

11.1.2 Ground Gas

There's a **Low to Moderate** risk of ground gas associated with the peak raised levels of CO_2 (7.9%), characterises the site as "Amber 1" and Characteristic Situation 2 (CS2) and therefore low level gas protection measures are required in line with NHBC guidance and CIRIA C665.

11.1.3 Preliminary Waste Classification

The waste assessment has shown that the samples have been classified as non-hazardous using HazWasteOnline and have the potential to be disposed to a facility accepting Inert waste. However, this assessment is based on samples that were not specifically obtained for waste classification of soils identified for disposal so further testing and waste classification would be required when / if material identified as requiring removal and disposal is confirmed.

It is the responsibility of the contractor, as waste producer, to classify the waste and to identify a suitable waste disposal facility based on the chemical composition of the material. Therefore, prior to disposal the characteristics of any excavated soils will need final classification in consultation with the landfill sites and waste disposal contractors. Further testing and analysis, including Waste Acceptance Criteria (WAC) testing, may be required on the actual soil arisings which constitute the waste.

11.1.4 Geotechnical

It is considered that traditional strip foundations found on consistent firm clay beneath the proposed structures is likely to be considered suitable however in areas of soft strata then raft foundations comprising reinforced concrete and thickened edge beams are advised. In areas of deep Made Ground, deeper trench fill foundations will likely be considered necessary founding within the firm clay or weathered bedrock. The minimum founding depth is 1.00m due to the high volume change potential associated with the cohesive strata in line with NHBC Guidance Chapter 4.2.

Future assessment of heave potential may be required given the high plasticity / high volume change potential of the cohesive strata in accordance with NHBC Guidance Chapter 4.2: Building near trees.

Ground bearing floor slabs may be practicable subject to rigorous preparation of the sub-grade. Engineered fill used as floor slab sub-grade material will require inspection and validation testing in accordance with the Engineer's specification.

In accordance with BRE SD1:2005 Concrete in Aggressive Ground; a design classification of DS-2 and an ACEC class of AC-2 has been determined for the site.

Significant de-watering is not anticipated however, groundwater was detected within the exploratory hole installations but is anticipated to be perched and not representative of the underlying water table. Therefore, contractors should make an allowance for pumping operations to maintain dry working conditions

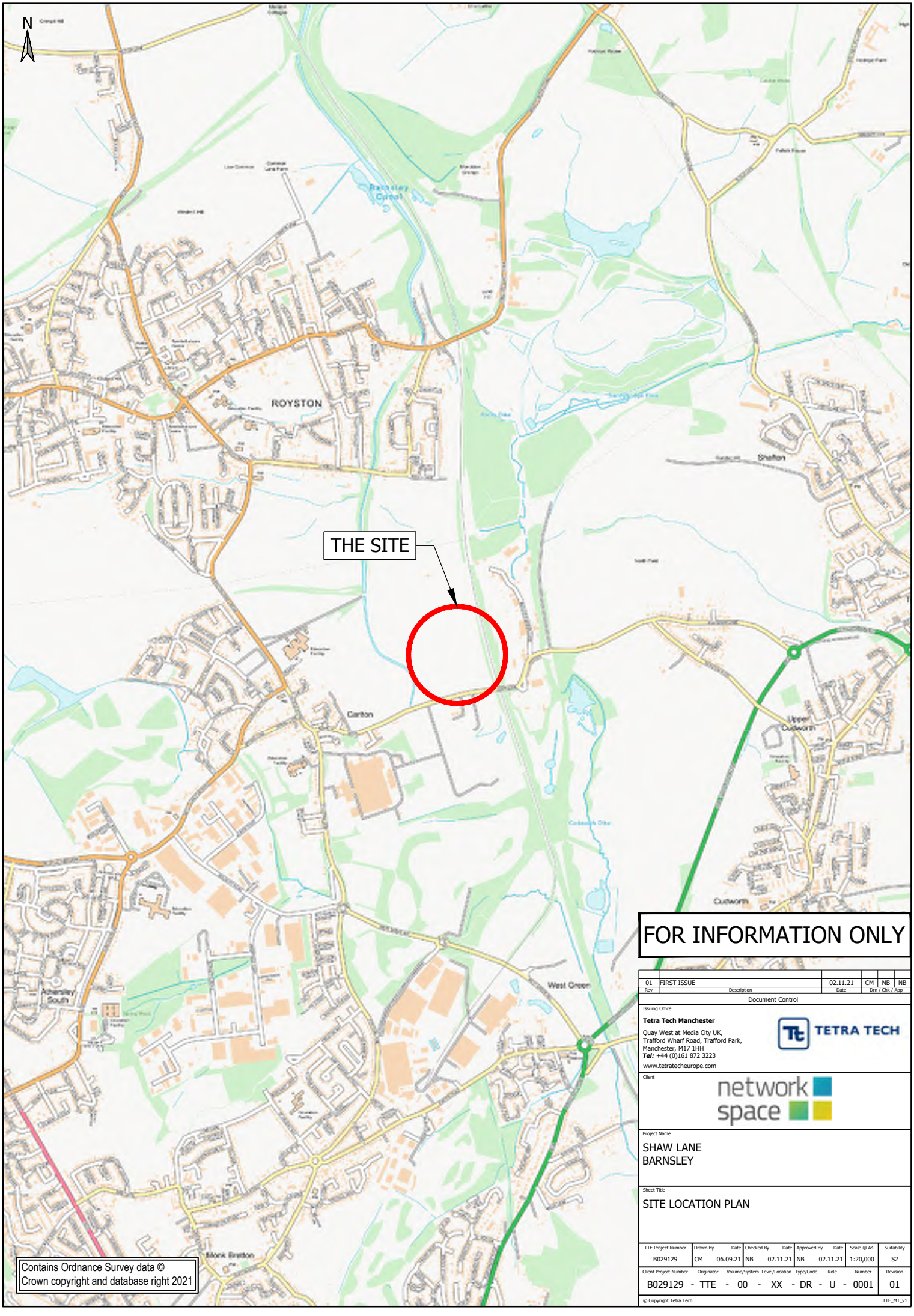
Soakaway drainage is not considered to be feasible and alternative drainage should be utilised.

11.2 RECOMMENDATIONS

It is recommended that the following works be carried out to enable development of the site:

- Additional ground gas monitoring (three visits to comply with published guidance) to further refine the risk assessment provided in this report and to inform the selection (if any) of appropriate ground gas protection measures;
- Targeted investigation along routes of proposed water supply pipelines to determine if upgraded water supply pipelines are required;
- Production of a Remediation Strategy for water supply pipework, ground gas protection measures (if required following further monitoring) and, if applicable, soil cover system;
- Further exploratory holes to inform detailed foundation design;
- Geotechnical laboratory testing to determine the volume change potential and assess whether heave precautions are required; and
- CBR testing to inform pavement design.

DRAWINGS



FOR INFORMATION ONLY

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TETRA TECH

Client

network space

Project Name

SHAW LANE
BARNSLEY

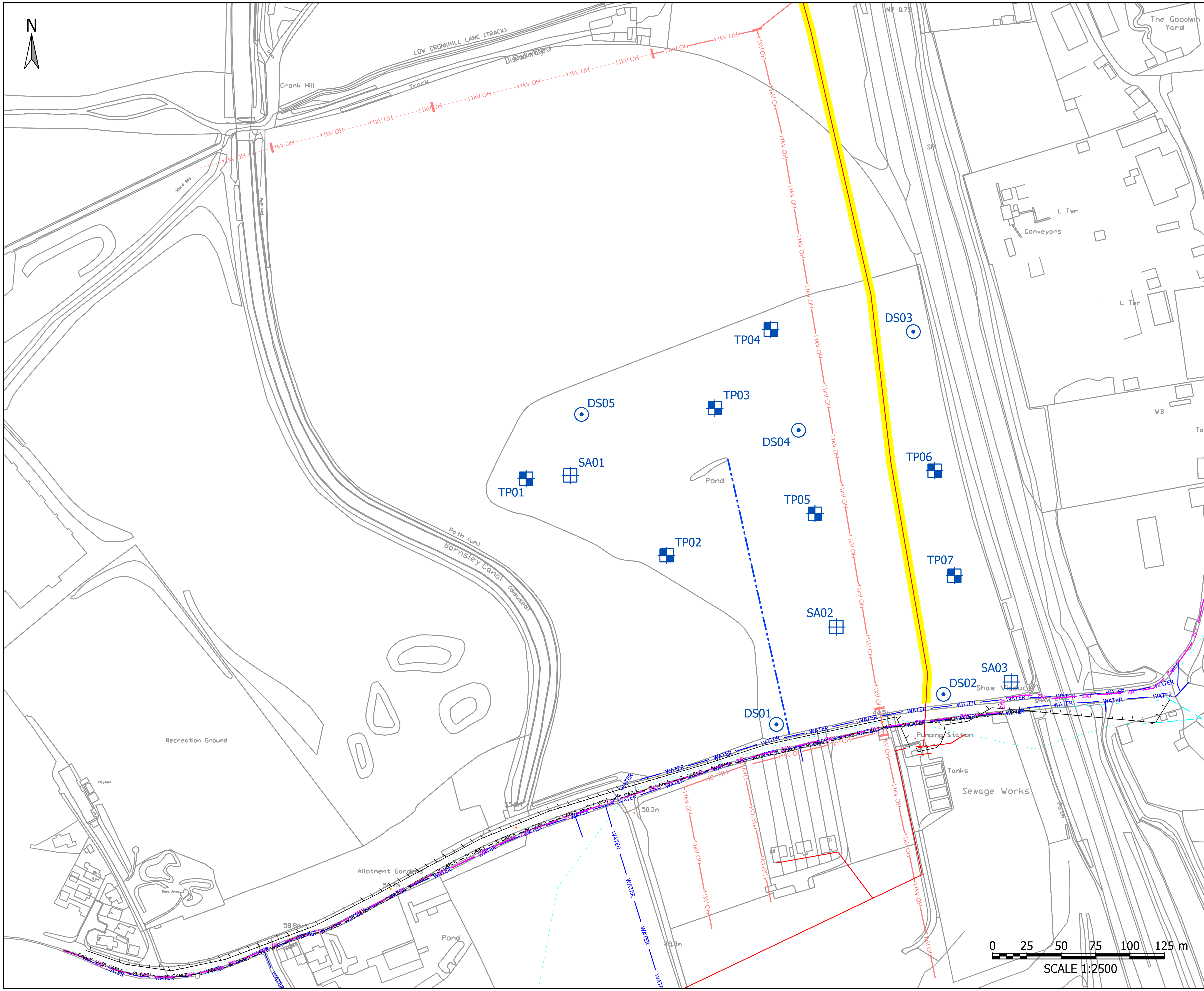
Sheet Title

SITE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
B029129	CM	06.09.21	NB	02.11.21	NB	02.11.21	1:20,000	S2

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B029129	TTE	00	XX	DR	U	0001	01

TTE_MT_v1



KEY:

EXISTING SERVICES

Symbol	Description
BT	TELECOMS BT (EXG)
BT OH	TELECOMS BT OVERHEAD LINES (EXG)
WATER	WATER MAINS (EXG)
TRUNK	WATER TRUNK MAINS (EXG)
	FOUL WATER SEWER RUN (EXG)
	SURFACE WATER SEWER RUN (EXG)
	3m SEWER EASEMENT (EXG)
	COMBINED SEWER (EXG)
	COMBINED WATER RISING MAIN (EXG)
NG	NATIONAL GRID CABLES (EXG)
LVP	LV ELECTRICITY CABLES (EXG)
HV	HV ELECTRICITY CABLES (EXG)
11kV OH	HV 11kV ELECTRICITY CABLES
EHV	EHV ELECTRICITY CABLES (EXG)
SL CABLE	STREET LIGHTING LV ELECTRICITY CABLES (EXG)
GAS	GAS (EXG)
GLP	GAS LOW PRESSURE (EXG)
GMP	GAS MEDIUM PRESSURE (EXG)
GAS	GAS HIGH PRESSURE (EXG)
COMMS	VIRGIN MEDIA TELECOMS (EXG)
	DUCTS (EXG)
INS	LEVEL 3, GLOBAL CROSSING (UK) LTD, GLOBAL CROSSING PEC and FIBERNET UK LTD (EXG)
VER	VERIZONE (EXG)
ZAY	ZAYO (EXG)
	BELOW GROUND DRAIN (APPROXIMATELY 18"ø)

TETRA TECH GROUND INVESTIGATION 2021

- TRIAL PIT
- DYNAMIC SAMPLE BOREHOLE
- SOAKAWAY TEST
- SOAKAWAY TEST SUBJECT TO GROUND CONDITIONS

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TETRA TECH

Client

network space

Project Name

SHAW LANE
BARNSLEY

Sheet Title

EXPLORATORY HOLE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
B029129	CM	06.09.21	NB	02.11.21	NB	02.11.21	1:2,500	S2

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B029129	TTE	00	XX	DR	U	0002	01

TTE_MT_v1

Illustrative Masterplan

Client Name:	Network Space	Scale:	1:1000 @A2 (approx.)
Project No:	P3921	Discipline:	Masterplanning
Title:	Shaw Lane, Carlton	Date:	25 January 2022
Drawn By:	DK	Drg No:	P3921-SPa-XX-ZZ-00-M2-10-005
Checked By:	EH	Revision:	*

Shaw Lane, Carlton
Planning

network space

spawforths

APPENDICES

APPENDIX A – REPORT CONDITIONS

APPENDIX A - REPORT CONDITIONS

GROUND INVESTIGATION

This report is produced solely for the benefit of Network Space Developments Limited 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: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437381.42	Northing:	410166.14
Level:	45.34mAOD	Depth:	5.18m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS01**

Sheet 1 of 2

Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drilling	1.20	300									Approved By: SB
1.20	5.18	Dynamic Windowless Sampling	RP06	RP Drilling	5.18	-									Start Date: 13/09/2021
															Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results	
MADE GROUND: Soft dark brown slightly gravelly sandy clayey TOPSOIL with rootlets. Sand is fine to medium locally of ash. Gravel is angular to rounded fine to coarse brick and quartzite.						0.20 0.20	D1 ES1		
MADE GROUND: Soft dark grey mottled orange brown slightly sandy silty CLAY. Sand is fine to medium. (Reworked Natural).		0.40	44.94			0.50 0.50	D2 ES2		
Soft locally firm orange brown mottled light grey silty CLAY.		0.80	44.54			1.00 1.00	D3 ES3		1
						1.20 - 1.65	D4	SPT(S) 1.20m, N=4 (1,1/1,1,1,1)	
Orange brown slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular to rounded fine to medium quartzite.		1.50	43.84			1.60	D5		
Firm to stiff grey mottled green grey organic silty CLAY. *From 1.70-2.30m bgl: Local decaying organic plant matter.*		1.70	43.64			1.80	D6		
						2.00 - 2.45	D7	SPT(S) 2.00m, N=11 (1,2/2,2,3,4)	2
Stiff grey gravelly CLAY. Gravel is angular fine to coarse mudstone and coal. (Weathered Bedrock).		2.30	43.04			2.40	D8		
						2.90	D9		
						3.00 - 3.45	D10	SPT(S) 3.00m, N=20 (3,4/5,4,6,5)	3
Stiff grey slightly sandy slightly gravelly very silty CLAY. Sand is fine to coarse. Gravel is angular fine to coarse siltstone and mudstone. (Weathered Bedrock).		3.60	41.74			3.70	D11		
Stiff grey slightly gravelly CLAY. Gravel is angular fine to coarse mudstone and coal. (Weathered Bedrock).		3.90	41.44			4.00 - 4.45	D12	SPT(S) 4.00m, N=44 (5,5/5,9,15,15)	4
						4.60	D13		
						5.00 - 5.18	D14	SPT(S) 5.00m, 50 (25 for 70mm/50 for 115mm)	5

Observations / Remarks

1. Borehole terminated at 5.18m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks
1.20	2.00		90	
2.00	3.00		90	
3.00	4.00		90	
4.00	5.00		90	

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437381.42	Northing:	410166.14
Level:	45.34mAOD	Depth:	5.18m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS01**

Sheet 2 of 2

Method, Plant and Crew					Diameter		Casing		Groundwater					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drilling	1.20	300								
1.20	5.18	Dynamic Windowless Sampling	RP06	RP Drilling	5.18	-								

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 13/09/2021
Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
Stiff grey slightly gravelly CLAY. Gravel is angular fine to coarse mudstone and coal. (Weathered Bedrock).								
		5.18	40.16					
EOH at 5.18m - Borehole Terminated due to refusal.								

Observations / Remarks

1. Borehole terminated at 5.18m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437487.79	Northing:	410190.67
Level:	43.35mAOD	Depth:	4.34m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS02**

Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drilling	1.20	300									Approved By: SB
1.20	4.34	Dynamic Windowless Sampling	RP06	RP Drilling	4.34	-									Start Date: 13/09/2021
															Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown slightly gravelly sandy clayey TOPSOIL with occasional rootlets. Sand is fine to medium locally of ash. Gravel is angular to rounded fine to coarse brick quartzite and ceramics.						0.20	ES1	
Stiff orangish brown mottled grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse mudstone.		0.40	42.95			0.50 0.50	D1 ES2	
								SPT(S) 1.20m, N=15 (3,2/3,3,4,5)
						1.50	D2	
Medium dense grey brown slightly gravelly silty SAND. Sand is fine. Gravel is angular to rounded fine to coarse mudstone and siltstone. *From 2.40-2.50m bgl: Band of soft clay.*		2.00	41.35			2.00 - 2.45	D3	SPT(S) 2.00m, N=23 (3,2/4,4,6,9)
Very stiff dark grey slightly sandy very silty CLAY. Sand is fine to coarse. (Weathered Bedrock). *From 2.90-3.0m bgl: Band of gravel. Gravel is angular fine to coarse mudstone.*		2.50	40.85			3.00 - 3.45	D4	SPT(S) 3.00m, N=37 (5,7/7,9,10,11)
						4.00	D5	SPT(S) 4.00m, 50 (9,11/50 for 190mm)
EOH at 4.34m - Borehole Terminated due to refusal.		4.34	39.01					

Observations / Remarks

1. Borehole terminated at 4.34m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks
1.20	2.00		90	
2.00	3.00		90	
3.00	4.00		90	

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437465.93	Northing:	410454.02
Level:	46.87mAOD	Depth:	3.37m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS03**

Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						Remarks
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)		
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drilling	1.20	300									
1.20	3.37	Dynamic Windowless Sampling	RP06	RP Drilling	3.37	-									

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 13/09/2021
Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown slightly sandy slightly gravelly silty clayey TOPSOIL with occasional rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick quartzite and mudstone.						0.10	ES1	
MADE GROUND: Stiff light brown mottled dark grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to medium. Gravel is angular to rounded fine to coarse quartzite mudstone and sandstone. Cobbles are angular to subangular sandstone. (Reworked Natural).		0.20	46.67			0.40	ES2	
Stiff dark grey mottled orange brown slightly gravelly CLAY with low cobble content. Gravel is angular to subangular sandstone. Cobbles are subangular to subrounded sandstone.		0.50	46.37			0.80	D1	
								SPT(S) 1.20m, N=8 (2,2/2,2,2,2)
Firm to stiff brown mottled grey slightly gravelly very sandy CLAY. Sand is fine. Gravel is angular fine to medium mudstone and siltstone. (Weathered Bedrock).		1.30	45.57			1.30 - 1.90	B2	
Medium dense black sandy GRAVEL. Sand is fine to coarse. Gravel is angular fine to coarse coal. (Weathered Bedrock).		1.90	44.97			1.90 - 2.40	B3	SPT(S) 2.00m, N=21 (4,4/5,5,5,6)
Very stiff light grey slightly sandy gravelly very silty CLAY. Sand is fine to coarse. Gravel is angular fine to coarse siltstone. (Weathered Bedrock).		2.40	44.47			2.50	D4	
						3.00 - 3.37	D5	SPT(S) 3.00m, 50 (6,9/50 for 220mm)
EOH at 3.37m - Borehole Terminated due to refusal.		3.37	43.50					

1 2 3 4 5

Observations / Remarks

1. Borehole terminated at 3.37m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks
1.20	2.00		90	
2.00	3.00		90	

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437400.26	Northing:	410392.78
Level:	45.95mAOD	Depth:	3.30m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS04**

Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drillin	1.20	300	2.00	152						
1.20	3.30	Dynamic Windowless Sampling	RP06	RP Drilling	3.30	-								

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 13/09/2021
Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown slightly gravelly sandy clayey TOPSOIL with occasional rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick concrete ceramics coal clinker and sandstone.						0.10	ES1	
MADE GROUND: Brown silty SAND and GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick concrete ceramics coal clinker and sandstone. Cobbles are angular brick.		0.20	45.75			0.50	ES2	
MADE GROUND: Soft dark grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick concrete ceramics coal clinker and sandstone. Cobbles are angular brick.		1.00	44.95			1.10	ES3	SPT(S) 1.20m, N=5 (1,1/1,1,1,2)
Soft to firm grey slightly gravelly very sandy very silty CLAY. Sand is fine to coarse. Gravel is angular fine to coarse mudstone and siltstone.		1.30	44.65			1.40	D1	
Medium dense orange brown and grey locally slightly clayey slightly gravelly silty SAND. Sand is fine to coarse. Gravel is angular fine to coarse sandstone and mudstone.		1.80	44.15			1.80 - 2.30	B2	SPT(S) 2.00m, N=23 (2,2/3,4,4,12)
Very stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular fine to coarse sandstone. (Weathered Bedrock).		2.30	43.65			2.30 - 2.80	B3	
Very stiff grey slightly sandy gravelly very silty CLAY. Sand is fine to coarse. Gravel is angular fine to coarse mudstone. (Weathered Bedrock).		2.80	43.15			3.00	D4	SPT(S) 3.00m, 50 (25 for 125mm/50 for 180mm)
EOH at 3.30m - Borehole Terminated due to refusal.		3.30	42.65					

Observations / Remarks

1. Borehole terminated at 3.30m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks
1.20	2.00		90	
2.00	3.00		90	

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details			
Easting:	437196.28	Northing:	410392.28
Level:	46.46mAOD	Depth:	2.54m
Logger:	TB	Type:	WLS
		Inclination:	90°

Status: FINAL

Borehole Number: **DS05**

Sheet 1 of 1

Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB
0.00	1.20	Inspection Pit	Hand Digging Tools	RP Drilling	1.20	300									Approved By: SB
1.20	2.54	Dynamic Windowless Sampling	RP06	RP Drilling	2.54	-									Start Date: 13/09/2021
															Finish Date: 13/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark grey and dark brown slightly sandy slightly gravelly silty clayey TOPSOIL with occasional rootlets. Sand is fine. Gravel is angular medium brick.						0.20	ES1	
Soft orangish brown mottled grey slightly silty sandy CLAY. Sand is fine to medium.		0.30	46.16			0.40	ES2	
						0.50	D1	
						1.20 - 1.65	D2	SPT(S) 1.20m, N=9 (1,1/2,2,2,3)
Loose to medium dense grey mottled orange brown locally slightly clayey slightly gravelly silty SAND. Sand is fine to medium. Gravel is angular fine to coarse mudstone and sandstone.		1.30	45.16			1.30 - 1.70	B3	
Stiff brown slightly gravelly very sandy CLAY. Sand is fine to medium. Gravel is angular fine to coarse mudstone and sandstone. (Weathered Bedrock).		1.70	44.76			1.70 - 2.30	B4	
						2.00 - 2.45	D5	SPT(S) 2.00m, N=34 (5,5/7,7,9,11)
Very stiff brown mottled grey slightly gravelly very sandy CLAY. Sand is fine to coarse. (Weathered Bedrock).		2.30	44.16			2.30 - 2.50	D6	
								SPT(S) 2.50m, 50 (25 for 30mm/50 for 10mm)
EOH at 2.54m - Borehole Terminated due to refusal.		2.54	43.92					

Observations / Remarks

1. Borehole terminated at 2.54m due to SPT refusal.
2. Groundwater was not encountered.
3. Exploratory hole installed.

Sampling Runs

From (m)	To (m)	Diam (mm)	Recovery %	Remarks
1.20	2.00		90	
2.00	2.50		90	

Hammer Information

Serial No.	Energy Ratio %
RP06	69

Project Number: **B029129**

TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437181.85 Northing: 410327.11	FINAL
Client:	**Network Space Developments Ltd**	Level: 47.24mAOD Depth: 2.10m	Pit Number **TP01**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.60m x 0.50m

Orientation: 200°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks
1.70	1.70	20	
2.05	1.70	20	

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 15/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Firm dark brown grey slightly sandy slightly gravelly silty clayey TOPSOIL with occasional rootlets and a low cobble content. Sand is fine to medium. Gravel is angular to rounded fine to coarse mudstone quartzite brick and coal. Cobbles are angular brick.						0.20	ES1	
Firm light grey mottled orange brown slightly gravelly sandy silty CLAY. Sand is fine to medium. Gravel is sub-angular to rounded fine to coarse sandstone and quartzite.		0.40	46.84			0.45 - 0.60 0.50	B1 ES2	HV 0.50m, (p)=46,48,39 kPa (r)= kPa
From 1.00-1.35m bgl: Sand is fine to coarse.						0.70	D2	
						1.20	D3	HV 1.10m, (p)=42,49,47 kPa (r)= kPa
Stiff brown mottled grey slightly gravelly very sandy very silty CLAY. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse sandstone.		1.35	45.89			1.40 1.50 - 1.80	D4 B5	
From 1.70-1.90m bgl: Recovered damp.								
Light brown slightly clayey silty sandy GRAVEL with high cobble content. Sand is is fine to coarse. Gravel is angular fine to coarse sandstone. Cobbles are angular sandstone. (Weathered Bedrock).		1.90	45.34			1.90 - 2.10	B6	
EOH at 2.10m - Bedrock Encountered.		2.10	45.14					

1 2 3 4 5

Observations / Remarks

1. Trial pit terminated at 2.10m due to bedrock encountered.
2. Groundwater seepage encountered at 1.70m bgl. Upon completion of pit groundwater seeping at 2.05m bgl and rising to 1.70m bgl after 20 minutes.
3. Exploratory hole backfilled with arisings.

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Project Number
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TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437252.82 Northing: 410297.32	FINAL
Client:	**Network Space Developments Ltd**	Level: 47.62mAOD Depth: 3.00m	Pit Number **TP02**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.70m x 0.60m

Orientation: 30°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 15/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Dark brown grey slightly clayey gravelly sandy TOPSOIL with occasional rootlets. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick concrete mudstone coal and ceramics.						0.15	ES1	
MADE GROUND: Stiff dark brown mottled grey slight gravelly very sandy CLAY. Sand is fine to coarse. Gravel is angular to round fine to coarse brick concrete quartzite sandstone timber metal and plastic.		0.30	47.32			0.45 - 0.60 0.50	B1 ES2	
MADE GROUND: Firm to stiff brown grey locally dark grey slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick quartzite and coal. (Reworked Natural). *From 0.70-1.00m bgl: Organic odour.*		0.70	46.92			0.85	ES3	
Stiff grey mottled brown slightly sandy silty CLAY.		1.00	46.62			1.20	D2	HV 1.10m, (p)=84,81,85 kPa (r)= kPa HV 1.50m, (p)=78,81,77 kPa (r)= kPa
Stiff grey mottled brown silty slightly gravelly CLAY. Gravel is angular fine to coarse coal. (Weathered Bedrock). *From 1.50-2.60m bgl: Occasional bands of weathered coal.*		1.60	46.02			2.00	D3	HV 2.00m, (p)=90,81,82 kPa (r)= kPa
Stiff dark grey slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is angular fine to coarse coal and mudstone. (Weathered Bedrock).		2.50	45.12			2.50 - 2.90	B4	
EOH at 3.00m - Difficult Digging Conditions.		3.00	44.62			3.00	D5	

Observations / Remarks

1. Trial pit terminated at 3.00m due to difficult digging conditions.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings.

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Project Number
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TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437348.84 Northing: 410407.05	FINAL
Client:	**Network Space Developments Ltd**	Level: 46.15mAOD Depth: 3.00m	Pit Number **TP03**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.60m x 0.65m

Orientation: 255°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

Strike (m)	Rose To (m)	After (mins)	Remarks
2.20	0.00	0	
3.00	2.80	20	

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 15/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown grey slightly gravelly sandy silty clayey TOPSOIL with occasional rootlets. Sand is fine to coarse. Gravel is angular to rounded fine to coarse sandstone quartzite brick and coal.						0.30	ES1	
MADE GROUND: Stiff grey mottled brown slightly gravelly sandy silty CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse quartzite brick sandstone and coal. Cobbles are angular to sub-angular sandstone.		0.40	45.75			0.45 - 0.60	B1	
						1.00	ES2	
MADE GROUND: Soft dark grey and black peaty organic CLAY. (Relic Topsoil). *From 1.40-1.60m bgl: Abundant decaying organic material.*		1.40	44.75			1.50	ES3	
Soft to firm grey sandy silty CLAY with a low cobble content. Sand is fine. Cobbles are subangular sandstone.		1.60	44.55					HV 1.60m, (p)=57,65,59 kPa (r)= kPa
						1.80	D2	
Soft to firm slightly gravelly slightly sandy silty CLAY with low cobble content. Sand is fine. Gravel is angular to sub-rounded fine to coarse sandstone and siltstone. Cobbles are sub-angular to sub-rounded sandstone.		2.00	44.15			2.10	D3	HV 2.50m, (p)=58,38,47 kPa (r)= kPa
EOH at 3.00m - Difficult Digging Conditions.		3.00	43.15			3.00	D4	

Observations / Remarks

1. Trial pit terminated at 3.00m due to difficult digging conditions.
2. Groundwater seepage encountered at 2.20m bgl. Upon completion of pit groundwater seeping at base and rising to 2.80m bgl after 20 minutes.
3. Exploratory hole backfilled with arisings.

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Project Number
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TETRA TECH

Project:	**Shaw Lane, Carlton**
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**
Client:	**Network Space Developments Ltd**

Location Details

Easting:	437389.81	Northing:	410465.33
Level:	47.56mAOD	Depth:	2.80m
Logger:	TB	Type:	TP

Status: FINAL

Pit Number: TP04

Sheet 1 of 1

Hole Information

Pit Dimensions: 3.00m x 0.60m

Orientation:	230°
Shoring:	None
Stability:	Stable
Plant:	TEREX HML 32

Groundwater

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

Scale:	1:25
Checked By:	NB
Approved By:	SB
Start Date:	14/09/2021
Finish Date:	14/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Stiff dark brown and dark grey slightly sandy slightly gravelly silty clayey TOPSOIL with occasional rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse quartzite, mudstone, coal and brick.						0.20	ES1	
Stiff orange brown mottled grey slightly sandy slightly gravelly silty CLAY with a low cobble content. Sand is fine. Gravel is sub-angular to sub-rounded fine to coarse quartzite. Cobbles are rounded sandstone.		0.40	47.16			0.45 - 0.60	B1	HV 0.50m, (p)=76,92,89 kPa (r)= kPa
						0.70	D2	HV 0.80m, (p)=92,88,90 kPa (r)= kPa
Black slightly clayey silty gravelly SAND. Sand is fine to medium. Gravel is angular fine to coarse coal.		0.90	46.66			0.90 - 1.30	B3	
Stiff grey mottled orange brown slightly sandy very silty CLAY. Sand is fine. *From 1.30-1.80m bgl: Occasional root traces.*		1.30	46.26			1.50	D4	HV 1.50m, (p)=76,92,83 kPa (r)= kPa
Stiff brown slightly sandy very gravelly CLAY with a high cobble content. Sand is fine to medium. Gravel is angular fine to coarse sandstone and mudstone. Cobbles are angular mudstone. (Weathered Bedrock).		1.80	45.76					
EOH at 2.80m - Difficult Digging Conditions.		2.80	44.76					

Observations / Remarks

1. Trial pit terminated at 2.80m due to difficult digging conditions.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings.

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Project Number: **B029129**

TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437407.32 Northing: 410324.08	FINAL
Client:	**Network Space Developments Ltd**	Level: 46.06mAOD Depth: 3.00m	Pit Number **TP05**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.90m x 0.70m

Orientation: °
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 15/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft locally firm slightly sandy silty clayey TOPSOIL with occasional rootlets. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick mudstone and quartzite.						0.15	ES1	
Firm orange brown slightly gravelly sandy silty CLAY with high cobble content. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse sandstone quartzite and siltstone. Cobbles are sub-angular to rounded sandstone and siltstone.		0.30	45.76			0.40 - 0.60 0.50	B1 ES2	
Firm to stiff grey mottled orange brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to medium. Gravel is sub-angular to rounded sandstone quartzite and siltstone. Cobbles are subangular to rounded sandstone and siltstone.		0.80	45.26			0.70 1.20	D2 D3	
Grey sandy silty GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular fine to coarse mudstone and siltstone. Cobbles are tabular angular mudstone (up to 40mm in thickness). (Weathered Bedrock).		1.90	44.16			2.00 2.20 - 2.80	D4 B5	
EOH at 3.00m - Difficult Digging Conditions.		3.00	43.06			3.00	D6	

Observations / Remarks

1. Trial pit terminated at 3.00m due to difficult digging conditions.
2. Groundwater not encountered.
3. Encountered soils unsuitable for hand vein testing.
3. Exploratory hole backfilled with arisings.

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Project Number
B029129

TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437481.42 Northing: 410352.82	FINAL
Client:	**Network Space Developments Ltd**	Level: 45.70mAOD Depth: 3.40m	Pit Number **TP06**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 3.30m × 0.65m

Orientation: 150°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 14/09/2021
Finish Date: 14/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Stiff dark brown grey slightly sandy slightly gravelly silty clayey TOPSOIL with occasional rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse quartzite mudstone and coal.						0.30	ES1	
Firm to stiff orange brown slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is angular fine to coarse sandstone and mudstone. *0.35m bgl: Redundant brick drain encountered. Pit extended approximately 1.0m south.*		0.35	45.35			0.45 - 0.60	B1	
						1.00	D2	HV 1.00m, (p)=70,80,59 kPa (r)= kPa
Stiff grey slightly gravelly very silty CLAY. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		1.50	44.20			1.80	D3	
								HV 2.00m, (p)=90,111,103 kPa (r)= kPa
Stiff brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		2.10	43.60			2.50 - 3.00	B4	
EOH at 3.40m - Difficult Digging Conditions.		3.40	42.30			3.40	D5	

1 2 3 4 5

Observations / Remarks

1. Trial pit terminated at 3.40m due to difficult digging conditions.
2. Groundwater not encountered.
3. Redundant brick land drain encountered at 0.35m bgl.
4. Exploratory hole backfilled with arisings.

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Project Number
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TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437495.76 Northing: 410276.39	FINAL
Client:	**Network Space Developments Ltd**	Level: 44.41mAOD Depth: 3.10m	Pit Number **TP07**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.90m x 0.65m

Orientation: 270°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 14/09/2021
Finish Date: 14/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Firm locally stiff dark brown and dark grey slightly sandy slightly gravelly silty clayey TOPSOIL with rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse quartzite mudstone ceramics and brick.						0.20	ES1	
Firm to stiff orange brown mottled grey slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is angular fine to medium mudstone and siltstone.		0.30	44.11			0.45 - 0.60	B1	HV 0.60m, (p)=78,74,80 kPa (r)= kPa
						1.00	D2	
Stiff grey mottled orange brown slightly sandy gravelly SILT. Sand is fine. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		1.20	43.21			1.50	D3	
Grey and brown slightly sandy silty GRAVEL with high cobble content. Sand is fine. Gravel is angular fine to coarse mudstone. Cobbles are tabular angular mudstone (up to 50mm in thickness). (Weathered Bedrock).		2.10	42.31			2.20	D4	
EOH at 3.10m - Difficult Digging Conditions.		3.10	41.31			3.10	D5	

Observations / Remarks

1. Trial pit terminated at 3.10m due to difficult digging conditions.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings.

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Project Number
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TETRA TECH

Project: **Shaw Lane, Carlton**

Location: **Shaw Lane, Carlton, Barnsley, S71 3HJ**

Client: **Network Space Developments Ltd**

Location Details

Easting: 437216.22 Northing: 410349.39

Level: 46.43mAOD Depth: 1.60m

Logger: TB Type: TP

Status: FINAL

Pit Number: **SA01**

Sheet 1 of 1

Hole Information

Pit Dimensions: 2.70m x 0.60m

Orientation: 260°

Shoring: None

Stability: Stable

Plant: TEREX HML 32

Groundwater

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

Scale: 1:25

Checked By: NB

Approved By: SB

Start Date: 14/09/2021

Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown grey slightly sandy gravelly silty clayey TOPSOIL with rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick quartzite mudstone ceramics and coal.						0.30	ES1	
Firm to stiff orange brown mottled grey slightly sandy silty CLAY. Sand is fine.		0.55	45.88			0.60	ES2	
						0.80	D1	HV 0.80m, (p)=50,50,57 kPa (r)= kPa
Stiff grey mottled orange brown sandy silty CLAY. Sand is fine.		1.40	45.03			1.50	D2	HV 1.50m, (p)=78,80,77 kPa (r)= kPa
EOH at 1.60m - Target Depth Achieved.		1.60	44.83					

Observations / Remarks

1. Trial pit terminated at 1.60m due to reaching required depth.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings following soakaway testing.

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Project Number: **B029129**

TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437409.98 Northing: 410239.06	FINAL
Client:	**Network Space Developments Ltd**	Level: 44.92mAOD Depth: 1.55m	Pit Number **SA02**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.60m × 0.50m

Orientation: 80°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 14/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft dark brown grey slightly sandy gravelly silty clayey TOPSOIL with rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick quartzite and mudstone.						0.20	ES1	
Stiff grey mottled orange brown slightly sandy very silty CLAY. Sand is fine.		0.40	44.52			0.60	ES2	
						0.70	D1	HV 0.80m, (p)=133,127,115 kPa (r)= kPa
Firm grey mottled brown slightly gravelly slightly sandy very silty CLAY. Sand is fine. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		1.00	43.92			1.30	D2	HV 1.20m, (p)=58,47,61 kPa (r)= kPa Material shearing before test
EOH at 1.55m - Target Depth Achieved.		1.55	43.38					

Observations / Remarks

1. Trial pit terminated at 1.55m due to reaching required depth.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings following soakaway testing.

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Project Number
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TETRA TECH

Project:	**Shaw Lane, Carlton**	Location Details	Status
Location:	**Shaw Lane, Carlton, Barnsley, S71 3HJ**	Easting: 437537.11 Northing: 410198.99	FINAL
Client:	**Network Space Developments Ltd**	Level: 42.63mAOD Depth: 1.50m	Pit Number **SA03**
		Logger: TB Type: TP	Sheet 1 of 1

Hole Information

Pit Dimensions: 2.80m × 0.55m

Orientation: 160°
Shoring: None
Stability: Stable
Plant: TEREX HML 32

Groundwater

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

Scale: 1:25
Checked By: NB
Approved By: SB
Start Date: 14/09/2021
Finish Date: 15/09/2021

Strata Description	Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Backfill	Samples and Testing: Depth (m)	Ref	Tests / Results
MADE GROUND: Soft to firm dark brown grey slightly sandy gravelly silty clayey TOPSOIL with occasional rootlets. Sand is fine to medium. Gravel is angular to rounded fine to coarse brick quartzite and mudstone.						0.20	ES1	
Stiff orange brown mottled grey slightly sandy slightly gravelly silty CLAY. Sand is fine. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		0.40	42.23			0.50	ES2	
						0.60	D1	HV 0.60m, (p)=108,99,119 kPa (r)= kPa
Stiff grey mottled orange brown slightly sandy gravelly silty CLAY. Sand is fine. Gravel is angular fine to coarse mudstone and siltstone. (Weathered Bedrock).		1.00	41.63			1.20	D2	
								HV 1.40m, (p)=127,130,142 kPa (r)= kPa
EOH at 1.50m - Target Depth Achieved.		1.50	41.13					

Observations / Remarks

1. Trial pit terminated at 1.50m due to reaching required depth.
2. Groundwater not encountered.
3. Exploratory hole backfilled with arisings following soakaway testing.

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Project Number
B029129

APPENDIX C – PHOTO PLATES

Photo Plate No. 01: Dynamic sampling operations on site

Photo Plate No. 02: View from the east of pond in the northwest part of the site

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Environmental Consultancy
Ground Technologies & Investigation

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 03: View of raised manhole cover present in the eastern part of the site

Photo Plate No. 04: Raised manhole cover present in the southeastern part of the site

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Environmental Consultancy
Ground Technologies & Investigation

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 05: DS01 1.2-2.0m bgl

Photo Plate No. 06: DS01 2.0-3.0m bgl

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Environmental Consultancy
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TETRA TECH

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 07: DS01 3.0-4.0m bgl

Photo Plate No. 08: DS01 4.0-5.0m bgl

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Environmental Consultancy
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TETRA TECH

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 09: SA02

Photo Plate No. 10: SA02 side profile

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Environmental Consultancy
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TETRA TECH

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 11: SA02 spoil

Photo Plate No. 12: SA02 safety barriers during investigation

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Environmental Consultancy
Ground Technologies & Investigation

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 13: TP02

Photo Plate No. 14: TP02 side profile

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Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 15: TP02 spoil

Photo Plate No. 16: TP02 reinstatement

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Environmental Consultancy
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TETRA TECH

Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 17: TP04

Photo Plate No. 18: TP04 side profile

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Environmental Consultancy
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Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

Photo Plate No. 19: TP04 spoil

Photo Plate No. 20: TP04 reinstatement

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Environmental Consultancy
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Project: Shaw Lane, Carlton

Client: Network Space Developments Ltd

Site Photo Plates

Project No.: B029129

Date: November 2021

APPENDIX D – GEOTECHNICAL TESTING RESULTS

LABORATORY REPORT

4043

Contract Number: PSL21/7518

Report Date: 22 October 2021

Client's Reference: B029129

Client Name: Tetra Tech
Quay West at Media City UK
Trafford Wharf Road
Trafford Park
Manchester
M17 1HH

For the attention of: Nick Brooke

Contract Title: Shaw Lane, Carlton Barnsley

Date Received: 21/9/2021
Date Commenced: 21/9/2021
Date Completed: 22/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
M Fennell (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
DS01			3.70		Dark grey slightly sandy very silty CLAY.
DS02			4.00		Dark grey slightly sandy very silty CLAY
DS03			1.90	2.40	Brown mottled grey very gravelly very sandy CLAY.
DS03			2.50		Grey mottled brown sandy very silty CLAY.
DS04			1.40		Greyish brown slightly gravelly very sandy very silty CLAY.
DS04			2.30	2.80	Brown slightly gravelly sandy CLAY.
DS05			1.70	2.30	Brown gravelly very sandy CLAY.
TP01			0.70		Grey mottled brown sandy very silty CLAY
TP01			1.50	1.80	Brown mottled grey gravelly very sandy very silty CLAY.
TP02			0.45	0.60	Brown mottled grey gravelly very sandy CLAY.
TP02			2.00		Dark grey slightly sandy CLAY.
TP02			2.50	2.90	Grey gravelly very sandy CLAY.
TP04			7.00		Brown slightly sandy very silty CLAY.
TP04			1.80	2.30	Brown very gravelly sandy CLAY.
TP06			1.80		Brown mottled grey sandy very silty CLAY
TP06			2.50	3.00	Brown mottled grey slightly gravelly slightly sandy CLAY.
TP07			0.45	0.60	Brown mottled grey slightly gravelly sandy CLAY.
SA01			1.50		Brown sandy very silty CLAY.
SA02			1.50		Grey mottled brown slightly gravelly slightly sandy very silty CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
DS01			3.70		12			51	25	26	100	High Plasticity CH
DS02			4.00		12			51	26	25	100	High Plasticity CH
DS03			2.50		12			45	22	23	100	Intermediate Plasticity CI
DS04			1.40		18			32	18	14	94	Low Plasticity CL
TP01			0.70		22			38	20	18	100	Intermediate Plasticity CI
TP02			2.00		28			69	29	40	100	High Plasticity CH
TP04			7.00		31			65	30	35	100	High Plasticity CH
TP06			1.80		22			47	26	21	100	Intermediate Plasticity CI
SA01			1.50		21			37	19	18	100	Intermediate Plasticity CI
SA02			1.50		22			55	28	27	94	High Plasticity CH

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Shaw Lane, Carlton Barnsley

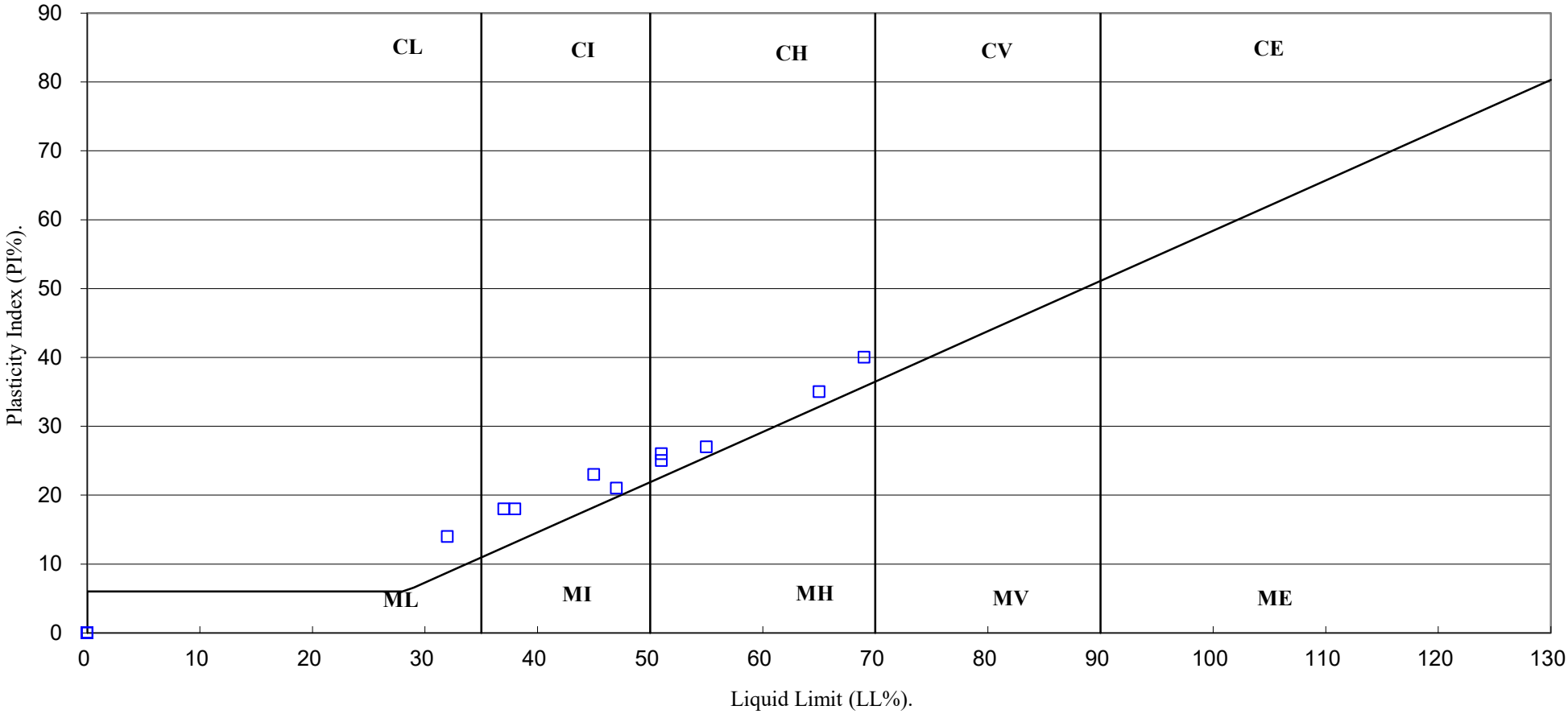
Contract No:

PSL21/ 7518

Client Ref:

B029129

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



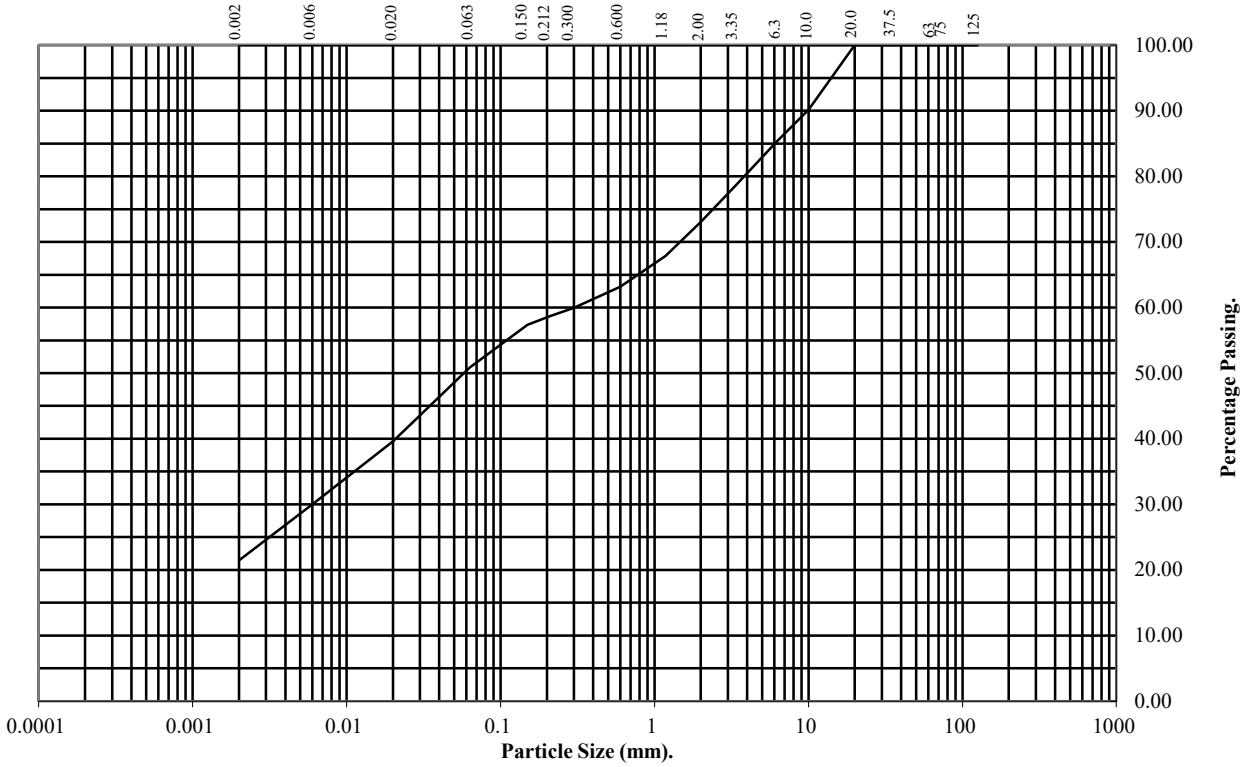
UKAS TESTING 4043	PSL Professional Soils Laboratory	Shaw Lane, Carlton Barnsley	Contract No: PSL21/ 7518
			Client Ref: B029129

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS03**	**Top Depth (m):**	**1.90**
Sample Number:	**3**	**Base Depth(m):**	**2.40**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	85
3.35	79
2	73
1.18	68
0.6	63
0.3	60
0.212	59
0.15	57
0.063	51

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	27
Sand	22
Silt	30
Clay	21

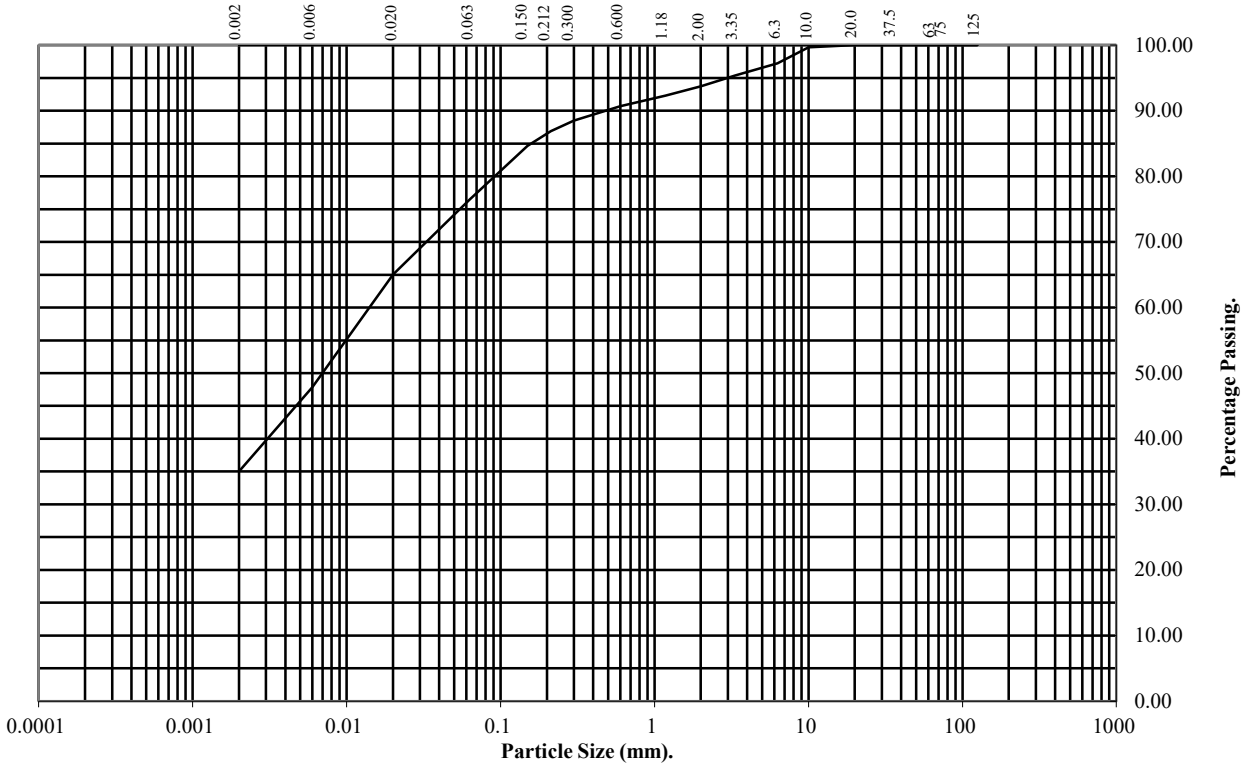
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS04**	**Top Depth (m):**	**2.30**
Sample Number:	**3**	**Base Depth(m):**	**2.80**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	97
3.35	95
2	94
1.18	92
0.6	91
0.3	88
0.212	87
0.15	85
0.063	76

Particle Diameter	Percentage Passing
0.02	65
0.006	48
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	18
Silt	41
Clay	35

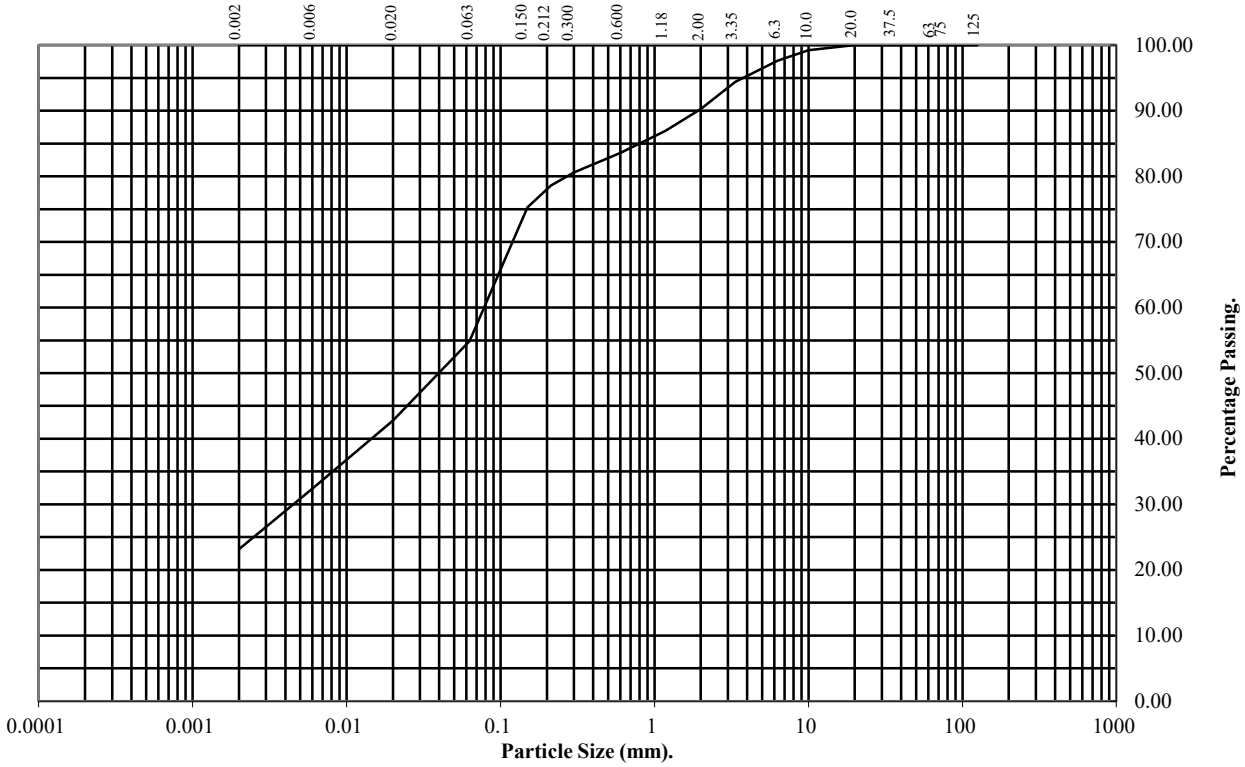
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS05**	**Top Depth (m):**	**1.70**
Sample Number:	**4**	**Base Depth(m):**	**2.30**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	94
2	90
1.18	87
0.6	84
0.3	81
0.212	79
0.15	75
0.063	55

Particle Diameter	Percentage Passing
0.02	43
0.006	32
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	10
Sand	35
Silt	32
Clay	23

Remarks:
See Summary of Soil Descriptions

4043

PSL Professional Soils Laboratory

Shaw Lane, Carlton Barnsley

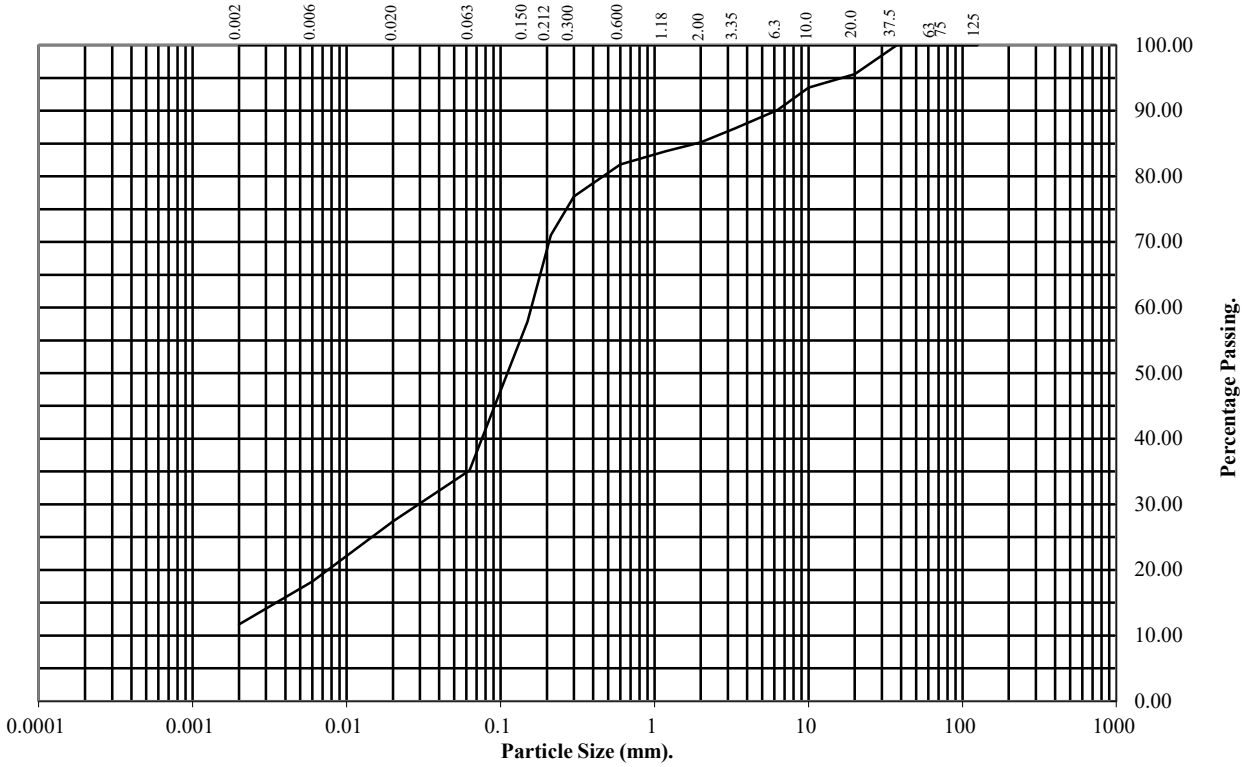
Contract No:
PSL21/7518
Client Ref:
B029129

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP01**	**Top Depth (m):**	**1.50**
Sample Number:	**5**	**Base Depth(m):**	**1.80**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	94
6.3	90
3.35	87
2	85
1.18	84
0.6	82
0.3	77
0.212	71
0.15	58
0.063	35

Particle Diameter	Percentage Passing
0.02	27
0.006	18
0.002	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	50
Silt	23
Clay	12

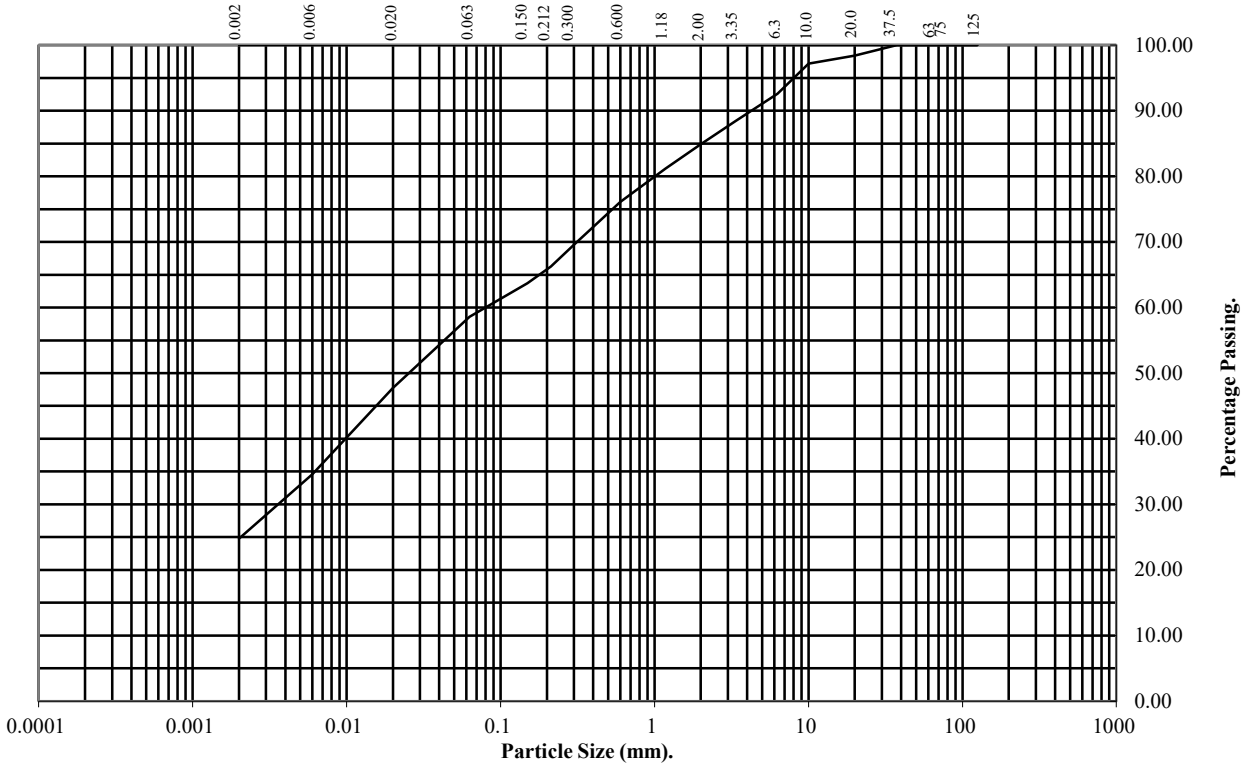
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP02**	**Top Depth (m):**	**0.45**
Sample Number:	**1**	**Base Depth(m):**	**0.60**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	97
6.3	93
3.35	88
2	85
1.18	81
0.6	76
0.3	70
0.212	66
0.15	64
0.063	59

Particle Diameter	Percentage Passing
0.02	48
0.006	35
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	26
Silt	34
Clay	25

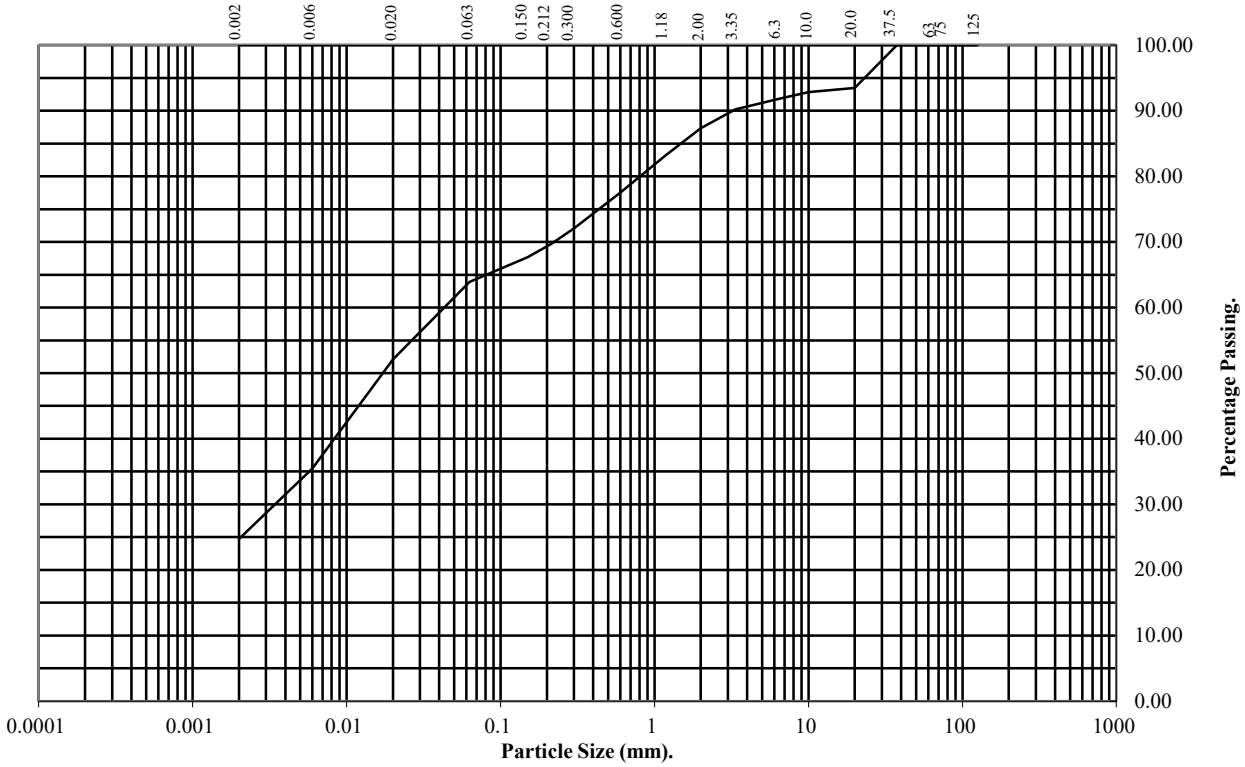
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP02**	**Top Depth (m):**	**2.50**
Sample Number:	**4**	**Base Depth(m):**	**2.90**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	93
6.3	92
3.35	90
2	87
1.18	83
0.6	78
0.3	72
0.212	70
0.15	68
0.063	64

Particle Diameter	Percentage Passing
0.02	52
0.006	35
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	23
Silt	39
Clay	25

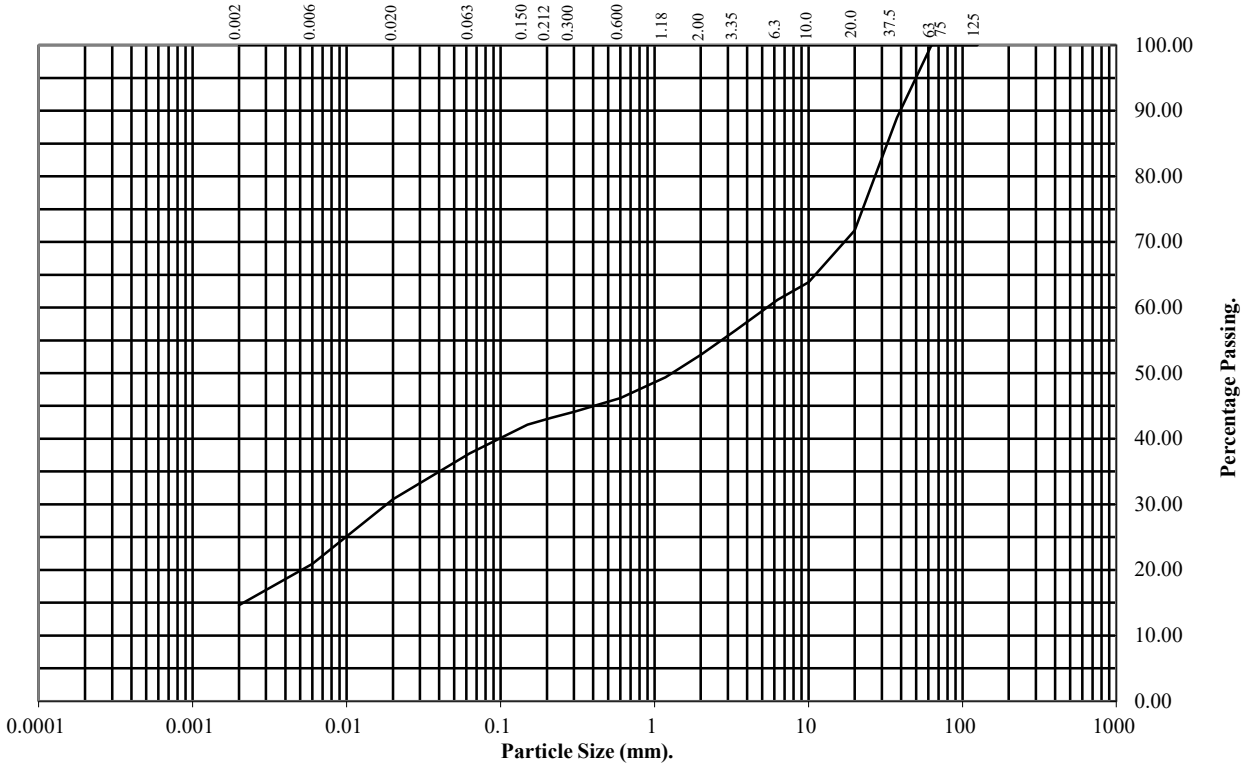
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP04**	**Top Depth (m):**	**1.80**
Sample Number:	**5**	**Base Depth(m):**	**2.30**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	72
10	64
6.3	61
3.35	57
2	53
1.18	49
0.6	46
0.3	44
0.212	43
0.15	42
0.063	38

Particle Diameter	Percentage Passing
0.02	31
0.006	21
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	47
Sand	15
Silt	23
Clay	15

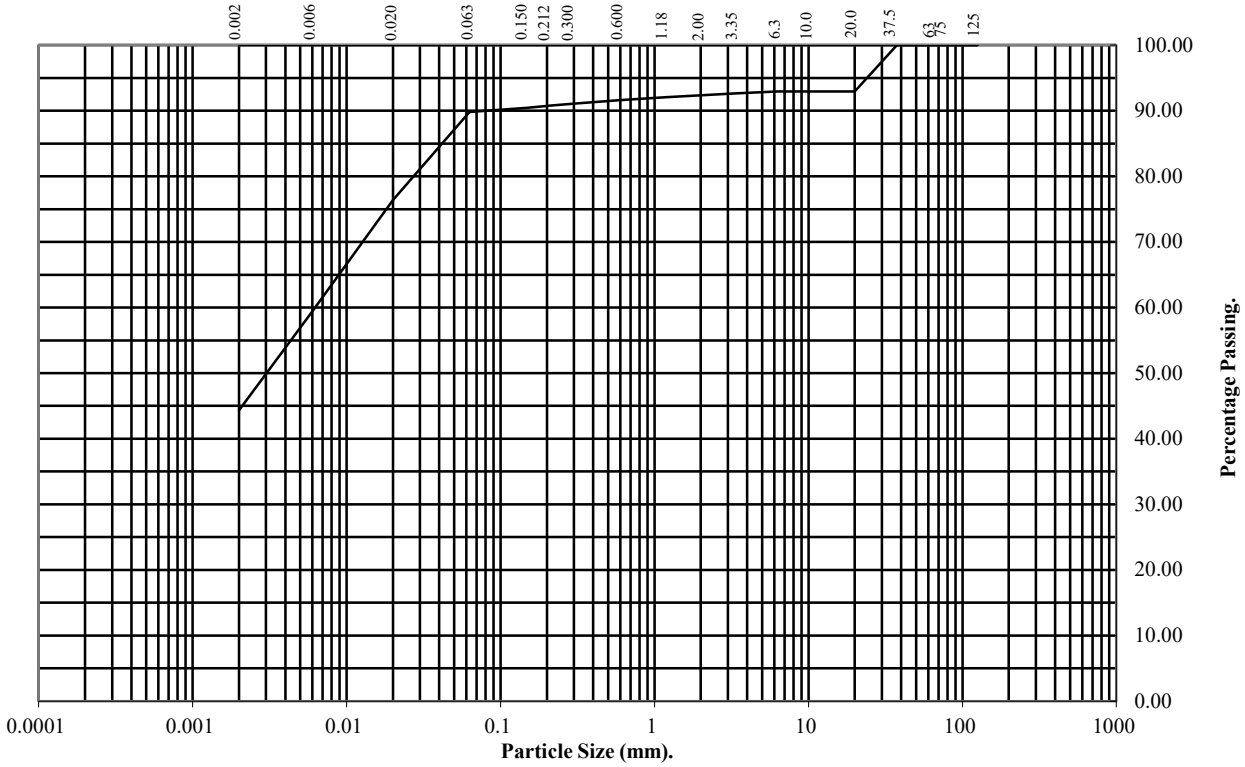
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP06**	**Top Depth (m):**	**2.50**
Sample Number:	**4**	**Base Depth(m):**	**3.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	93
6.3	93
3.35	93
2	92
1.18	92
0.6	92
0.3	91
0.212	91
0.15	90
0.063	90

Particle Diameter	Percentage Passing
0.02	76
0.006	59
0.002	44

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	2
Silt	46
Clay	44

Remarks:
See Summary of Soil Descriptions

4043

Professional Soils Laboratory

Shaw Lane, Carlton Barnsley

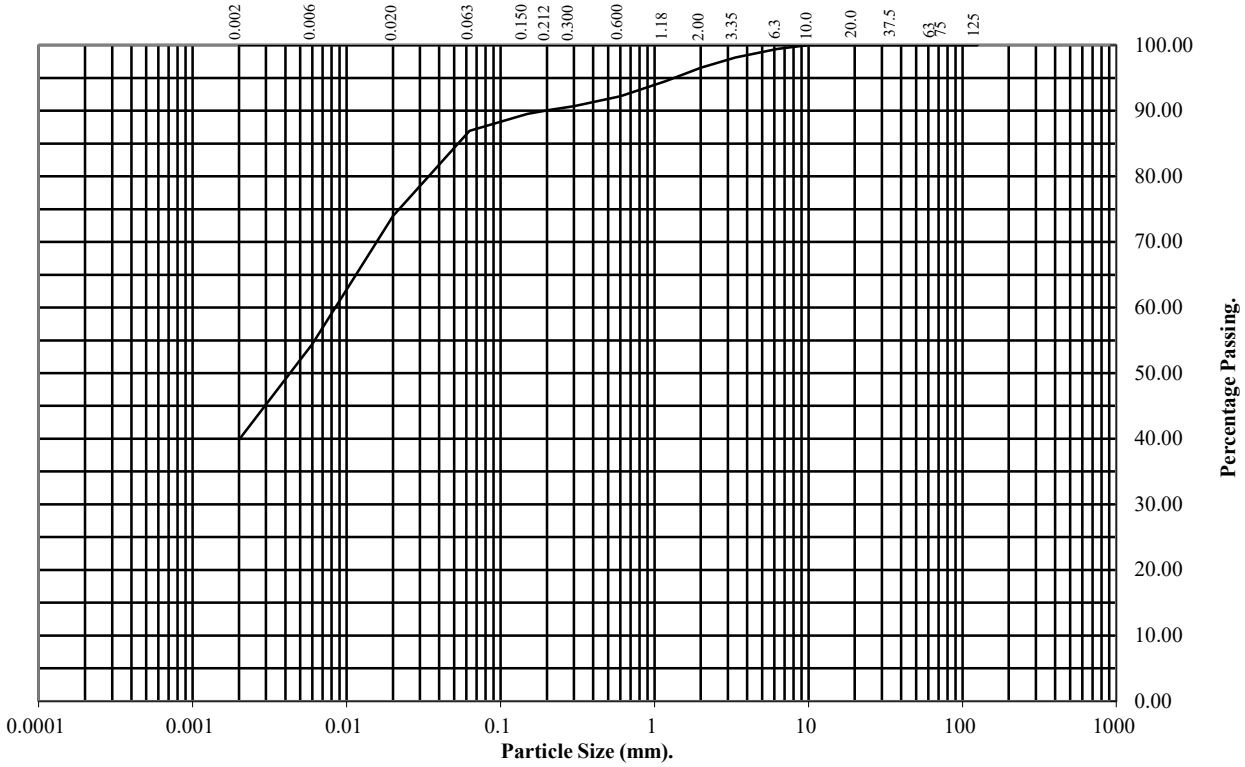
Contract No:
PSL21/7518
Client Ref:
B029129

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP07**	**Top Depth (m):**	**0.45**
Sample Number:	**1**	**Base Depth(m):**	**0.60**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	94
0.6	92
0.3	91
0.212	90
0.15	90
0.063	87

Particle Diameter	Percentage Passing
0.02	74
0.006	54
0.002	40

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	10
Silt	47
Clay	40

Remarks:
See Summary of Soil Descriptions

2531

ANALYTICAL TEST REPORT

Contract no: 101230

Contract name: Shaw Lane, Carlton, Barnsley

Client reference: PSL21/7518

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

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 6 weeks from initial receipt unless otherwise instructed.

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: K Campbell
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101230-1	101230-2	101230-3	101230-4	101230-5
Sample id			DS01	DS02	DS03	DS05	TP02
Depth (m)			4.00-4.45	1.50	3.00-3.45	1.20-1.65	1.20
Date sampled			13/09/2021	13/09/2021	13/09/2021	13/09/2021	15/09/2021
Test	**Method**	**Units**					
pH	CE004 [U]	units	5.0	7.6	7.6	7.3	7.2
Sulphate (2:1 water soluble)	CE061	mg/l SO_4	1560	365	113	29	121

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	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO_4

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)
101230-1	DS01	4.00-4.45	N	
101230-2	DS02	1.50	N	
101230-3	DS03	3.00-3.45	N	
101230-4	DS05	1.20-1.65	N	
101230-5	TP02	1.20	N	

APPENDIX E – ENVIRONMENTAL TESTING RESULTS

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

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F: +44 (0) 1244 833781
W: www.element.com

Tetra Tech
Quay West at MediaCityUK
Trafford Wharf Road
Trafford Park,
Manchester
M17 1HH

Attention :	Nicholas Brook
Date :	1st November, 2021
Your reference :	784-B029129
Our reference :	Test Report 21/14494
Location :	Shaw Lane Carlton
Date samples received :	16th & 18th September, 2021
Status :	Final report
Issue :	1

Thirty two samples were received for analysis on 16th & 18th September, 2021 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Element Materials Technology Environmental UK Limited
Registered in England and Wales
Registered Office: 10 Lower Grosvenor Place, London, SW1W 0EN
Company Registration No: 11371415

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	5-8	21-24	25-28	37-40	49-52	61-64	68-70	71-74	79-82	92-94	LOD/LOR	Units	Method No.
Sample ID	DS01 ES2	DS04 ES1	DS04 ES2	DS03 ES2	SA01 ES1	SA02 ES2	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2			
Depth	0.50	0.10	0.50	0.40	0.30	0.60	0.50	0.20	0.20	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	13/09/2021	13/09/2021	13/09/2021	13/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	15/09/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021			
Arsenic #	19.5	-	7.0	17.1	-	-	6.8	14.2	13.1	21.8	<0.5	mg/kg	TM30/PM15
Cadmium #	0.5	-	0.5	0.6	-	-	0.2	0.5	0.4	0.4	<0.1	mg/kg	TM30/PM15
Chromium #	41.1	-	81.4	44.1	-	-	42.7	41.3	44.2	36.8	<0.5	mg/kg	TM30/PM15
Copper #	89	-	43	72	-	-	26	77	54	54	<1	mg/kg	TM30/PM15
Lead #	72	-	46	47	-	-	18	51	48	47	<5	mg/kg	TM30/PM15
Mercury #	0.2	-	<0.1	<0.1	-	-	<0.1	<0.1	0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	32.8	-	16.5	27.8	-	-	49.2	26.1	25.4	50.8	<0.7	mg/kg	TM30/PM15
Selenium #	2	-	<1	1	-	-	1	2	<1	2	<1	mg/kg	TM30/PM15
Water Soluble Boron #	3.5	-	1.2	2.5	-	-	0.6	2.7	1.8	1.7	<0.1	mg/kg	TM74/PM32
Zinc #	115	-	110	133	-	-	87	121	104	104	<5	mg/kg	TM30/PM15
Arsenic	-	-	-	-	12.0	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Cadmium	-	-	-	-	0.6	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Chromium	-	-	-	-	39.2	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Copper	-	-	-	-	67	-	-	-	-	-	<1	mg/kg	TM30/PM62
Lead	-	-	-	-	83	-	-	-	-	-	<5	mg/kg	TM30/PM62
Mercury	-	-	-	-	<0.1	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Nickel	-	-	-	-	23.4	-	-	-	-	-	<0.7	mg/kg	TM30/PM62
Selenium	-	-	-	-	<1	-	-	-	-	-	<1	mg/kg	TM30/PM62
Water Soluble Boron	-	-	-	-	2.0	-	-	-	-	-	<0.1	mg/kg	TM74/PM61
Zinc	-	-	-	-	153	-	-	-	-	-	<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	0.40	0.43	0.88	0.05	0.13	<0.04	<0.04	0.09	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.08	0.69	0.37	<0.03	0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.09	0.99	0.68	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	0.08	0.89	0.65	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	1.60	9.42	5.76	0.10	1.06	<0.03	<0.03	0.13	0.05	0.11	<0.03	mg/kg	TM4/PM8
Anthracene #	0.40	4.21	1.76	<0.04	0.50	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	3.23	20.67	9.39	0.12	3.53	<0.03	<0.03	0.19	0.09	0.19	<0.03	mg/kg	TM4/PM8
Pyrene #	2.52	18.19	8.36	0.11	3.31	<0.03	<0.03	0.16	0.07	0.18	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	1.41	12.12	4.88	0.09	2.72	<0.06	<0.06	0.13	<0.06	0.13	<0.06	mg/kg	TM4/PM8
Chrysene #	1.47	10.13	4.68	0.10	2.68	0.04	<0.02	0.11	0.05	0.13	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	2.59	19.56	8.46	0.15	4.77	<0.07	<0.07	0.20	0.09	0.25	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	1.42	11.17	5.04	0.09	2.43	<0.04	<0.04	0.10	<0.04	0.12	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.83	7.07	2.98	0.05	1.37	<0.04	<0.04	0.06	<0.04	0.08	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.19	1.35	0.70	<0.04	0.26	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.76	6.72	2.94	0.05	1.31	<0.04	<0.04	0.06	<0.04	0.10	<0.04	mg/kg	TM4/PM8
Coronene	-	1.23	-	-	-	<0.04	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	17.1	-	57.5	0.9	24.4	-	<0.6	1.2	<0.6	1.3	<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	124.84	-	-	-	<0.64	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	1.86	14.08	6.09	0.11	3.43	<0.05	<0.05	0.14	0.06	0.18	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.73	5.48	2.37	0.04	1.34	<0.02	<0.02	0.06	0.03	0.07	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	94	94	92	92	94	88	85	92	93	95	<0	%	TM4/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	5-8	21-24	25-28	37-40	49-52	61-64	68-70	71-74	79-82	92-94	LOD/LOR	Units	Method No.
Sample ID	DS01 ES2	DS04 ES1	DS04 ES2	DS03 ES2	SA01 ES1	SA02 ES2	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2			
Depth	0.50	0.10	0.50	0.40	0.30	0.60	0.50	0.20	0.20	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	13/09/2021	13/09/2021	13/09/2021	13/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	15/09/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021			
EPH >C8-C10 (EH_1D_Total) #	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	mg/kg	TM5/PM8
EPH >C10-C12 (EH_1D_Total) #	<10	-	<10	<10	<10	-	<10	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C12-C16 (EH_1D_Total) #	18	-	<10	<10	<10	-	<10	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C16-C21 (EH_1D_Total) #	70	-	88	15	25	-	<10	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C21-C40 (EH_1D_Total)	171	-	1028	174	470	-	<10	58	60	94	<10	mg/kg	TM5/PM8
EPH >C8-C40 (EH_1D_Total)	259	-	1116	189	495	-	<30	58	60	94	<30	mg/kg	TM5/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	84	-	-	-	<30	-	-	-	-	<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	-	<0.2	<0.2	-	-	-	<0.2	-	3.1	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	-	<4	<4	-	-	-	<4	-	15	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	-	<7	<7	-	-	-	<7	-	55	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	-	80	<7	-	-	-	<7	-	389	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-	-	80	<19	-	-	-	<19	-	462	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	-	<0.1	<0.1	-	-	-	<0.1 SV	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	-	<0.2	<0.2	-	-	-	<0.2	-	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	-	8	<4	-	-	-	<4	-	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	-	55	<7	-	-	-	<7	-	35	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	-	307	<7	-	-	-	<7	-	489	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	-	-	370	<19	-	-	-	<19	-	524	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	-	-	450	<38	-	-	-	<38	-	986	<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	-	<5	<5	<5	-	<5	-	<5 SV	-	<5	<5	ug/kg	TM36/PM12
Benzene #	-	<5	<5	<5	-	<5	-	<5 SV	-	<5	<5	ug/kg	TM36/PM12
Toluene #	-	<5	<5	<5	-	<5	-	<5 SV	-	<5	<5	ug/kg	TM36/PM12
Ethylbenzene #	-	8	6	<5	-	<5	-	<5 SV	-	<5	<5	ug/kg	TM36/PM12
m/p-Xylene #	-	32	21	9	-	<5	-	15 SV	-	<5	<5	ug/kg	TM36/PM12
o-Xylene #	-	18	12	<5	-	<5	-	8 SV	-	<5	<5	ug/kg	TM36/PM12
PCB 28 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	-	<35	-	-	-	-	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	5-8	21-24	25-28	37-40	49-52	61-64	68-70	71-74	79-82	92-94	LOD/LOR	Units	Method No.
Sample ID	DS01 ES2	DS04 ES1	DS04 ES2	DS03 ES2	SA01 ES1	SA02 ES2	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2			
Depth	0.50	0.10	0.50	0.40	0.30	0.60	0.50	0.20	0.20	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	13/09/2021	13/09/2021	13/09/2021	13/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	15/09/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021			
Total Phenols HPLC	<0.15	-	<0.15	<0.15	<0.15	-	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	18.2	15.4	11.7	24.3	18.9	17.6	21.6	25.2	24.0	19.2	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0832	-	0.1616	0.0174	-	-	0.0365	0.0208	0.0247	0.2650	<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	-	0.0298	-	-	-	-	-	<0.0015	g/l	TM38/PM60
Free Cyanide	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	4.21	-	-	-	0.40	-	-	-	-	<0.02	%	TM21/PM24
ANC at pH4	-	0.26	-	-	-	0.08	-	-	-	-	<0.03	mol/kg	TM77/PM0
ANC at pH7	-	<0.03	-	-	-	NDP	-	-	-	-	<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	7.4	-	-	-	5.4	-	-	-	-	<1.0	%	TM22/PM0
pH #	7.85	8.42	8.47	7.44	8.21	8.20	7.98	7.51	6.94	7.55	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

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All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	102-105	106-109	114-117									
Sample ID	TP03 ES2	TP03 ES3	TP05 ES2									
Depth	1.0	1.5	0.50									
COC No / misc												
Containers	V J T	V J T	V J T									
Sample Date	15/09/2021	15/09/2021	15/09/2021									
Sample Type	Soil	Soil	Soil									
Batch Number	2	2	2									
Date of Receipt	18/09/2021	18/09/2021	18/09/2021									

Please see attached notes for all abbreviations and acronyms

				LOD/LOR	Units	Method No.
Arsenic #	-	14.3	18.6	<0.5	mg/kg	TM30/PM15
Cadmium #	-	0.8	0.1	<0.1	mg/kg	TM30/PM15
Chromium #	-	51.2	39.2	<0.5	mg/kg	TM30/PM15
Copper #	-	43	24	<1	mg/kg	TM30/PM15
Lead #	-	68	26	<5	mg/kg	TM30/PM15
Mercury #	-	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	-	37.9	44.5	<0.7	mg/kg	TM30/PM15
Selenium #	-	2	2	<1	mg/kg	TM30/PM15
Water Soluble Boron #	-	3.8	0.2	<0.1	mg/kg	TM74/PM32
Zinc #	-	129	115	<5	mg/kg	TM30/PM15
Arsenic	-	-	-	<0.5	mg/kg	TM30/PM62
Cadmium	-	-	-	<0.1	mg/kg	TM30/PM62
Chromium	-	-	-	<0.5	mg/kg	TM30/PM62
Copper	-	-	-	<1	mg/kg	TM30/PM62
Lead	-	-	-	<5	mg/kg	TM30/PM62
Mercury	-	-	-	<0.1	mg/kg	TM30/PM62
Nickel	-	-	-	<0.7	mg/kg	TM30/PM62
Selenium	-	-	-	<1	mg/kg	TM30/PM62
Water Soluble Boron	-	-	-	<0.1	mg/kg	TM74/PM61
Zinc	-	-	-	<5	mg/kg	TM30/PM62
PAH MS						
Naphthalene #	0.06	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.20	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	0.07	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.66	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.65	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.45	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.42	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	1.09	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.66	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.37	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.11	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.39	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	0.07	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	<0.6	<0.6	<0.6	mg/kg	TM4/PM8
PAH 17 Total	5.20	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.78	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.31	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	102	100	88	<0	%	TM4/PM8

Element Materials Technology

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	102-105	106-109	114-117								LOD/LOR	Units	Method No.
Sample ID	TP03 ES2	TP03 ES3	TP05 ES2										
Depth	1.0	1.5	0.50										
COC No / misc													
Containers	V J T	V J T	V J T										
Sample Date	15/09/2021	15/09/2021	15/09/2021										
Sample Type	Soil	Soil	Soil										
Batch Number	2	2	2										
Date of Receipt	18/09/2021	18/09/2021	18/09/2021										
EPH >C8-C10 (EH_1D_Total) #	-	<5	<5								<5	mg/kg	TM5/PM8
EPH >C10-C12 (EH_1D_Total) #	-	<10	<10								<10	mg/kg	TM5/PM8
EPH >C12-C16 (EH_1D_Total) #	-	<10	<10								<10	mg/kg	TM5/PM8
EPH >C16-C21 (EH_1D_Total) #	-	<10	<10								<10	mg/kg	TM5/PM8
EPH >C21-C40 (EH_1D_Total)	-	84	<10								<10	mg/kg	TM5/PM8
EPH >C8-C40 (EH_1D_Total)	-	84	<30								<30	mg/kg	TM5/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	-	-								<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	<0.2	-								<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	<4	-								<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	<7	-								<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	27	-								<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-	27	-								<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	<0.1 SV	-								<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	<0.2	-								<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	<4	-								<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	22	-								<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	84	-								<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	-	106	-								<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	-	133	-								<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
Benzene #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
Toluene #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5 SV	-								<5	ug/kg	TM36/PM12
PCB 28 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 52 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 101 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 118 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 138 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 153 #	<5	-	-								<5	ug/kg	TM17/PM8
PCB 180 #	<5	-	-								<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	-	-								<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook
EMT Job No: 21/14494

Report : Solid

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

EMT Sample No.	102-105	106-109	114-117									
Sample ID	TP03 ES2	TP03 ES3	TP05 ES2									
Depth	1.0	1.5	0.50									
COC No / misc												
Containers	V J T	V J T	V J T									
Sample Date	15/09/2021	15/09/2021	15/09/2021									
Sample Type	Soil	Soil	Soil									
Batch Number	2	2	2									
Date of Receipt	18/09/2021	18/09/2021	18/09/2021									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Total Phenols HPLC	-	<0.15	<0.15								<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	18.6	59.0	15.4								<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	<0.3								<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.0930	0.0397								<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-								<0.0015	g/l	TM38/PM60
Free Cyanide	-	<0.5	<0.5								<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	2.22	-	-								<0.02	%	TM21/PM24
ANC at pH4	0.10	-	-								<0.03	mol/kg	TM77/PM0
ANC at pH7	NDP	-	-								<0.03	mol/kg	TM77/PM0
Loss on Ignition #	7.0	-	-								<1.0	%	TM22/PM0
pH #	8.12	6.97	7.37								<0.01	pH units	TM73/PM11

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All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	18.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	84.6
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**21/14494**			
Sample No	**23**			
Client Sample No	**DS04 ES1**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.10**			
Sample Date	**13/09/2021**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	4.21	3	5	6
Loss on Ignition (%)	7.4	-	-	10
Sum of BTEX (mg/kg)	0.058	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	84	500	-	-
PAH Sum of 17(mg/kg)	124.84	100	-	-
pH (pH Units)	8.42	-	>6	-
ANC to pH 7 (mol/kg)	<0.03	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.26	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0035	0.035	0.5	2	25
Barium	0.024	0.24	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	0.017	0.17	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.003	0.03	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.008	0.08	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	0.003	0.03	4	50	200
Chloride	1.9	19	800	15000	25000
Fluoride	0.8	8	10	150	500
Sulphate as SO4	1.9	19	1000	20000	50000
Total Dissolved Solids	83	830	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	<2	<20	500	800	1000

All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	19.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	83.9
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**21/14494**			
Sample No	**63**			
Client Sample No	**SA02 ES2**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.60**			
Sample Date	**14/09/2021**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	0.40	3	5	6
Loss on Ignition (%)	5.4	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	8.20	-	>6	-
ANC to pH 7 (mol/kg)	NDP	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.08	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	<0.0025	<0.025	0.5	2	25
Barium	0.007	0.07	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	<0.002	<0.02	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	<0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	0.005	0.05	4	50	200
Chloride	0.8	8	800	15000	25000
Fluoride	0.9	9	10	150	500
Sulphate as SO4	2.3	23	1000	20000	50000
Total Dissolved Solids	37	370	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	<2	<20	500	800	1000

All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	14.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	87.5
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**21/14494**			
Sample No	**104**			
Client Sample No	**TP03 ES2**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**1.0**			
Sample Date	**15/09/2021**			
Batch No	**2**			
Solid Waste Analysis				
Total Organic Carbon (%)	2.22	3	5	6
Loss on Ignition (%)	7.0	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	5.20	100	-	-
pH (pH Units)	8.12	-	>6	-
ANC to pH 7 (mol/kg)	NDP	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.10	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	<0.0025	<0.025	0.5	2	25
Barium	0.007	0.07	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	<0.002	<0.02	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	<0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	0.004	0.04	4	50	200
Chloride	1.6	16	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	10.0	100	1000	20000	50000
Total Dissolved Solids	65	650	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	17	170	500	800	1000

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/14494	1	DS04 ES2	0.50	27	22/09/2021	**General Description (Bulk Analysis)**	soil
					22/09/2021	**Asbestos Fibres**	NAD
					22/09/2021	**Asbestos ACM**	NAD
					22/09/2021	**Asbestos Type**	NAD
					22/09/2021	**Asbestos Level Screen**	NAD
21/14494	1	DS03 ES2	0.40	39	22/09/2021	**General Description (Bulk Analysis)**	soil/stones
					22/09/2021	**Asbestos Fibres**	NAD
					22/09/2021	**Asbestos ACM**	NAD
					22/09/2021	**Asbestos Type**	NAD
					22/09/2021	**Asbestos Level Screen**	NAD
21/14494	1	SA01 ES1	0.30	51	22/09/2021	**General Description (Bulk Analysis)**	soil/stones
					22/09/2021	**Asbestos Fibres**	Fibre Bundles
					22/09/2021	**Asbestos ACM**	NAD
					22/09/2021	**Asbestos Type**	Chrysotile
					22/09/2021	**Asbestos Level Screen**	less than 0.1%
					28/09/2021	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					28/09/2021	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					28/09/2021	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					29/09/2021	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					29/09/2021	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
21/14494	1	TP04 ES1	0.20	81	22/09/2021	**General Description (Bulk Analysis)**	soil
					22/09/2021	**Asbestos Fibres**	NAD
					22/09/2021	**Asbestos ACM**	NAD
					22/09/2021	**Asbestos Type**	NAD
					22/09/2021	**Asbestos Level Screen**	NAD
21/14494	1	TP02 ES2	0.50	94	22/09/2021	**General Description (Bulk Analysis)**	soil
					22/09/2021	**Asbestos Fibres**	NAD
					22/09/2021	**Asbestos ACM**	NAD
					22/09/2021	**Asbestos Type**	NAD
					22/09/2021	**Asbestos Level Screen**	NAD

Client Name: Tetra Tech

Reference: 784-B029129

Location: Shaw Lane Carlton

Contact: Nicholas Brook

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
21/14494	1	SA02 ES2	0.60	61-64	TM77/PM0	Sample received is below pH7
21/14494	2	TP03 ES2	1.0	102-105	TM77/PM0	Sample received is below pH7

Client Name: Tetra Tech
Reference: 784-B029129
Location: Shaw Lane Carlton
Contact: Nicholas Brook

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 21/14494						

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

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/14494

SOILS

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

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

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

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

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

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

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

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

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

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

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

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

SURROGATES

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

DILUTIONS

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

BLANKS

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

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

Measurement Uncertainty

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

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 21/14494

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 21/14494

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes

EMT Job No: 21/14494

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM61	As received solid samples are extracted with hot water in a 20:1 ratio of water to soil ready for analysis by ICP.			AR	Yes
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes

EMT Job No: 21/14494

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma – Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified			AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX F – N60 SPT CORRECTION DATA

Tetra Tech								
STANDARD PENETRATION TEST SUMMARY								
Project Number:		B029129	Shaw Lane Carlton					
Client:	Network Space Developments Ltd		28/10/2021					
Hole ID	SPT Depth	Uncorrected SPT "N" Value	Energy Ratio	Corrected SPT "N" Value	Rod Correction SPT Value	Strata Type	Stratum Top	Stratum Bottom
	m bgl		%	N60			m bgl	m bgl
DS01	1.20	4	69	5		CLAY	0.80	1.70
DS01	2.00	11	69	13		CLAY	1.70	2.30
DS01	3.00	20	69	23	17	BEDROCK	2.30	3.60
DS01	4.00	44	69	51	43	BEDROCK	3.90	5.00
DS01	5.00	50	69	58	49	BEDROCK	3.90	5.00
DS02	1.20	15	69	17		CLAY	0.40	2.00
DS02	2.00	23	69	27		SAND	2.00	2.50
DS02	3.00	37	69	43	32	BEDROCK	2.90	4.00
DS02	4.00	50	69	58	49	BEDROCK	2.90	4.00
DS03	1.20	8	69	9		CLAY	0.50	1.30
DS03	2.00	21	69	24		GRAVEL	1.90	2.40
DS03	3.00	50	69	58	43	BEDROCK	2.40	3.00
DS04	1.20	5	69	6		MADE GROUND	1.00	1.30
DS04	2.00	23	69	27		SAND	1.80	2.30
DS04	3.00	50	69	58	43	BEDROCK	2.80	3.00
DS05	1.20	9	69	10		CLAY	0.30	1.30
DS05	2.00	34	69	39		CLAY	1.70	2.30
DS05	2.50	50	69	58		BEDROCK	2.30	2.50

APPENDIX G – TIER 1 SCREENING RESULTS

Sample Identity	England and Wales (mg/kg) where		DS01 ES2	DS04 ES1	DS04 ES2	DS03 ES2	SA01 ES1	SA02 ES2	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2	TP03 ES2	TP03 ES3	TP05 ES2
Depth (m bgl)	Soil Organic Matter is 2.5%		0.50	0.10	0.50	0.40	0.30	0.60	0.50	0.20	0.20	0.50	1.0	1.5	0.50
Reference		Screen Value	5-8	21-24	25-28	37-40	49-52	61-64	68-70	71-74	79-82	92-94	102-105	106-109	114-117
Sample Date	Units	Residential	13/09/2021	13/09/2021	13/09/2021	13/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	15/09/2021	15/09/2021	15/09/2021	15/09/2021
pH		<5, >9	7.85	8.42	8.47	7.44	8.21	8.2	7.98	7.51	6.94	7.55	8.12	6.97	7.37
Asbestos	%	Presence	-	-	None	None	Presence	-	-	-	None	None	-	-	-
HEAVY METALS/METALLOIDS															
Arsenic	mg/kg	37.00	19.5	-	7	17.1	12	-	6.8	14.2	13.1	21.8	-	14.3	18.6
Cadmium	mg/kg	22.00	0.5	-	0.5	0.6	0.6	-	0.2	0.5	0.4	0.4	-	0.8	0.1
Chromium (III)	mg/kg	910.00	41.1	-	81.4	44.1	39.2	-	42.7	41.3	44.2	36.8	-	51.2	39.2
Chromium (VI)	mg/kg	21.00	<0.3	-	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3
Copper	mg/kg	2400.00	89	-	43	72	67	-	26	77	54	54	-	43	24
Lead	mg/kg	200.00	72	-	46	47	83	-	18	51	48	47	-	68	26
Mercury (Inorganic)	mg/kg	40.00	0.2	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.1	<0.1	-	<0.1	<0.1
Nickel	mg/kg	130.00	32.8	-	16.5	27.8	23.4	-	49.2	26.1	25.4	50.8	-	37.9	44.5
Selenium	mg/kg	250.00	2	-	<1	1	<1	-	1	2	<1	2	-	2	2
Boron	mg/kg	290.00	3.5	-	1.2	2.5	2	-	0.6	2.7	1.8	1.7	-	3.8	0.2
Zinc	mg/kg	3700.00	115	-	110	133	153	-	87	121	104	104	-	129	115
GENERAL INORGANICS															
Easily Liberatable Cyanide (free)	mg/kg	24	<0.5	-	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5
US EPA PRIORITY PAHs															
Naphthalene	mg/kg		0.4	0.43	0.88	0.05	0.13	<0.04	<0.04	0.09	<0.04	<0.04	0.06	<0.04	<0.04
Acenaphthylene	mg/kg		0.08	0.69	0.37	<0.03	0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Acenaphthene	mg/kg		0.09	0.99	0.68	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	mg/kg		0.08	0.89	0.65	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Phenanthrene	mg/kg		1.6	9.42	5.76	0.1	1.06	<0.03	<0.03	0.13	0.05	0.11	0.2	<0.03	<0.03
Anthracene	mg/kg		0.4	4.21	1.76	<0.04	0.5	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	<0.04
Fluoranthene	mg/kg		3.23	20.67	9.39	0.12	3.53	<0.03	<0.03	0.19	0.09	0.19	0.66	<0.03	<0.03
Pyrene	mg/kg		2.52	18.19	8.36	0.11	3.31	<0.03	<0.03	0.16	0.07	0.18	0.65	<0.03	<0.03
Benzo(a)anthracene	mg/kg		1.41	12.12	4.88	0.09	2.72	<0.06	<0.06	0.13	<0.06	0.13	0.45	<0.06	<0.06
Chrysene	mg/kg		1.47	10.13	4.68	0.1	2.68	0.04	<0.02	0.11	0.05	0.13	0.42	<0.02	<0.02
Benzo(b)fluoranthene	mg/kg		1.86	14.08	6.09	0.11	3.43	<0.05	<0.05	0.14	0.06	0.18	0.78	<0.05	<0.05
Benzo(k)fluoranthene	mg/kg		0.73	5.48	2.37	0.04	1.34	<0.02	<0.02	0.06	0.03	0.07	0.31	<0.02	<0.02
Benzo(g,h,i)perylene	mg/kg		0.76	6.72	2.94	0.05	1.31	<0.04	<0.04	0.06	<0.04	0.1	0.39	<0.04	<0.04
Benzo(a)pyrene	mg/kg	5.00	1.42	11.17	5.04	0.09	2.43	<0.04	<0.04	0.1	<0.04	0.12	0.66	<0.04	<0.04
Di-benzo(a,h)anthracene	mg/kg		0.19	1.35	0.7	<0.04	0.26	<0.04	<0.04	<0.04	<0.04	<0.04	0.11	<0.04	<0.04
Indeno(1,2,3-cd)pyrene	mg/kg		0.83	7.07	2.98	0.05	1.37	<0.04	<0.04	0.06	<0.04	0.08	0.37	<0.04	<0.04
Mineral Oil (C10-C40) (EH_CU_1D_AL)	mg/kg		-	84	-	-	-	<30	-	-	-	-	<30	-	-
TPH															
TPH Aliphatic >C5-6	mg/kg	78	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aliphatic >C6-8	mg/kg	230	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aliphatic >C8-10	mg/kg	65	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aliphatic >C10-12	mg/kg	330	-	-	<0.2	<0.2	-	-	-	<0.2	-	3.1	-	<0.2	-
TPH Aliphatic >C12-16	mg/kg	2,400	-	-	<4	<4	-	-	-	<4	-	15	-	<4	-
TPH Aliphatic >C16-35	mg/kg	92,000	-	-	<87	<26	-	-	-	<26	-	444	-	34	-
TPH Aromatic >EC5-7 (Benzene)	mg/kg	0.41	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aromatic >EC7-8	mg/kg	290	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aromatic >EC8-10	mg/kg	83	-	-	<0.1	<0.1	-	-	-	<0.1	-	<0.1	-	<0.1	-
TPH Aromatic >EC10-12	mg/kg	180	-	-	<0.2	<0.2	-	-	-	<0.2	-	<0.2	-	<0.2	-
TPH Aromatic >EC12-16	mg/kg	330	-	-	8	<4	-	-	-	<4	-	<4	-	<4	-
TPH Aromatic >EC16-21	mg/kg	540	-	-	55	<7	-	-	-	<7	-	35	-	22	-
TPH Aromatic >EC21-35	mg/kg	1,500	-	-	307	<7	-	-	-	<7	-	489	-	84	-
BTEX															
Benzene	mg/kg	0.41	-	<5	<5	<5	-	<5	-	<5	-	<5	<5	<5	-
Toluene	mg/kg	290	-	<5	<5	<5	-	<5	-	<5	-	<5	<5	<5	-
Ethylbenzene	mg/kg	110	-	8	6	<5	-	<5	-	<5	-	<5	<5	<5	-
m/p-Xylene	mg/kg	140	-	32	21	9	-	<5	-	15	-	<5	<5	<5	-
o-Xylene	mg/kg	140	-	18	12	<5	-	<5	-	8	-	<5	<5	<5	-
ANIONS															
Water Soluble Sulphate as SO4 2:1 Extract	g/l		0.0832	-	0.1616	0.0174	0.0298	-	0.0365	0.0208	0.0247	0.265	-	0.093	0.0397
PHENOLS															
Phenol	mg/kg	200	<0.15	-	<0.15	<0.15	<0.15	-	<0.15	<0.15	<0.15	<0.15	-	<0.15	<0.15
PHYSICAL															
loisture Content Ratio (% of as received sample	%		18.2	15.4	11.7	24.3	18.9	17.6	21.6	25.2	24	19.2	18.6	59	15.4

Sample Identity	DS01 ES2	DS04 ES1	DS04 ES2	DS03 ES2	SA01 ES1	SA02 ES2	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2	TP03 ES2	TP03 ES3	TP05 ES2
Depth (m bgl)	**0.50**	**0.10**	**0.50**	**0.40**	0.30	0.60	0.50	0.20	0.20	0.50	1.0	1.5	0.50
Benzo(a)anthracene	1.41	12.12	4.88	0.09	2.72	0.06	0.06	0.13	0.06	0.13	0.45	0.06	0.06
Benzo(b)fluoranthene	1.86	14.08	6.09	0.11	3.43	0.05	0.05	0.14	0.06	0.18	0.78	0.05	0.05
Benzo(k)fluoranthene	0.73	5.48	2.37	0.04	1.34	0.02	0.02	0.06	0.03	0.07	0.31	0.02	0.02
Benzo(g,h,i)perylene	0.76	6.72	2.94	0.05	1.31	0.04	0.04	0.06	0.04	0.1	0.39	0.04	0.04
Benzo(a)pyrene	1.42	11.17	5.04	0.09	2.43	0.04	0.04	0.1	0.04	0.12	0.66	0.04	0.04
Chrysene	1.47	10.13	4.68	0.1	2.68	0.04	0.02	0.11	0.05	0.13	0.42	0.02	0.02
Di-benzo(a,h)anthracene	0.19	1.35	0.7	0.04	0.26	0.04	0.04	0.04	0.04	0.04	0.11	0.04	0.04
Indeno(1,2,3-cd)pyrene	0.83	7.07	2.98	0.05	1.37	0.04	0.04	0.06	0.04	0.08	0.37	0.04	0.04

TETRA TECH

Ratio to BaP														Min	Max	CULP Study Limits	
Benzo(a)anthracene	0.992957746	1.085049239	0.96825397	1	1.11934156	1.5	1.5	1.3	1.5	1.083333	0.681818	1.5	1.5	0.6818	1.5000	0.12	12.43
Chrysene	1.0352	0.9069	0.9286	1.1111	1.1029	1.0000	0.5000	1.1000	1.2500	1.0833	0.6364	0.5000	0.5000	0.5000	1.2500	0.12	11.61
Benzo(b)fluoranthene	1.3099	1.2605	1.2083	1.2222	1.4115	1.2500	1.2500	1.4000	1.5000	1.5000	1.1818	1.2500	1.2500	1.1818	1.5000	0.11	10.85
Benzo(k)fluoranthene	0.5141	0.4906	0.4702	0.4444	0.5514	0.5000	0.5000	0.6000	0.7500	0.5833	0.4697	0.5000	0.5000	0.4444	0.7500	0.04	3.72
Dibenzo(ah)anthracene	0.1338	0.1209	0.1389	0.4444	0.1070	1.0000	1.0000	0.4000	1.0000	0.3333	0.1667	1.0000	1.0000	0.1070	1.0000	0.01	1.38
Indeno(123cd)pyrene	0.5845	0.6329	0.5913	0.5556	0.5638	1.0000	1.0000	0.6000	1.0000	0.6667	0.5606	1.0000	1.0000	0.5556	1.0000	0.07	7.27
Benzo(ghi)perylene	0.5352	0.6016	0.5833	0.5556	0.5391	1.0000	1.0000	0.6000	1.0000	0.8333	0.5909	1.0000	1.0000	0.5352	1.0000	0.08	8.22

Sample Identity	England and Wales (mg/kg) where		DS01 ES2	DS04 ES2	DS03 ES2	SA01 ES1	SA03 ES2	TP07 ES1	TP04 ES1	TP02 ES2	TP03 ES3	DS01	DS02	DS03	DS05	TP02
Depth (m bgl)	Soil Organic Matter 2.5%		0.50	0.50	0.40	0.30	0.50	0.20	0.20	0.50	1.5	4.00 - 4.45	1.50	3.00 - 3.45	1.20 - 1.65	1.20
		Screen Value														
Sample Date	Units	Residential														
pH		<5, >9	7.85	8.47	7.44	8.21	7.98	7.51	6.94	7.55	8.12	5	7.6	7.6	7.3	7.2
Water Soluble Sulphate as SO4 2:1 Extract	g/l		0.383	0.0632	0.1460	0.5185	0.2152	0.0804	0.0651	0.127	0.3027	1.56	0.365	0.113	0.029	0.0121

TPH Hazard Indexing		Sample ID	DS04	HI	DS03	HI	TP07	HI	TP05	HI	TP03	HI
		Depth (mbgl)	0.10		0.40		0.20		0.50		1.50	
Aliphatics	**Units**	**TSV**										
TPH Aliphatic >C5-6	mg/kg	78	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00
TPH Aliphatic >C6-8	mg/kg	230	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00
TPH Aliphatic >C8-10	mg/kg	65	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00
TPH Aliphatic >C10-12	mg/kg	330	0.2	0.00	0.2	0.00	0.2	0.00	3.1	0.01	0.2	0.00
TPH Aliphatic >C12-16	mg/kg	2,400	4	0.00	4	0.00	4	0.00	15	0.01	4	0.00
TPH Aliphatic >C16-35	mg/kg	92,000	87	0.00	27	0.00	26	0.00	444	0.00	34	0.00
Alphatic Hazard Index				0.01		0.01		0.01		0.02		0.01
Aromatics												
TPH Aromatic >EC5-7 (Benzene)	mg/kg	0.41	0.1	0.24	0.1	0.24	0.1	0.24	0.1	0.24	0.1	0.24
TPH Aromatic >EC7-8	mg/kg	290	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00
TPH Aromatic >EC8-10	mg/kg	83	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00	0.1	0.00
TPH Aromatic >EC10-12	mg/kg	180	0.2	0.00	0.2	0.00	0.2	0.00	0.2	0.00	0.2	0.00
TPH Aromatic >EC12-16	mg/kg	330	8	0.02	4	0.01	4	0.01	4	0.01	4	0.01
TPH Aromatic >EC16-21	mg/kg	540	55	0.10	7	0.01	7	0.01	35	0.06	22	0.04
TPH Aromatic >EC21-35	mg/kg	1,500	307	0.20	7	0.00	7	0.00	489	0.33	84	0.06
Aromatic Hazard Index				0.58		0.28		0.28		0.65		0.36
Hazard Index				**0.58**		**0.28**		**0.28**		**0.00**		**0.36**

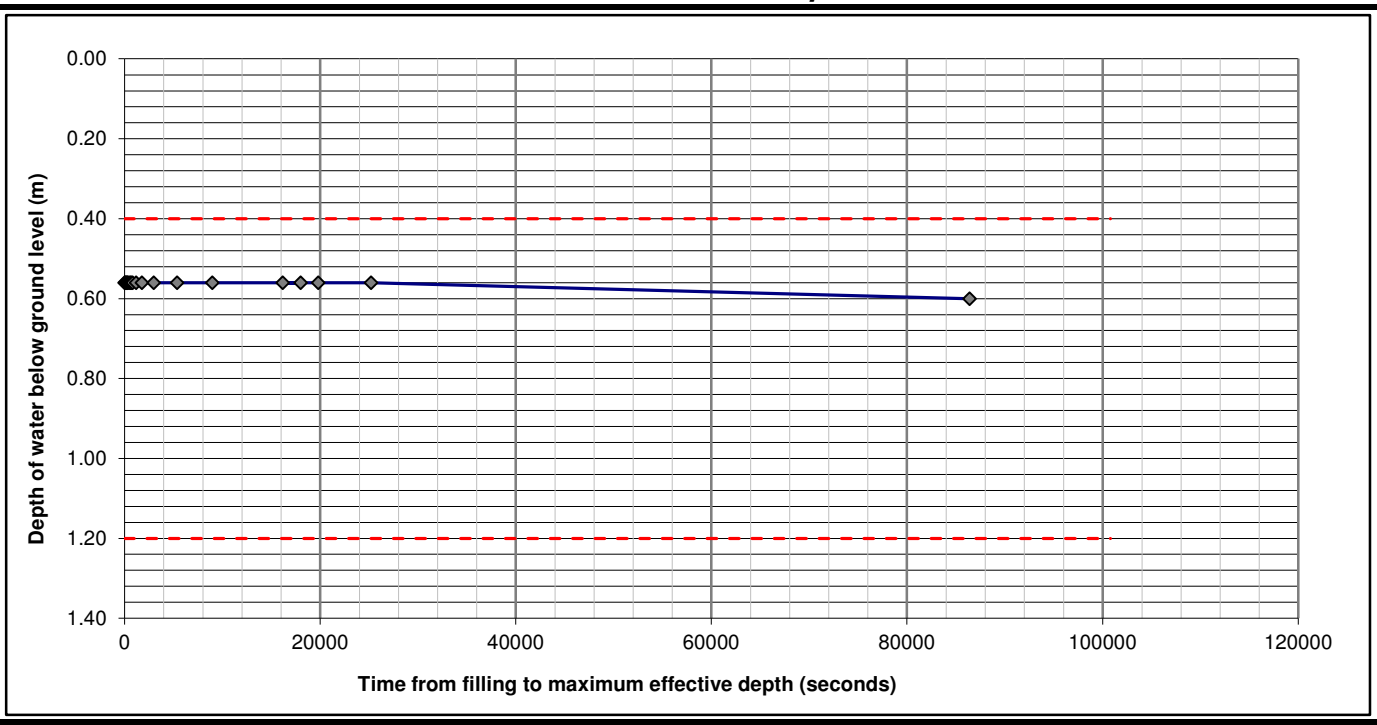
APPENDIX H – SOAKAWAY RESULTS

WYG Environment

Environmental Consultancy
Ground Engineering Services

DATE:	14/09/2021
PROJECT No:	B029129
PROJECT NAME:	Shaw Lane, Carlton
CLIENT:	Network Space
TRIAL PIT ID:	SA01
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
0	0.00	
30	0.50	0.560
90	1.50	0.560
150	2.50	0.560
210	3.50	0.560
270	4.50	0.560
360	6.00	0.560
480	8.00	0.560
600	10.00	0.560
720	12.00	0.560
840	14.00	0.560
1200	20.00	0.560
1800	30.00	0.560
3000	50.00	0.560
5400	90.00	0.560
9000	150.00	0.560
18000	300.00	0.560
16200	270.00	0.560
19800	330.00	0.560
25200	420.00	0.560
86400	1440.00	0.600
100800	1680.00	0.600

PIT LENGTH (m):	2.70	**Pit construction**
PIT WIDTH (m):	0.60	TEREX TML 32 - Wheeled Excavator
PIT DEPTH (m):	1.60	

INPUT PARAMETERS:

Total volume of pit	(m^3)	2.59
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	1.30
Effective depth of Pit	(m)	1.60
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	2.59
Level of water in pit at 75% effective depth (p_{75})	(m)	0.40
Level of water in pit at 25% effective depth (p_{25})	(m)	1.20
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	1.30
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	6.90
Time at 75% effective depth (p_{75})	(s)	#N/A
Time at 25% effective depth (p_{25})	(s)	#N/A
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	#N/A

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**#N/A**

WATER INPUT: Unkown in 3 Minutes

GEOLOGY OF TEST SECTION:

Light grey mottled with orangish brown sandy silty CLAY.

Compiled by: TB
Checked by: NB

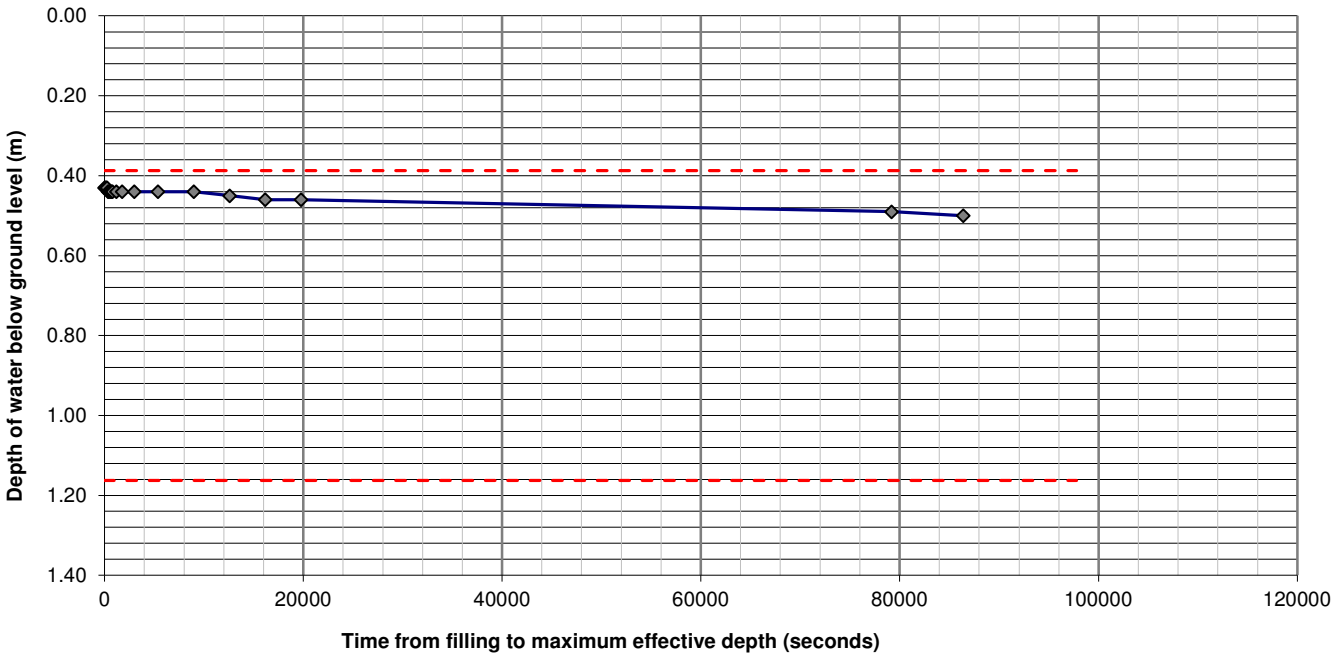
After BRE Digest 365, Soakaway Design, 2016

WYG Environment

Environmental Consultancy
Ground Engineering Services

DATE:	14/09/2021
PROJECT No:	B029129
PROJECT NAME:	Shaw Lane, Carlton
CLIENT:	Network Space
TRIAL PIT ID:	SA02
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
0	0.00	
30	0.50	0.430
90	1.50	0.430
150	2.50	0.430
210	3.50	0.430
270	4.50	0.430
360	6.00	0.440
480	8.00	0.440
600	10.00	0.440
720	12.00	0.440
840	14.00	0.440
1200	20.00	0.440
1800	30.00	0.440
3000	50.00	0.440
5400	90.00	0.440
9000	150.00	0.440
12600	210.00	0.450
16200	270.00	0.460
19800	330.00	0.460
79200	1320.00	0.490
86400	1440.00	0.500
97800	1630.00	0.520

PIT LENGTH (m):	2.60	**Pit construction**
PIT WIDTH (m):	0.50	TEREX TML 32 - Wheeled Excavator
PIT DEPTH (m):	1.55	

INPUT PARAMETERS:

Total volume of pit	(m^3)	2.02
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	1.01
Effective depth of Pit	(m)	1.55
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	2.02
Level of water in pit at 75% effective depth (p_{75})	(m)	0.39
Level of water in pit at 25% effective depth (p_{25})	(m)	1.16
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	1.01
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	6.11
Time at 75% effective depth (p_{75})	(s)	#N/A
Time at 25% effective depth (p_{25})	(s)	#N/A
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	#N/A

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**#N/A**

WATER INPUT:	Unkown	in	2.5 minutes

GEOLOGY OF TEST SECTION:

Light grey mottled with orangish brown slightly sandy gravelly silty CLAY.

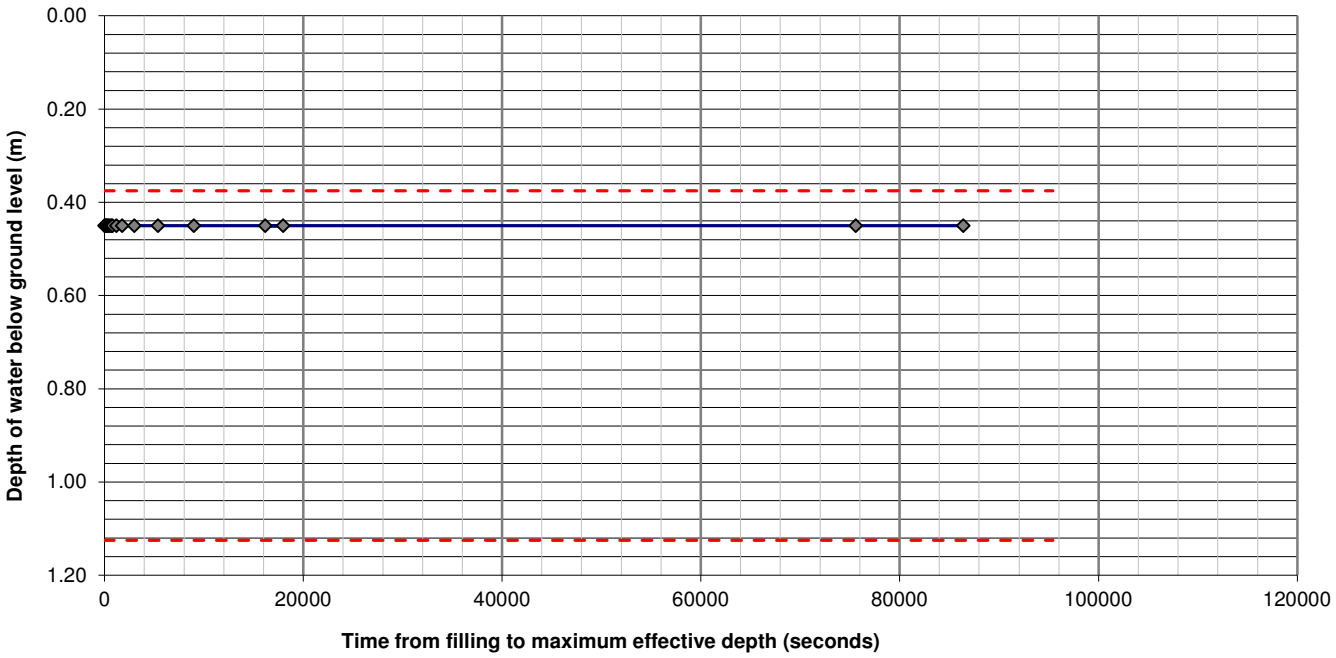
Compiled by:	TB
Checked by:	NB

WYG Environment

Environmental Consultancy
Ground Engineering Services

DATE:	14/09/2021
PROJECT No:	B029129
PROJECT NAME:	Shaw Lane, Carlton
CLIENT:	Network Space
TRIAL PIT ID:	SA03
TEST NUMBER:	1

SOAKAWAY TEST - SOIL INFILTRATION RATE/PERMEABILITY CALCULATION



Time Elapsed (s)	Time Elapsed (mins)	Distance to water surface from ground level (m)
0	0.00	
30	0.50	0.450
90	1.50	0.450
150	2.50	0.450
210	3.50	0.450
270	4.50	0.450
360	6.00	0.450
480	8.00	0.450
600	10.00	0.450
720	12.00	0.450
840	14.00	0.450
1200	20.00	0.450
1800	30.00	0.450
3000	50.00	0.450
5400	90.00	0.450
9000	150.00	0.450
18000	300.00	0.450
16200	270.00	0.450
75600	1260.00	0.450
86400	1440.00	0.450
95400	1590.00	0.450

PIT LENGTH (m):	2.80	**Pit construction**
PIT WIDTH (m):	0.55	TEREX TML 32 - Wheeled Excavator
PIT DEPTH (m):	1.50	

INPUT PARAMETERS:

Total volume of pit	(m^3)	2.31
Pit volume between 75% and 25% depths = L x W x ½D	(m^3)	1.16
Effective depth of Pit	(m)	1.50
Proportion of pit volume occupied by gravel solids	(0-1)	0.00
Maximum potential volume of Water	(m^3)	2.31
Level of water in pit at 75% effective depth (p_{75})	(m)	0.38
Level of water in pit at 25% effective depth (p_{25})	(m)	1.13
Effective volume between 75% & 25% depth $Vp_{75\text{-}25}$ = V x Pg	(m^3)	1.16
Surface area of pit up to 50% effective depth (A_{p50})	(m^2)	6.57
Time at 75% effective depth (p_{75})	(s)	#N/A
Time at 25% effective depth (p_{25})	(s)	#N/A
Time for outflow for 75% and 25% effective depth (Tp75-25)	(s)	#N/A

OUTPUT:

SOIL INFILTRATION RATE (f)	$\frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$	(m/s)	**#N/A**

WATER INPUT: Unkown in 2.5 minutes

GEOLOGY OF TEST SECTION:

Light grey mottled with orangish brown sandy silty CLAY.

Compiled by: TB
Checked by: NB

APPENDIX I – HAZWASTE ONLINE DATA

HazWasteOnline™

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

FQCPB-WHBD9-4MSKF

Job name

B029129 Shaw Lane, Carlton

Description/Comments

Project

B029129

Site

Shaw Lane, Carlton

Classified by

Name:
Abigail Walters
Date:
11 Nov 2021 14:05 GMT
Telephone:
01623 684 565

Company:
Tetra Tech (WYG (White Young Green))
Geneva Building, Lake View Drive,
Sherwood Business Park, Annesley
Nottingham
NG15 0ED

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:	-
Course	**Date**
Hazardous Waste Classification	15 Mar 2018
3 year Refresher overdue	-

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	DS01 ES2	0.50	Non Hazardous		2
2	DS04 ES1	0.10	Non Hazardous		5
3	DS04 ES2	0.50	Non Hazardous		7
4	DS03 ES2	0.40	Non Hazardous		10
5	SA01 ES1	0.30	Non Hazardous		12
6	SA02 ES2	0.60	Non Hazardous		15
7	SA03 ES2	0.50	Non Hazardous		17
8	TP07 ES1	0.20	Non Hazardous		20
9	TP04 ES1	0.20	Non Hazardous		22
10	TP02 ES2	0.50	Non Hazardous		25
11	TP03 ES2	1.0	Non Hazardous		28
12	TP03 ES3	1.5	Non Hazardous		30
13	TP05 ES2	0.50	Non Hazardous		33

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Abigail Walters

Created date: 11 Nov 2021 14:05 GMT

Classification of sample: DS01 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS01 ES2
Sample Depth:
0.50 m
Moisture content:
18.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18.2% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19.5	mg/kg	1.32	25.746	mg/kg	0.00257 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		3.5	mg/kg	3.22	11.27	mg/kg	0.00113 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		41.1	mg/kg	1.462	60.07	mg/kg	0.00601 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		89	mg/kg	1.126	100.204	mg/kg	0.01 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	72	mg/kg	1.56	112.307	mg/kg	0.0072 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2	mg/kg	1.353	0.271	mg/kg	0.0000271 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32.8	mg/kg	2.976	97.621	mg/kg	0.00976 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2	mg/kg	2.554	5.108	mg/kg	0.000511 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		115	mg/kg	2.774	319.027	mg/kg	0.0319 %		
12	TPH (C6 to C40) petroleum group			TPH		259	mg/kg		259	mg/kg	0.0259 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		8	mg/kg		8	mg/kg	0.0008 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				50	mg/kg		50	mg/kg	0.005 %		
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
19		pH				7.85	pH		7.85	pH	7.85 pH		
				PH									
20		naphthalene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			205-917-1	208-96-8									
22		acenaphthene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
			201-469-6	83-32-9									
23		fluorene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			201-695-5	86-73-7									
24		phenanthrene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
			201-581-5	85-01-8									
25		anthracene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			204-371-1	120-12-7									
26		fluoranthene				3.23	mg/kg		3.23	mg/kg	0.000323 %		
			205-912-4	206-44-0									
27		pyrene				2.52	mg/kg		2.52	mg/kg	0.000252 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				1.41	mg/kg		1.41	mg/kg	0.000141 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				1.47	mg/kg		1.47	mg/kg	0.000147 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				1.86	mg/kg		1.86	mg/kg	0.000186 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.73	mg/kg		0.73	mg/kg	0.000073 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				1.42	mg/kg		1.42	mg/kg	0.000142 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.83	mg/kg		0.83	mg/kg	0.000083 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.76	mg/kg		0.76	mg/kg	0.000076 %		
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.104 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

ethylbenzene: (conc.: 0.0008%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.0259%)
xylene: (conc.: 0.005%)

Classification of sample: DS04 ES1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS04 ES1
Sample Depth:
0.10 m
Moisture content:
15.4%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.4% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		84	mg/kg		84	mg/kg	0.0084 %		
2		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
3		benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
4		toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
5		ethylbenzene	601-023-00-4	202-849-4	100-41-4		6	mg/kg		6	mg/kg	0.0006 %		
6		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		33	mg/kg		33	mg/kg	0.0033 %		
7		pH			PH		8.42	pH		8.42	pH	8.42 pH		
8		naphthalene	601-052-00-2	202-049-5	91-20-3		0.43	mg/kg		0.43	mg/kg	0.000043 %		
9		acenaphthylene		205-917-1	208-96-8		0.69	mg/kg		0.69	mg/kg	0.000069 %		
10		acenaphthene		201-469-6	83-32-9		0.99	mg/kg		0.99	mg/kg	0.000099 %		
11		fluorene		201-695-5	86-73-7		0.89	mg/kg		0.89	mg/kg	0.000089 %		
12		phenanthrene		201-581-5	85-01-8		9.42	mg/kg		9.42	mg/kg	0.000942 %		
13		anthracene		204-371-1	120-12-7		4.21	mg/kg		4.21	mg/kg	0.000421 %		
14		fluoranthene		205-912-4	206-44-0		20.67	mg/kg		20.67	mg/kg	0.00207 %		
15		pyrene		204-927-3	129-00-0		18.19	mg/kg		18.19	mg/kg	0.00182 %		
16		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		12.12	mg/kg		12.12	mg/kg	0.00121 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		chrysene				10.13	mg/kg		10.13	mg/kg	0.00101 %		
		601-048-00-0	205-923-4	218-01-9									
18		benzo[b]fluoranthene				14.08	mg/kg		14.08	mg/kg	0.00141 %		
		601-034-00-4	205-911-9	205-99-2									
19		benzo[k]fluoranthene				5.48	mg/kg		5.48	mg/kg	0.000548 %		
		601-036-00-5	205-916-6	207-08-9									
20		benzo[a]pyrene; benzo[def]chrysene				11.17	mg/kg		11.17	mg/kg	0.00112 %		
		601-032-00-3	200-028-5	50-32-8									
21	•	indeno[123-cd]pyrene				7.07	mg/kg		7.07	mg/kg	0.000707 %		
			205-893-2	193-39-5									
22		dibenz[a,h]anthracene				1.35	mg/kg		1.35	mg/kg	0.000135 %		
		601-041-00-2	200-181-8	53-70-3									
23	•	benzo[ghi]perylene				6.72	mg/kg		6.72	mg/kg	0.000672 %		
			205-883-8	191-24-2									
										Total:	0.0262 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

ethylbenzene: (conc.: 0.0006%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.0084%)
xylene: (conc.: 0.0033%)

Classification of sample: DS04 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS04 ES2
Sample Depth:
0.50 m
Moisture content:
11.7%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11.7% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7	mg/kg	1.32	9.242	mg/kg	0.000924 %		
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.2	mg/kg	3.22	3.864	mg/kg	0.000386 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
4		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		81.4	mg/kg	1.462	118.971	mg/kg	0.0119 %		
5		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<**LOD**
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		43	mg/kg	1.126	48.413	mg/kg	0.00484 %		
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	46	mg/kg	1.56	71.751	mg/kg	0.0046 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		16.5	mg/kg	2.976	49.108	mg/kg	0.00491 %		
10		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110	mg/kg	2.774	305.156	mg/kg	0.0305 %		
12		TPH (C6 to C40) petroleum group			TPH		450	mg/kg		450	mg/kg	0.045 %		
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
14		benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
15		toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
16		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				9	mg/kg		9	mg/kg	0.0009 %		
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
19		pH				8.47	pH		8.47	pH	8.47 pH		
				PH									
20		naphthalene				0.88	mg/kg		0.88	mg/kg	0.000088 %		
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.37	mg/kg		0.37	mg/kg	0.000037 %		
			205-917-1	208-96-8									
22		acenaphthene				0.68	mg/kg		0.68	mg/kg	0.000068 %		
			201-469-6	83-32-9									
23		fluorene				0.65	mg/kg		0.65	mg/kg	0.000065 %		
			201-695-5	86-73-7									
24		phenanthrene				5.76	mg/kg		5.76	mg/kg	0.000576 %		
			201-581-5	85-01-8									
25		anthracene				1.76	mg/kg		1.76	mg/kg	0.000176 %		
			204-371-1	120-12-7									
26		fluoranthene				9.39	mg/kg		9.39	mg/kg	0.000939 %		
			205-912-4	206-44-0									
27		pyrene				8.36	mg/kg		8.36	mg/kg	0.000836 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				4.88	mg/kg		4.88	mg/kg	0.000488 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				4.68	mg/kg		4.68	mg/kg	0.000468 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				6.09	mg/kg		6.09	mg/kg	0.000609 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				2.37	mg/kg		2.37	mg/kg	0.000237 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				5.04	mg/kg		5.04	mg/kg	0.000504 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				2.98	mg/kg		2.98	mg/kg	0.000298 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.7	mg/kg		0.7	mg/kg	0.00007 %		
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				2.94	mg/kg		2.94	mg/kg	0.000294 %		
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.112 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.045%)
xylene: (conc.: 0.0009%)

Classification of sample: DS03 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS03 ES2
Sample Depth:
0.40 m
Moisture content:
24.3%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 24.3% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17.1	mg/kg	1.32	22.578	mg/kg	0.00226 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2.5	mg/kg	3.22	8.05	mg/kg	0.000805 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6	mg/kg	1.142	0.685	mg/kg	0.0000685 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		44.1	mg/kg	1.462	64.455	mg/kg	0.00645 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		72	mg/kg	1.126	81.064	mg/kg	0.00811 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	47	mg/kg	1.56	73.311	mg/kg	0.0047 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27.8	mg/kg	2.976	82.74	mg/kg	0.00827 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1	mg/kg	2.554	2.554	mg/kg	0.000255 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		133	mg/kg	2.774	368.961	mg/kg	0.0369 %		
12	TPH (C6 to C40) petroleum group			TPH		189	mg/kg		189	mg/kg	0.0189 %		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
14	pH			PH		7.44	pH		7.44	pH	7.44 pH		
15	naphthalene	601-052-00-2	202-049-5	91-20-3		0.05	mg/kg		0.05	mg/kg	0.000005 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
17		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
18		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
19		phenanthrene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-581-5	85-01-8									
20		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			204-371-1	120-12-7									
21		fluoranthene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			205-912-4	206-44-0									
22		pyrene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
			204-927-3	129-00-0									
23		benzo[a]anthracene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			205-883-8	191-24-2									
31		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.087 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0189%)

Classification of sample: SA01 ES1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
SA01 ES1
Sample Depth:
0.30 m
Moisture content:
18.9%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18.9% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2 mg/kg	3.22	6.44 mg/kg	0.000644 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		39.2 mg/kg	1.462	57.293 mg/kg	0.00573 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		67 mg/kg	1.126	75.435 mg/kg	0.00754 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	83 mg/kg	1.56	129.465 mg/kg	0.0083 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23.4 mg/kg	2.976	69.645 mg/kg	0.00696 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		153 mg/kg	2.774	424.444 mg/kg	0.0424 %		
12	TPH (C6 to C40) petroleum group			TPH		495 mg/kg		495 mg/kg	0.0495 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		**<LOD**
		006-007-00-5											
19		pH				8.21	pH		8.21	pH	8.21 pH		
				PH									
20		naphthalene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			205-917-1	208-96-8									
22		acenaphthene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			201-469-6	83-32-9									
23		fluorene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			201-695-5	86-73-7									
24		phenanthrene				1.06	mg/kg		1.06	mg/kg	0.000106 %		
			201-581-5	85-01-8									
25		anthracene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			204-371-1	120-12-7									
26		fluoranthene				3.53	mg/kg		3.53	mg/kg	0.000353 %		
			205-912-4	206-44-0									
27		pyrene				3.31	mg/kg		3.31	mg/kg	0.000331 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				2.72	mg/kg		2.72	mg/kg	0.000272 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				2.68	mg/kg		2.68	mg/kg	0.000268 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				3.43	mg/kg		3.43	mg/kg	0.000343 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				1.34	mg/kg		1.34	mg/kg	0.000134 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				2.43	mg/kg		2.43	mg/kg	0.000243 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				1.37	mg/kg		1.37	mg/kg	0.000137 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.26	mg/kg		0.26	mg/kg	0.000026 %		
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				1.31	mg/kg		1.31	mg/kg	0.000131 %		
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		**<LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.128 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0495%)

Classification of sample: SA02 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
SA02 ES2
Sample Depth:
0.60 m
Moisture content:
17.6%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17.6% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		<30	mg/kg		<30	mg/kg	<0.003 %		<LOD
2		pH			PH		8.2	pH		8.2	pH	8.2 pH		
3		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
4		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
5		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
6		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
7		phenanthrene		201-581-5	85-01-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
8		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
9		fluoranthene		205-912-4	206-44-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
10		pyrene		204-927-3	129-00-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
11		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
12		chrysene	601-048-00-0	205-923-4	218-01-9		0.04	mg/kg		0.04	mg/kg	0.000004 %		
13		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
14		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
16		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
18		benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2							
								Total:	0.00306 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: SA03 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
SA03 ES2
Sample Depth:
0.50 m
Moisture content:
21.6%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21.6% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.8	mg/kg	1.32	8.978	mg/kg	0.000898 %		
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.6	mg/kg	3.22	1.932	mg/kg	0.000193 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
4		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		42.7	mg/kg	1.462	62.408	mg/kg	0.00624 %		
5		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<**LOD**
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26	mg/kg	1.126	29.273	mg/kg	0.00293 %		
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	18	mg/kg	1.56	28.077	mg/kg	0.0018 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		49.2	mg/kg	2.976	146.432	mg/kg	0.0146 %		
10		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1	mg/kg	2.554	2.554	mg/kg	0.000255 %		
11		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		87	mg/kg	2.774	241.351	mg/kg	0.0241 %		
12		TPH (C6 to C40) petroleum group			TPH		<30	mg/kg		<30	mg/kg	<0.003 %		<**LOD**
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
14		benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
15		toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
16		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				15	mg/kg		15	mg/kg	0.0015 %		
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
19		pH				7.98	pH		7.98	pH	7.98 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0579 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

xylene: (conc.: 0.0015%)

Classification of sample: TP07 ES1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP07 ES1
Sample Depth:
0.20 m
Moisture content:
25.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 25.2% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14.2	mg/kg	1.32	18.749	mg/kg	0.00187 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2.7	mg/kg	3.22	8.694	mg/kg	0.000869 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.571	mg/kg	0.0000571 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		41.3	mg/kg	1.462	60.362	mg/kg	0.00604 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		77	mg/kg	1.126	86.693	mg/kg	0.00867 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	51	mg/kg	1.56	79.551	mg/kg	0.0051 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26.1	mg/kg	2.976	77.681	mg/kg	0.00777 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2	mg/kg	2.554	5.108	mg/kg	0.000511 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		121	mg/kg	2.774	335.672	mg/kg	0.0336 %		
12	TPH (C6 to C40) petroleum group			TPH		59	mg/kg		59	mg/kg	0.0059 %		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
14	pH			PH		7.51	pH		7.51	pH	7.51 pH		
15	naphthalene	601-052-00-2	202-049-5	91-20-3		0.09	mg/kg		0.09	mg/kg	0.000009 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
17		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
18		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
19		phenanthrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			201-581-5	85-01-8									
20		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			204-371-1	120-12-7									
21		fluoranthene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
			205-912-4	206-44-0									
22		pyrene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
			204-927-3	129-00-0									
23		benzo[a]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			205-883-8	191-24-2									
31		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0707 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0059%)

Classification of sample: TP04 ES1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP04 ES1
Sample Depth:
0.20 m
Moisture content:
24%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 24% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13.1	mg/kg	1.32	17.296	mg/kg	0.00173 %		
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.8	mg/kg	3.22	5.796	mg/kg	0.00058 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
4		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		44.2	mg/kg	1.462	64.601	mg/kg	0.00646 %		
5		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		54	mg/kg	1.126	60.798	mg/kg	0.00608 %		
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	48	mg/kg	1.56	74.871	mg/kg	0.0048 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1	mg/kg	1.353	0.135	mg/kg	0.0000135 %		
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		25.4	mg/kg	2.976	75.597	mg/kg	0.00756 %		
10		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		104	mg/kg	2.774	288.511	mg/kg	0.0289 %		
12		TPH (C6 to C40) petroleum group			TPH		60	mg/kg		60	mg/kg	0.006 %		
13		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
14		benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
15		toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
16		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				6.94	pH		6.94	pH	6.94 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
			205-912-4	206-44-0									
27		pyrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0651 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.006%)

Classification of sample: TP02 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP02 ES2
Sample Depth:
0.50 m
Moisture content:
19.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19.2% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		21.8 mg/kg	1.32	28.783 mg/kg	0.00288 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.7 mg/kg	3.22	5.474 mg/kg	0.000547 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36.8 mg/kg	1.462	53.785 mg/kg	0.00538 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		54 mg/kg	1.126	60.798 mg/kg	0.00608 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	47 mg/kg	1.56	73.311 mg/kg	0.0047 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		50.8 mg/kg	2.976	151.194 mg/kg	0.0151 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	5.108 mg/kg	0.000511 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		104 mg/kg	2.774	288.511 mg/kg	0.0289 %		
12	TPH (C6 to C40) petroleum group			TPH		986 mg/kg		986 mg/kg	0.0986 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<**LOD**
14	benzene	601-020-00-8	200-753-7	71-43-2		<5 mg/kg		<5 mg/kg	<0.0005 %		<**LOD**
15	toluene	601-021-00-3	203-625-9	108-88-3		<5 mg/kg		<5 mg/kg	<0.0005 %		<**LOD**
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
19		pH				7.55	pH		7.55	pH	7.55 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
24		phenanthrene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			204-371-1	120-12-7									
26		fluoranthene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
			205-912-4	206-44-0									
27		pyrene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.166 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0986%)

Classification of sample: TP03 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP03 ES2
Sample Depth:
1.0 m
Moisture content:
18.6%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18.6% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		<30	mg/kg		<30	mg/kg	<0.003 %		<LOD
2		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
3		benzene	601-020-00-8	200-753-7	71-43-2		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
4		toluene	601-021-00-3	203-625-9	108-88-3		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
5		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
6		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
7		pH			PH		8.12	pH		8.12	pH	8.12 pH		
8		naphthalene	601-052-00-2	202-049-5	91-20-3		0.06	mg/kg		0.06	mg/kg	0.000006 %		
9		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
10		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
12		phenanthrene		201-581-5	85-01-8		0.2	mg/kg		0.2	mg/kg	0.00002 %		
13		anthracene		204-371-1	120-12-7		0.07	mg/kg		0.07	mg/kg	0.000007 %		
14		fluoranthene		205-912-4	206-44-0		0.66	mg/kg		0.66	mg/kg	0.000066 %		
15		pyrene		204-927-3	129-00-0		0.65	mg/kg		0.65	mg/kg	0.000065 %		
16		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.45	mg/kg		0.45	mg/kg	0.000045 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		chrysene				0.42	mg/kg		0.42	mg/kg	0.000042 %		
		601-048-00-0	205-923-4	218-01-9									
18		benzo[b]fluoranthene				0.78	mg/kg		0.78	mg/kg	0.000078 %		
		601-034-00-4	205-911-9	205-99-2									
19		benzo[k]fluoranthene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
		601-036-00-5	205-916-6	207-08-9									
20		benzo[a]pyrene; benzo[def]chrysene				0.66	mg/kg		0.66	mg/kg	0.000066 %		
		601-032-00-3	200-028-5	50-32-8									
21	●	indeno[123-cd]pyrene				0.37	mg/kg		0.37	mg/kg	0.000037 %		
			205-893-2	193-39-5									
22		dibenz[a,h]anthracene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-041-00-2	200-181-8	53-70-3									
23	●	benzo[ghi]perylene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
			205-883-8	191-24-2									
										Total:	0.00603 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP03 ES3

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP03 ES3
Sample Depth:
1.5 m
Moisture content:
59%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 59% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14.3 mg/kg	1.32	18.881 mg/kg	0.00189 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		3.8 mg/kg	3.22	12.236 mg/kg	0.00122 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		51.2 mg/kg	1.462	74.832 mg/kg	0.00748 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		43 mg/kg	1.126	48.413 mg/kg	0.00484 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	68 mg/kg	1.56	106.067 mg/kg	0.0068 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		37.9 mg/kg	2.976	112.8 mg/kg	0.0113 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	5.108 mg/kg	0.000511 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		129 mg/kg	2.774	357.865 mg/kg	0.0358 %		
12	TPH (C6 to C40) petroleum group			TPH		133 mg/kg		133 mg/kg	0.0133 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				6.97	pH		6.97	pH	6.97 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.086 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Relatively low concentrations present and no evidence of free phase product in samples.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0133%)

Classification of sample: TP05 ES2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP05 ES2
Sample Depth:
0.50 m
Moisture content:
15.4%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.4% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18.6 mg/kg	1.32	24.558 mg/kg	0.00246 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.2 mg/kg	3.22	0.644 mg/kg	0.0000644 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		39.2 mg/kg	1.462	57.293 mg/kg	0.00573 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24 mg/kg	1.126	27.021 mg/kg	0.0027 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	26 mg/kg	1.56	40.555 mg/kg	0.0026 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		44.5 mg/kg	2.976	132.444 mg/kg	0.0132 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	5.108 mg/kg	0.000511 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		115 mg/kg	2.774	319.027 mg/kg	0.0319 %		
12	TPH (C6 to C40) petroleum group			TPH		<30 mg/kg		<30 mg/kg	<0.003 %		<**LOD**
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
14	pH			PH		7.37 pH		7.37 pH	7.37 pH		
15	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
17		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
18		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
19		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
20		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
21		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
22		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
23		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
31		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0625 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non CLP determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2021.293.4891.9295 (20 Oct 2021)
HazWasteOnline Database: 2021.293.4891.9295 (20 Oct 2021)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2019 - UK: 2019 No. 720 of 27th March 2019
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

APPENDIX J – GAS AND GROUNDWATER MONITORING SHEETS

Client **Network Space Developments Ltd**
Project **Shaw Lane, Carlton**
Job Number **784-B029129**

Date 21/09/21 **Start** 14:00 **End** 15:00 **By** **TB** **AP Trend** Rising **Weather** Dry, slight breeze

Instruments used - GA5000 with internal flow pod, Oil/Water Interface Meter.
Background (start) **CH_4** 0.0 **CO_2** 0.1 **O_2** 21.1% **AP** 1026
Background (end) **CH_4** 0.0 **CO_2** 0.1 **O_2** 21.3% **AP** 1026

Installation	Borehole Level (mAOD)	BH Pressure	CH_4 (% vol)			CO_2 (% vol)			O2 (% vol)			CO (ppm)	H_2S (ppm)	PID		Flow Rate (l/hr)		Atmospheric Pressure (mbar)	Depth to Water (mbgl)	Depth to Water (mAOD)	Depth to Base (mbgl)	Remarks
		mb	Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak	Peak	Peak	Steady	Peak	Steady					
DS01	45.34	0.14	0.0	0.0	0.0	4.0	0.7	4.0	21.1	9.7	9.7	3	0	0.0	0.0	-0.3	0.0	1026	2.00	43.34	2.85	Silty at base
DS02	43.35	0.19	0.1	0.1	0.1	3.1	3.0	3.1	19.3	19.2	19.2	1	0	0.0	0.0	-0.3	0.0	1026	1.58	41.77	2.78	-
DS03	46.87	0.15	0.0	0.0	0.0	1.6	0.2	1.6	20.9	19.8	19.8	1	0	0.0	0.0	-0.2	0.0	1026	DRY	DRY	2.84	-
DS04	45.95	0.14	0.0	0.0	0.0	2.5	0.1	2.5	21.1	18.3	18.3	1	0	0.0	0.0	-0.3	0.0	1026	1.86	44.09	2.84	-
DS05	46.46	0.19	0.1	0.1	0.1	0.4	0.1	0.4	21.1	20.5	20.5	1	0	0.0	0.0	-0.3	0.0	1026	1.21	45.25	2.38	-

WAB = Wet at base

Client **Network Space Developments Ltd**
Project **Shaw Lane, Carlton**
Job Number **784-B029129**

Date 4/10/2021 **Start** 09:15 **End** 10:30 **By** TB **AP Trend** Stable **Weather** Dry, light cloud cover

Instruments used - GA5000 with internal flow pod, Oil/Water Interface Meter.
Background (start) **CH_4** 0.1 **CO_2** 0.1 **O_2** 21.1% **AP** 999
Background (end) **CH_4** 0.1 **CO_2** 0.1 **O_2** 21.1% **AP** 999

Installation	Borehole Level (mAOD)	BH Pressure	CH_4 (% vol)			CO_2 (% vol)			O2 (% vol)			CO (ppm)	H_2S (ppm)	PID		Flow Rate (l/hr)		Atmospheric Pressure (mbar)	Depth to Water (mbgl)	Depth to Water (mAOD)	Depth to Base (mbgl)	Remarks
		mb	Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak	Peak	Peak	Steady	Peak	Steady					
DS01	45.34	0.03	0.1	0.1	0.1	7.9	0.1	7.9	21.1	1.1	1.2	0	0	-	-	-1.9	0.0	999	1.91	43.43	2.87	Silty at base
DS02	43.35	0.00	0.1	0.1	0.1	3.0	0.1	3.0	20.8	17.4	17.4	0	0	-	-	0.3	0.3	999	1.48	41.87	2.78	-
DS03	46.87	0.03	0.1	0.1	0.1	2.2	0.4	2.2	20.6	19.4	19.4	0	0	-	-	0.3	0.3	999	DRY	DRY	2.80	-
DS04	45.95	0.17	0.1	0.1	0.1	3.2	0.1	3.2	20.9	16.8	16.8	0	0	-	-	0.3	0.3	999	1.71	44.24	2.86	-
DS05	46.46	-0.05	0.1	0.1	0.1	1.3	0.2	1.3	21.0	18.8	18.8	0	0	-	-	0.3	0.3	999	1.16	45.30	2.41	-

WAB = Wet at base

Client **Network Space Developments Ltd**
Project **Shaw Lane, Carlton**
Job Number **784-B029129**

Date 19/10/2021 **Start** 09:30 **End** 10:30 **By** TB **AP Trend** Falling **Weather** Raining/Overcast

Instruments used - GA5000 with internal flow pod, Oil/Water Interface Meter.
Background (start) **CH_4** 0.1 **CO_2** 0.1 **O_2** 20.7% **AP** 1002
Background (end) **CH_4** 0.1 **CO_2** 0.1 **O_2** 21.5% **AP** 1002

Installation	Borehole Level (mAOD)	BH Pressure	CH_4 (% vol)			CO_2 (% vol)			O2 (% vol)			CO (ppm)	H_2S (ppm)	PID		Flow Rate (l/hr)		Atmospheric Pressure (mbar)	Depth to Water (mbgl)	Depth to Water (mAOD)	Depth to Base (mbgl)	Remarks
		mb	Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak	Peak	Peak	Steady	Peak	Steady					
DS01	45.34	0.10	0.1	0.1	0.1	5.5	0.1	5.5	20.6	6.3	6.3	1	1	-	-	0.2	0.2	1002	1.75	43.59	2.87	Silty at base
DS02	43.35	0.15	0.1	0.1	0.1	3.1	0.2	3.1	20.9	17.0	17.0	0	0	-	-	0.2	0.2	1002	1.42	41.93	2.78	-
DS03	46.87	0.15	0.1	0.1	0.1	2.6	0.2	2.6	21.0	19.0	19.0	0	0	-	-	0.2	0.2	1002	DRY	DRY	2.80	-
DS04	45.95	0.12	0.1	0.1	0.1	3.4	0.2	3.4	21.3	17.7	17.7	0	0	-	-	0.2	0.2	1002	1.69	45.18	2.85	-
DS05	46.46	0.17	0.1	0.1	0.1	1.1	0.2	1.1	21.4	20.3	20.3	0	0	-	-	-0.8	-0.2	1002	1.09	45.27	2.40	-

WAB = Wet at base

APPENDIX K- 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