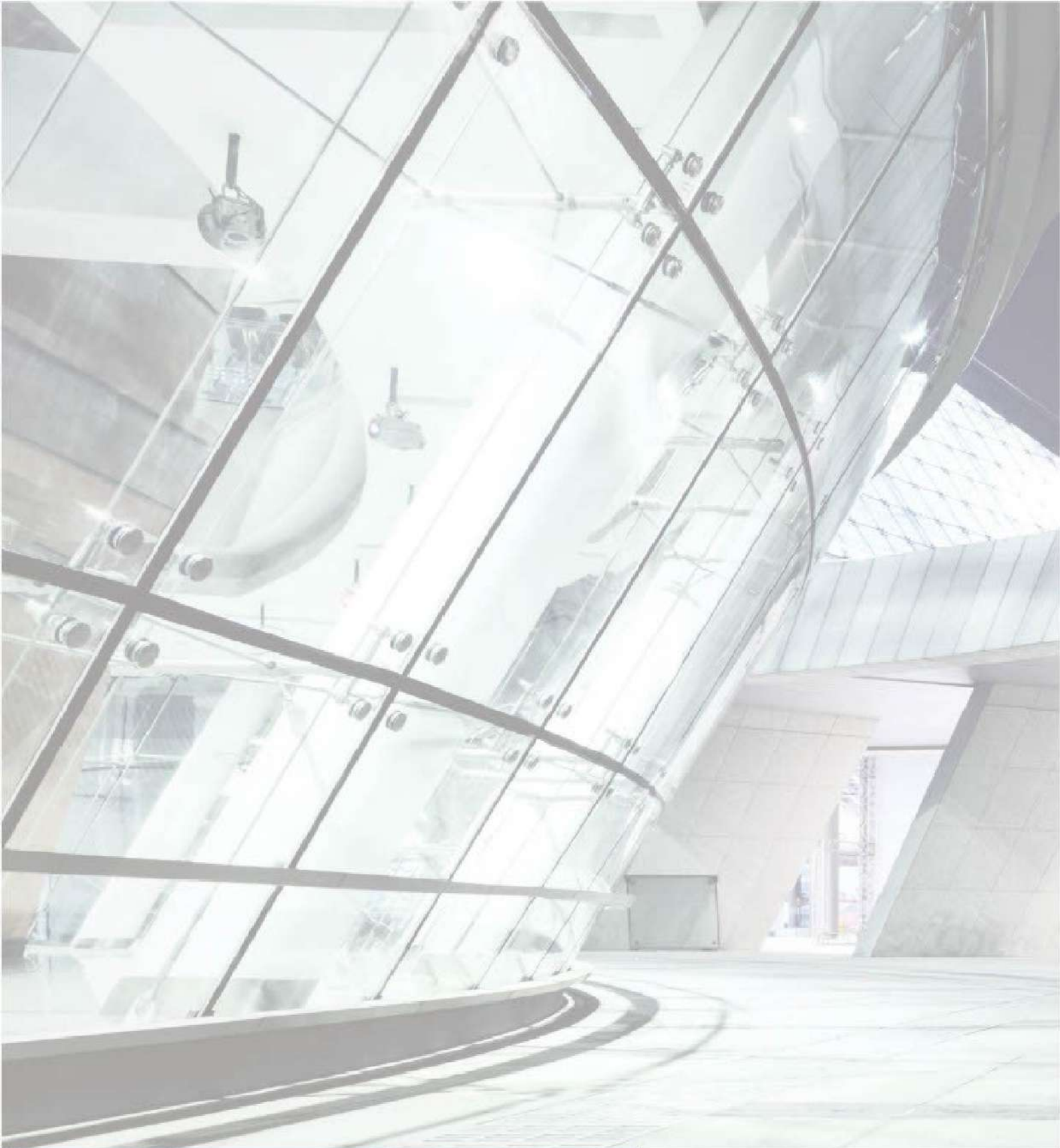




GROUNDTECH
CONSULTING

STAND LANE, RADCLIFFE

GEO-ENVIRONMENTAL APPRAISAL

BELL MUNRO/DEBTAL ARCHITECTURE

DECEMBER 2023

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SUMMARY

Site Details	
Site Location	<i>The site is located circa 1km south east of Radcliffe Town Centre, the site is approximately centred on National Grid Reference 378879, 406608.</i>
Site Area	<i>The site is rectangular in shape and approximately 0.06 ha in area. The topography of the site slopes down slightly to the north east. The site is disused and is currently unoccupied. Surfacing generally consists of Made Ground of sandy gravelly clay with some vegetation comprising grass and small shrubs. A small tarmac surfaced area is present in the northern corner. A retaining wall is situated along the southern boundary of the site.</i>
Ground Model	
Made Ground	<i>Made Ground was encountered in all exploratory hole locations as a firm to stiff dark grey brown mottled grey sandy gravelly clay with mixed lithologies including brick, concrete, sandstone, ceramics, rebar, wood and plastic and varying cobble content of brick, to a maximum depth of 2.0m bgl.</i> <i>Dark brown gravelly sand with constituents of brick, concrete, wood, ceramics, ash, metal, plastic and a moderate cobble content of brick was encountered in TP02, TP05, TP06, and TP07 to a maximum depth of 1.9m bgl.</i> <i>Dark grey black ashy gravelly sand with constituents of brick, concrete, and ash and a faint hydrocarbon odour was encountered in TP03 and TP04 to a maximum depth of 0.5m bgl.</i>
Natural Soils	<i>Granular over cohesive superficial deposits were encountered to the base of the exploratory boreholes.</i>
Bedrock	<i>Bedrock was not encountered during the Ground Investigation.</i>
Groundwater	<i>Groundwater seepages were encountered in WS01 at 1.6m bgl, and in SuDS1 at 1.8m bgl.</i>
Ground Engineering Assessment	
Foundations	<i>Shallow foundations in engineered fill or VSCs are both foundations options, in both cases the substructure would require removal and engineered fill placed in accordance with an approved earthworks specification. Piles are also an option, this solution could be through the existing substructure after discussions with a piling contractor or post reengineering. Both piles and VSCs would require deeper investigation for design.</i>
Highways	<i>Untreated Made Ground should be assumed to have a CBR value of <2.5%, unless proven otherwise. Highways Agency document HD25 'Interim Advice Note 73/06 Revision 1' (2009) states that where a subgrade has a CBR value lower than 2.5%, it is considered unsuitable support for a pavement foundation since it would tend to deform under construction traffic, and must be improved.</i>
SuDS	<i>SuDS drainage is not considered to be feasible for the proposed development due to poor rates of infiltration observed in the infiltration testing.</i>
Constraints	<i>The main constraints identified through the Ground Investigation are as follows:</i>

	• Basement structure in the centre of the site • Relict well adjacent to the south western boundary • Manhole in the southern corner of the site • Current retaining wall on the south western site boundary • Sloping topography
GQRA and Revised (PL) Assessment	
Human Health	Geo-environmental testing has not recorded any elevated Contaminants of Concern based on the site having a commercial and residential end use. In addition, no asbestos was detected in any of the Made Ground samples that were screened. The proposed development is a mix of residential and commercial end use, comprising a two-storey building with the ground level for commercial use, and residential apartments on the first floor. The majority of the site will be covered with building footprint or hardsurfacing and no elevated contaminants have been recorded, therefore the risk to human health is Low.
Controlled Waters	Mobile contamination has not been encountered and the risk to controlled waters is Low.
Permanent Ground Gas	Interim gas monitoring places the site in CS1 in accordance with CIRIA C665. The site is not in an area requiring Radon precautions. At present, the risk from permanent ground gases is Low to Moderate, and this will be confirmed on completion of the gas monitoring.
Final Appraisal	

The following further work is considered necessary to progress the site to construction phase:

- Completion of gas monitoring programme
- Issue gas assessment
- Decommission well in accordance with EA Guidance
- Remove all substructure impacting the proposed development
- Detailed Foundation and Retaining Wall design
- Confirmation of recommendations made in this appraisal with regulators

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Plans

<i>Plan Reference</i>	<i>Revision</i>	<i>Title</i>
GRO-23304-P01	-	Project Location Plan
GRO-23304-P02	-	Preliminary Findings and Constraints Plan
GRO-23304-P03	-	Illustrative Preliminary Conceptual Site Model (CSM)
GRO-23304-P04	-	Exploratory Hole Location Plan
GRO-23304-P05	-	Foundation Cross Sections
GRO-23304-P06	-	Ground Model
GRO-23304-P07	-	Revised Illustrative Conceptual Site Model (CSM)
GRO-23304-P08	-	Ground Constraints Plan

1.0 INTRODUCTION

1.1 Project Objectives

Groundtech Consulting Limited have been instructed by Bell Munro Consulting Limited and Debtal Architecture to undertake a Ground Investigation for a site at Stand Lane in Radcliffe.

A Ground Investigation was undertaken in accordance with BS 5930:2020, BS 10175:2017, BS 8576:2013 and Eurocode 7 to revise the Conceptual Site Model (CSM) and quantify the levels of risk identified in the Preliminary Risk Assessment referenced *GRO-23304-4918*.

The Appraisal has been prepared in accordance with current UK Legislation and to discharge Land Quality pre-commencement planning conditions.

1.2 Proposed Development

The proposed development is a mix of commercial and residential end use. A two-storey building is proposed to be developed on site, the ground floor will be for commercial use and the first floor will be for residential use, comprising three flats.

Parking covered by an asphalt hardsurfacing will be situated in the north western section of the site, and a block paving yard and bin store are proposed to be situated between this and the new building.



1.3 Limitations

Other conditions may exist on the site that have not been taken into account in this assessment as they are outside the scope of works. Groundtech Consulting are not responsible for circumstances that are not outlined in the report.



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2.0 SITE SETTING

2.1 Location

The site is located circa 1 kilometre south-east of Radcliffe Town Centre, as shown on the Project Location Plan GRO-23304-P01. The site is approximately centred on National Grid Reference 378879, 406608.



Project Location

Access to the site is gained off Stand Lane to the south west of the site.

2.2 Site Description

The site is rectangular in shape and approximately 0.06 hectares in area. The topography of the site slopes down slightly to the south east. The site is disused and is currently unoccupied. Surfacing mostly consists of sandy gravelly Made Ground with patches of grass and small shrubs scattered across the site, and a small area of tarmac in the northern corner.

Boundaries and Surrounding Land Uses

A retaining wall is situated along the south western boundary of the site. Wooden fencing forms the south eastern boundary, and metal fencing forms the north western boundary of the site. At the time of the Ground Investigation, heras fencing was situated along the north eastern boundary.

The site is surrounded by the following features/land uses:

- North east - Stand Lane with commercial properties and a childcare centre beyond
- South east - Residential properties
- South west - Residential properties at a higher elevation

- North west - A commercial building with hardstanding carpark.

Site photographs are presented in *Appendix 2* and relevant features are recorded on the Preliminary Development Constraints Plan *GRO-23304-P02*.

3.0 PRELIMINARY RISK ASSESSMENT SUMMARY

3.1 Introduction

A Preliminary Risk Assessment was carried out by Groundtech Consulting referenced *GRO-23304-4918*, dated November 2023, a summary of the findings is presented below.

3.2 Site History and Environmental Consultations

The earliest available historical map (1848 to 1850) shows the site to be occupied by undefined buildings. Surrounding features include cotton mills immediately south and south west, Stand Lane Colliery beyond, a bleach and finishing works, a dyeworks, and numerous reservoirs. The 1909 map labels the onsite buildings as P.H. (Public House).

The 1955 mapping names the onsite public house as The Swan Hotel, and Swan Street is present in the east of the site. By 2003, residential properties have been constructed immediately to the south and east of the site, much of the surrounding industrial properties have been demolished and the nearby reservoirs appear to have been infilled.

Environmental Information

The following environmental information was identified:

- *The site is within an area that may be affected by coal mining*
- *The site is not in an area requiring radon protective measures*
- *A Low UXO risk has been identified for the site*
- *All risks in terms of ground stability have been identified as low*
- *The nearest recorded pollution incident was c.144m south west of the site related to inert materials and waste*
- *Two licensed landfills between 418m and 440m away from site*

3.3 Geology and Hydrogeology

BGS maps indicate that the site is underlain by Glaciofluvial Deposits comprising Sand and Gravel. Bedrock underlying the site is the Nob End Rock Formation of the Pennine Middle Coal Measures, consisting of Sandstone.

There are no geological faults on site or within an influencing distance.

The superficial and bedrock deposits are classified as Secondary A Aquifer.

Hydrology

The nearest named watercourse is the River Irwell 396m north of the site. As of 2019, the river was given an overall rating of moderate and a chemical rating of fail.

The nearest active groundwater abstraction well is located circa 1132m south east relating to direct spray irrigation at Stand Golf Club.

3.4 Preliminary Conceptual Site Model

The following risks were determined:

Receptor	Level of Risk
<i>Site End Users from Soils</i>	<i>Low</i>
<i>Site End Users from Ground Gas</i>	<i>Moderate</i>
<i>Site End Users from Vapours</i>	<i>Low to Moderate</i>
<i>Aquifers</i>	<i>Low</i>
<i>Surface Waters</i>	<i>Low</i>

4.0 SCOPE OF INVESTIGATION AND RATIONALE

4.1 Project Objectives

The aim of the fieldwork was to:

Determine the stratification beneath the site
Maintain watching brief for visual and olfactory evidence of contamination
Obtain samples using methodology in current guidance for contamination analysis
Identify realistic pollution linkages to groundwater
Obtain relevant geotechnical parameters for preliminary foundation design to address both ULS and SLS conditions
Targeted supplementary Ground Investigation of areas of concern to aid foundation and remedial design
Install monitoring standpipes for gas and groundwater monitoring
Assess the identified pollution linkages in the CSM
Determine feasibility for Sustainable Urban Drainage System (SuDS)

4.2 Scope of Works

The following scope of works was completed between the dates of 31st October to 1st November 2023, and on the 18th December 2023:

- 7 No. machine excavated trial pit (TP01 to TP07) to a maximum depth of 1.8m bgl
- 2 No. machine excavated pits for soil percolation testing (SuDS1 and SuDS2) to a maximum depth of 2.3m bgl
- 2 No. machine excavated pits (FP01 and FP02) for foundation inspections
- 5 No. Windowless sample boreholes (WS01 to WS05) to a maximum depth of 5.0m bgl or refusal
- Soil percolation testing undertaken in TP04

The exploratory hole locations are presented on Groundtech Plan GRO-23304-P04 and the exploratory hole logs are in Appendix 4.

The exploratory holes were positioned to establish the stratification beneath the site and target any areas of concern as summarised in the table below:

Location	Target Rationale
WS01 to WS05, TP03 and TP04	Proposed building
TP01, TP02, TP05, TP06, TP07	Potential basement
SuDS01, SuDS02, TP04	Feasibility of SuDS in natural strata
FP01 and FP02	Establish foundation levels

The exploratory holes were logged by a suitably experienced geo-environmental engineer in general accordance with the following current guidance:

- BS 5930 'Code of Practice for Site Investigations' 2015.
- BS EN 14688-1:2002 'Geotechnical Investigation and Testing – Identification and classification of soil'.

4.3 Soil Sampling

During the intrusive investigation, representative samples were taken at regular intervals, changes of strata and where evidence of contamination existed. Laboratory analysis was scheduled on the samples obtained.

The samples obtained are summarised in the table below:

Soil Sample	Number
<i>Environmental Sample</i>	<i>12</i>
<i>Disturbed Sample</i>	<i>3</i>

The samples have been obtained in accordance with current environmental and geotechnical guidance. The sampling plan has been designed obtain samples from all required strata using the correct methodology.

Disturbed samples of soil for geo-environmental testing were placed in the correct sampling containers as required by the laboratory in accordance with their MCERTS and UKAS Accreditation. Transportation was arranged in a timely manner and the samples were at the correct temperature.

The sample locations and depths are recorded on the exploratory logs.

4.4 Geo-Environmental Testing

To inform the Generic Quantitative Risk Assessment, the following geo-environmental testing was scheduled to assess the risk from contamination on the site. The testing is based on the potential sources identified in the PRA and observations during the Ground Investigation.

Contaminant of Concern (CoC)	Matrix	Number
<i>Arsenic, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, zinc and pH.</i>	<i>Soil</i>	<i>6</i>
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>	<i>Soil</i>	<i>5</i>
<i>Total Petroleum Hydrocarbons (TPH CWG)</i>	<i>Soil</i>	<i>2</i>
<i>Volatile Organic Compounds (VOCs)</i>	<i>Soil</i>	<i>2</i>
<i>Semi-Volatile Organic Compounds (SVOCs)</i>	<i>Soil</i>	<i>2</i>
<i>Asbestos Screening</i>	<i>Soil</i>	<i>5</i>

The Geo-Environmental Laboratory Testing Results are presented in *Appendix 5*.

4.5 Geotechnical Testing

Representative disturbed samples were obtained for all soil types encountered. Selected samples were scheduled for testing at an approved laboratory in accordance with BS 1377 'Method of Test for Soils for Civil Engineering Purposes' 1990. The following tests were scheduled:

British Standard	Test Method	Number
Part 2	Water Content	4
Part 2	Plasticity Index Analysis	4
Part 3	pH Value	3
BRE SD1	SD1 Bre Full Suite	3

The Geotechnical Laboratory Testing Results are presented in *Appendix 6*.

4.6 Gas and Groundwater Monitoring/Sampling

Gas and groundwater monitoring installations were constructed in the boreholes. The standpipes consisted of high-density polyethylene (HDPE) pipe - a bentonite seal was placed around the plain pipe and a clean gravel pack was placed around the slotted pipe. A summary of the installation construction is presented in the table below:

Location	Depth	Response Zone (m bgl)	Targeted Strata	Reason
WS01	2.60	1.00 – 2.60	Made Ground/Clay	Ground Gas
WS03	2.00	1.00 - 3.00	Sand/Clay	Ground Gas
WS05	1.70	1.00 - 1.70	Sand/Clay	Ground Gas

Permanent gas and flow rate monitoring was carried out using a GFM 436 infrared gas monitor with integral electronic flow analyser. The measurements taken are listed below:

- Oxygen (O_2), carbon dioxide (CO_2) and methane (CH_4) as the percentage volume in air (%v/v).
- Hydrogen sulphide (H_2S) and carbon monoxide (CO) as the percentage volume in air (%v/v).
- Lower Explosive Limit (%LEL) of methane.
- Atmospheric and borehole pressure, including pressure trend.
- Flow measurements (l/hr).
- Weather and ground surface conditions.

Both peak and steady state conditions were monitored to understand the behaviour of the permanent ground gas, the steady state conditions were recorded by allowing the gas monitor to run for a minimum of 3 minutes.

Interim permanent gas and groundwater monitoring results are presented in *Appendix 7*. A gas assessment will be undertaken on completion of the monitoring programme.

5.0 GROUND MODEL

5.1 Made Ground

Four main populations of Made Ground were encountered as part of the investigation:

1. *Tarmac surfacing in SuDS1 to a maximum depth of 0.2m bgl.*
2. *Firm to stiff dark grey, brown mottled grey sandy gravelly clay with mixed lithologies including brick, concrete, sandstone, ceramics, rebar, wood and plastic and varying cobble content of brick to a maximum depth of 1.8m bgl in all exploratory hole locations.*
3. *Dark brown gravelly sand with constituents of brick, concrete, wood, ceramics, ash, metal, plastic and a moderate cobble content of brick was encountered in TP02, TP05, TP06, and TP07 to a maximum depth of 1.9m bgl.*
4. *Dark grey black ashy gravelly sand with constituents of brick, concrete, and ash and a faint hydrocarbon odour was encountered in TP03 and TP04 to a maximum depth of 0.5m bgl.*

5.2 Natural Ground

The natural strata encountered generally confirmed the published geological records. Two main natural strata were encountered during the ground investigation and are described below:

1. *Brown slightly clayey SAND was observed in WS03, WS05, and TP04 to depths between 1.2m and 1.9m bgl.*
2. *Firm, firm to stiff and stiff brown sandy to very sandy CLAY in all locations to a maximum depth of 3.0m bgl.*

5.3 Bedrock

Bedrock was not encountered during this investigation.

5.4 Groundwater

Groundwater seepages were observed in WS01 at 1.6m bgl and in SuDS01 at 1.8m bgl.

5.5 Watching Brief

A watching brief was maintained during the Ground Investigation for visual and olfactory evidence of contamination.

Ash was observed in the Made Ground soils of TP03, TP04, and TP05.

Olfactory evidence of contamination was noted in the form of a faint hydrocarbon odour in the Made Ground soils of TP03 and TP04.

5.6 Excavation Stability

During the excavation of trial pits SuDS1, TP01, TP05 - collapse occurred.

5.7 Excavation Progress

Slow progress during the excavation of the trial pits and drilling of the boreholes was not experienced, with the exception of encountering the structures outlined below.

5.8 Below Ground Structures

Below ground structures have been encountered during both phases of Ground Investigation. These are outlined on the Groundtech Revised Development and Constraints Plan *GRO-23304-P08*.

A circular brick-lined structure, assumed to be a relict water well of approximately 1.5m diameter, was encountered close to the south western boundary. This was measured to be at least 5.2m deep, and contained at least a 3.0m head of water.

In the south eastern corner of the site, a brick built square chamber, assumed to be a relict manhole, was encountered. This is approximately 2.3m deep, and was relatively dry, which may indicate it is disconnected from any current drainage in the vicinity of the site.

A basement structure has also been encountered beneath the footprint of the former public house, and may be the former beer cellar. The area has been delineated by supplementary trial pitting, and the approximate area is shown on the Groundtech Revised Development and Constraints Plan *GRO-23304-P08*. This basement structure has a concrete floor approximately 1.9m bgl, and trial pitting outside of the footprint has revealed this concrete floor extends to approximately 2.2m bgl.

6.0 GROUND ENGINEERING

6.1 Geotechnical Testing Results

Comparison of water content and the value of 0.4 times the Liquid Limit in accordance with BRE Digest 412 'Desiccation in Clay Soils' suggests significant desiccation has taken place when 0.4 times the Liquid Limit is greater than the actual water measured water content. This is a rudimentary method but also a good guide.

Results of the plasticity testing and the volume change potential of the Clay is summarised in the table below:

Reference	Depth	Modified PI	Volume Change Potential	Desiccated
WS01	1.00 – 1.45	18.43	Low	N
WS03	2.00 – 2.45	13.33	Low	Y
WS04	1.60 – 2.05	10.34	Low	N
WS05	1.00 – 1.45	13.80	Low	N

6.2 Assessment Background

The ground engineering investigation has been undertaken to formulate an accurate ground model in order to undertake preliminary foundation design. The ground model has been constructed with a moderate to high level of confidence.

The proposed development is of both commercial and residential end use. A two-storey building is proposed to be developed on site. The ground floor will be of commercial use and the first floor will be for residential use comprising three flats. Parking covered by hardsurfacing will be situated in the western section of the site.

Ground Conditions

Made Ground was encountered to a maximum depth of 2.2m bgl overlying granular natural strata, Clay of varying consistency was encountered below.

Bedrock was not encountered during the Ground Investigation.

Groundwater seepages were observed in WS01 at 1.6m bgl and in SuDS01 at 1.8m bgl.

Constraints

Below ground structures have been encountered at the site including the well, chamber and basement. The basement structure has a concrete floor approximately 1.9m to 2.2m bgl, All below ground structures and foundations associated with previous developments on the site should be grubbed up.

The circular brick-lined structure assumed to be a relict water well approximately 1.5m in diameter was encountered close to the south western boundary. This was measured to be at least 5.2m deep and contained at least a 3.0m head of water. The well feature should be decommissioned in accordance with Environment Agency guidelines.

No risk from historic coal mining has been identified beneath the site.

6.3 Geotechnical Parameters

The geotechnical test results have been evaluated to derive geotechnical parameters for the soils underlying the site. A 'depth to SPT N value' graph is presented on Groundtech Plan GRO-23304-P06 to provide a generalised ground model for the site.

Characterization of the geotechnical parameters above has been undertaken to select a characteristic value, which is a cautious estimate of the value affecting the occurrence of the limit state.

- *For the firm sandy gravelly Clay, an undrained shear strength (C_u) characteristic value of 55kPa has been selected to satisfy ULS conditions based on empirical rules and theoretical rules using a shear vane.*
- *For the deeper stiff sandy gravelly Clay from between 2m and 2.5m, an undrained shear strength (C_u) characteristic value of 100kPa has been selected to satisfy ULS conditions based on empirical rules and theoretical rules using a shear vane.*
- *For the medium dense Sand deposits, an SPT 'N' value of 10 has been recorded and by correlation a ϕ' of 30° has been selected for ULS conditions.*

6.4 Preliminary Foundation Design

Turnover of the site should be undertaken to remove the substructure encountered beneath the proposed building footprint to depths of 2.2m to 2.3m bgl. Due to the compact size of the site, it is likely that most of the proposed building footprint will be disturbed during this process. Additionally, the size of the site will likely mean that processing of Made Ground/substructure should take place offsite and reimported, or different suitable material imported.

Engineered fill should be placed to an agreed end product/performance specification depending on the preferred foundation solution. Compaction shall be the method as required for the classes of fill in Table 6/1 in the Specification for Highways Work Series 600.

Depending on the proposed loadings which are not available at this stage, shallow foundations or a raft foundation could be constructed on the engineer fill assuming the required serviceability limit state is satisfied such as the maximum differential settlement does not exceed 1:500 over a defined length 5 years after construction and the maximum settlement in one area does not exceed 25mm. Foundations should be appropriately reinforced.

Groundwater was encountered as water seepages at 1.6m and 1.8m bgl in SuDS1 and WS01, respectively. If groundwater is encountered in foundation excavations, dewatering will be required.

The topography of the area slopes downwards to the north west and overall stability should be considered in the design. This would include the stability of the existing retaining wall which from visual inspection is in poor condition, temporary works design would likely be required.

Alternative Solutions

Alternatively, a pile foundation solution may be viable. Driven piles may be utilised for the proposed development, however deeper investigation would be required. Piles could be driven after site turnover has been undertaken as discussed above, or subject to discussions with a piling contractor penetrate the basement slab. For the latter, the piles would need to provide sufficient lateral stability through the backfill in the basement and the installation technique be able to penetrate the slab which would likely include pre-boring.

Vibro Stone Columns (VSCs) are also an option post turnover and earthworks, where the fill contains less than 10% fines, the material would only require tracking in. Where the material is cohesive or contains over 10% fines, the soils should be engineered to 95% Maximum Dry Density in accordance with an approved end product specification.

Construction Recommendations

The recommendations in this appraisal are preliminary and the detailed design should be developed in advance and during the construction phase. If the ground conditions or groundwater regime encountered during the construction phase differ significantly to the conditions encountered during the Ground Investigation, work should cease and Groundtech Consulting contacted for further advice.

During the construction phase, supervision by a suitably qualified geotechnical engineer should be on a continuous basis to check the design assumptions are correct and construction conforms to design in accordance with EC7. Supervision should include inspections, Control Ground Investigations and monitoring by a suitably qualified geotechnical engineer.

6.5 Floor Slabs

A ground bearing slab is unlikely to be suitable unless part of the raft solution, and therefore a suspended floor slab is recommended for the proposed development.

6.6 Construction

Tracked high specification plant is recommended to maintain the build programme including for stability of excavations, and excavation of substructure and backfilled basement.

Groundwater seepages were observed during the Ground Investigation, and groundwater has been recorded at depths of 0.81m to 1.42m bgl during monitoring. Groundwater should be anticipated in foundation excavations, and dewatering is likely to be required.

6.7 Concrete Classification

Made Ground

Water soluble sulphate testing was undertaken on five of the Made Ground. The range of soluble sulphate (SO₄) recorded is 33.5mg/l to 1626mg/l. Associated pH values ranged between 6.89 and 8.26 indicating neutral to slightly alkaline conditions.

In a data set where there are five to nine results available for the location, the mean of the highest two of the sulphate test results should be taken as the characteristic value for water-soluble sulphate (mg/l SO₄). The characteristic soluble sulphate value is 1552mg/l and the characteristic pH value is 7.26.

Natural Strata

Water soluble sulphate testing was undertaken on four of the natural strata. The range of soluble sulphate (SO₄) recorded is 2.78mg/l to 4.64mg/l. Associated pH values ranged between 7.19 and 8.57 indicating slightly alkaline conditions.

For a dataset containing less than five results, the highest water-soluble sulphate result and the lowest pH value is taken as a characteristic value. The characteristic soluble sulphate value is 4.64mg/l and the characteristic pH value is 7.19.

Granular and cohesive soils are present beneath the site and the groundwater is therefore considered to be mobile.

The results of laboratory pH and sulphate content indicate that ACEC Class AC-2 and sulphate class DS-2 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005. The specific concrete mixes (the Design Concrete Class) to be used on site will be determined by the site specific concrete requirements in terms of the durability and structural performance. These are assessed in terms of the Structural Performance Level (SPL) and any need for Additional Protective Measures (APM) detailed in Part D of BRE Special Digest 1 with further guidance in Pt E and F.

Potentially Pyritic Ground

Three BRE SD1 Brownfield Pyrite Suites were carried out and a summary of the testing results is presented below:

Stratum	Number of Samples	Contaminants of Concern	Range of Results
<i>Made Ground</i>	1	<i>Acid Soluble Sulphate (%SO₄)</i>	<i>0.02</i>
		<i>Soluble Sulphate (mg/l SO₄)</i>	<i>8.08</i>
		<i>Total Sulphur (%)</i>	<i>0.02</i>
		<i>Magnesium (mg/l)</i>	<i>1.9</i>
		<i>pH</i>	<i>6.89</i>
<i>Natural</i>	2	<i>Acid Soluble Sulphate (%SO₄)</i>	<i>0.01 – 0.02</i>
		<i>Soluble Sulphate (mg/l SO₄)</i>	<i>2.34 – 3.49</i>
		<i>Total Sulphur (%)</i>	<i>0.02 – 0.07</i>
		<i>Magnesium (mg/l)</i>	<i>1.60 – 3.80</i>
		<i>pH</i>	<i>7.35 – 8.48</i>

The amount of oxidisable sulphites (OS % SO₄) in the suspected pyritic ground is determined by subtracting the acid soluble sulphates (AS % SO₄) from the total potential sulphate content:

$$\text{OS \% SO}_4 = \text{TPS \% SO}_4 - \text{AS \% SO}_4$$

The amount of oxidisable sulphates was less than 0.3% in the natural strata and Made Ground deposits, and is therefore considered not to be pyritic.

6.8 Highway Design

Untreated Made Ground should be assumed to have a CBR value of <2.5%, unless proven otherwise. Highways Agency document HD25 ‘Interim Advice Note 73/06 Revision 1’ (2009) states that where a subgrade has a CBR value lower than 2.5%, it is considered unsuitable support for a pavement foundation since it would tend to deform under construction traffic, and must be improved.

CBR values of greater than 5% are achievable in engineered fill for pavement design purposes.

The soils are considered to frost susceptible due to the fines content, highway construction should be a minimum thickness of 450mm to mitigate against the risk.

6.9 Sustainable Urban Drainage System (SuDS)

Soil percolation testing was carried out in general accordance with BRE Digest 365 in SuDS2. SuDS1 had water seepage and therefore a test could not be carried out. The results are presented in *Appendix 8* and a summary is presented below:

Location	Depth (m bgl)	Stratum	Test No.	Soil Infiltration Rate (m/sec)
SuDS2	2.00	Sandy gravelly Clay	1	0
SuDS2	2.00	Sandy gravelly Clay	2	0
SuDS2	2.00	Sandy gravelly Clay	3	0
TP04	2.10	Sandy gravelly Clay	1	0
TP04	2.10	Sandy gravelly Clay	2	0
TP04	2.10	Sandy gravelly Clay	3	0

SuDS2 was located in the south of the site, in the area of the proposed yard. The natural strata where the infiltration test was carried out consisted of a firm brown mottled grey slightly sandy gravelly Clay. During the three tests infiltration rates never changed from zero indicating extremely poor drainage conditions.

TP04 was located in the southern corner of the site beneath the footprint of the proposed building. The natural strata in this area of the site consisted of grey mottled brown gravelly sandy Clay with a band of brown fine to coarse Sand from 1.30m to 1.m bgl. During the three tests the infiltration rates were zero indicating extremely poor drainage conditions. Prior to the test, groundwater was also noted seeping through the Sand strata at 1.6m bgl.

Based on the soil infiltration testing undertake, SuDS drainage is not considered to be feasible at the depths and locations tested due to the poor soil infiltration rates observed in the Glaciofluvial Deposits, due to the presence of cohesive soils which are capable of low soil infiltration rates.

If drainage of the highway to soakaways is to be considered it is suggested that this is discussed with the Local Authority at the earliest opportunity.

6.10 Retaining Structures

There is a retaining wall on the southern boundary of the site, with the properties south of the site circa 3m higher than the existing site level. The wall is in poor condition and requires inspection by a structural engineer. During construction, consideration will need to be given to this wall to ensure no over excavation is undertaken at the base of the wall without temporary works design. Additional loads should not be placed on the wall or foundations.

Two foundation pits were excavated along the base of the existing retaining wall in order to determine the geometrics of the retaining wall foundations.

Reference	Top of Foundation (m bgl)	Extends Out (m)	Base of Foundation (m bgl)
FP01	0.37	0.05	0.47
FP02	0.30	0.28	1.40



It should be ensured that the retaining wall is not adversely affected by the proposed development during both the temporary and permanent phase, the building foundations should not surcharge or undermine the retaining wall. Consideration should be given to replacing the wall.

The foundation pit cross sections are presented on *GRO-23304-P05A* and *GRO-23304-P05B*.

7.0 LAND QUALITY

7.1 Geo-Environmental Testing Results - Soils

Samples of Made Ground have been tested for a range of relevant Contaminants of Concern. In accordance with LCRM, a Generic Quantitative Risk Assessment (GQRA) has been undertaken to determine the significance of the concentrations as derived through Geo-Environmental testing.

The GQRA process comprises the comparison of the actual concentrations measured on site with Generic Assessment Criteria (GACs) for the protection of human health.

The GACs used for the assessment of soil concentrations have been derived using the CLEA model. The GACs used are listed below:

- *Soil Guideline Values (SGVs) which demonstrate minimal risk.*
- *LQM/CIEH S4ULs which use the same toxicological data as the SGVs but different exposure criteria.*
- *C4SLs which demonstrate low risk.*

In deriving the GACs for use on Brownfield sites we have assumed a 1% Soil Organic Matter, unless the results indicate otherwise.

The proposed end-use for the site is a mix of commercial and residential end use. A two-storey building is proposed to be developed on site. The ground floor will be of commercial use and the first floor will be for residential use comprising three flats. Parking covered by a hardsurfacing will be situated in the western section of the site, and the bin storage area is to be surfaced with block paving.

We have therefore undertaken the GQRA on the basis that the proposed development site falls under the Residential (without Plant Uptake) land-use scenario as defined in SR3 (EA, 2009b).

The strata or sources of contamination targeted by the laboratory testing scheduled is summarised in the table below:

Strata	Number of Samples Tested	Locations
<i>Cohesive Made Ground (Population 1)</i>	5	<i>WS01, WS02, WS03, WS04, WS05</i>

A summary of the Geo-Environmental Testing results is presented below and the GQRA screening values are presented in *Appendix 9*:

Metals				
Contaminant	Range (mg/kg)	Screening value (mg/kg)	Exceedances	Locations
<i>Arsenic</i>	<i>5.0 – 13.5</i>	<i>40</i>	-	-
<i>Cadmium</i>	<i><0.1</i>	<i>85</i>	-	-
<i>Chromium</i>	<i>30.1 – 34.1</i>	<i>910</i>	-	-
<i>Hexavalent Chromium</i>	<i><0.3</i>	-	-	-
<i>Copper</i>	<i>20 – 61</i>	<i>7100</i>	-	-
<i>Lead</i>	<i>13 - 206</i>	<i>310</i>	-	-
<i>Mercury</i>	<i><0.1 – 0.3</i>	<i>1.2</i>	-	-
<i>Nickel</i>	<i>13.3 – 39</i>	<i>180</i>	-	-

Selenium	<1	430	-	-
Zinc	49 - 95	40000	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)				
Contaminant	Range (mg/kg)	Screening value (mg/kg)	Exceedances	Locations
Naphthalene	<0.04 – 0.27	2.3	-	-
Acenaphthylene	<0.03	2900	-	-
Acenaphthene	<0.05	3000	-	-
Fluorene	<0.04	2800	-	-
Phenanthrene	<0.03 – 0.65	1300	-	-
Anthracene	<0.04 – 0.19	31000	-	-
Fluoranthene	<0.03 – 1.69	1500	-	-
Pyrene	<0.03 – 1.54	3700	-	-
Benzo(a)anthracene	<0.06 – 0.79	3.2	-	-
Chrysene	<0.02 – 0.88	30	-	-
Benzo(b)fluoranthene	<0.05 – 1.12	3.9	-	-
Benzo(k)fluoranthene	<0.02 – 0.44	110	-	-
Benzo(a)pyrene	<0.04 – 0.96	3.2	-	-
Indeno(123cd)pyrene	<0.04 – 0.59	45	-	-
Dibenzo(ah)anthracene	<0.04 – 0.11	1500	-	-
Benzo(ghi)perylene	<0.04 – 0.58	110	-	-
TPH CWG - Aliphatics				
Contaminant	Range (mg/kg)	Screening value (mg/kg)	Exceedances	Locations
>C5-C6	<0.1	42	-	-
>C6-C8	<0.1	100	-	-
>C8-C10	<0.1	27	-	-
>C10-C12	<0.2	130	-	-
>C12-C16	<4	1100	-	-
>C16-C21	<7	65000	-	-
>C21-C35	<7 – 73	65000	-	-
Total aliphatics C5-35	<19-73	-	-	-
TPH CWG – Aromatics				
Contaminant	Range (mg/l)	Screening value (mg/kg)	Exceedances	Locations
>C5-EC7	<0.1	370	-	-
>EC7-EC8	<0.1	860	-	-
>EC8-EC10	<0.1	47	-	-
>EC10-EC12	<0.2	250	-	-
>EC12-EC16	<4 – 5	1800	-	-
>EC16-EC21	<7 – 21	1900	-	-
>EC21-EC35	<7 – 123	1900	-	-
Total aromatics C5-35	<19 – 149	-	-	-
Total aliphatics and aromatics(C5-35)	<38 - 222	-	-	-
MTBE	<2	-	-	-
Benzene	<3	0.38	-	-

<i>Toluene</i>	<3	880	-	-
<i>Ethylbenzene</i>	<3	83	-	-
<i>p-Xylene</i>	<5	79	-	-
<i>m-Xylene</i>	<5	82	-	-
<i>o-Xylene</i>	<3	88	-	-
Asbestos Screen				
Position	Depth (m bgl)	Result	Quantification	
WS01	0.20	None Detected	n/a	
WS02	0.50	None Detected	n/a	
WS03	0.70	None Detected	n/a	
WS04	0.40	None Detected	n/a	
WS05	0.20	None Detected	n/a	

7.2 Generic Quantitative Risk Assessment - Soils

Made Ground was encountered in all exploratory holes to a maximum depth of 2.2m bgl and generally comprised firm to firm stiff dark grey, brown mottled grey sandy gravelly Clay.

Ash was noted locally during the investigation. Olfactory evidence of contamination as a faint hydrocarbon odour was noted in some exploratory holes.

Metals

No elevated concentrations of metals have been recorded above residential without plant uptake screening values for the samples tested from across the site.

Speciated Polycyclic Aromatic Hydrocarbons (PAHs)

There were no elevated levels of speciated PAHs have been recorded above residential without plant uptake screening values for the samples tested from across the site.

Total Petroleum Hydrocarbons (TPH CWG)

No elevated concentrations of petroleum hydrocarbons have been detected based on the site having a residential and commercial end use.

Volatile Organic Compounds (VOCs)/Semi Volatile Organic Compounds (SVOCs)

All VOCs tested for were recorded at concentrations below the laboratory limit of detection, with the exception of 4-Bromofluorobenzene recorded at low levels.

Most of the SVOCs recorded were below the laboratory limit of detection. The detectable levels of SVOCs in WS02 were associated with Phthalates and concentrations were generally low with a maximum concentration of 3194ug/kg for Bis(2-ethylhexyl)phthalate. The source of this compound could be any plastic product including wall coverings or floor tiles.

Asbestos

No asbestos was detected in any of the samples screened through laboratory testing.

7.3 Permanent Ground Gases

Three standpipes were installed for gas monitoring within WS01, WS03 and WS05. Three monitoring visits have been carried out to date, on 14th November, 28th November and 13th December 2023 - one further visit is planned.

Concentrations of methane (CH₄) were not recorded within any monitoring locations. Carbon dioxide (CO₂) has been recorded at a maximum concentration of 5.5% v/v within WS03. Detectable levels of oxygen (O₂) were recorded within the standpipes with a minimum depleted concentration of 9.8% v/v in WS03.

No positive gas flow rates were detected during the monitoring visits.

Atmospheric pressures have ranged between 986mb and 997mb during the monitoring visits, which were completed during periods of falling and rising barometric pressures.

Groundwater was recorded within all exploratory hole locations, ranging from 0.81m to 1.23m bgl.

Characterisation of the Gas Screening Value (GSV)

Based upon the initial results recorded, in accordance with CIRIA Report C665, the risk to the site from ground gases has been assessed by converting the results to gas screening values (GSVs), calculated by multiplying the typical maximum gas concentrations with the recorded maximum positive flow rates. In addition, individual “hazardous gas flow rates” (Q_{hg}) have been derived for each monitoring point. As no levels of methane have been recorded, a GSV for carbon dioxide only has been calculated.

$$GSV (l/hr) = \text{max borehole flow rate (l/hr)} \times \text{max gas concentration (\%)}$$

For this assessment, the maximum recorded concentration of carbon dioxide of 5.5%v/v has been used. No positive gas flow rates have been detected therefore the limit of detection of the gas analyser of 0.1l/hr has been adopted to calculate the GSV.

$$\text{Carbon Dioxide GSV} = 0.055 (5.5\%) \times 0.1 = 0.0055 \text{ l/hr}$$

Assessment

In order to assess the ground gas regime beneath the site and the need to incorporate ground gas precautions, guidance was taken from CIRIA C655 ‘Assessing risks posed by hazardous ground gases to buildings’. Based on the site having commercial end use, the Wilson and Card method has been used to carry out the assessment.

When considering the results to date in accordance with CIRIA C665 (Section A Development and Table 8.5 – Modified Wilson and Card Classification) it can be seen that the GSV value for carbon dioxide is below the assessment GSV of 0.07l/hr. WS03 recorded a carbon dioxide value of over 5.0%v/v and an increase to CS2 may be considered. Excavation and processing of the Made Ground may occur at the site which would alter the ground model and ground gas regime.

Characteristic Situation 1

The proposed development is classified as Building Type B in accordance with BS 8485:2019 and the site falls into CS1 in accordance with Table 2 of the above guidance and no gas protection measures are required.

The above recommendations are based on the gas monitoring carried out to date and a full assessment will be provided upon completion of the gas monitoring programme.

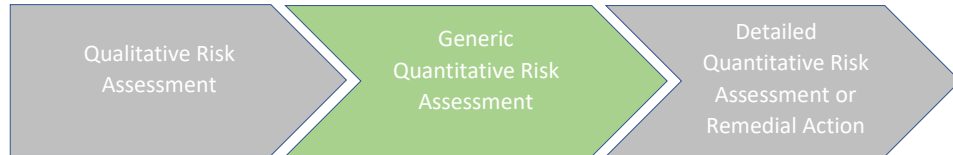
Radon

The site is not located in an area where radon precautions are required within new structures.

7.4 Revised Pollution Linkage Assessment

A revised pollution linkage assessment has been undertaken based on the findings of the Ground Investigation and testing to identify any realistic pollution linkages in order to quantify the risks to human health and controlled waters. An Illustrative Revised CSM is presented on *GRO-23361-P07*.

Human Health Pollution Linkage Assessment



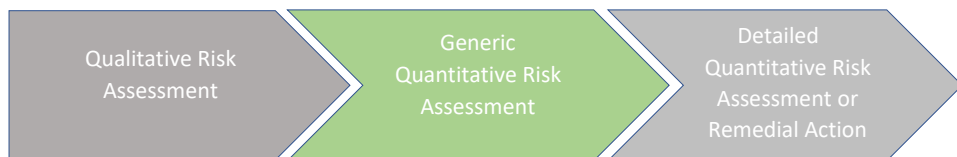
- The table below represents the second stage in the land quality risk assessment process - **the Generic Quantitative Risk Assessment**.
- In order for a development site to be deemed 'suitable for use' the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					Generic Quantitative Risk Assessment	
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	Rationale and Action
PL1	Contaminated Soils	Ingestion of soil and dust. Dermal contact with soil.	Unlikely	Medium	Low	<i>Pollution Linkage 1 refers to proposed site users coming into contact with contaminated soils on the site.</i> <i>The site is currently undeveloped and disused and surfaced by demolition material from the previous buildings on site.</i> <i>Made Ground has been encountered to a maximum depth of 2.2m bgl and are predominantly cohesive comprising of sandy gravelly clays with minor constituents of brick, concrete, wood, rebar, plastic and ceramics.</i> <i>No elevated concentrations of heavy metals and TPHs were recorded across the site. No traces of asbestos were also recorded across the samples.</i> <i>The proposed development is of both commercial and residential use end as a two-storey building with the ground floor for commercial use and first floor for residential dwellings. The majority of the site will be on hardstanding surface with a small yard, and no pollution linkage is present.</i>

Conceptual Site Model					Generic Quantitative Risk Assessment	
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	Rationale and Action
PL2	Contaminated Soils	Inhalation of vapour.	Unlikely	Medium to Severe	Low	Pollution linkage 2 refers to vapours migrating into confined spaces within the proposed development. Olfactory evidence of volatile contamination was not identified and laboratory testing results did not record elevated concentrations Hydrocarbons were generally present at concentrations below laboratory detection limits, therefore a pollution linkage is not considered to exist.
PL3	Contaminated Soils	Inhalation of soil dust by adjacent site users.	Unlikely	Medium	Low	Pollution Linkage 3 relates to contamination on the subject site affecting adjacent site users. Significant mobile contamination has not been identified beneath the site and a plausible pollution linkage is not considered to exist.
PL4	Contaminated Soils	Attacking potable water supply pipe.	Likely	Medium	Low	Pollution Linkage 4 refers to the possible contaminants permeating potable water pipes and consumption by the future site end users of the tainted water supply. Made Ground is likely to be present at installation depths, organic contamination has not been identified at present. It would be prudent to carry out a local water company risk assessment to ensure that the correct water supply pipes are installed.

Conceptual Site Model					Generic Quantitative Risk Assessment	
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	Rationale and Action
PL5	Ground Gas	Migration and accumulation of ground gas in internal spaces.	Likely	Medium to Severe	Low to Moderate	Made Ground has been encountered to a maximum depth of 2.2m bgl. No methane has been detected by the monitoring undertaken to date and a maximum carbon dioxide concentration of 5.5%v/v has been recorded, no positive flow rates were detected. Interim gas monitoring results place the site within Characteristic Situation 1. The site is not within an area requiring radon precaution within foundations.

Controlled Waters Pollution Linkage Assessment



- The table below represents the second stage in the land quality risk assessment process – **the Generic Qualitative Risk Assessment**.
- In order for a development site to be deemed ‘suitable for use’ the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					Generic Quantitative Risk Assessment	
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	Rationale
PL6	Contaminated Soils	Impaction of groundwater from soil contamination (diffuse and point). Impaction of groundwater from groundwater plume.	Unlikely	Medium	Low	Made Ground has been encountered across the site to a maximum depth of 2.2m bgl comprising of cohesive soils. Hydrocarbons were generally present below laboratory limits of detection and gross mobile contamination has not been encountered. The site does not lie within 500m of a Source Protection zone. There is a potable water abstraction point c.1132m southeast of the site relating to direct spray irrigation at Stand Golf Club. The well on the site will require decommissioning in accordance with EA Guidelines as this is a potential migration pathway. The proposed development will be entirely covered with hardsurfacing and a new drainage system installed. This will considerably reduce infiltration and leaching of potential contaminants, therefore no pollution linkage is considered to exist.

Conceptual Site Model					Generic Quantitative Risk Assessment	
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	Rationale
PL7	Contaminated Soils	Migration of soil and groundwater contamination impacting surface waters.	Unlikely	Medium	Low	Pollution Linkage 7 refers to the impaction of an unnamed watercourse/surface water related to the Chapelfield Nature Reserve c.155m south west of the site and the River Irwell c.396m north of the site from contaminated soils and groundwater. Significant mobile contamination associated with potential sources has not been identified through the Ground Investigation or geo-environmental testing and a pollution linkage is not considered to exist.

7.5 Outline Remedial Strategy

Soils

Made Ground was encountered beneath the site to a maximum depth of 2.2m bgl. No elevated levels of CoC were detected above residential without plant uptake screening values during laboratory testing and no asbestos was identified. The entire site will be covered by hardstanding or the proposed building footprint, which will effectively act as a cover system. Therefore, no specific remedial action is required with respect to soils.

Ground Gas

Based on the initial gas monitoring results, the site has been classified as CS1 where gas precaution measures will not be necessary. Monitoring has recorded above the 5%v/v threshold for carbon dioxide on one occasion which will be considered in the final assessment.

This site is not in an area affected by radon.

Controlled Waters

Mobile or gross contamination has not been identified and no specific remedial measures are required with respect to controlled waters.

The well requires decommissioning in accordance with EA Guidance.

Watching Brief and Regulatory Liaison

A watching brief is recommended during future ground works for any previously unseen contamination. If identified, work should cease in that area and advice sought from Groundtech Consulting Limited.

Approval from the regulators should be obtained prior to the development commencing to avoid any delays at the construction stage.

7.6 Asbestos in Soils

Asbestos has not been detected in the Made Ground across the site and therefore no specific mitigation measures are necessary. If asbestos is encountered during the groundworks, the level of risk should be reassessed.

7.7 Health and Safety - Construction and Ground Workers

During the reclamation and construction phases of the site development it will be necessary to protect the health and safety of site personnel. The risk to construction and ground workers is assessed in the table below:

PL Ref	Potential Source	Pollution Linkage	Likelihood	Severity	Level of Risk
PL8	Made Ground	Ingestion, direct contact, inhalation of dusts.	Likely	Medium	Moderate to Low

The risk to site personal should be communicated through site inductions and information boards. Standard PPE including gloves will be sufficient to mitigate the risk and welfare facilities should be provided.

General guidance on these matters is given in the Health and Safety Executive (HSE) document “Protection of Workers and the General Public during the Redevelopment of Contaminated Land”. In summary, the following measures are suggested to provide a minimum level of protection:

- *All ground workers should be issued with the relevant protective clothing, footwear and gloves. These protective items should not be removed from the site and personnel should be instructed as to why and how they are to be used.*
- *Hand-washing and boot-washing facilities should be provided.*
- *Care should be taken to minimise the potential for off-site migration of contamination by the provision of dust suppression control and wheel cleaning equipment during the construction works.*
- *Good practices relating to personal hygiene should be adopted on the site.*
- *The contractor shall satisfy the Health and Safety Executive with regard to any other matters concerning the health, safety and welfare of persons on the site.*

7.8 Waste Classification by Assessment

We have reviewed the testing results and inputted them into the HazWasteOnline model which allows users to code and classify waste as defined in the EWC (European Waste Catalogue 2002) based on EC Regulation 1272/2008 on the Classification, labelling and packaging of substances and mixtures (CLP) and latest Environment Agency guidance (WM3 “Guidance on the classification and assessment of waste (1st edition 2015)-Technical Guidance”).

This is a useful tool as waste producers have the legal responsibility to classify any waste they produce.

Eleven samples were tested to assess whether they contained any contaminants in the hazardous range when screened against assessment criteria within WM3. The results are in the Waste Classification Report presented in *Appendix 14*.

Location	Depth (m bgl)	Material	Classification	Hazardous Properties
WS01	0.20	MG: Dark grey sandy gravelly clay	Non-Hazardous	-
WS01	2.10	Dark brown sandy clay	Non-Hazardous	-
WS02	0.50	MG: Dark brown sandy gravelly clay	Non-Hazardous	-
WS03	0.70	MG: Dark brown sandy gravelly clay	Non-Hazardous	-
WS03	1.50	Brown clayey sand	Non-Hazardous	-
WS03	2.80	Brown sandy clay	Non-Hazardous	-
WS04	0.40	MG: Dark brown sandy gravelly clay	Non-Hazardous	-
WS04	1.90	Brown clay	Non-Hazardous	-
WS05	0.20	MG: Brown sandy gravelly clay	Non-Hazardous	-
WS05	0.90	Brown clayey sand	Non-Hazardous	-
WS05	1.40	Brown sandy clay	Non-Hazardous	-

Based on the assessment tool the Made Ground and natural soils have been classified as *Non-Hazardous*.

No asbestos was detected within any of the samples and does not affect the classification.

7.9 Waste Acceptance Criteria (WAC) Results

The Landfill Directive (Directive 1999/31/EC on the landfilling of waste) led to the establishment of a methodology for classifying wastes. Wastes can only be accepted at a landfill if they meet the relevant Waste Acceptance Criteria (WAC) for that type of landfill. There are three different WAC, these are for:

- *Inert waste*
- *Non-Hazardous waste*
- *Hazardous waste*

Wastes should first be classified based on their total concentrations as detailed in the previous section. WAC testing is then required if the end disposal route is a landfill.

Waste Acceptance Criteria (WAC) testing was outside the scope of this investigation and the guidance given below is general.

The possibility of automatic inert classification of the natural soils should be explored in accordance with Section 4.3 of the EA guidance document. The Council Decision includes a list of wastes in Section 2.1.1 of the document that are assumed to be inert and therefore acceptable at a landfill for inert waste without testing, this is the case if:

- *They are single stream waste of a single waste type (although different waste types from the list may be accepted together if they are from a single source)*
and
- *There is no suspicion of material or substances such as metals, asbestos, plastics, chemicals, etc to an extent which increases the risk associated with the waste sufficiently to justify contamination and they do not contain other their disposal in other classes of landfill.*

If any organic contaminated material is encountered during the construction phase, it is possible that this may be classified as hazardous and testing should be undertaken at that time.

Materials should be segregated and where necessary sufficient time is allowed to further classify the material properly, including discussion with landfill sites and waste transfer stations to find the best disposal route. It is recommended that where possible the soils could be recycled at a suitable local waste treatment plant or transfer station rather than a landfill disposal route.

The reuse of soils on the site should be done in accordance with the CL:AIRE “Development Industry Code of Practice for the Definition of Waste” (CL:AIRE CoP). Any re-use scheme should be designed to minimise disposal costs.

After a cut and fill balance plan/volume calculation has been carried out, a U1 and T5 exemption could be registered. This will allow the use of the following soils without a waste permit or under Dow CoP MMP:

- *1,000 tonnes (c. 600m³) of non-hazardous soil*
- *5,000 tonnes (c. 3,000m³) of natural sand and gravels.*
- *50,000 tonnes (c. 25,000m³) of bituminous material to be used in roadways.*
- *5,000 tonnes (c. 3,000m³) of crushed concrete / stone.*

8.0 FINAL APPRAISAL

8.1 Land Quality

Made Ground has been encountered across the site to a maximum depth of 2.2m bgl and generally consisted of firm, firm to stiff dark grey, brown mottled grey sandy gravelly clay. Olfactory evidence of contamination was identified in the form of a faint hydrocarbon odour in the Made Ground soils of TP03 and TP04. Ash was observed in the Made Ground soils of TP03, TP04, and TP05.

Geo-Environmental testing indicates that there are no elevated concentrations of metals, speciated PAHs or hydrocarbons above residential without plant uptake screening values. No asbestos fibres were detected in any of the samples.

The risk from contaminated soils is considered to be *Low*. The majority of the redevelopment will be covered by hardsurfacing which will act as a cover system. If soft landscaping is present, a nominal depth of cover system will be required to act as a growing medium.

No evidence of volatile contamination has been observed or detected during the investigation and hydrocarbons were generally present at concentrations below laboratory detection limits. The risk from vapours is considered to be *Low*.

Based on the initial ground gas monitoring visits, the site falls into CS1 and gas protection measures are not considered necessary at this stage. The level of gas precautions will be confirmed on completion of the gas monitoring programme. The site is not in an area affected by radon.

Eleven samples of Made Ground and natural strata have been analysed and all have been classified as *Non-Hazardous* for waste disposal.

8.2 Ground Engineering

Shallow foundations in engineered fill or VSCs are both foundations options, in both cases the substructure would require removal and engineered fill placed in accordance with an approved earthworks specification. Piles are also an option, this solution could be through the existing substructure after discussions with a piling contractor or post reengineering. Both piles and VSCs would require deeper investigation for design.

SuDS drainage is not considered feasible for the proposed development due to the slow rates of infiltration and shallow groundwater seepages.

There is a retaining wall on the southern boundary of the site, with the properties south of the site circa 3m higher than the existing site level. The wall is in poor condition and requires inspection by a structural engineer. Measures should be implemented to ensure the stability of the wall is not comprised during the temporary and permanent works.

8.3 Required Further Work

The following further work is considered necessary to progress the site to construction phase:

Completion of gas monitoring programme
Issue gas assessment
Decommission well in accordance with EA Guidance
Remove all substructure impacting the proposed development
Detailed Foundation and Retaining Wall design
Confirmation of recommendations made in this appraisal with regulators

9.0 RELEVANT INDUSTRY REFERENCES

- British Standards Institution. *Investigation of Potentially Contaminated sites - code of practice*. BS 10175:2017.
- British Standards Institution '*Code of Practice for Site Investigations*' BS 5930:2020.
- British Standards Institution "*Geotechnical investigation and testing – Identification and classification of soil*" BS EN ISO 14688:2002.
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- BRE Report BR211 '*Radon – Guidance on protective measures for new buildings*' 2015 Edition.
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- CIRIA 552 "*Contaminated Land Risk Assessment – A guide to good practice*" 2001.
- CIRIA C665 "*Assessing Risks Posed by Hazardous Ground Gases to Buildings*" 2007.
- Wilson & Card "*Proposed method classifying gassing sites*" Ground Engineering 1999.
- Card & Steve Wilson in "*A pragmatic approach to ground gas risk assessment for the 21st Century*" - CIRIA/Environmental Protection UK Ground gas seminar 2011.
- BS 8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)*'.
- BS 8485:2017 '*Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings*'.
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- CL:AIRE, 2014 '*Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination*'.
- Water Framework Directive.
- Environmental Quality Standards.

UK Drinking Water Standards: Water Supply (Water Quality) Regulations 1989 (SI 1989/1147) and Water Supply (Water Quality) Regulations.

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Health & Safety Executive, 1991. 'Protection of Workers & the General Public during the Development of Contaminated Land'.

Environment Agency & NHBC, 2000. R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination.

Environment Agency "Guidance on the classification and assessment of waste (1st edition 2015) Technical Guidance WM3".

CL:AIRE "*The Definition of Waste: Development Industry Code of Practice*" Version 2 March 2011.

CIRIA "*Asbestos in soil and made ground: a guide to understanding and managing risks*" C733 2014

Control of Asbestos Regulations (CAR) 2012.

Harris, M R, Herbert, S. M, Smith, M A 'Remedial Treatment for Contaminated Land' (twelve volumes), special publications 101-112, CIRIA 1996.

Department of the Environment. 1995. Industry Profiles - 48 separate publications available from The Stationery Office, London.

Environment Agency. R&D Publication 20. Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources. 1999.

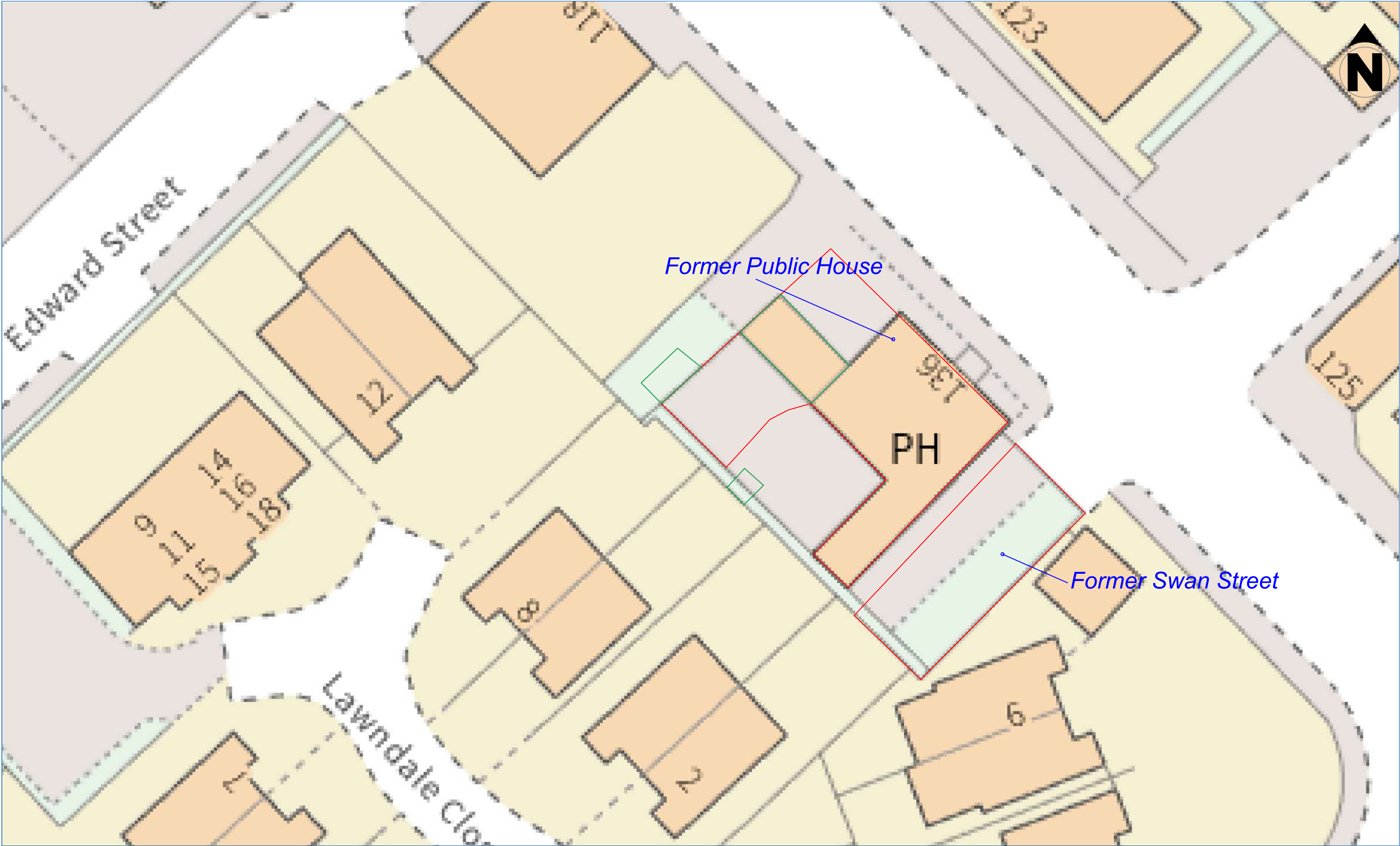
Specification for Highways Works – Series 600 Earthworks November 2016.



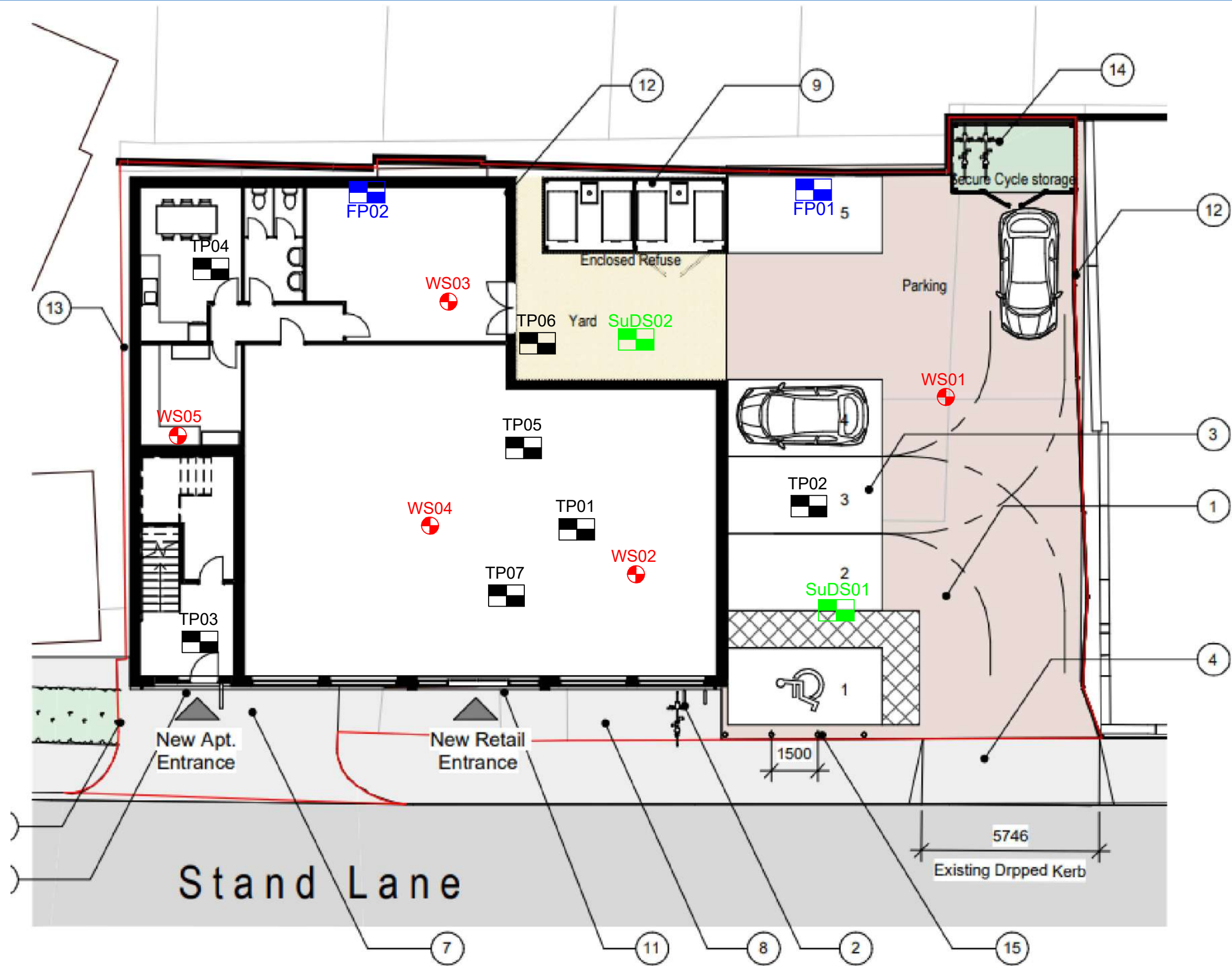
APPENDIX 1 - Plans



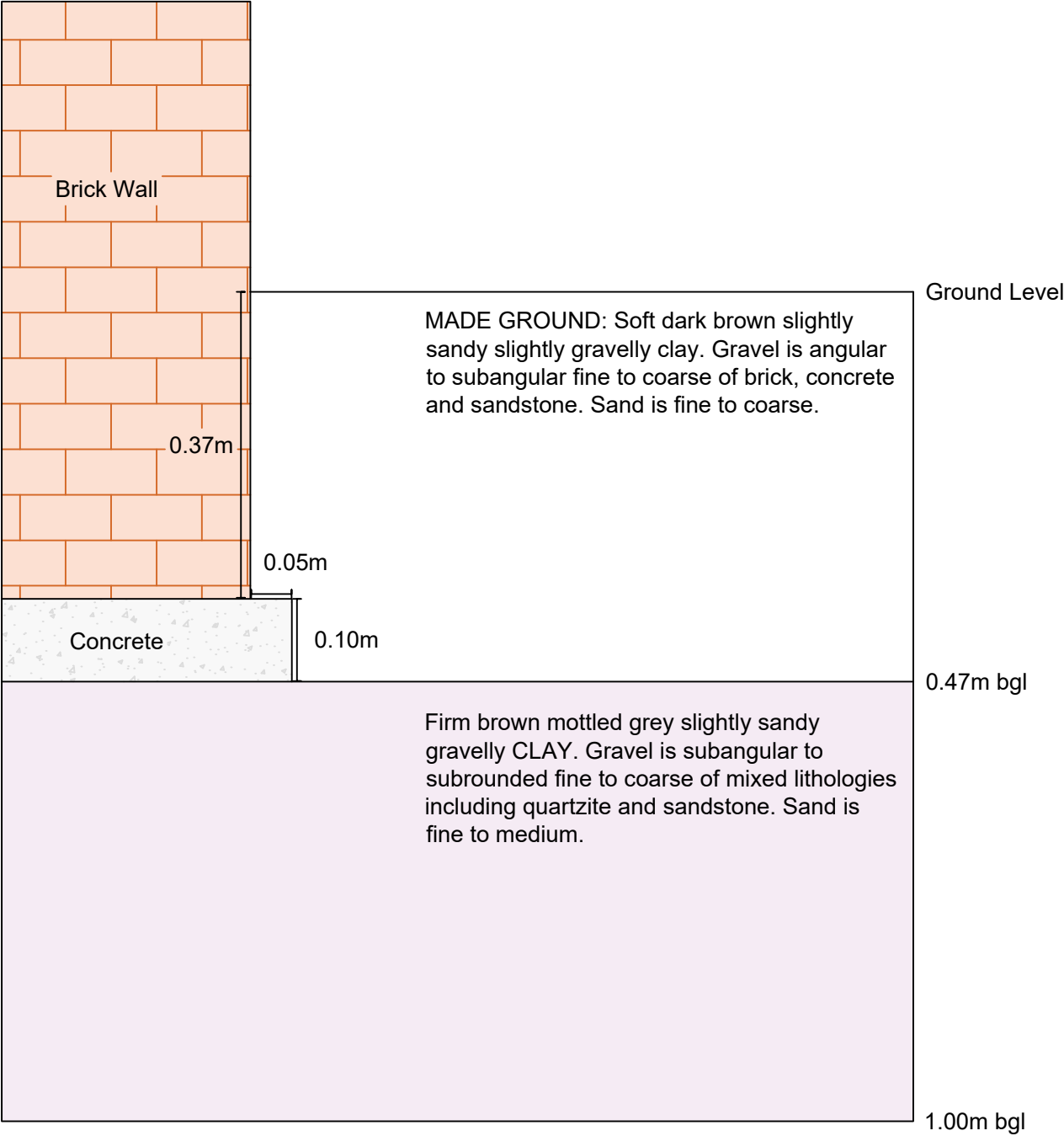
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	PROJECT TITLE	SCALE			Draft	
	STAND LANE, RADCLIFFE	NTS			Issued	
	PLAN TITLE	PLAN NUMBER			For Comment	
	PROJECT LOCATION PLAN	GRO-23304-P01	Rev.	Details	Date	Approved



GROUNDTECH CONSULTING 	CLIENT	DATE			Status		Notes 1800's Industrial Land Use 1900's Industrial Land Use (Unnamed)
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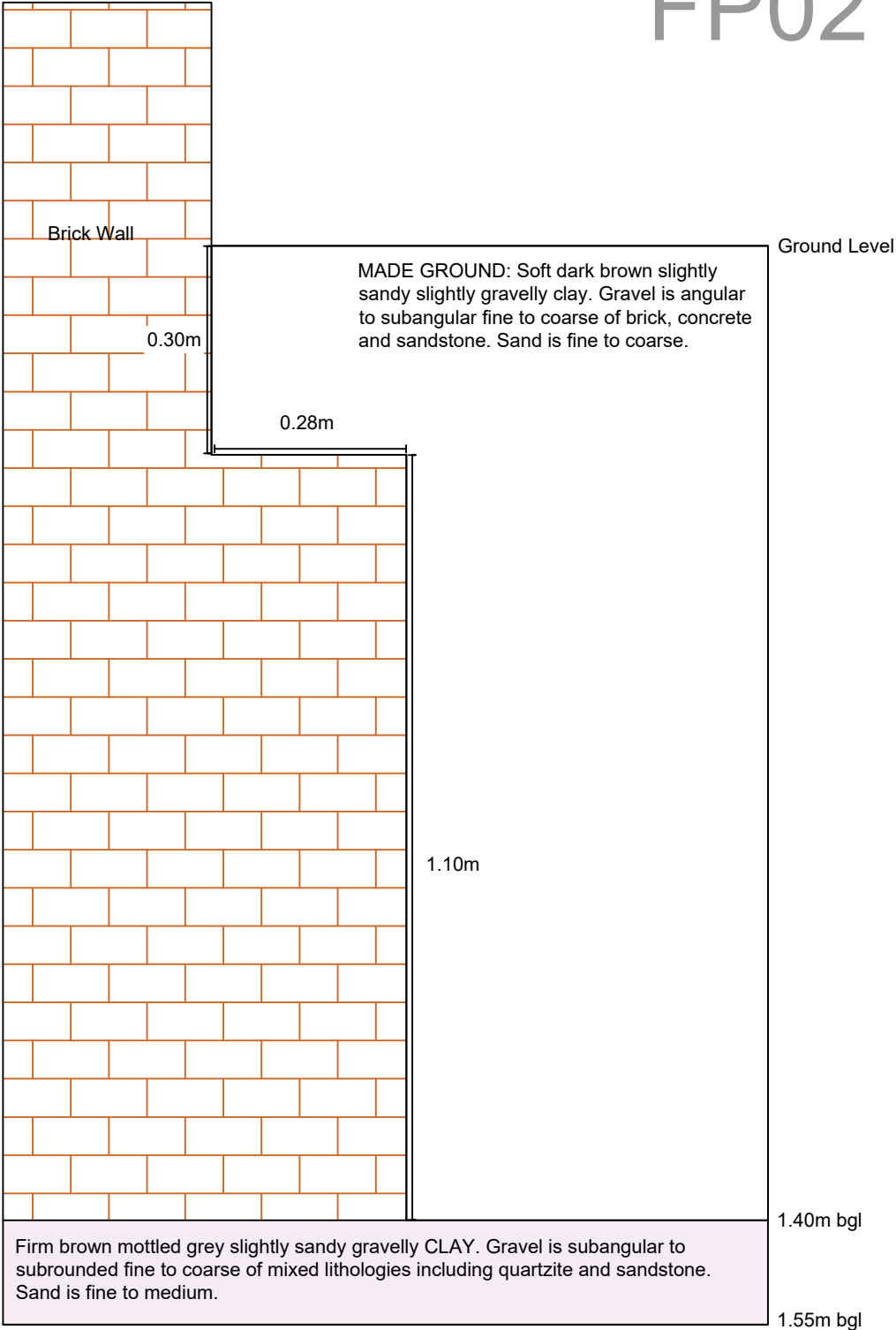
FP01 Foundation Cross Section



GROUNDTECH CONSULTING 	CLIENT	DATE				Status		Notes
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	PROJECT TITLE	SCALE				Draft		
	STAND LANE, RADCLIFFE	1:8 AT A3				Issued		
	PLAN TITLE	PLAN NUMBER				For Comment		
	FP01 FOUNDATION CROSS SECTION	GRO-23304-P05A	Rev.	Details	Date	Approved		

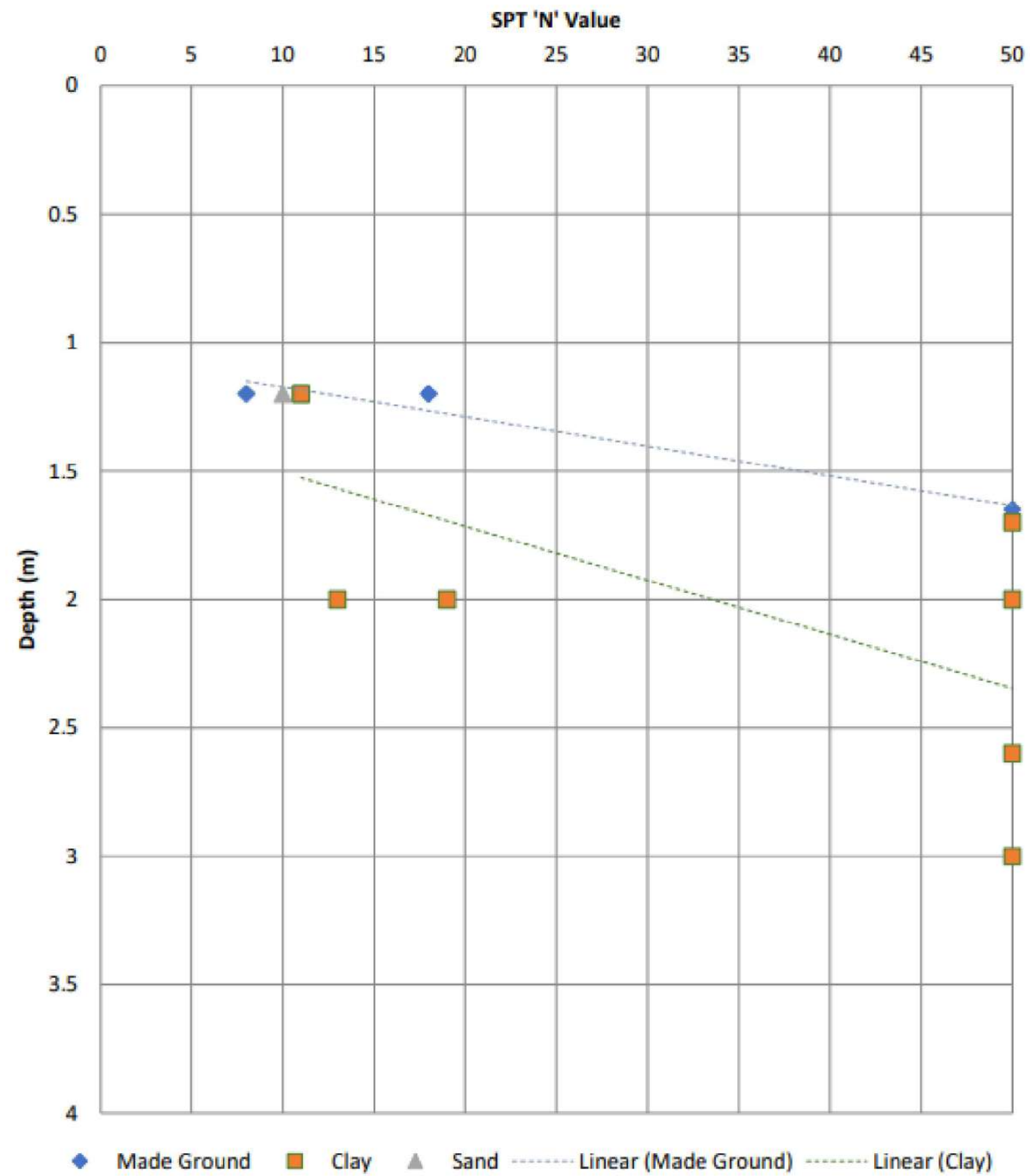


FP02 Foundation Cross Section



GROUNDTECH CONSULTING 	CLIENT BELL MUNRO CONSULTING LIMITED	DATE NOVEMBER 2023			Status		Notes
	PROJECT TITLE STAND LANE, RADCLIFFE	SCALE 1:10 AT A3			Preliminary		
	PLAN TITLE FP02 FOUNDATION CROSS SECTION	PLAN NUMBER GRO-23304-P05B			Draft		
					Issued		
					For Comment		
			Rev.	Details	Date	Approved	





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CLIENT	BELL MUNRO CONSULTING LTD
PROJECT TITLE	STAND LANE, RADCLIFFE
PLAN TITLE	GENERALISED GROUND MODEL

DATE	NOVEMBER 2023
SCALE	NTS
PLAN NUMBER	GRO-23304-P06

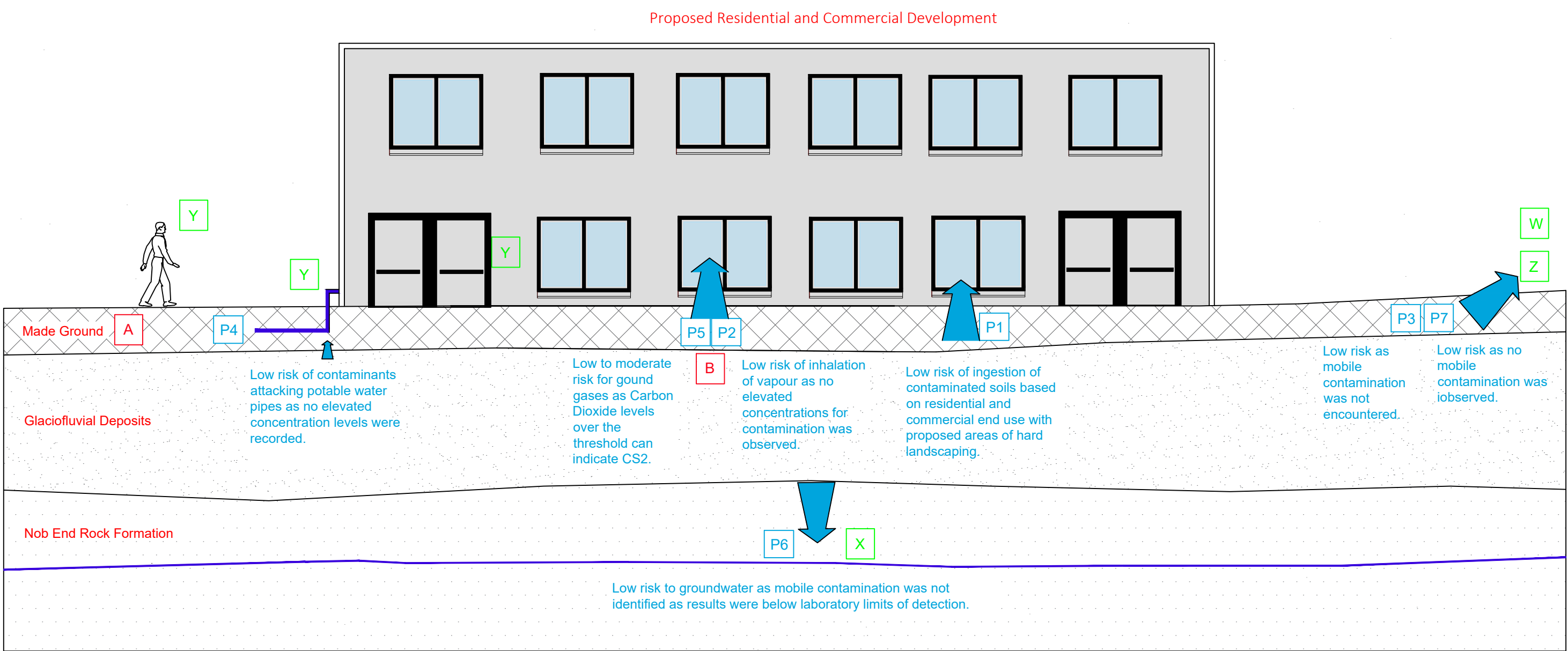
Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes	

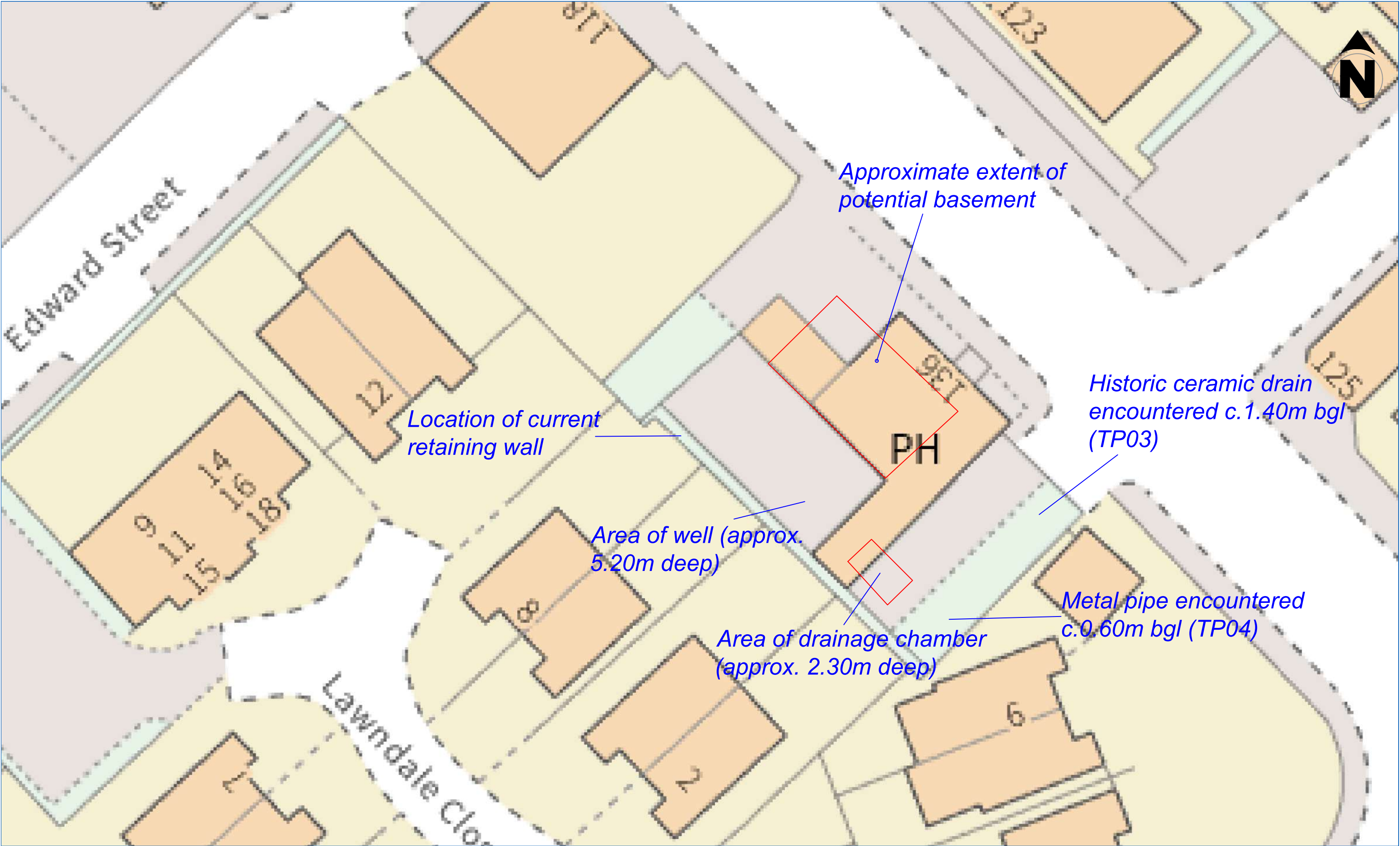


SOURCES	POLLUTION LINKAGES	RECEPTORS
A. Contaminated soils / Made Ground. B. Ground gas.	P1. Ingestion of soil and dust. P2. Inhalation of vapour. P3. Inhalation of soil dust by adjacent site users. P4. Attacking of potable water supply pipe. P5. Migration and accumulation of ground gas in internal places. P6. Impaction of groundwater from soil contamination. P7. Migration of soil and groundwater contamination impacting surface waters.	W. Nearby surface waters of the Chapelfield Nature Reserve c. 155m south west.. X. Groundwater within the Secondary A Aquifer. Y. Site end users. Z. Adjacent site users.



	CLIENT	DATE			Status		Notes
	BELL MUNRO CONSULTING LIMITED	NOVEMBER 2023			Preliminary		
	PROJECT TITLE	SCALE			Draft		
	STAND LANE, RADCLIFFE	NTS			Issued	●	
	PLAN TITLE	PLAN NUMBER			For Comment		
	ILLUSTRATIVE REVISED CSM	GRO-23304-P07	Rev.	Details	Date	Approved	





GROUNDTECH CONSULTING	CLIENT	DATE			Status		Notes
	BELL MUNRO CONSULTING LTD	DECEMBER 2023			Preliminary		
	PROJECT TITLE	SCALE			Draft		
	STAND LANE, RADCLIFFE	NTS			Issued		
	PLAN TITLE	PLAN NUMBER			For Comment		
	REVISED PRELIMINARY DEVELOPMENT CONSTRAINTS PLAN	GRO-23304-P08	Rev.	Details	Date	Approved	





APPENDIX 2 - Site Photographs



Photograph 1 – Assumed Relict Well



Photograph 2 – Assumed Relict Well



Photograph 3 – SuDS01



Photograph 4 – SuDS01



Photograph 5 – SuDS02



Photograph 6 – SuDS02



Photograph 7 – FP01



Photograph 8 – FP02



Photograph 9 – Void



Photograph 10 – WS01



Photograph 11 – WS02



Photograph 12 – WS03



Photograph 13 – WS04



Photograph 14 – WS05



Photograph 15 – View Of Site Looking South-East



Photograph 16 – Retaining Wall On Southern Boundary



Photograph 17 – TP02 showing depth of basement at 1.90m bgl.



Photograph 18 – SuDS01 showing basement wall and perched water ingress.



Photograph 19 – Manhole encountered in southern corner of site.



Photograph 20 – Manhole chamber depth is approximately 2.30m.



Photograph 21 – TP04 showing groundwater seepage at 1.60m bgl.



Photograph 22 – TP05 showing the depth of the basement at 1.90m bgl.



Photograph 23 – Instability of TP05.



Photograph 24 – TP06 indicates basement is not continuous with the nearby wellton the south west.



Photograph 25 – TP07 indicates the basement does not extend to the edge of the site on the north eastern boundary.



Photograph 26 – Current condition of well structure at surface.

APPENDIX 3 - CIRIA Risk Assessment Methodology

Contaminated Land Risk Assessment

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification ➡ Hazard Assessment ➡ Risk Estimation ➡ Risk Evaluation

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process.

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552:

- **High likelihood:** There is a pollution linkage and an event 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 pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the 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 even over a longer period such event would take place, and is less likely in the short term;
- **Unlikely:** There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

The severity is also classified using a system based on CIRIA C552. The terms and definitions are:

- **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 of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;

- **Medium:** Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;
- **Mild:** Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment;
Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.
- **Minor:** harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.
Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

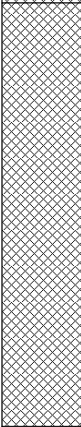
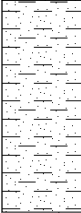
- **Very high:** There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;
- **High:** Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;
- **Moderate:** It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;
- **Low:** It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;
- **Very Low:** There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX 4 - Exploratory Hole Logs

Trial Pit Log

Trialpit No
SuDS01
Sheet 1 of 1

Project Name: STAND LANE	Project No. GRO-23304	Co-ords: - Level:	Date 01/11/2023
Location: RADCLIFFE	Dimensions (m): Depth 2.30		Scale 1:25 Logged JP
Client: BELL MUNRO CONSULTING LIMITED		1.8 1.2	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼				0.20			MADE GROUND: Grey tarmac.	
							MADE GROUND: Firm dark brown mottled grey slightly sandy gravelly clay with high cobble content of brick. Gravel is angular to subrounded fine to coarse of mixed lithologies including brick, concrete and sandstone. Sand is fine to medium.	1
				1.60			Stiff brown sandy CLAY. Sand is fine to medium.	2
				2.30			End of pit at 2.30 m	3
								4
								5

Remarks: 1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Trial pit excavated to 2.30m bgl. 3. Water seepage at 1.80m bgl. 4. Soil percolation test unable to be carried out due to water seepage. 5. Backfilled with arisings.

Stability: Unstable.









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Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: STAND LANE

Project No.
GRO-23304

Co-ords: -

Hole Type
WS

Location: RADCLIFFE

Level:

Scale
1:25

Client: BELL MUNRO CONSULTING LIMITED

Dates: 31/10/2023 -

Logged By
JP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES					MADE GROUND: Firm dark grey brown mottled grey slightly sandy gravelly clay. Gravel is angular to subrounded fine to coarse of mixed lithologies of brick, concrete, sandstone and ceramics. Sand is fine to medium.	
		1.00	D						1
		1.20		N=8 (1,1/1,1,2,4)				No recovery.	
					1.70				
		2.00		N=13 (2,3/3,3,3,4)				Firm to stiff dark brown very sandy gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to medium of mixed lithologies including quartzite and limestone.	2
		2.10	ES						
		2.60		N=50 (5,9/50 for 275mm)	2.60			End of borehole at 2.60 m	3
									4
									5

Remarks

1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. Groundwater seepage encountered at 1.60m rising to 1.00m. 4. Borehole terminated at 2.60m bgl due to SPT refusal. 5. Monitoring standpipe installed to 2.60m bgl (1.00m plain, 1.60m slotted).





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Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name: STAND LANE

Project No.
GRO-23304

Co-ords: -

Hole Type
WS

Location: RADCLIFFE

Level:

Scale
1:25

Client: BELL MUNRO CONSULTING LIMITED

Dates: 31/10/2023 -

Logged By
JP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES					MADE GROUND: Firm to stiff dark brown mottled grey slightly sandy gravelly clay with moderate cobble content of brick. Gravel is angular to subrounded fine to coarse of brick, concrete and sandstone. Sand is fine to medium.	1
		1.20		N=18 (8,5/4,8,3,3)					
		1.65		N=50 (25 for 50mm/50 for 60mm)	1.60 1.65				
								Grey CONCRETE End of borehole at 1.65 m	2
									3
									4
									5

Remarks

1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. Borehole terminated at 1.65m bgl due to concrete obstruction. 4. Backfilled with arisings.





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Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: STAND LANE

Project No.
GRO-23304

Co-ords: -

Hole Type
WS

Location: RADCLIFFE

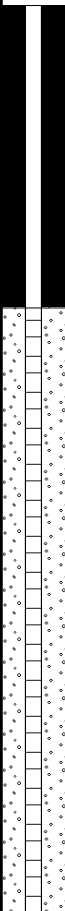
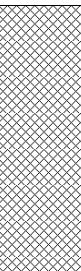
Level:

Scale
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Client: BELL MUNRO CONSULTING LIMITED

Dates: 31/10/2023 -

Logged By
JP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.70	ES		0.90			MADE GROUND: Firm dark brown mottled grey slightly sandy gravelly clay with moderate cobble content of brick. Gravel is angular to subrounded fine to coarse of brick, concrete and sandstone. Sand is fine to medium.	
		1.20		N=10 (1,1/2,2,2,4)				Loose brown slightly clayey SAND. Sand is fine to medium.	1
		1.50	ES						
		2.00 2.00	D	N=19 (2,3/4,4,6,5)	1.90			Stiff brown sandy CLAY. Sand is fine to coarse.	2
		2.80	ES						
		3.00		N=50 (6,10/50 for 230mm)	3.00			End of borehole at 3.00 m	3
									4
									5

Remarks

1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. Groundwater seepage encountered at 2.00m. 4. Borehole terminated at 3.00m bgl due to SPT refusal. 5. Monitoring standpipe installed to 3.00m bgl (1.00m plain, 2.00m slotted).





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Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: STAND LANE

Project No.
GRO-23304

Co-ords: -

Hole Type
WS

Location: RADCLIFFE

Level:

Scale
1:25

Client: BELL MUNRO CONSULTING LIMITED

Dates: 31/10/2023 -

Logged By
JP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES					MADE GROUND: Firm dark grey brown mottled grey slightly sandy gravelly clay. Gravel is angular to subrounded fine to medium of mixed lithologies of brick, concrete, sandstone and ceramics. Sand is fine to medium.	
					0.80				
		1.20		N=11 (0,1/2,3,3,3)				Firm dark brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded to rounded fine to medium of mixed lithologies including quartzite and sandstone. Sand is fine to medium.	1
		1.60	ES		1.65				
		1.90	ES					Stiff brown sandy CLAY. Sand is fine to coarse.	
		2.00		N=50 (3,5/50 for 245mm)	2.00			End of borehole at 2.00 m	2
									3
									4
									5

Remarks

1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. Borehole terminated at 2.00m bgl due to SPT refusal. 4. Backfilled with arisings.





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Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: STAND LANE

Project No.
GRO-23304

Co-ords: -

Hole Type
WS

Location: RADCLIFFE

Level:

Scale
1:25

Client: BELL MUNRO CONSULTING LIMITED

Dates: 31/10/2023 -

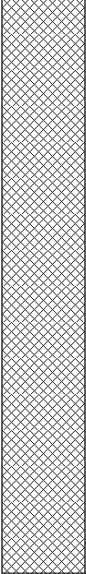
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Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES					MADE GROUND: Firm brown mottled grey slightly sandy gravelly clay. Gravel is angular to subrounded fine to medium of mixed lithologies of brick, concrete, sandstone and ceramic. Sand is fine to medium.	
		0.90	ES		0.80			Loose brown slightly clayey SAND. Sand is fine to medium.	1
		1.00	D						
		1.20		N=11 (3,3/2,2,3,4)	1.20			Stiff dark brown sandy CLAY. Sand is fine to medium.	
		1.40	ES						
		1.70		N=50 (25 for 50mm/50 for 285mm)	1.70			End of borehole at 1.70 m	2
									3
									4
									5

Remarks

1. Location cleared of services using a handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. Borehole terminated at 1.70m bgl due to SPT refusal. 5. Monitoring standpipe installed to 1.70m bgl (0.70m plain, 1.00m slotted).

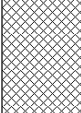
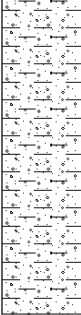


				Trial Pit Log			Trialpit No TP02 Sheet 1 of 1			
Project Name: STAND LANE				Project No. GRO-23304		Co-ords: - Level:		Date 18/12/2023		
Location: RADCLIFFE				Dimensions (m): Depth 1.90		1.8 1.2		Scale 1:25 Logged JR		
Client: BELL MUNRO CONSULTING LIMITED										
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
				1.90			MADE GROUND: Dark brown gravelly fine to coarse sand with a moderate cobble content of brick. Gravel is angular to subangular fine to coarse of brick, concrete, wood, ceramics, and plastic. Concrete slab encountered at 1.90m bgl. End of pit at 1.90 m			
							1			
							2			
							3			
							4			
							5			
Remarks:				1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. No groundwater encountered. 3. Trial pit excavated to 1.90m bgl. 4. Trial pit terminated due to concrete slab at 1.90m bgl. 5. Trial pit backfilled with arisings.						
Stability: Stable										

Trial Pit Log

Trialpit No
TP03
Sheet 1 of 1

Project Name: STAND LANE	Project No. GRO-23304	Co-ords: - Level:	Date 18/12/2023
Location: RADCLIFFE	Dimensions (m): Depth 1.45		Scale 1:25 Logged JR
Client: BELL MUNRO CONSULTING LIMITED		1.8 1.3	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
			HVP=78	0.40			MADE GROUND: Dark grey black ashy gravelly fine to coarse sand. Gravel is angular to subrounded fine to coarse of brick, concrete, and ash. Faint hydrocarbon odour present.	1
				1.45			Firm grey mottled brown gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chert and sandstone. Sand is fine to coarse.	2
							Drain encountered at 1.40m bgl. End of pit at 1.45 m	3
								4
								5

Remarks: 1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. No groundwater encountered. 3. Trial pit excavated to 1.45m bgl. 4. Trial pit terminated due to drain encountered at 1.40m bgl. 5. Trial pit backfilled with arisings.

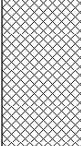
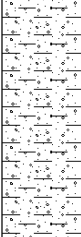
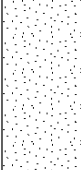
Stability: Stable



Trial Pit Log

Trialpit No
TP04
Sheet 1 of 1

Project Name: STAND LANE	Project No. GRO-23304	Co-ords: - Level:	Date 18/12/2023
Location: RADCLIFFE	Dimensions (m): Depth 2.10		Scale 1:25 Logged JR
Client: BELL MUNRO CONSULTING LIMITED		1.15	1.9

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼			HVP=83	0.50			MADE GROUND: Dark grey black ashy gravelly fine to coarse sand with bands of light brown fine to coarse sand. Gravel is angular to subrounded fine to coarse of brick, concrete, and ash. Faint hydrocarbon odour present.	
							Firm grey mottled brown gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chert and sandstone. Sand is fine to coarse. <i>Metal pipe encountered at 0.60m bgl.</i>	1
				1.30			Light brown fine to coarse SAND.	
				1.90			Firm grey mottled brown gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chert and sandstone. Sand is fine to coarse.	2
				2.10			End of pit at 2.10 m	
								3
								4
								5

Remarks: 1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. Groundwater seepage encountered at 1.60m bgl. 3. Trial pit excavated to 2.10m bgl. 4. Soil percolation test carried out from 1.05m bgl to 2.10m bgl. 5. Trial pit backfilled with arisings.

Stability: Stable



Project Name: STAND LANE

Project No.
GRO-23304

Co-ords:	-
Level:	

Date
18/12/2023

Location: RADCLIFFE

Dimensions
(m):

3

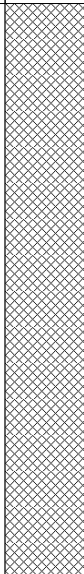
Scale
1:25

Client: BELL MUNRO CONSULTING LIMITED

Depth
1.90

1.5

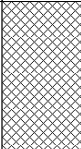
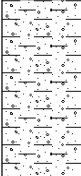
Logged
JR

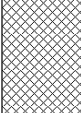
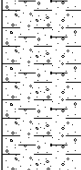
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.90			MADE GROUND: Dark brown ashy gravelly fine to coarse sand with a high cobble content of brick and a moderate cobble content of wood, concrete, and metal. Gravel is angular to subangular fine to coarse of brick, concrete, ash, wood, ceramics, metal, and plastic. Concrete slab encountered at 1.90m bgl. End of pit at 1.90 m	1
								2
								3
								4
								5

Remarks:	1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. No groundwater encountered. 3. Trial pit excavated to 1.90m bgl. 4. Trial pit terminated due to concrete slab at 1.90m bgl and instability of pit walls. 5. Trial pit backfilled with arisings.
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Stability: Unstable



				Trial Pit Log			Trialpit No TP06 Sheet 1 of 1			
Project Name: STAND LANE				Project No. GRO-23304		Co-ords: - Level:		Date 18/12/2023		
Location: RADCLIFFE				Dimensions (m): Depth 1.10		1.9 		Scale 1:25 Logged JR		
Client: BELL MUNRO CONSULTING LIMITED										
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
			HVP=47	0.50			MADE GROUND: Dark brown gravelly fine to coarse sand with a moderate cobble content of brick. Gravel is angular to subangular fine to coarse of brick, concrete, wood, ceramics, and plastic.			
				1.10			Firm brown mottled grey gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chert and sandstone. Sand is fine to coarse.			
							End of pit at 1.10 m			
							1			
							2			
							3			
							4			
							5			
Remarks: 1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. No groundwater encountered. 3. Trial pit excavated to 1.10m bgl. 4. Trial pit backfilled with arisings.										
Stability: Stable										

				Trial Pit Log			Trialpit No TP07 Sheet 1 of 1		
Project Name: STAND LANE				Project No. GRO-23304		Co-ords: - Level:		Date 18/12/2023	
Location: RADCLIFFE				Dimensions (m): Depth 1.00		1.8 		Scale 1:25	
Client: BELL MUNRO CONSULTING LIMITED								Logged JR	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
			HVP=31	0.40			MADE GROUND: Dark brown gravelly fine to coarse sand with a moderate cobble content of brick. Gravel is angular to subangular fine to coarse of brick, concrete, wood, ceramics, and plastic.		
				1.00			Firm brown mottled grey gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chert and sandstone. Sand is fine to coarse.		
							End of pit at 1.00 m		
							1		
							2		
							3		
							4		
							5		
Remarks: 1. Location cleared of utilities using handheld Cable Avoidance Tool (CAT). 2. No groundwater encountered. 3. Trial pit excavated to 1.00m bgl. 4. Trial pit backfilled with arisings.									
Stability: Stable									





APPENDIX 5 - Geo-Environmental Testing Results

Groundtech Consulting Limited
PO Box 499
Manchester
United Kingdom
M28 8EE



4225



Attention : Jack Perkins
Date : 14th November, 2023
Your reference : GRO-23304
Our reference : Test Report 23/18367 Batch 1
Location : Strand Lane
Date samples received : 3rd November, 2023
Status : Final Report
Issue : 1

Twelve samples were received for analysis on 3rd November, 2023 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

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

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

Scope 1&2 emissions - 21.068 kg of CO2

Scope 1&2&3 emissions - 49.79 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

Report : Solid

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

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	25-27	28-30	31-33	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS01	WS02	WS03	WS03	WS03	WS04	WS04	WS05	WS05			
Depth	0.20	2.10	0.50	0.70	1.50	2.80	0.40	1.90	0.20	0.90			
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	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023			
Arsenic #	8.4	-	9.6	5.0	-	-	7.8	-	13.5	-	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	mg/kg	TM30/PM15
Chromium #	33.2	-	31.4	34.1	-	-	30.1	-	32.6	-	<0.5	mg/kg	TM30/PM15
Copper #	20	-	35	61	-	-	22	-	53	-	<1	mg/kg	TM30/PM15
Lead #	13	-	206	123	-	-	90	-	33	-	<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	0.3	0.2	-	-	0.1	-	0.2	-	<0.1	mg/kg	TM30/PM15
Nickel #	29.6	-	16.0	22.2	-	-	13.3	-	39.0	-	<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	<1	<1	-	-	<1	-	<1	-	<1	mg/kg	TM30/PM15
Sulphur as S	-	-	-	0.02	-	0.07	-	-	-	0.02	<0.01	%	TM30/PM15
Total Sulphate as SO4 BRE	-	-	-	0.02	-	0.03	-	-	-	0.01	<0.01	%	TM50/PM29
Zinc #	55	-	75	95	-	-	49	-	59	-	<5	mg/kg	TM30/PM15
Magnesium	-	-	-	0.0019	-	0.0038	-	-	-	0.0016	<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	<0.04	-	<0.04	<0.04	-	-	<0.04	-	0.27	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	<0.03	<0.03	-	-	<0.03	-	<0.03	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	<0.04	<0.04	-	-	<0.04	-	<0.04	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.15	-	0.65	<0.03	-	-	0.25	-	0.42	-	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-	0.19	<0.04	-	-	0.06	-	0.08	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	-	1.69	<0.03	-	-	0.63	-	0.51	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.05	-	1.54	<0.03	-	-	0.57	-	0.45	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	0.79	<0.06	-	-	0.33	-	0.21	-	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	-	0.88	<0.02	-	-	0.37	-	0.23	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	1.56	<0.07	-	-	0.60	-	0.33	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	0.96	<0.04	-	-	0.34	-	0.16	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-	0.59	<0.04	-	-	0.23	-	0.11	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	0.11	<0.04	-	-	<0.04	-	<0.04	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-	0.58	<0.04	-	-	0.23	-	0.12	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	9.5	<0.6	-	-	3.6	-	2.9	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	1.12	<0.05	-	-	0.43	-	0.24	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	0.44	<0.02	-	-	0.17	-	0.09	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	-	101	85	-	-	95	-	100	-	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-	<2	-	-	-	<2	-	-	-	<2	ug/kg	TM15/PM10
Benzene #	-	-	<3	-	-	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Toluene #	-	-	<3	-	-	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-	<3	-	-	-	<3	-	-	-	<3	ug/kg	TM15/PM10
m/p-Xylene #	-	-	<5	-	-	-	<5	-	-	-	<5	ug/kg	TM15/PM10
o-Xylene #	-	-	<3	-	-	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-	80	-	-	-	92	-	-	-	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	64	-	-	-	84	-	-	-	<0	%	TM15/PM10

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

Report : Solid

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

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	25-27	28-30	31-33	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS01	WS02	WS03	WS03	WS03	WS04	WS04	WS05	WS05			
Depth	0.20	2.10	0.50	0.70	1.50	2.80	0.40	1.90	0.20	0.90			
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	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023	31/10/2023			
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	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	03/11/2023	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	-	<0.2	-	-	-	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	-	<4	-	-	-	<4	-	-	-	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	-	<7	-	-	-	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	-	<7	-	-	-	73	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-	-	<19	-	-	-	73	-	-	-	<19	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	-	<0.2	-	-	-	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	-	<4	-	-	-	5	-	-	-	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	-	<7	-	-	-	21	-	-	-	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	-	<7	-	-	-	123	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	-	-	<19	-	-	-	149	-	-	-	<19	mg/kg	TM5/PM8/PM16
Total aliphatics and aromatics (C5-35) (EH+HS_CU_1D_Total)	-	-	<38	-	-	-	222	-	-	-	<38	mg/kg	TM5/PM8/PM16
Natural Moisture Content	15.1	-	18.4	19.2	-	19.0	23.1	-	20.8	21.5	<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4 Chloride (2:1 Ext BRE) #	-	-	-	<0.6	-	<0.6	-	-	-	<0.6	<0.6	mg/kg	TM38/PM20
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	-	-	<0.3	-	<0.3	-	<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE)	-	-	-	0.0058	-	<0.0025	-	-	-	<0.0025	<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0335	0.0360	1.6266	0.0808	0.0406	0.0349	1.4778	0.0464	0.0842	0.0234	<0.0015	g/l	TM38/PM20
Organic Matter	2.5	-	3.5	2.6	-	-	2.6	-	12.6	-	<0.2	%	TM21/PM24
pH #	8.26	8.25	7.80	6.89	7.19	8.48	7.74	8.47	7.63	7.35	<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	-	NAD	NAD	-	-	NAD	-	NAD	-		None	Subcontracted

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

Report : Solid

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

EMT Sample No.	34-35										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS05												
Depth	1.40												
COC No / misc													
Containers	V J												
Sample Date	31/10/2023												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	03/11/2023												
Arsenic #	-										<0.5	mg/kg	TM30/PM15
Cadmium #	-										<0.1	mg/kg	TM30/PM15
Chromium #	-										<0.5	mg/kg	TM30/PM15
Copper #	-										<1	mg/kg	TM30/PM15
Lead #	-										<5	mg/kg	TM30/PM15
Mercury #	-										<0.1	mg/kg	TM30/PM15
Nickel #	-										<0.7	mg/kg	TM30/PM15
Selenium #	-										<1	mg/kg	TM30/PM15
Sulphur as S	-										<0.01	%	TM30/PM15
Total Sulphate as SO4 BRE	-										<0.01	%	TM50/PM29
Zinc #	-										<5	mg/kg	TM30/PM15
Magnesium	-										<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	-										<0.04	mg/kg	TM4/PM8
Acenaphthylene	-										<0.03	mg/kg	TM4/PM8
Acenaphthene #	-										<0.05	mg/kg	TM4/PM8
Fluorene #	-										<0.04	mg/kg	TM4/PM8
Phenanthrene #	-										<0.03	mg/kg	TM4/PM8
Anthracene #	-										<0.04	mg/kg	TM4/PM8
Fluoranthene #	-										<0.03	mg/kg	TM4/PM8
Pyrene #	-										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-										<0.06	mg/kg	TM4/PM8
Chrysene #	-										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-										<0.04	mg/kg	TM4/PM8
PAH 16 Total	-										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-										<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-										<2	ug/kg	TM15/PM10
Benzene #	-										<3	ug/kg	TM15/PM10
Toluene #	-										<3	ug/kg	TM15/PM10
Ethylbenzene #	-										<3	ug/kg	TM15/PM10
m/p-Xylene #	-										<5	ug/kg	TM15/PM10
o-Xylene #	-										<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-										<0	%	TM15/PM10

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

Report : Solid

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

EMT Sample No.	34-35												
Sample ID	WS05												
Depth	1.40												
COC No / misc													
Containers	V J												
Sample Date	31/10/2023												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	03/11/2023												
											Please see attached notes for all abbreviations and acronyms		
											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	-										<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-										<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-										<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-										<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-										<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-										<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-										<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-										<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 (HS_1D_AR) #	-										<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-										<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-										<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-										<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-										<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-										<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-										<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	-										<19	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics (C5-35) (EH+HS_CU_1D_Total)	-										<38	mg/kg	TM5/PM8/PM16/PM12/PM10
Natural Moisture Content													
Natural Moisture Content	-										<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4 Chloride (2:1 Ext BRE) #													
Ammoniacal Nitrogen as NH4 Chloride (2:1 Ext BRE) #	-										<0.6	mg/kg	TM38/PM20
Hexavalent Chromium #													
Hexavalent Chromium #	-										<0.002	g/l	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE)													
Nitrate as NO3 (2:1 Ext BRE)	-										<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #													
Sulphate as SO4 (2:1 Ext) #	0.0268										<0.0015	g/l	TM38/PM20
Organic Matter													
Organic Matter	-										<0.2	%	TM21/PM24
pH #													
pH #	8.41										<0.01	pH units	TM73/PM11
Asbestos Type*													
Asbestos Type*	-											None	Subcontracted

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

SVOC Report : Solid

EMT Sample No.	7-9	19-21									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS02	WS04											
Depth	0.50	0.40											
COC No / misc													
Containers	V J T	V J T											
Sample Date	31/10/2023	31/10/2023											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	03/11/2023	03/11/2023									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10									<10	ug/kg	TM16/PM8
Phenol #	<10	<10									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	118	16									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	3184	<100									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	221	<100									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100									<100	ug/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10									<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10									<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10									<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
Azobenzene	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10									<10	ug/kg	TM16/PM8
Carbazole	81	76									<10	ug/kg	TM16/PM8
Dibenzofuran #	67	26									<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10									<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10									<10	ug/kg	TM16/PM8
Isophorone #	<10	<10									<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10									<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10									<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	120	118									<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	127	122									<0	%	TM16/PM8

Client Name: Groundtech Consulting Limited
Reference: GRO-23304
Location: Strand Lane
Contact: Jack Perkins
EMT Job No: 23/18367

VOC Report : Solid

EMT Sample No.	7-9	19-21										
Sample ID	WS02	WS04										
Depth	0.50	0.40										
COC No / misc												
Containers	V J T	V J T										
Sample Date	31/10/2023	31/10/2023										
Sample Type	Soil	Soil										
Batch Number	1	1										
Date of Receipt	03/11/2023	03/11/2023										
	LOD/LOR	Units	Method No.									
VOC MS												
Dichlorodifluoromethane	<2	<2								<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2								<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3								<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2								<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1								<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2								<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2								<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6								<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7								<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3								<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3								<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3								<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4								<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3								<3	ug/kg	TM15/PM10
Chloroform #	<3	<3								<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3								<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3								<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4								<4	ug/kg	TM15/PM10
Benzene #	<3	<3								<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6								<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3								<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3								<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4								<4	ug/kg	TM15/PM10
Toluene #	<3	<3								<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3								<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3								<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3								<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3								<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3								<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3								<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3								<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane #	<3	<3								<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3								<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	<5								<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3								<3	ug/kg	TM15/PM10
Styrene	<3	<3								<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3								<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3								<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3*	<3*								<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2								<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4								<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4								<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3								<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3								<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3								<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5								<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6								<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4								<4	ug/kg	TM15/PM10
4-Isopropyltoluene	<4	<4								<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
n-Butylbenzene	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4								<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane	<4	<4								<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene	<7	<7								<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4								<4	ug/kg	TM15/PM10
Naphthalene	<27	<27								<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene	<7	<7								<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	80	92								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	64	84								<0	%	TM15/PM10

Please see attached notes for all abbreviations and acronyms

Matrix : Solid

8 of 16

Client Name: Groundtech Consulting Limited

Reference: GRO-23304

Location: Strand Lane

Contact: Jack Perkins

[illegible]

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

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

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/18367

SOILS and ASH

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

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

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

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

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

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

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

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

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

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

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

WATERS

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

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

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

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

STACK EMISSIONS

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

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

DEVIATING SAMPLES

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

SURROGATES

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

DILUTIONS

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

BLANKS

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

NOTE

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

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

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

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

Measurement Uncertainty

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

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
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: 23/18367

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
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.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/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
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

EMT Job No: 23/18367

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		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 CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			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	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.			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	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	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.			AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
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), NH ₄ + 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	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.			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), NH ₄ + 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	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), NH ₄ + 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	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.			AR	Yes

EMT Job No: 23/18367

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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: 2013I	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
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.			AD	Yes
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
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

APPENDIX 6 - Geotechnical Testing Results



LABORATORY REPORT



Contract Number: PSL23/9450

Report Date: 20 November 2023
Client's Reference: GRO-23304
Client Name: Groundtech Consulting
First Floor
Lloyd House
Orford Court
Greenfold Way
WN7 3XJ

For the attention of: Jack Perkins

Project Name: Stand Lane

Date Received: 8/11/2023
Date Commenced: 8/11/2023
Date Completed: 17/11/2023

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)


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5 – 7 Hexthorpe Road,
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Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Stand Lane

Contract No:

PSL23/9450

Client Ref:

GRO-23304

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



Stand Lane

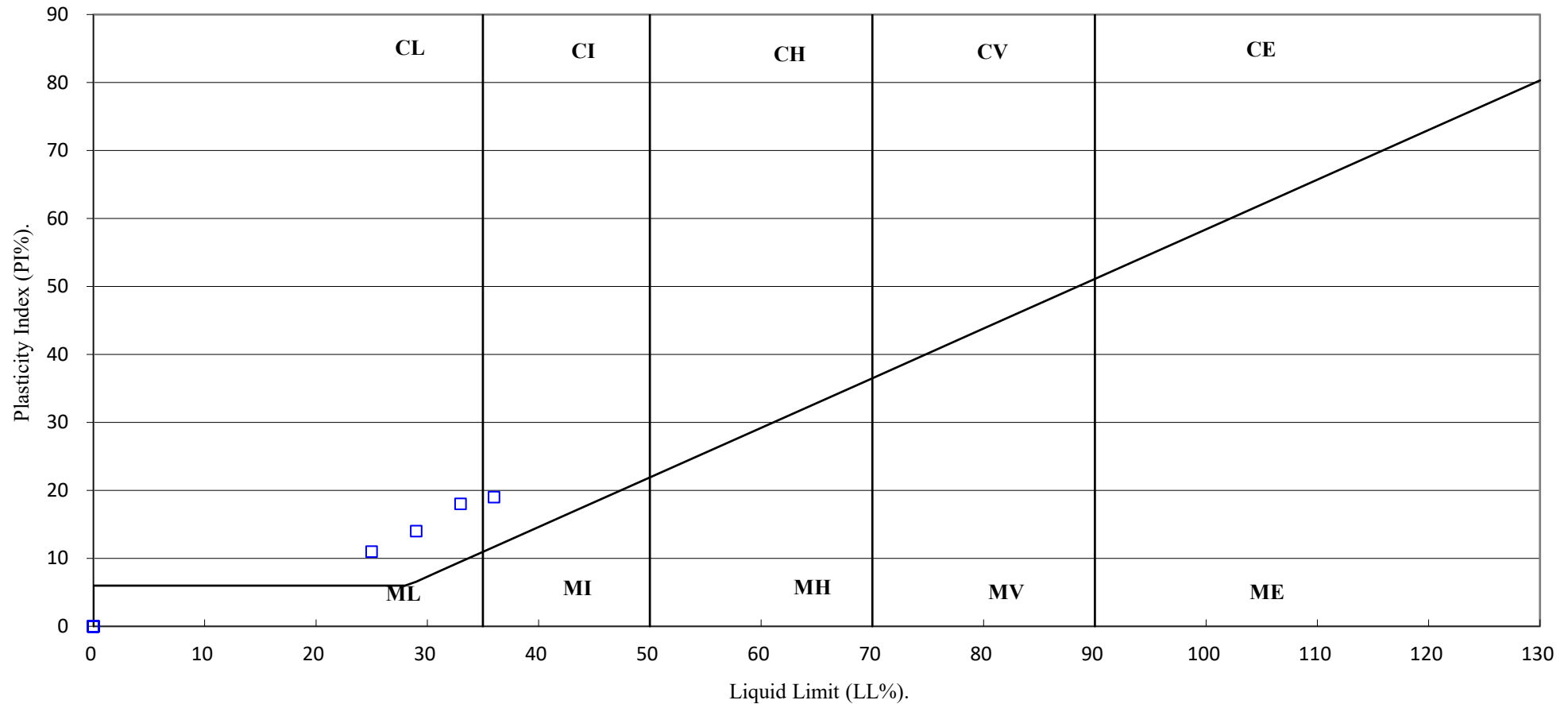
Contract No:

PSL23/9450

Client Ref:

GRO-23304

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Stand Lane

Contract No:

PSL23/9450

Client Ref:

GRO-23304

APPENDIX 7 - Interim Gas Monitoring Results

SITE NAME:		STAND LANE, RADCLIFFE				ENGINEER:		Ethan Hitchcow				
CLIENT:		BELL MUNRO CONSULTING				DATE:		14/11/2023				
JOB NO:		GRO-23304										
Pressure Trend:		Steady	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.2	0.0	0.0	0.0	0.0	0.0					
Finish		20.2	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.1	20.2	20.1	0.0	0.0	0.0	0.0	0.0006	0.0000	986	N	N	N/A	N/A	1.10
WS03	0.0	0.0	0.00	0.0	0.0	0.0	5.2	4.8	11.8	10.9	0.0	0.0	0.0	0.0	0.0052	0.0000	986	N	N	N/A	N/A	1.23
WS05	0.0	0.0	0.00	0.0	0.0	0.0	0.9	0.1	20.1	19.1	0.0	0.0	0.0	0.0	0.0009	0.0000	986	N	N	N/A	N/A	0.81
Notes:																						

SITE NAME:		STAND LANE, RADCLIFFE				ENGINEER:		Ethan Hitchcow				
CLIENT:		BELL MUNRO CONSULTING				DATE:		28/11/2023				
JOB NO:		GRO-23304										
Pressure Trend:		Falling	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.3	0.0	0.0	0.0	0.0	0.0					
Finish		20.3	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.3	0.3	18.6	18.4	0.0	0.0	0.0	0.0	0.0003	0.0000	996	N	N	N/A	N/A	1.11
WS03	0.0	0.0	0.00	0.0	0.0	0.0	5.5	4.9	10.3	9.8	0.0	0.0	0.0	0.0	0.0055	0.0000	997	N	N	N/A	N/A	1.41
WS05	0.0	0.0	0.00	0.0	0.0	0.0	0.7	0.1	19.8	19.4	0.0	0.0	0.0	0.0	0.0007	0.0000	997	N	N	N/A	N/A	0.84
Notes:																						

SITE NAME:		STAND LANE, RADCLIFFE				ENGINEER:		Ethan Hitchcow				
CLIENT:		BELL MUNRO CONSULTING				DATE:		13/12/2023				
JOB NO:		GRO-23304										
Pressure Trend:		Rising	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.4	0.0	0.0	0.0	0.0	0.0					
Finish		20.4	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.5	0.1	20.1	18.1	0.0	0.0	0.0	0.0	0.0005	0.0000	993	-	N	N/A	N/A	1.05
WS03	0.0	0.0	0.00	0.0	0.0	0.0	4.2	3.6	13.9	12.7	0.0	0.0	0.0	0.0	0.0042	0.0000	993	-	N	N/A	N/A	1.42
WS05	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.3	20.1	19.4	0.0	0.0	10.0	0.0	0.0006	0.0000	993	-	N	N/A	N/A	0.82
Notes:																						

APPENDIX 8 - Soil Infiltration Test Results

Sheet 1 of 2

Date of Test: 01/11/2023

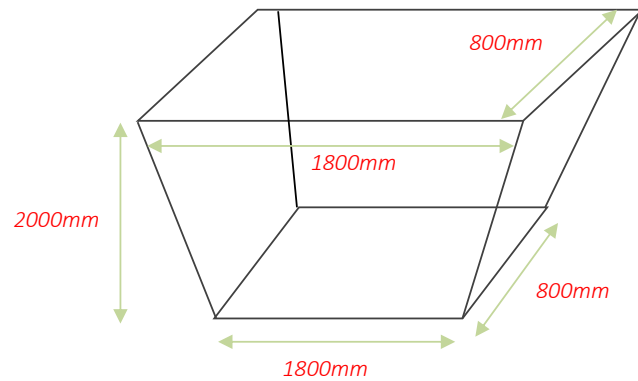
POSITION: SuDS02
TEST 1

Weather: Overcast

Engineer: J. Perkins

Checked:

Trial Pit Measurements



Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

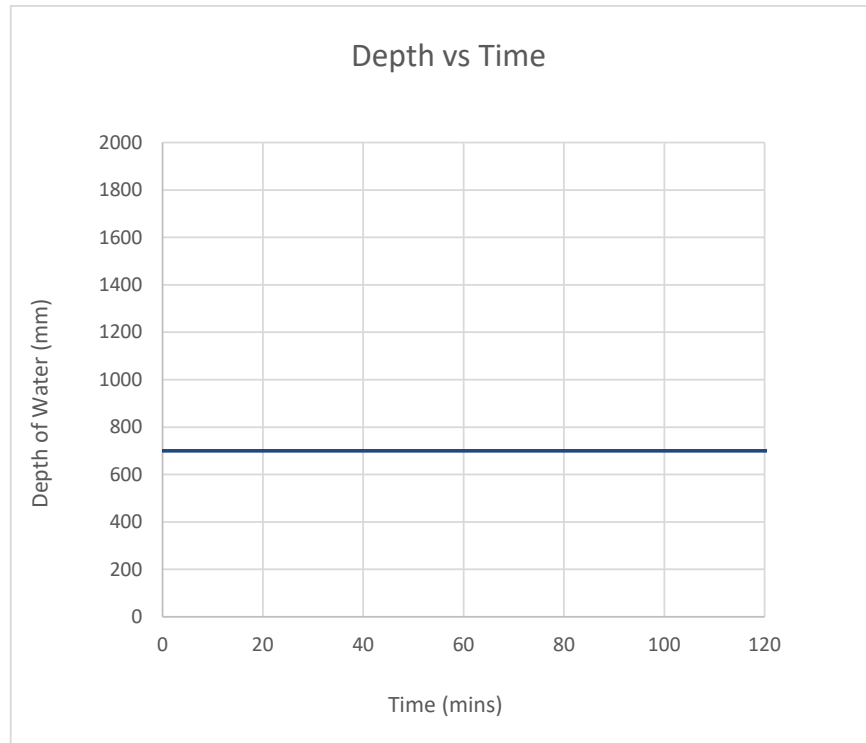
Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1300
1	1300
2	1300
3	1300
5	1300
6	1300
10	1300
15	1300
20	1300
30	1300
40	1300
50	1300
60	1300
75	1300
90	1300
105	1300
120	1300

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: SuDS02
TEST 1



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.008

Compliance Check:

Water Level at 75% effective depth (mm)	525
Water Level at 25% effective depth (mm)	175

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	700
Water Level 2	700
Time to Drain from Level 1 to Level 2 (mins)	360
Volume of water discharged (m ³)	0

Discharge Area (m ²)	5.08
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

Sheet 1 of 2

Date of Test: 01/11/2023

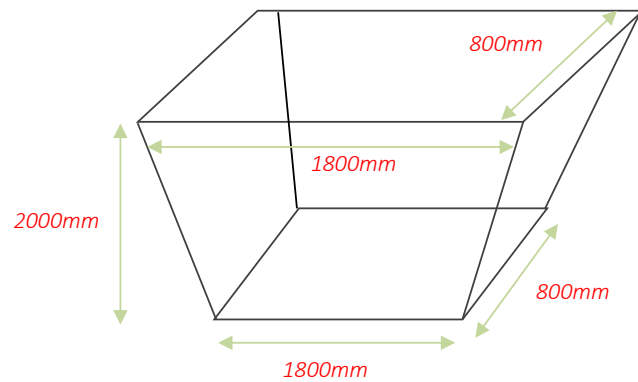
POSITION: SuDS02
TEST 2

Weather: Overcast

Engineer: J. Perkins

Checked:

Trial Pit Measurements



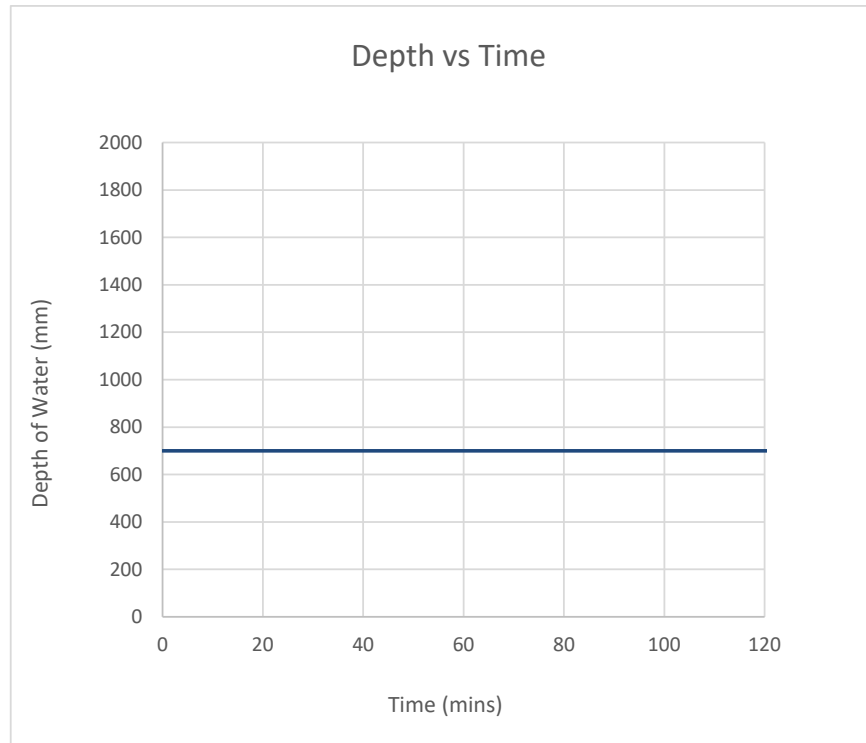
Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1300
1	1300
2	1300
3	1300
5	1300
6	1300
10	1300
15	1300
20	1300
30	1300
40	1300
50	1300
60	1300
75	1300
90	1300
105	1300
120	1300

SOIL PERCOLATION TEST

POSITION: SuDS02
TEST 2



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.008

Compliance Check:

Water Level at 75% effective depth (mm)	525
Water Level at 25% effective depth (mm)	175

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	700
Water Level 2	700
Time to Drain from Level 1 to Level 2 (mins)	360
Volume of water discharged (m ³)	0

Discharge Area (m ²)	5.08
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

Sheet 1 of 2

Date of Test: 01/11/2023

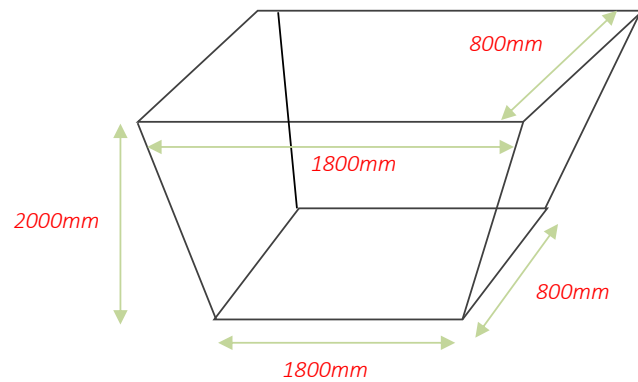
POSITION: SuDS02
TEST 3

Weather: Overcast

Engineer: J. Perkins

Checked:

Trial Pit Measurements



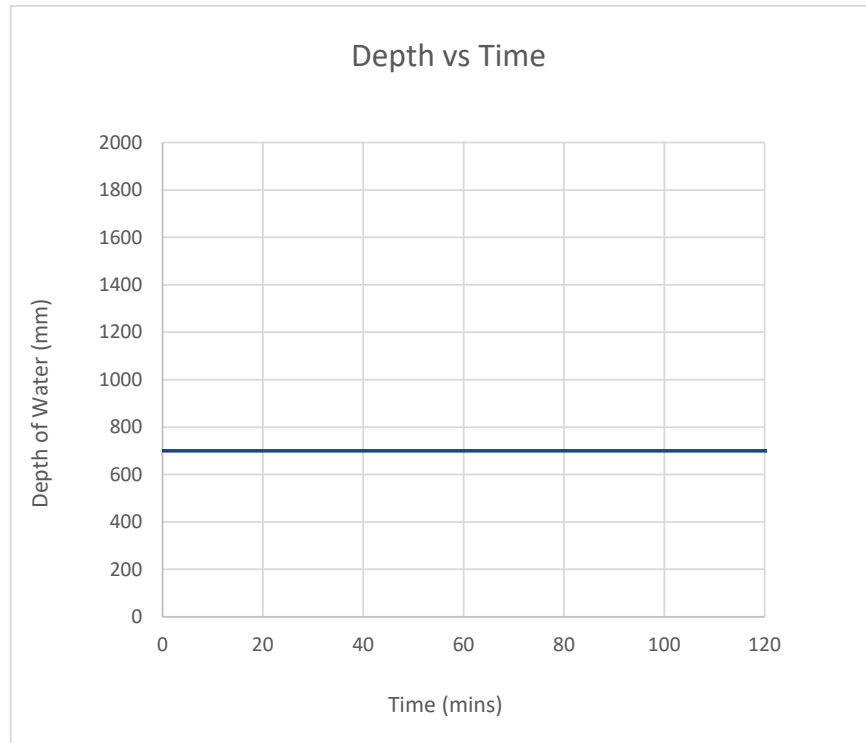
Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1300
1	1300
2	1300
3	1300
5	1300
6	1300
10	1300
15	1300
20	1300
30	1300
40	1300
50	1300
60	1300
75	1300
90	1300
105	1300
120	1300

SOIL PERCOLATION TEST

POSITION: SuDS02
TEST 3



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.008

Compliance Check:

Water Level at 75% effective depth (mm)	525
Water Level at 25% effective depth (mm)	175

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	700
Water Level 2	700
Time to Drain from Level 1 to Level 2 (mins)	360
Volume of water discharged (m ³)	0

Discharge Area (m ²)	5.08
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

Sheet 1 of 2

Date of Test: 18/12/2023

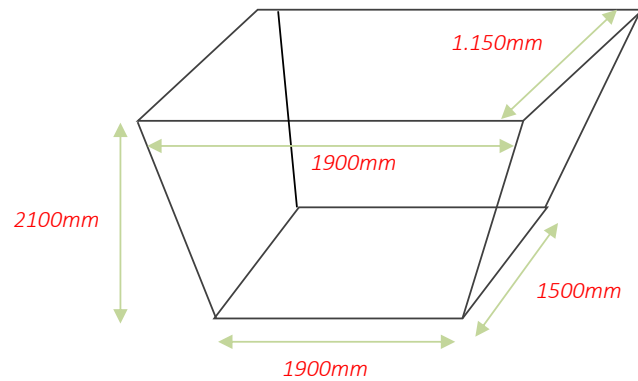
POSITION: TP04
TEST 1

Weather: Overcast, raining

Engineer: J. Roby

Checked:

Trial Pit Measurements



Pit Depth (mm):	2100
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

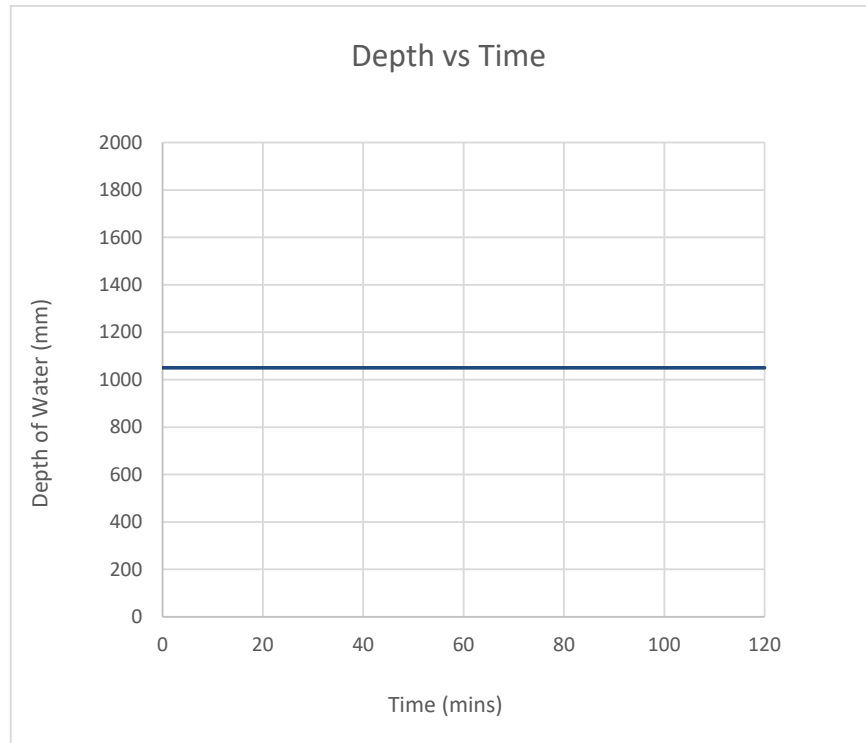
Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1050
1	1050
2	1050
3	1050
4	1050
5	1050
10	1050
15	1050
20	1050
30	1050
40	1050
50	1050
60	1050
75	1050
90	1050
105	1050
120	1050

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: TP04
TEST 1



Volume of Pit (m ³)	5.985
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	2.9925

Compliance Check:

Water Level at 75% effective depth (mm)	787.5
Water Level at 25% effective depth (mm)	262.5

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1050
Water Level 2	1050
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0

Discharge Area (m ²)	9.99
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

Sheet 1 of 2

Date of Test: 18/12/2023

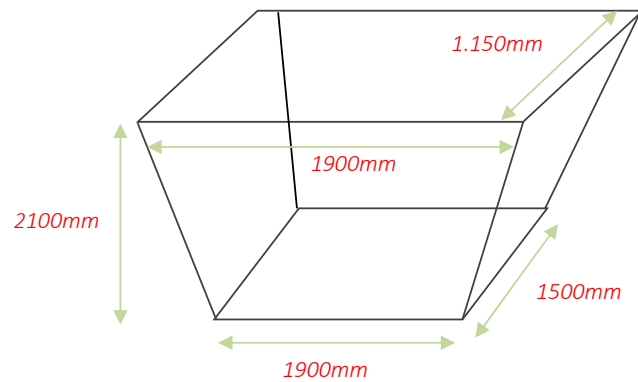
POSITION: TP04
TEST 2

Weather: Overcast, raining

Engineer: J. Roby

Checked:

Trial Pit Measurements



Pit Depth (mm):	2100
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

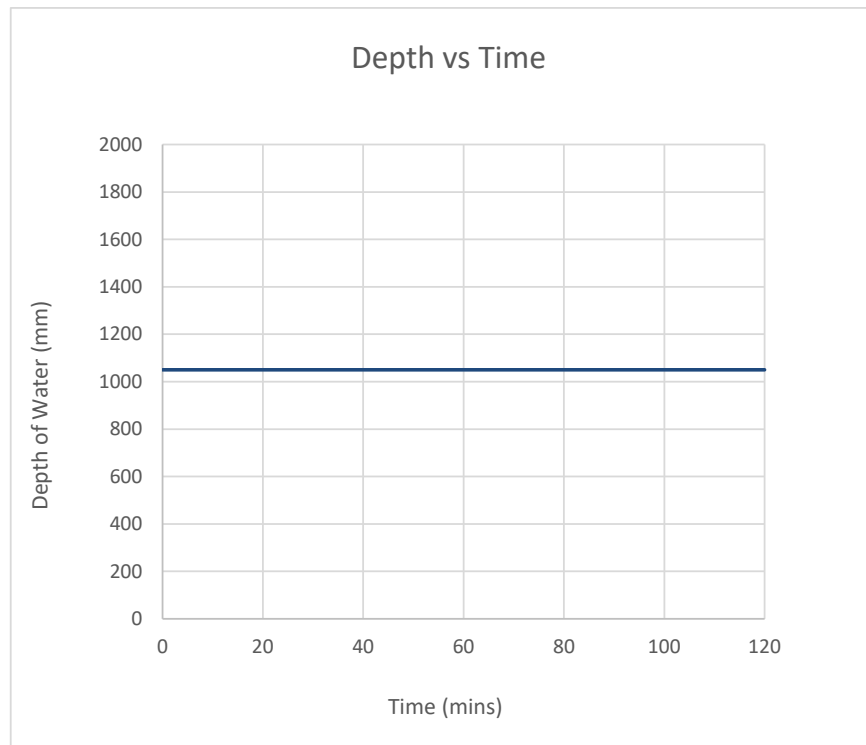
Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1050
1	1050
2	1050
3	1050
4	1050
5	1050
10	1050
15	1050
20	1050
30	1050
40	1050
50	1050
60	1050
75	1050
90	1050
105	1050
120	1050

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: TP04
TEST 2



Volume of Pit (m ³)	5.985
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	2.9925

Compliance Check:

Water Level at 75% effective depth (mm)	787.5
Water Level at 25% effective depth (mm)	262.5

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1050
Water Level 2	1050
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0

Discharge Area (m ²)	9.99
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

Sheet 1 of 2

Date of Test: 18/12/2023

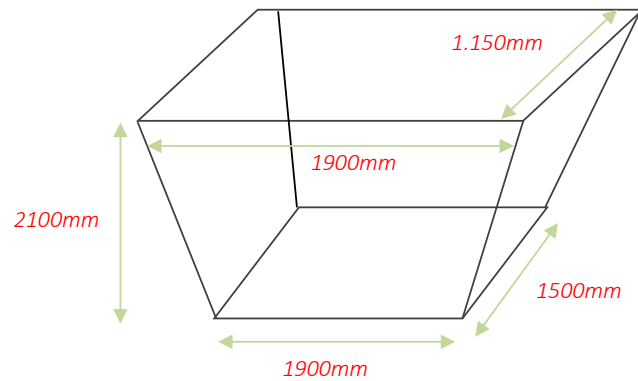
POSITION: TP04
TEST 3

Weather: Overcast, raining

Engineer: J. Roby

Checked:

Trial Pit Measurements



Pit Depth (mm):	2100
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

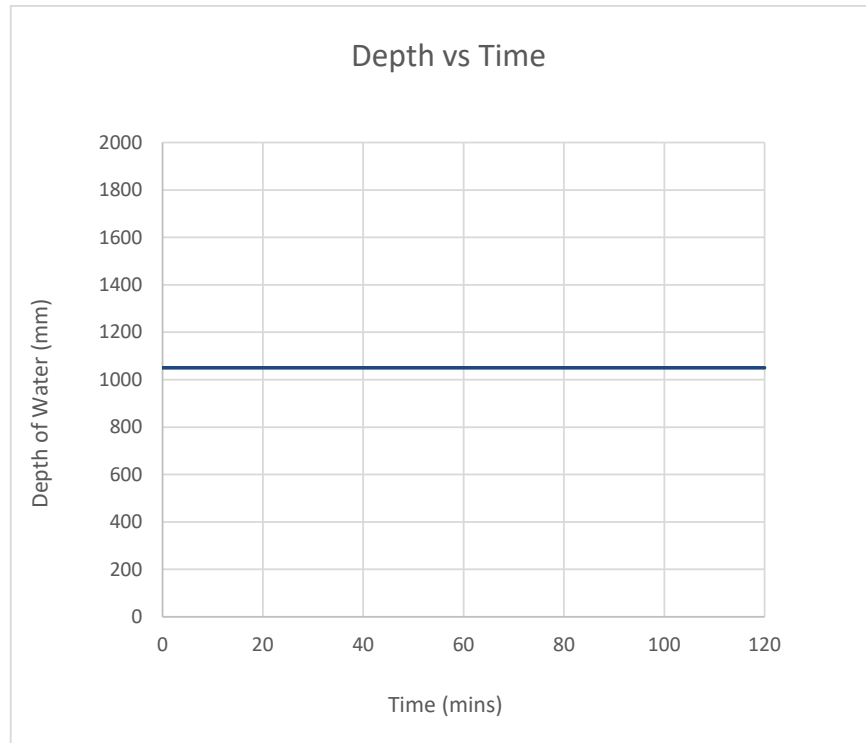
Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1050
1	1050
2	1050
3	1050
4	1050
5	1050
10	1050
15	1050
20	1050
30	1050
40	1050
50	1050
60	1050
75	1050
90	1050
105	1050
120	1050

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: TP04
TEST 3



Volume of Pit (m ³)	5.985
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	2.9925

Compliance Check:

Water Level at 75% effective depth (mm)	787.5
Water Level at 25% effective depth (mm)	262.5

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1050
Water Level 2	1050
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0

Discharge Area (m ²)	9.99
----------------------------------	------

Soil Infiltration Rate (m/min)	0
--------------------------------	---

Soil Infiltration Rate (m/sec)	0.00E+00
--------------------------------	----------

APPENDIX 9 - Generic Screening Values (Residential End Use)

Generic Assessment Criteria (GAC)								GROUNDTECH CONSULTING
Proposed End Use	Unit	Residential with Plant Uptake			Residential without plant uptake			Source
SOM	%	1	2.5	6	1	2.5	6	
Arsenic	mg/kg	37	37	37	40	46	40	LQM S4ULs
Beryllium	mg/kg	1.7	1.7	1.7	1.7	1.7	1.7	LQM S4ULs
Boron (water soluble)	mg/kg	290	290	290	11000	11000	11000	LQM S4ULs
Cadmium	mg/kg	10	10	10	85	85	85	SGVs
Chromium (Total)	mg/kg	910	910	910	910	910	910	LQM S4ULs
Chromium (VI)	mg/kg	21	21	21	-	-	-	DEFRA C4SLs
Copper	mg/kg	2400	2400	2400	7100	7100	7100	LQM S4ULs
Lead	mg/kg	200	200	200	310	310	310	DEFRA C4SLs
Mercury	mg/kg	1.2	1.2	1.2	1.2	1.2	1.2	LQM S4ULs
Nickel	mg/kg	180	180	180	180	180	180	LQM S4ULs
Selenium	mg/kg	350	350	350	430	430	430	SGVs
Vanadium	mg/kg	410	410	410	1200	1200	1200	LQM S4ULs
Zinc	mg/kg	3700	3700	3700	40000	40000	40000	LQM S4ULs
Aliphatic EC 5 - 6	mg/kg	42	78	160	42	78	160	LQM S4ULs
Aliphatic EC 6 - 8	mg/kg	100	230	530	100	230	530	LQM S4ULs
Aliphatic EC 8 - 10	mg/kg	27	65	150	27	65	150	LQM S4ULs
Aliphatic EC 10 - 12	mg/kg	130 (48) ^{vop}	330 (118) ^{vop}	760 (283) ^{vop}	130 (48) ^{vop}	330 (118) ^{vop}	770 (283) ^{vop}	LQM S4ULs
Aliphatic EC 12 - 16	mg/kg	1100 (24) ^{sol}	2400 (59) ^{sol}	4300 (142) ^{sol}	1100 (24) ^{sol}	2400 (59) ^{sol}	4400 (142) ^{sol}	LQM S4ULs
Aliphatic EC 16 - 35	mg/kg	65000 (8.48) ^{f, sol}	92000 (21) ^{f, sol}	110000 ^f	65000 (8.48) ^{f, sol}	92000 (21) ^{f, sol}	110000 ^f	LQM S4ULs
Aliphatic EC 35 - 44	mg/kg	65000 (8.48) ^{f, sol}	92000 (21) ^{f, sol}	110000 ^f	65000	92000 (21) ^{f, sol}	110000 ^f	LQM S4ULs
Aromatic EC 5 - 7	mg/kg	70	140	300	370	690	1400	LQM S4ULs
Aromatic EC 7 - 8	mg/kg	130	290	660	860	1800	3900	LQM S4ULs
Aromatic EC 8 - 10	mg/kg	34	83	190	47	110	270	LQM S4ULs
Aromatic EC 10 - 12	mg/kg	74	180	380	250	590	1200	LQM S4ULs
Aromatic EC 12 -16	mg/kg	140	330	660	1800	2300	2500	LQM S4ULs
Aromatic EC 16 - 21	mg/kg	260 ^f	540 ^f	930 ^f	1900	1900	1900	LQM S4ULs
Aromatic EC 21 - 35	mg/kg	1100 ^f	1500 ^f	1700 ^f	1900	1900	1900	LQM S4ULs
Aromatic EC 35 - 44	mg/kg	1100 ^f	1500 ^f	1700 ^f	1900	1900	1900	LQM S4ULs
Benzene	mg/kg	0.33	0.33	0.33	0.38	0.7	1.4	SGVs
Toluene	mg/kg	610	610	610	880	1900	3900	SGVs
Ethyl Benzene	mg/kg	350	350	350	83	190	440	SGVs
Xylene - o	mg/kg	250	250	250	88	210	480	SGVs
Xylene - m	mg/kg	240	240	240	82	190	450	SGVs
Xylene - p	mg/kg	230	230	230	79	180	430	SGVs
MTBE (methyl tert-butyl ether)	mg/kg	49	84	160	-	-	-	CL:AIRE 2010
Acenaphthene	mg/kg	210	510	1100	3000	4700	6000	LQM SAULs
Acenaphthylene	mg/kg	170	420	920	2900	4600	6000	LQM S4ULs
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000	LQM S4ULs
Benzo(a)anthracene	mg/kg	7.2	11	13	11	14	15	LQM S4ULs
Benzo(a)pyrene	mg/kg	2.2	2.7	5*	3.2	3.2	3.2	DEFRA C4SL*/LQM S4ULs
Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	3.9	4	4	LQM S4ULs
Benzo(ghi)perylene	mg/kg	320	340	350	360	360	360	LQM S4ULs
Benzo(k)fluoranthene	mg/kg	77	93	100	110	110	110	LQM S4ULs
Chrysene	mg/kg	15	22	27	30	31	32	LQM S4ULs
Dibenzo(ah)anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32	LQM S4ULs
Fluoranthene	mg/kg	280	560	890	1500	1600	1600	LQM S4ULs
Fluorene	mg/kg	170	400	860	2800	3800	4500	LQM S4ULs
Indeno(123-cd)pyrene	mg/kg	27	36	41	45	46	46	LQM S4ULs
Naphthalene	mg/kg	2.3 ^f	5.6 ^f	13 ^f	2.3	5.6	13	LQM S4ULs
Phenanthrene	mg/kg	95	220	440	1300	1500	1500	LQM S4ULs
Pyrene	mg/kg	620	1200	2000	3700	3800	3800	LQM S4ULs

Generic Assessment Criteria (GAC)								
Proposed End Use	Unit	Residential with Plant Uptake			Residential without plant uptake			Source
SOM	%	1	2.5	6	1	2.5	6	
Phenols	mg/kg	420	420	420	-			SGVs
Chlorophenols	mg/kg	0.87 ^g	2	4.5	-			LQM S4ULs
Pentachlorophenol	mg/kg	0.22	0.52	1.2	-			LQM S4ULs
Carbon disulphide	mg/kg	0.14	0.29	0.62	-			LQM S4ULs
Hexachlorobutadiene	mg/kg	0.29	0.7	1.6	-			LQM S4ULs
1,1,1,2-Tetrachloroethane	mg/kg	1.6	3.4	7.5	-			LQM S4ULs
1,1,1 Trichloroethane	mg/kg	8.8	18	39	-			LQM S4ULs
Trichloroethene	mg/kg	0.016	0.034	0.075	-			LQM S4ULs
Tetrachloromethane (Carbon Tetrachloride)	mg/kg	0.026	0.056	0.13	-			LQM S4ULs
1,2-Dichloroethane	mg/kg	0.0071	0.011	0.019	-			LQM S4ULs
Chloroethene (Vinyl chloride)	mg/kg	0.00064	0.00087	0.0014	-			LQM S4ULs
Trichloromethane (Chloroform)	mg/kg	0.91	1.7	3.4	-			LQM S4ULs
Tetrachloroethene	mg/kg	0.18	0.39	0.9	-			LQM S4ULs
Hexachlorobenzene	mg/kg	1.8 (0.2) ^{vop}	3.3 (0.5) ^{vop}	4.9	-			LQM S4ULs
Pentachlorobenzene	mg/kg	5.8	12	22	-			LQM S4ULs
1,2,4,5-Tetrachlorobenzene	mg/kg	0.33	0.77	1.6	-			LQM S4ULs
1,2,3,5-Tetrachlorobenzene	mg/kg	0.66	1.69	3.7	-			LQM S4ULs
1,2,3,4-Tetrachlorobenzene	mg/kg	15	36	78	-			LQM S4ULs
1,3,5-Trichlorobenzene	mg/kg	0.33	0.81	1.9	-			LQM S4ULs
1,2,4-Trichlorobenzene	mg/kg	2.6	6.4	15	-			LQM S4ULs
1,2,3-Trichlorobenzene	mg/kg	1.5	3.6	8.6	-			LQM S4ULs
1,4-dichlorobenzene	mg/kg	61 ^f	150 ^f	350 ^f	-			LQM S4ULs
1,3-dichlorobenzene	mg/kg	0.4	1	2.3	-			LQM S4ULs
1,2-Dichlorobenzene	mg/kg	23	55	130	-			LQM S4ULs
Chlorobenzene	mg/kg	0.46	1	2.4	-			LQM S4ULs
Gamma-Hexachlorocyclohexanes	mg/kg	0.06	0.14	0.33	-			LQM S4ULs
Beta-Hexachlorocyclohexane	mg/kg	0.085	0.2	0.46	-			LQM S4ULs
Alpha-Hexachlorocyclohexane	mg/kg	0.23	0.55	1.2	-			LQM S4ULs
Beta-Endosulfan	mg/kg	7	17	39	-			LQM S4ULs
Alpha-Endosulfan	mg/kg	7.4	18	41	-			LQM S4ULs
Dichlorvos	mg/kg	0.032	0.066	0.14	-			LQM S4ULs
Atrazine	mg/kg	3.3	7.6	17.4	-			LQM S4ULs
Dieldrin	mg/kg	0.97	2	3.5	-			LQM S4ULs
Aldrin	mg/kg	5.7	6.6	7.1	-			LQM S4ULs
HMX	mg/kg	5.7	13	26	-			LQM S4ULs
2,4,6-Trinitrotoulene	mg/kg	1.6	3.7	8.1	-			LQM S4ULs
RDX	mg/kg	120	250	540	-			LQM S4ULs

^g S4UL exceeds the solubility saturation limit (which is presented in brackets)

^{vop} S4ULs presented exceeds the vapour saturation limit, which is presented in brackets

^f For naphthalene, the S4UL is based on a comparison of inhalation exposure with the TDI_{inhal} for localised effects

^f S4UL based on comparison of inhalation exposure with inhalation TDI for localised effects

^{dr} S4ULs based on a threshold protective direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustration only)

APPENDIX 10 - Waste Classification Report

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:

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



4XIOT-Y0E5S-3UZ0H

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

Job name

EMT-23-18367-Batch-1-202311140932

Description/Comments

Project

GRO-23304

Site

Stand Lane, Radcliffe

Classified by

Name: **Connor Hastings**
Date: **29 Nov 2023 13:56 GMT**
Telephone:
Company: **Groundtech Consulting Limited**
First Floor, Lloyd House, Orford Court,
Greenfold Way, WN7 3XJ

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

Hazardous Waste Classification

Date

-

Purpose of classification

4 - Classification of Waste Products

Address of the waste

118 Stand Lane, Radcliffe, Manchester

Post Code M26 1GS

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Redevelopment of land.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during boreholes and excavation.

Description of the waste

Made Ground.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01-31/10/2023-0.20m		Non Hazardous		3
2	WS01-31/10/2023-2.10m		Non Hazardous		5
3	WS02-31/10/2023-0.50m		Non Hazardous		6
4	WS03-31/10/2023-0.70m		Non Hazardous		12
5	WS03-31/10/2023-1.50m		Non Hazardous		14
6	WS03-31/10/2023-2.80m		Non Hazardous		15
7	WS04-31/10/2023-0.40m		Non Hazardous		16
8	WS04-31/10/2023-1.90m		Non Hazardous		22
9	WS05-31/10/2023-0.20m		Non Hazardous		23
10	WS05-31/10/2023-0.90m		Non Hazardous		25
11	WS05-31/10/2023-1.40m		Non Hazardous		26

Related documents

#	Name	Description
1	EMT-23-18367-Batch-1-202311140932.HWOL	Element .hwol file used to populate the Job

Report

Created by: Connor Hastings

Created date: 29 Nov 2023 13:56 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	27
Appendix B: Rationale for selection of metal species	31
Appendix C: Version	31

Classification of sample: WS01-31/10/2023-0.20m

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

Sample details

Sample name:	LoW Code:
WS01-31/10/2023-0.20m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
15.1%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.1% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				8.4	mg/kg	1.895	13.826	mg/kg	0.00138 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				20	mg/kg	3.929	68.272	mg/kg	0.00683 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	13	mg/kg	1.57	17.731	mg/kg	0.00113 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				<0.1	mg/kg	1.419	<0.142	mg/kg	<0.0000142 %		<LOD
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				29.6	mg/kg	5.324	136.924	mg/kg	0.0137 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				55	mg/kg	4.398	210.153	mg/kg	0.021 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.15	mg/kg		0.13	mg/kg	0.000013 %	✓	
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.0434 mg/kg	0.00000434 %	✓		
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
19	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	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
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
22	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
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
26	pH		PH		8.26 pH		8.26 pH	8.26 pH			
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		33.2 mg/kg	1.462	42.158 mg/kg	0.00422 %	✓		
Total:									0.0487 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS01-31/10/2023-2.10m

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

Sample details

Sample name:	LoW Code:	
WS01-31/10/2023-2.10m	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: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	● pH				8.25 pH		8.25 pH	8.25 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS02-31/10/2023-0.50m

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

Sample details

Sample name:	LoW Code:
WS02-31/10/2023-0.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18.4% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 18.4% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				9.6	mg/kg	1.895	15.361	mg/kg	0.00154 %	✓	
	033-005-00-1												
2		cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4										
3		copper { copper sulphate pentahydrate }				35	mg/kg	3.929	116.146	mg/kg	0.0116 %	✓	
	029-023-00-4	231-847-6	7758-99-8										
4		lead {  lead di(acetate) }			1	206	mg/kg	1.57	273.141	mg/kg	0.0174 %	✓	
	082-005-00-8	206-104-4	301-04-2										
5		mercury { mercury difulminate }				0.3	mg/kg	1.419	0.36	mg/kg	0.000036 %	✓	
	080-005-00-2	211-057-8	628-86-4										
6		nickel { nickel diiodide }				16	mg/kg	5.324	71.95	mg/kg	0.0072 %	✓	
	028-029-00-4	236-666-6	13462-90-3										
7		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5										
8		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				75	mg/kg	4.398	278.585	mg/kg	0.0279 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]										
9		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8												
10		naphthalene				<27	µg/kg		<0.027	mg/kg	<0.0000027 %		<LOD
	601-052-00-2	202-049-5	91-20-3										
11		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8										
12		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9										
13		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7										
14		phenanthrene				0.65	mg/kg		0.549	mg/kg	0.0000549 %	✓	
		201-581-5	85-01-8										
15		anthracene				0.19	mg/kg		0.16	mg/kg	0.000016 %	✓	
		204-371-1	120-12-7										

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		1.69 mg/kg		1.427 mg/kg	0.000143 %	✓	
17	pyrene	204-927-3	129-00-0		1.54 mg/kg		1.301 mg/kg	0.00013 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.79 mg/kg		0.667 mg/kg	0.0000667 %	✓	
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.88 mg/kg		0.743 mg/kg	0.0000743 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.96 mg/kg		0.811 mg/kg	0.0000811 %	✓	
21	indeno[123-cd]pyrene	205-893-2	193-39-5		0.59 mg/kg		0.498 mg/kg	0.0000498 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.11 mg/kg		0.0929 mg/kg	0.00000929 %	✓	
23	benzo[ghi]perylene	205-883-8	191-24-2		0.58 mg/kg		0.49 mg/kg	0.000049 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	1.12 mg/kg		0.946 mg/kg	0.0000946 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.44 mg/kg		0.372 mg/kg	0.0000372 %	✓	
26	pH		PH		7.8 pH		7.8 pH	7.8 pH		
27	dichlorodifluoromethane	200-893-9	75-71-8		<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
28	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
29	chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
30	bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9	<1 µg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
31	chloroethane	602-009-00-0	200-830-5	75-00-3	<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
32	trichlorofluoromethane	200-892-3	75-69-4		<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
33	1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4	<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
34	dichloromethane; methylene chloride	602-004-00-3	200-838-9	75-09-2	<7 µg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
35	1,1-dichloroethane	602-011-00-1	200-863-5	75-34-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
36	2,2-dichloropropane	209-832-0	594-20-7		<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	bromochloromethane	200-826-3	74-97-5		<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
38	chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
39	1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
40	1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5	<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
42	1,1-dichloroethane and 1,2-dichloroethane (combined)	203-458-1, 200-863-5	107-06-2, 75-34-3		<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
43	benzene	601-020-00-8	200-753-7	71-43-2	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
44	trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
45	1,2-dichloropropane; propylene dichloride				<6 µg/kg		<0.006 mg/kg	<0.0000006 %			<LOD
	602-020-00-0	201-152-2	78-87-5								
46	dibromomethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-003-00-8	200-824-2	74-95-3								
47	bromodichloromethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		200-856-7	75-27-4								
48	1,3-dichloropropane; [1] (Z)-1,3-dichloropropene [2]				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]								
49	toluene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
50	trans-1,3-dichloropropene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		431-460-4	10061-02-6								
51	1,1,2-trichloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-014-00-8	201-166-9	79-00-5								
52	tetrachloroethylene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-028-00-4	204-825-9	127-18-4								
53	1,3-dichloropropane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		205-531-3	142-28-9								
54	dibromochloromethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		204-704-0	124-48-1								
55	1,2-dibromoethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-010-00-6	203-444-5	106-93-4								
56	chlorobenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-033-00-1	203-628-5	108-90-7								
57	1,1,1,2-tetrachloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		211-135-1	630-20-6								
58	ethylbenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
59	bromoform; tribromomethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-007-00-X	200-854-6	75-25-2								
60	cumene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-024-00-X	202-704-5	98-82-8								
61	1,1,2,2-tetrachloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-015-00-3	201-197-8	79-34-5								
62	bromobenzene				<2 µg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	602-060-00-9	203-623-8	108-86-1								
63	1,2,3-trichloropropane				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-062-00-X	202-486-1	96-18-4								
64	mesitylene; 1,3,5-trimethylbenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-025-00-5	203-604-4	108-67-8								
65	tert-butylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
		202-632-4	98-06-6								
66	1,2,4-trimethylbenzene				<6 µg/kg		<0.006 mg/kg	<0.0000006 %			<LOD
	601-043-00-3	202-436-9	95-63-6								
67	sec-butylbenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		205-227-0	135-98-8								
68	4-isopropyltoluene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		202-796-7	99-87-6								
69	1,3-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-067-00-7	208-792-1	541-73-1								
70	1,4-dichlorobenzene; p-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-035-00-2	203-400-5	106-46-7								
71	n-butylbenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		203-209-7	104-51-8								
72	1,2-dichlorobenzene; o-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-034-00-7	202-425-9	95-50-1								
73	1,2-dibromo-3-chloropropane				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-021-00-6	202-479-3	96-12-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
74	1,2,4-trichlorobenzene				<7 µg/kg		<0.007 mg/kg	<0.0000007 %			<LOD
	602-087-00-6	204-428-0	120-82-1								
75	hexachlorobutadiene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		201-765-5	87-68-3								
76	1,2,3-trichlorobenzene				<7 µg/kg		<0.007 mg/kg	<0.0000007 %			<LOD
		201-757-1	87-61-6								
77	vinyl chloride; chloroethylene				<2 µg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	602-023-00-7	200-831-0	75-01-4								
78	styrene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-026-00-0	202-851-5	100-42-5								
79	2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]								
80	2-nitrophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		201-857-5	88-75-5								
81	2,4-dichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-011-00-7	204-429-6	120-83-2								
82	3,4-xyleneol; [1] 2,5-xyleneol; [2] 2,4-xyleneol; [3] 2,3-xyleneol; [4] 2,6-xyleneol; [5] xyleneol; [6] 2,4(or 2,5)-xyleneol [7]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]								
83	2,4,5-trichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-017-00-X	202-467-8	95-95-4								
84	2,4,6-trichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-018-00-5	201-795-9	88-06-2								
85	chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-014-00-3	200-431-6	59-50-7								
86	4-nitrophenol; p-nitrophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-015-00-2	202-811-7	100-02-7								
87	pentachlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-002-00-8	201-778-6	87-86-5								
88	phenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
89	2-chloronaphthalene				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		202-079-9	91-58-7								
90	2-methyl naphthalene				118 µg/kg		0.0997 mg/kg	0.00000997 %	✓		
		202-078-3	91-57-6								
91	bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				3184 µg/kg		2.689 mg/kg	0.000269 %	✓		
	607-317-00-9	204-211-0	117-81-7								
92	BBP; benzyl butyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	607-430-00-3	201-622-7	85-68-7								
93	dibutyl phthalate; DBP				221 µg/kg		0.187 mg/kg	0.0000187 %	✓		
	607-318-00-4	201-557-4	84-74-2								
94	di-n-octyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-214-7	117-84-0								
95	diethyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-550-6	84-66-2								
96	dimethyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-011-6	131-11-3								
97	2,4-dinitrotoluene; [1] dinitrotoluene [2]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
98	2,6-dinitrotoluene				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	609-049-00-8	210-106-0	606-20-2							
99	4-bromophenylphenylether				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		202-952-4	101-55-3							
100	4-chloroaniline				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	612-137-00-9	203-401-0	106-47-8							
101	4-chlorophenylphenylether				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		230-281-7	7005-72-3							
102	azobenzene				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	611-001-00-6	203-102-5	103-33-3							
103	bis(2-chloroethoxy)methane				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		203-920-2	111-91-1							
104	bis(2-chloroethyl) ether				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	603-029-00-2	203-870-1	111-44-4							
105	carbazole				81 µg/kg		0.0684 mg/kg	0.00000684 %	✓	
		201-696-0	86-74-8							
106	dibenzofuran				67 µg/kg		0.0566 mg/kg	0.00000566 %	✓	
		205-071-3	132-64-9							
107	hexachlorobenzene				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-065-00-6	204-273-9	118-74-1							
108	hexachlorocyclopentadiene				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-078-00-7	201-029-3	77-47-4							
109	hexachloroethane				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		200-666-4	67-72-1							
110	3,5,5-trimethylcyclohex-2-enone; isophorone				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	606-012-00-8	201-126-0	78-59-1							
111	nitrosodipropylamine				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	612-098-00-8	210-698-0	621-64-7							
112	nitrobenzene				<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	609-003-00-7	202-716-0	98-95-3							
113	xylene				<0.011 mg/kg		<0.011 mg/kg	<0.0000011 %		<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]							
114	1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
115	2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
116	m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<20 µg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]							
117	o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<30 µg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
118	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				31.4 mg/kg	1.462	38.761 mg/kg	0.00388 %	✓	
		215-160-9	1308-38-9							
Total:								0.0711 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00003%)

Classification of sample: WS03-31/10/2023-0.70m

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

Sample details

Sample name:	LoW Code:
WS03-31/10/2023-0.70m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19.2% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19.2% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				5 mg/kg	1.895	7.947	mg/kg	0.000795 %	✓	
	033-005-00-1										
2	cadmium { cadmium sulfate }				<0.1 mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4								
3	copper { copper sulphate pentahydrate }				61 mg/kg	3.929	201.067	mg/kg	0.0201 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
4	lead { lead di(acetate) }			1	123 mg/kg	1.57	161.994	mg/kg	0.0103 %	✓	
	082-005-00-8	206-104-4	301-04-2								
5	mercury { mercury difulminate }				0.2 mg/kg	1.419	0.238	mg/kg	0.0000238 %	✓	
	080-005-00-2	211-057-8	628-86-4								
6	nickel { nickel diiodide }				22.2 mg/kg	5.324	99.161	mg/kg	0.00992 %	✓	
	028-029-00-4	236-666-6	13462-90-3								
7	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				95 mg/kg	4.398	350.506	mg/kg	0.0351 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3 mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8										
10	naphthalene				<40 µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
11	acenaphthylene				<0.03 mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8								
12	acenaphthene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9								
13	fluorene				<0.04 mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7								
14	phenanthrene				<0.03 mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-581-5	85-01-8								
15	anthracene				<0.04 mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
19	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	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
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
22	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
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
26	pH		PH		6.89 pH		6.89 pH	6.89 pH		
27	magnesium { magnesium powder (pyrophoric) }	012-001-00-3	231-104-6	7439-95-4	0.0019 µg/l		1.59e-06 mg/kg	1.59e-10 %	✓	
28	sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9	0.02 %		0.0168 %	0.0168 %	✓	
29	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		34.1 mg/kg	1.462	41.811 mg/kg	0.00418 %	✓	
Total:								0.0976 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00002%)

HP 3(ii): Flammable "flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Pyr. Sol. 1; H250 "Catches fire spontaneously if exposed to air."

Because of determinand:

magnesium powder (pyrophoric): (compound conc.: 1.59e-10%)

Classification of sample: WS03-31/10/2023-1.50m



Non Hazardous Waste

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

Sample details

Sample name:	LoW Code:	
WS03-31/10/2023-1.50m	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: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	pH		PH		7.19 pH		7.19	pH	7.19 pH		
Total:									0%		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS03-31/10/2023-2.80m

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

Sample details

Sample name:	LoW Code:
WS03-31/10/2023-2.80m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
19%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

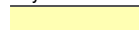
None identified

Determinands

Moisture content: 19% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	pH				8.48 pH		8.48 pH	8.48 pH		
2	magnesium { magnesium powder (pyrophoric) }				0.0038 µg/l		3.19e-06 mg/kg	3.19e-10 %	✓	
	012-001-00-3	231-104-6	7439-95-4							
3	sulfur { sulfur }				0.07 %		0.0588 %	0.0588 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0588 %		

Key

 User supplied data
 Determinand defined or amended by HazWasteOnline (see Appendix A)
 Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

Supplementary Hazardous Property Information

HP 3(ii): Flammable "flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Pyr. Sol. 1; H250 "Catches fire spontaneously if exposed to air."

Because of determinand:

magnesium powder (pyrophoric): (compound conc.: 3.19e-10%)

Classification of sample: WS04-31/10/2023-0.40m

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

Sample details

Sample name:	LoW Code:
WS04-31/10/2023-0.40m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
23.1% (dry weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 23.1% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				7.8 mg/kg	1.895	12.004	mg/kg	0.0012 %	✓	
	033-005-00-1										
2	cadmium { cadmium sulfate }				<0.1 mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4								
3	copper { copper sulphate pentahydrate }				22 mg/kg	3.929	70.219	mg/kg	0.00702 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
4	lead { lead di(acetate) }			1	90 mg/kg	1.57	114.777	mg/kg	0.00731 %	✓	
	082-005-00-8	206-104-4	301-04-2								
5	mercury { mercury difulminate }				0.1 mg/kg	1.419	0.115	mg/kg	0.0000115 %	✓	
	080-005-00-2	211-057-8	628-86-4								
6	nickel { nickel diiodide }				13.3 mg/kg	5.324	57.525	mg/kg	0.00575 %	✓	
	028-029-00-4	236-666-6	13462-90-3								
7	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				49 mg/kg	4.398	175.06	mg/kg	0.0175 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3 mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8										
10	naphthalene				<27 µg/kg		<0.027	mg/kg	<0.0000027 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
11	acenaphthylene				<0.03 mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8								
12	acenaphthene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9								
13	fluorene				<0.04 mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7								
14	phenanthrene				0.25 mg/kg		0.203	mg/kg	0.0000203 %	✓	
		201-581-5	85-01-8								
15	anthracene				0.06 mg/kg		0.0487	mg/kg	0.00000487 %	✓	
		204-371-1	120-12-7								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		0.63 mg/kg		0.512 mg/kg	0.0000512 %	✓	
17	pyrene	204-927-3	129-00-0		0.57 mg/kg		0.463 mg/kg	0.0000463 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.33 mg/kg		0.268 mg/kg	0.0000268 %	✓	
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.37 mg/kg		0.301 mg/kg	0.0000301 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.34 mg/kg		0.276 mg/kg	0.0000276 %	✓	
21	indeno[123-cd]pyrene	205-893-2	193-39-5		0.23 mg/kg		0.187 mg/kg	0.0000187 %	✓	
22	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
23	benzo[ghi]perylene	205-883-8	191-24-2		0.23 mg/kg		0.187 mg/kg	0.0000187 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.43 mg/kg		0.349 mg/kg	0.0000349 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.17 mg/kg		0.138 mg/kg	0.0000138 %	✓	
26	pH		PH		7.74 pH		7.74 pH	7.74 pH		
27	dichlorodifluoromethane	200-893-9	75-71-8		<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
28	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
29	chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
30	bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9	<1 µg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
31	chloroethane	602-009-00-0	200-830-5	75-00-3	<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
32	trichlorofluoromethane	200-892-3	75-69-4		<2 µg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
33	1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4	<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
34	dichloromethane; methylene chloride	602-004-00-3	200-838-9	75-09-2	<7 µg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
35	1,1-dichloroethane	602-011-00-1	200-863-5	75-34-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
36	2,2-dichloropropane	209-832-0	594-20-7		<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	bromochloromethane	200-826-3	74-97-5		<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
38	chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
39	1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
40	1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
41	carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5	<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
42	1,1-dichloroethane and 1,2-dichloroethane (combined)	203-458-1, 200-863-5	107-06-2, 75-34-3		<4 µg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
43	benzene	601-020-00-8	200-753-7	71-43-2	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD
44	trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6	<3 µg/kg		<0.003 mg/kg	<0.0000003 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
45	1,2-dichloropropane; propylene dichloride				<6 µg/kg		<0.006 mg/kg	<0.0000006 %			<LOD
	602-020-00-0	201-152-2	78-87-5								
46	dibromomethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-003-00-8	200-824-2	74-95-3								
47	bromodichloromethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		200-856-7	75-27-4								
48	1,3-dichloropropane; [1] (Z)-1,3-dichloropropene [2]				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]								
49	toluene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
50	trans-1,3-dichloropropene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		431-460-4	10061-02-6								
51	1,1,2-trichloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-014-00-8	201-166-9	79-00-5								
52	tetrachloroethylene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-028-00-4	204-825-9	127-18-4								
53	1,3-dichloropropane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		205-531-3	142-28-9								
54	dibromochloromethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		204-704-0	124-48-1								
55	1,2-dibromoethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-010-00-6	203-444-5	106-93-4								
56	chlorobenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-033-00-1	203-628-5	108-90-7								
57	1,1,1,2-tetrachloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
		211-135-1	630-20-6								
58	ethylbenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
59	bromoform; tribromomethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-007-00-X	200-854-6	75-25-2								
60	cumene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-024-00-X	202-704-5	98-82-8								
61	1,1,2,2-tetrachloroethane				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	602-015-00-3	201-197-8	79-34-5								
62	bromobenzene				<2 µg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	602-060-00-9	203-623-8	108-86-1								
63	1,2,3-trichloropropane				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-062-00-X	202-486-1	96-18-4								
64	mesitylene; 1,3,5-trimethylbenzene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-025-00-5	203-604-4	108-67-8								
65	tert-butylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
		202-632-4	98-06-6								
66	1,2,4-trimethylbenzene				<6 µg/kg		<0.006 mg/kg	<0.0000006 %			<LOD
	601-043-00-3	202-436-9	95-63-6								
67	sec-butylbenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		205-227-0	135-98-8								
68	4-isopropyltoluene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		202-796-7	99-87-6								
69	1,3-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-067-00-7	208-792-1	541-73-1								
70	1,4-dichlorobenzene; p-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-035-00-2	203-400-5	106-46-7								
71	n-butylbenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		203-209-7	104-51-8								
72	1,2-dichlorobenzene; o-dichlorobenzene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-034-00-7	202-425-9	95-50-1								
73	1,2-dibromo-3-chloropropane				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	602-021-00-6	202-479-3	96-12-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
74	1,2,4-trichlorobenzene				<7 µg/kg		<0.007 mg/kg	<0.0000007 %			<LOD
	602-087-00-6	204-428-0	120-82-1								
75	hexachlorobutadiene				<4 µg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
		201-765-5	87-68-3								
76	1,2,3-trichlorobenzene				<7 µg/kg		<0.007 mg/kg	<0.0000007 %			<LOD
		201-757-1	87-61-6								
77	vinyl chloride; chloroethylene				<2 µg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	602-023-00-7	200-831-0	75-01-4								
78	styrene				<3 µg/kg		<0.003 mg/kg	<0.0000003 %			<LOD
	601-026-00-0	202-851-5	100-42-5								
79	2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]								
80	2-nitrophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		201-857-5	88-75-5								
81	2,4-dichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-011-00-7	204-429-6	120-83-2								
82	3,4-xyleneol; [1] 2,5-xyleneol; [2] 2,4-xyleneol; [3] 2,3-xyleneol; [4] 2,6-xyleneol; [5] xyleneol; [6] 2,4(or 2,5)-xyleneol [7]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]								
83	2,4,5-trichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-017-00-X	202-467-8	95-95-4								
84	2,4,6-trichlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-018-00-5	201-795-9	88-06-2								
85	chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-014-00-3	200-431-6	59-50-7								
86	4-nitrophenol; p-nitrophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-015-00-2	202-811-7	100-02-7								
87	pentachlorophenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-002-00-8	201-778-6	87-86-5								
88	phenol				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
89	2-chloronaphthalene				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		202-079-9	91-58-7								
90	2-methyl naphthalene				16 µg/kg		0.013 mg/kg	0.0000013 %	✓		
		202-078-3	91-57-6								
91	bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	607-317-00-9	204-211-0	117-81-7								
92	BBP; benzyl butyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	607-430-00-3	201-622-7	85-68-7								
93	dibutyl phthalate; DBP				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	607-318-00-4	201-557-4	84-74-2								
94	di-n-octyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-214-7	117-84-0								
95	diethyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-550-6	84-66-2								
96	dimethyl phthalate				<100 µg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-011-6	131-11-3								
97	2,4-dinitrotoluene; [1] dinitrotoluene [2]				<10 µg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
98	2,6-dinitrotoluene 609-049-00-8	210-106-0	606-20-2		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
99	4-bromophenylphenylether 202-952-4	101-55-3			<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
100	4-chloroaniline 612-137-00-9	203-401-0	106-47-8		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
101	4-chlorophenylphenylether 230-281-7	7005-72-3			<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
102	azobenzene 611-001-00-6	203-102-5	103-33-3		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
103	bis(2-chloroethoxy)methane 203-920-2	111-91-1			<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
104	bis(2-chloroethyl) ether 603-029-00-2	203-870-1	111-44-4		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
105	carbazole 201-696-0	86-74-8			76 µg/kg		0.0617 mg/kg	0.00000617 %	✓	
106	dibenzofuran 205-071-3	132-64-9			26 µg/kg		0.0211 mg/kg	0.00000211 %	✓	
107	hexachlorobenzene 602-065-00-6	204-273-9	118-74-1		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
108	hexachlorocyclopentadiene 602-078-00-7	201-029-3	77-47-4		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
109	hexachloroethane 200-666-4	67-72-1			<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
110	3,5,5-trimethylcyclohex-2-enone; isophorone 606-012-00-8	201-126-0	78-59-1		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
111	nitrosodipropylamine 612-098-00-8	210-698-0	621-64-7		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
112	nitrobenzene 609-003-00-7	202-716-0	98-95-3		<10 µg/kg		<0.01 mg/kg	<0.000001 %		<LOD
113	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]		<0.011 mg/kg		<0.011 mg/kg	<0.0000011 %		<LOD
114	1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3] 602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
115	2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4] 602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<6 µg/kg		<0.006 mg/kg	<0.0000006 %		<LOD
116	m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4] 604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]		<20 µg/kg		<0.02 mg/kg	<0.000002 %		<LOD
117	o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3] 612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]		<30 µg/kg		<0.03 mg/kg	<0.000003 %		<LOD
118	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9	1308-38-9			30.1 mg/kg	1.462	35.737 mg/kg	0.00357 %	✓	
Total:								0.0432 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00001%)

Classification of sample: WS04-31/10/2023-1.90m

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

Sample details

Sample name:	LoW Code:	
WS04-31/10/2023-1.90m	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: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	● pH		PH		8.47 pH		8.47	pH	8.47 pH		
Total:									0%		

Key

User supplied data
● Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS05-31/10/2023-0.20m

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

Sample details

Sample name:	LoW Code:
WS05-31/10/2023-0.20m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
20.8%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20.8% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				13.5	mg/kg	1.895	21.172	mg/kg	0.00212 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				53	mg/kg	3.929	172.384	mg/kg	0.0172 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	33	mg/kg	1.57	42.886	mg/kg	0.00273 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				0.2	mg/kg	1.419	0.235	mg/kg	0.0000235 %	✓	
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				39	mg/kg	5.324	171.894	mg/kg	0.0172 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				59	mg/kg	4.398	214.799	mg/kg	0.0215 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				270	µg/kg		0.224	mg/kg	0.0000224 %	✓	
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.42	mg/kg		0.348	mg/kg	0.0000348 %	✓	
		201-581-5	85-01-8									
15	anthracene				0.08	mg/kg		0.0662	mg/kg	0.00000662 %	✓	
		204-371-1	120-12-7									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	fluoranthene	205-912-4	206-44-0		0.51 mg/kg		0.422 mg/kg	0.0000422 %	✓	
17	pyrene	204-927-3	129-00-0		0.45 mg/kg		0.373 mg/kg	0.0000373 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6		0.21 mg/kg		0.174 mg/kg	0.0000174 %	✓	
19	chrysene	601-048-00-0	205-923-4		0.23 mg/kg		0.19 mg/kg	0.000019 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.16 mg/kg		0.132 mg/kg	0.0000132 %	✓	
21	indeno[123-cd]pyrene	205-893-2	193-39-5		0.11 mg/kg		0.0911 mg/kg	0.00000911 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		0.12 mg/kg		0.0993 mg/kg	0.00000993 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.24 mg/kg		0.199 mg/kg	0.0000199 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.09 mg/kg		0.0745 mg/kg	0.00000745 %	✓	
26	pH		PH		7.63 pH		7.63 pH	7.63 pH		
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		32.6 mg/kg	1.462	39.443 mg/kg	0.00394 %	✓	
Total:								0.0653 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00002%)

Classification of sample: WS05-31/10/2023-0.90m

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

Sample details

Sample name:	LoW Code:
WS05-31/10/2023-0.90m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
21.5%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21.5% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	pH				7.35 pH		7.35 pH	7.35 pH		
2	magnesium { magnesium powder (pyrophoric) }				0.0016 µg/l		1.32e-06 mg/kg	1.32e-10 %	✓	
	012-001-00-3	231-104-6	7439-95-4							
3	sulfur { sulfur }				0.02 %		0.0165 %	0.0165 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0165 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

Supplementary Hazardous Property Information

HP 3(ii): Flammable "flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air"

Force this Hazardous property to non hazardous because No free phase.

Hazard Statements hit:

Pyr. Sol. 1; H250 "Catches fire spontaneously if exposed to air."

Because of determinand:

magnesium powder (pyrophoric): (compound conc.: 1.32e-10%)

Classification of sample: WS05-31/10/2023-1.40m



Non Hazardous Waste

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

Sample details

Sample name:	LoW Code:	
WS05-31/10/2023-1.40m	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: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	 pH		PH		8.41 pH		8.41	pH	8.41 pH		
Total:									0%		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)

Appendix A: Classifier defined and non GB MCL determinands

• **lead di(acetate)** (EC Number: 206-104-4, CAS Number: 301-04-2)

GB MCL index number: 082-005-00-8

Description/Comments: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2.

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

• **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

• **pH** (CAS Number: PH)

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

• **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

• **dichlorodifluoromethane** (EC Number: 200-893-9, CAS Number: 75-71-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Aquatic Chronic 3; H412 , Ozone 1; H420 , Press. Gas; H280

• **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

• **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

• **bromochloromethane** (EC Number: 200-826-3, CAS Number: 74-97-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Ozone 1; H420

• **1,1-dichloroethane and 1,2-dichloroethane (combined)** (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

• **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

• **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

• **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

• **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

• **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

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

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

• **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

• **4-isopropyltoluene** (EC Number: 202-796-7, CAS Number: 99-87-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Chronic 2; H411

• **n-butylbenzene** (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **hexachlorobutadiene** (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **1,2,3-trichlorobenzene** (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

• **2-nitrophenol** (EC Number: 201-857-5, CAS Number: 88-75-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

■ **2-chloronaphthalene** (EC Number: 202-079-9, CAS Number: 91-58-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

■ **2-methyl naphthalene** (EC Number: 202-078-3, CAS Number: 91-57-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302, Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, STOT SE 3; H336, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **di-n-octyl phthalate** (EC Number: 204-214-7, CAS Number: 117-84-0)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Repr. 2; H361, Skin Sens. 1; H317, Resp. Sens. 1; H334, Eye Irrit. 2; H319, Aquatic Chronic 4; H413

■ **diethyl phthalate** (EC Number: 201-550-6, CAS Number: 84-66-2)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315, Acute Tox. 3; H331, Acute Tox. 3; H311, STOT SE 3; H335, STOT RE 2; H373, Repr. 2; H361, Acute Tox. 4; H302, STOT SE 3; H336, Skin Sens. 1; H317, Aquatic Chronic 1; H410

■ **dimethyl phthalate** (EC Number: 205-011-6, CAS Number: 131-11-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, Acute Tox. 3; H331, STOT SE 3; H335, STOT SE 3; H336, Repr. 2; H361, Aquatic Chronic 3; H412

■ **4-bromophenylphenylether** (EC Number: 202-952-4, CAS Number: 101-55-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302, Skin Irrit. 2; H315, Skin Sens. 1; H317, Eye Dam. 1; H318, Eye Irrit. 2; H319, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **4-chlorophenylphenylether** (EC Number: 230-281-7, CAS Number: 7005-72-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302, Skin Irrit. 2; H315, Skin Sens. 1; H317, Eye Dam. 1; H318, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **bis(2-chloroethoxy)methane** (EC Number: 203-920-2, CAS Number: 111-91-1)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301, Acute Tox. 4; H312, Acute Tox. 1; H330, Acute Tox. 2; H330, STOT SE 1; H370, STOT RE 2; H373

■ **carbazole** (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302, Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Muta. 2; H341, Carc. 2; H351, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Acute Tox. 3; H331, Acute Tox. 3; H311, Acute Tox. 3; H301

■ **dibenzofuran** (EC Number: 205-071-3, CAS Number: 132-64-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302, Acute Tox. 4; H312, Acute Tox. 4; H332, Aquatic Chronic 2; H411

▪ **hexachloroethane** (EC Number: 200-666-4, CAS Number: 67-72-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;

Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 02 Mar 2017

Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, STOT RE 2; H373

▪ **magnesium powder (pyrophoric)** (EC Number: 231-104-6, CAS Number: 7439-95-4)

GB MCL index number: 012-001-00-3

Description/Comments:

Additional Hazard Statement(s): Water-react. 1; H260 >= 0.1 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - Water-react. 1; H260 >= 0.1 % hazard statement sourced from: WM3, Table C3.2

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case scenario

cadmium {cadmium sulfate}

Worst case scenario

copper {copper sulphate pentahydrate}

Worst case scenario

lead {lead di(acetate)}

Worst case scenario

mercury {mercury difulminate}

Worst case scenario

nickel {nickel diiodide}

Worst case scenario

selenium {nickel selenate}

Worst case scenario

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Worst case scenario

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

Worst case scenario

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

Worst case scenario

magnesium {magnesium powder (pyrophoric)}

Smallest conversion factor

sulfur {sulfur}

Smallest conversion factor.

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2023.332.5826.10798 (28 Nov 2023)

HazWasteOnline Database: 2023.332.5826.10798 (28 Nov 2023)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

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 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

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

APPENDIX 11 - Contaminated Land Legislative Background

Legislative Background

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act;
- The Contaminated Land (England) Regulations 2000;
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

- 1) Significant harm is being caused or there is a significant possibility of such harm being caused;
- 2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

- **Source** - substances that are potential contaminants or pollutants that may cause harm;
- **Pathway** - a potential route by which contaminants can move from the source to the receptor;
- **Receptor** - a receptor that may be harmed, for example the water environment, humans and water.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the SPR approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below however the list is not exhaustive:

- LCRM – Model Procedures;
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003);
- Brownfields – Managing the development of previously developed land – A client's guide, CIRIA 2002;
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002;
- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990;
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002;

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environment Act (1995);
- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012);
- The Environment Protection Act (1990);
- The Contaminated Land (England) Act (2000);
- Contaminated Land (England) Regulations (2012);
- The Water Resources Act (1991);
- The Pollution Prevention and Control (England and Wales) Regulations (2000);
- The Landfill Regulations (England and Wales) Regulations (2002);
- The Landfill (England and Wales) (Amendment) Regulations (2004);
- Health and Safety at Work Act;

APPENDIX 12 - Limitations

Limitations

This report (Report) forms part of the Services and if applicable Additional Services undertaken by Groundtech Consulting Ltd pursuant to a written contract (Agreement) which contains detailed provisions including express limitations of the liability of Groundtech Consulting Ltd.

This Report was prepared using reasonable skill and care as stated in the Agreement for the purpose including intended end use stated by the Client (Purpose) and the liability of Groundtech Consulting Ltd in respect of the form and content of this Report is no greater than its liability under the Agreement. All records, measurements notes, or any other data (Data) obtained by or for the benefit of the Consultant were obtained at a specific point in time and it may not be assumed by the Client or any person relying on this Report that the Data will remain unaffected by the passage of time, the seasons, weather conditions, changes in the water table or the carrying out and completion of works at the Site.

Unless otherwise agreed this Report has been prepared exclusively for the use and reliance of the Client and may not be relied upon, by any other party except as provided for in the Agreement. A third party who relies on this Report, does so at their own and sole risk and Groundtech Consulting Ltd has no liability to such parties.

Groundtech Consulting Ltd that this Report is to be used for the Purpose. The Purpose was instrumental in determining the scope and of the Services provided. If the Purpose should change, the Client may not be able to rely on the Report without the separate agreement of Groundtech Consulting Ltd.

Since the Report was written, later changes in legislation, statutory requirements and industry best practices have not been considered and this should be allowed for. Ground conditions can also change (see below) and should be investigated if there is any significant delay in acting on the findings of this Report. The period of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions in this Report should not be relied upon in the future without written confirmation from Groundtech Consulting Ltd that it is safe to do so.

The observations and conclusions outlined in this Report are based exclusively on the services that were provided as set out in the agreement between the client and Groundtech Consulting Ltd.

Groundtech Consulting Ltd is not liable for the existence of any condition, the discovery of which would require additional investigation outside the agreed scope of works or core competency. The Report is based upon Groundtech Consulting Ltd's observations of existing physical conditions at the Site gained from site reconnaissance together with interpretation of information including documentation, obtained from third parties and from the Client on the history and usage of the Site. The findings and recommendations contained in this Report are based in part upon information provided by third parties, and Groundtech Consulting Ltd have relied upon such information assuming it to be correct.

Groundtech Consulting Ltd accepts no responsibility for errors or inaccuracies in third party information presented in this Report. Groundtech Consulting Ltd was not authorised to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services or Additional Services. Groundtech Consulting Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, which may inform the scope of investigation undertaken by Groundtech Consulting Ltd and forms the contract with the client.



Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions may also vary due to the ground's heterogeneous properties and because investigation exploratory locations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this Report, particularly between exploratory holes. The extent of the limited area depends on the soil and groundwater conditions, together with other constraints such as the position of any existing structures and underground utilities. If so stipulated in the Agreement, geo-environmental testing was carried out for a limited number of parameters based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

Any groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The groundwater level often has not had time to reach equilibrium and a monitoring period is required. Furthermore, groundwater levels are subject to seasonal variation or changes in local drainage conditions and groundwater levels may occur at other times of the year which are higher than were recorded during this investigation.

Any site drawings provided in this Report are preliminary and used to present the general relative locations of features on, and surrounding, the Site.

