



**Intelligent
Ground
Solutions**



Geo-Environmental Assessment

Lizard Lane
Whitburn,
Sunderland,
SR6 7HG

For Story Contracting

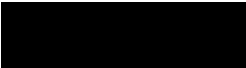
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Executive Summary

Site Brief	Lizard Lane, Whitburn, Sunderland, SR6 7HG . Grid reference 440540, 563350. The study was undertaken prior to the proposed redevelopment of the site as a residential complex to identify the potential for land contamination issues and provide preliminary geotechnical data.
Site Setting	The site has remained in agricultural use from earliest reviewed mapping (mid-1800s) until present day. The surrounding land is a mix of residential and agricultural with a school adjacent to the south-east boundary. Historical surrounding land uses include Whitburn Colliery and quarrying to the east. The site is likely underlain by a sequence of Made Ground (Topsoil) and underlain superficial Glaciofluvial Deposits (Secondary A Aquifer) in the east of the site and Devensian Till (Secondary Undifferentiated Aquifer) in the west. The bedrock is mapped as the Roker Formation (Dolostone) which is a Principal Aquifer. The nearest major surface water feature is the North Sea, located approximately 600 m east.
Ground Conditions	The current ground investigation recorded a limited thickness of Made Ground, which is in turn underlain by Glaciofluvial Deposits in the east and Devensian Till in the west with bedrock of the Roker Formation. Groundwater was not encountered during the intrusive works or the monitoring visits undertaken in the installed standpipes.
Geotechnical Assessment	Assuming the foundation is placed on a firm / medium dense soil (or early refusal on bedrock), an SLS bearing capacity of 100kN/m² may be achieved (Limited to less than 25mm of settlement) for pad sizes up to 2m x 2m and 0.80m wide strips. Based on the ground conditions identified, ground bearing floor slabs are considered feasible. However, this should be reassessed when the loading tolerances and gradient levels have been confirmed. A design sulphate class of DS-2 is required for buried concrete within the superficial soils. Two of the three soakaway infiltration tests failed. Where tested in granular material a permeability of 1.66E-04 m/s to 1.95E-04 m/s was indicated. Given the site is underlain by Dolomite Limestone bedrock, It would therefore be considered prudent to undertake a watching brief for dissolution features during any earthworks, or excavation for foundations and services. If any such features are encountered or suspected, the work should be temporarily suspended whilst further geotechnical advice is sought
Contaminated Land Assessment	A selection of soil samples were obtained during the intrusive works and sent for chemical testing. The results identified one elevated heavy metal (arsenic) concentration above the GAC for 'Residential with plant uptake' in the north-east of the site. No other samples tested were recorded above their respective GAC. In the absence of Made Ground, it is considered likely that the concentration is representative of natural background concentrations. Groundwater samples were unable to be obtained given the installed boreholes have remained dry during the monitoring visits. During the six monitoring rounds completed, there has been no significantly elevated methane or carbon dioxide identified and therefore the gas regime at the site has been classified as a CS1.

Recommendations	It would be prudent to undertake some supplementary analysis of topsoil within the vicinity of the elevated arsenic concentration prior to or during topsoil strip activities. Material within 10m of the vicinity of the location temporarily stockpiled separately until the additional analysis results are available to further assess if the elevated concentration detected was isolated or more representative of topsoil quality in this area. As CBR testing was not carried out as part of the site investigation works, it would be prudent to carry out plate CBR tests at formation level prior to finalising pavement design. It is recommended that a watching brief is carried out during any earthworks or excavations works for dissolution risk. Should infiltration based drainage be adopted, soakaways must be at least 20m away from any structures.
This table is a summary only, full details and limitations of the assessment are provided within the main body of the report.	

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- Appendix B – Exploratory Hole Logs
- Appendix C – Environmental Testing Results
- Appendix D – Geotechnical Results & SPT Calibration Certificates
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1.0 Introduction

Geo² Limited were commissioned by Story Contracting to provide a Geo-Environmental Assessment report of a site known as

Lizard Lane,

Whitburn,
Sunderland,
SR6 7HG

The site is approximately 10.95 hectares in area and located at grid reference 440540, 563350.

The study was undertaken prior to the proposed redevelopment of residential dwellings and to identify the potential for land contamination issues and provide preliminary geotechnical data.

A proposed development plan was not provided to Geo² for review. The ground investigation works were undertaken by Story Contracting.

1.1 Scope of Works

The scope of the investigation has been designed with consideration of guidance on Planning Practice Guidance (Land Affected by Contamination), Land Contamination: Risk Management pages of the GOV.UK web pages and the relevant requirements of the National Planning Policy Framework (NPPF) (as amended, 2024) (paragraphs 187 & 196-197). The geotechnical scope of investigation was designed in consideration with BS EN 1997-1:2004 Eurocode 7: Geotechnical Design – Part 1 General Rules and BS EN 1997-2:2007 Eurocode 7: Ground Investigation and Testing. Unless specifically stated, this report does not constitute a Geotech Design Report (GDR) under Eurocode 7 guidance.

The intrusive investigation was conducted between 25th and 27th March 2025 by Story Contracting Ltd. The investigation was undertaken in accordance with Geo²'s Method Statement SMS SI 1503 and agreed proposal dated 4th March 2025. The findings of the investigation are presented herein.

1.2 Previous Reports

The Client has provided the following reports in relation to the site:

- *Preliminary Investigation of Land at Lizard Lane, Whitburn* for Story Homes, by Dunelm Geotechnical & Environmental, ref D7448, dated June 2016.

2.0 Description of the Site and Surroundings

2.1 Site Description

The site is located approximately 600 m north of Whitburn village centre. The area shown within the red site boundary on Figure A below, will be referred to throughout this document as 'the site'.

The site comprises open undeveloped land and is use as arable agricultural land. According to Dunelm (2016) report, the site is noted to be generally flat, although was noted to be at a reduced elevation in comparison to adjacent land. Lizard Lane is present adjacent to the western site boundary, and the A183 is adjacent to the east.

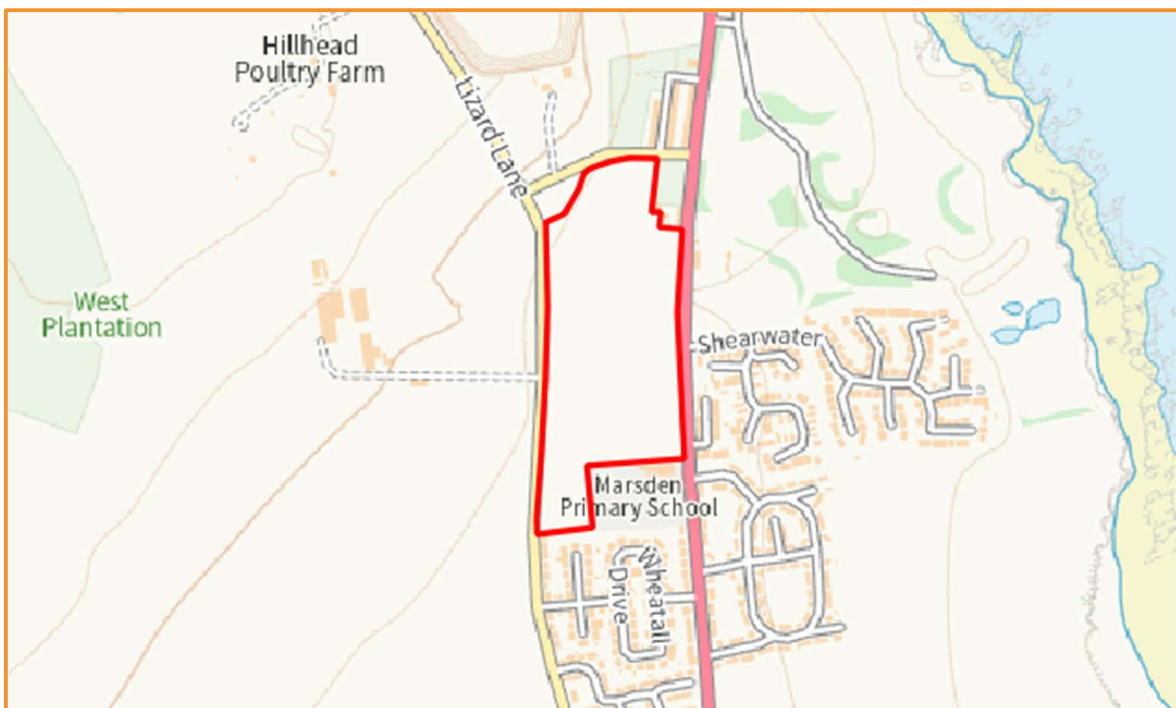


Figure A: Site Location Plan (Site Boundary shown in Red).

2.2 Site Surroundings

The site is located within a residential and agricultural setting, with Marsden Primary School adjacent to the south.

To the north of the site, adjacent to the boundary, is Kitchener Road with residential properties beyond. Adjacent to the north-east site boundary are residential properties. To the immediate east of the site is the A183 road with residential properties beyond, and to the south is Marsden Primary School and residential properties. West of the site is Lizard Lane with agricultural land beyond.

3.0 Desk Study

3.1 Desk Study Data

A *Preliminary Investigation* was undertaken by Dunelm Geotechnical and Environmental (ref: D7448) dated 13th June 2016. Pertinent information obtained from the report and available online sources is summarised below:

Site Geology, Hydrogeology and Hydrology	British Geological Survey (BGS) data maps (1:50,000 Sheet Map 21 & 1:10,000 NZ46SW) superficial Glaciofluvial Deposits (Devensian) comprising sand and gravel in the east of the site and Devensian Till (Diamicton) in the west. The bedrock is mapped as the Roker Formation (Dolostone) comprising oolitic dolostone with subordinate thin beds of fine-grained dolomite with breccias also present. A fault, named Lizards Fault, is mapped in the centre of the site, oriented in an east to west orientation with downthrow indicated to be to the south. One BGS borehole log is available adjacent to the southern site boundary, however, the log is a paragraph of text with a general statement of ground conditions: • Fine and clayey sand with very few gravel patches (depth not stated); • Minimum of 6ft (1.8 m) of sand in service trenches in the housing estate to the south of the site. The BGS 1:10,000 sheet map identifies two abandoned mine shafts approximately 100 m north-east of the site (north of the Lizards Fault). One of which has a note of inland sections and bores (Note 23) relating to Whitburn Colliery South Pit (1874 – 1875) in which the sequence of ground conditions are noted as: • Soil and Clay to 1ft (0.3 m) • Magnesian Limestone to 340 ft (103.6 m) • Bottom Main at 621 ft (189.2 m) • Maudlin, including two thin band at 695 ft (211.8 m) • Hutton, Shaly at 796 ft (242.6 m) • Ganister clay at 1468 ft (447.4 m) The underlying superficial aquifer is classified as Secondary A in the east and Secondary Undifferentiated in the west. The bedrock aquifer is classified as a Principal aquifer. The site has no to low hazard regarding the potential for ground stability hazards including collapsible ground, compressible ground, ground dissolution, and shrinking and swelling clays. The site is located within a Zone III in a Source Protection Zone (SPZ). The nearest groundwater abstraction point relates to Environmental: Pollution Remediation operated by The Coal Authority (now named the Mining Remediation Authority) is recorded approximately 238 m north-east of the site. The nearest surface water feature is the North Sea approximately 650 m east of the site.
Mining	A review of the Mining Remediation Authority (formerly the Coal Authority) online interactive mapping indicates that while the site is located within a Coal Mining Reporting Area, it is not located within a Development High Risk Area (DHRA). However, a DHRA is noted approximately 355 m east of the site, most

	likely related to the former Whitburn Colliery and quarry present in historical mapping. According to the Envirocheck report within the Dunelm Geotechnical and Environmental (2016) the site is within an area of 'inconclusive coal mining'. As part of the Dunelm Geotechnical and Environmental (2016) report, a Coal Mining Search Report (CMSR) was undertaken by David Bellis Consulting Surveyors (2016) and pertinent information is summarised below: • Five coal seams (Yard, Maudlin, Low Main, Brass Thill and Busty) have been worked within the likely zone of physical influence of the surface, circa 187 – 319 m bgl. • No current or future underground coal mining is occurring/planned. • The site is not situated within the boundary of a former/present/future opencast site licensed to extract coal. • No recorded shafts or adits within 20 m of the property, including the site boundary. • No knowledge of intention to work coal by underground methods within influencing distance of the site. • At the time of the report being issued (2016) there has been no known investigations of coal mining related subsidence claims in relation to the property since 31st October 1994. The conclusions of the CMSR were that old workings are present but all settlement is likely to have completed long ago and that it is unlikely that coal will be worked in the foreseeable future. Although no mine shafts or adits were noted within 20 m of the property, it is known that two abandoned mine shafts are recorded approximately 100 m north-east of the site according to BGS mapping. Six ceased entries related BGS Recorded mineral present to the north, north-east, west, north-west and south with the closest approximately 260 m north-east of the site. All of these entries relate to opencast in the Roker Formation (Upper Magnesian Limestone) with the commodity Dolomite. An active opencast quarry, named Marsden Quarry, is located approximately 200 m north of the site. Reviewed historical mapping identifies the quarry from 1898 approximately 400 north of the site, which is labelled as Marsden Quarry in 1951. The quarry gradually expands to the south over time until 1884 during which the quarry reached the extent still seen in present day.
Radon	The site is in a low probability radon area (less than 1% of homes are estimated to be at or above the Action Level). As such, no radon protective measures are necessary in the construction of new dwellings or extensions.
Waste and Infilled Land	No BGS, LA or EA registered landfill sites are recorded on-site. A Licensed Waste Management Facility (Landfill Boundary) associated with Marsden Quarry present 154 m north of the site. Another entry relating to the same address, labelled 395 m north, is categorised as 'landfills taking non-biodegradable wastes (none construction)'. A Registered Landfill Site associated with Marsden Quarry with a license status known to be surrendered, accepting equal to or >25,000 tonnes per year with no known restrictions on source of waste. No pollution incidents have been recorded on-site.

Unexploded Ordnance	A review of Zetica online risk mapping for the area indicates the site is located in a Low-risk area with respect to unexploded ordnance.
Site History	From earliest reviewed mapping, the site was undeveloped agricultural land and has remained in the same use until present day. Present historically in the immediate surrounding of the site, historical potentially contaminative land uses included Whitburn Colliery and a quarry to the east/north-east. A bath house and canteen associated with Whitburn Colliery was present adjacent to the north-east site boundary.

4.0 Preliminary Risk Assessment

4.1 Source – Pathway – Receptor

UK legislation and guidance on assessing potentially contaminated land recommends the use of a risk assessment process based on a review of source/pathway/receptor relationships for various environmental media. The first stage of any risk assessment is to identify, using the desk study data and site information, the presence and extent of any hazard at the site, theoretical or demonstrable.

A key component of the overall risk assessment process is identification of “significant contaminant linkages” between contaminants and receptors. This can be accomplished through development of a site-specific conceptual model in which the potential contaminants, pathways and receptors identified on-site are described.

Each element can be defined as follows:

- **Contaminant source:** A substance either on or under the land and which has the potential to cause harm or pollution to human or environmental receptors.
- **Pathway:** A route or means by which a receptor can be exposed to or affected by a source.
- **Receptor:** A living organism or an ecological system, or controlled water, or property including buildings, crops and livestock.

The presence of all three of the above elements identifies a contamination linkage and a potentially unacceptable risk. To ensure that any risk present to, or, from the site can be appropriately managed each of these contamination linkages will be targeted by the investigation.

4.2 Hazard Identification

Potentially contaminative on-site activities relating to the historical use of the site were not identified. However, residual contamination from historical off-site sources including the adjacent colliery and the quarry beyond presents potential contamination including heavy metals, TPH, PAHs and ACMs.

The area of Made Ground identified in the former area of the quarry has been identified as a potential source of hazardous ground gas.

4.3 Initial Conceptual Site Model (CSM)

Contamination linkages arise as a result of the interconnection of the contaminant source, contamination pathways and potential receptors. These contamination linkages are used to design the site investigation (if required), guiding the type of investigation, location of exploratory boreholes and the required sample analysis.

Source(s)	Pathway(s)	Receptor(s)
Potential contamination (e.g. hydrocarbons, asbestos) associated with the adjacent site uses including a colliery and quarries beyond.	Leaching to groundwater, lateral and vertical flow, followed by migration within the aquifer.	Underlying Bedrock (Principal Aquifer) and Superficial Deposits (Secondary A Aquifer in the east and Secondary Undifferentiated Aquifer in the west).
	rs, gas and water supply.	ential site end users.
	Direct contact, inhalation and ingestion.	high ential to the uth in addition to a adjacent to the southeast portion of the site. Proposed residential site end users.

5.0 Site Investigation

An intrusive ground investigation was carried out from 24th to 27th March and 1st May 2025 by Story Contracting Ltd in order to provide an assessment of the ground conditions on site for the proposed development discussed in Section 1.0.

5.1 Intrusive Investigation Scope

The intrusive investigation comprised the following activities:

- Service avoidance and topographic survey undertaken in all intrusive locations by a specialist third party contractor to obtain x,y,z coordinates;
- All works logged in accordance BS5930:2015+A1:2020 Code of Practice for Ground Investigations;
- Drilling of thirteen dynamic sampler boreholes (WS01 – WS13) to a maximum depth of 5.0 m bgl with regular SPTs;
- Excavation of ten trial pits (TP01 – TP10) to a maximum depth of 3.0 m bgl, three of which to be converted into BRE 365 Soakage Tests (TP06, TP07, TP10);
- Undertaking ten dynamic probe tests (DP01 – DP10); and
- Field analysis comprised the examination of each of the samples for visual and olfactory indications of contamination.

An Exploratory Hole Location Plan is appended in Appendix A as Figure 1.

5.1.1 Exploratory Hole Location Rationale

Intrusive positions were chosen strategically to target certain areas as shown in the table below.

Proposed Development / Target Location	Exploratory Holes	Rational	Contaminants of Concern
General site coverage	WS13 TP01 – TP10.	ral ns across nd obtain soil mples for chemical and geotechnical testing.	ern etals, bons, Polycyclic atic Hydrocarbons (PAH) and asbestos.
North/North-east of the site, adjacent to former Colliery.	WS02, WS04, WS05.	Installed boreholes to intersect potential migration from off-site ground gas sources.	Ground gas including Methan and Carbon Dioxide.

Proposed Development / Target Location	Exploratory es	Rational	Contaminants of Concern
General site coverage.	WS08, WS09, WS13	Installed boreholes intersect potential migration from off-site ground gas sources.	Ground gas including Methan and Carbon Dioxide.

5.1.2 Limitations

The following limitation were noted during the works:

- The presence of shallow bedrock resulted in some exploratory hole locations being terminated at shallow depths.
- The locations were placed to provide a general site coverage in the absence of a finalised proposed development plan.
- The investigation was designed to provide preliminary information only and further information may be required in due course to discharge site specific planning conditions/ detailed design.
- Groundwater samples were unable to be obtained given that the installed boreholes remained dry for the duration of the monitoring visits.

5.2 Ground Conditions

A summary of the ground conditions encountered at the site are summarised in the table below. Field logs are presented in Appendix B.

Exploratory Hole Locations					
Stratum	Depth Range Top of Strata (m bgl)	Thickness (m)		Description	Comments
		Min	Max		
Topsoil		3	4	f sandstone, limestone and coal.	n all ations.
Superficial Deposits –	0.3 – 2.5	0.8	2.1	Medium to very dense gravelly silty SAND. Gravel of various lithologies.	Present in WS09, WS12, TP01, TP02, TP08, TP10.

Exploratory Hole Locations					
Stratum	Depth Range Top of Strata (m bgl)	Thickness (m)		Description	Comments
		Min	Max		
Glaciofluvial Deposits	0.1	0.8	0.7	sandy gravelly Gravels of sandstone, limestone and coal.	S05, S09, , WS12 and 05.
Superficial Deposits – Devensian Till	0.2	0.7	0.2	to very dense clayey D. Gravels of sandstone, limestone and coal.	S01 – 06, WS11, 3, TP0, TP04 and TP06.
	0.3 – 1.0	0.2	1.6	Firm to stiff sandy CLAY. OR Firm to stiff gravelly sandy CLAY. Gravels of sandstone, limestone and coal.	Present in WS01, WS02, WS04, TP03, TP06, TP07 and TP09.
	1.4 – 1.5	0.3	0.4	Fine to coarse GRAVEL of limestone.	Present in TP07 and TP09.
Weathered Bedrock	1.0 – 2.6	0.07	*Not Proven	LIMESTONE OR LIMESTONE recovered as silty GRAVEL, gravelly SAND, gravelly SILT	Present in WS01 – WS04, WS06, WS08 – WS11, TP02 – TP10.
*Refusal in suspected bedrock so the base of the Limestone strata was not proven.					

Topsoil was present in all locations across the site and generally comprised a gravelly clayey sand. Gravels within the Made Ground were generally present in all locations including sandstone, limestone and coal.

Natural underlying superficial deposits varied across the site, generally comprising sandy gravelly clay or gravelly clayey sand with two locations (TP07 and TP09) encountering gravel of limestone. Weathered bedrock was encountered at the site between 1.0 and 2.6 m bgl with an unproven thickness.

5.2.1 Groundwater Strikes

One groundwater strike was encountered in WS04 at 2.1 m bgl within weathered limestone deposits. Given the granular material in which the ground water was encountered, it is likely to be perched. No other intrusive locations encountered groundwater strikes.

5.2.2 Obstructions

No obstructions were encountered during the ground investigation.

5.2.3 Potential Observed Contamination

Visual or olfactory evidence of gross contamination was not noted on site.

5.3 Ground Gas and Groundwater Monitoring

Monitoring wells were installed in six boreholes (WS02, WS04 – WS05, WS08 – WS09 and WS13). Wells were installed with 50mm HDPE plastic pipe. Wells were monitored for ground gas and groundwater depth following completion of the ground investigation. Six monitoring visits were undertaken between 2nd April and 28th May 2025.

The ground gas data is discussed in Section 7.0.

The groundwater monitoring data is present in Appendix E and also summarised in the below table.

Monitoring Well	Response Zone (m bgl)	Depth to Water (m bgl)	Depth to Water (m AOD)	Comments
WS02	1.0 – 3.0	ND	ND	y for 6/6 rounds.
WS04	1.0 – 2.5	ND	ND	Dry for 6/6 rounds.
WS05	1.0 – 5.0	ND	ND	Dry for 6/6 rounds.
WS08	1.0 – 2.0	ND	ND	Dry for 6/6 rounds.
WS09	1.0 – 2.5	ND	ND	Dry for 6/6 rounds.
WS13	0.5 – 1.0	ND	ND	Dry for 6/6 rounds.

*ND denotes not detected

Monitoring locations remained dry for the duration of the monitoring period, and therefore groundwater samples were not able to be obtained.

6.0 Environmental Laboratory Analysis

6.1 Environmental Analysis Rationale

Soil samples were selected for laboratory analysis following field screening, via visual and olfactory methods.

Samples were analysed for contaminants associated with historical and current use of the site in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: A Guide to Good Practice (CIRIA C552, 2001).

All samples were placed in laboratory provided containers and stored in cool boxes prior to being transported to the laboratory under the laboratory's chain of custody documentation. The laboratory used for the ground investigation on this occasion was Envirolab, a UKAS and MCERTS accredited laboratory.

Soil samples were selected from a range of depths and strata and from across the site, to gain an understanding of site-wide ground conditions. The analysis scheduled for collected soil samples is shown below in the table below.

Analysis	Rational	Number of Samples Analysed
		Soil
Asbestos	Common potential contaminant which is analysed in all samples of Made Ground	12
Heavy metals, Total Petroleum Hydrocarbons, Criteria Working Group Method (TPHCWG), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), speciated Polycyclic Aromatic Hydrocarbons (PAH)	Common potential contaminants of concern	12
Soil Organic Matter (SOM)	To allow comparison of soil results against their relevant assessment criteria	7

6.2 Soil Testing Results

The soil results have been assessed relating to potential risks to the human health receptor. Due to the site's proposed redevelopment as residential properties, soil testing results have been compared against 'Residential with Plant Uptake' end use Generic Assessment Criteria (GACs) thresholds. GAC concentrations associated with a conservative 1% Soil Organic Matter (SOM) have been utilised.

Where results have recorded an exceedance of the relevant GAC, this is presented below. The detailed results of laboratory analyses undertaken on soil samples are presented in Appendix C.

Contaminant	C mg/kg)	m ntration (mg/kg)	Location ation (mg/kg) / depth (m bgl))
Metals			
Arsenic	37	63	WS05 – 0.5 m bgl.

One of the shallow soil samples from WS05 recorded a concentration above the 'Residential with plat update' GAC for the heavy metal Arsenic. No other exceedances were recorded in the samples tested for the suite of contaminants.

7.0 Ground Gas Monitoring

7.1 Monitoring Duration

It was assessed that there was a low ground gas generation potential on-site. Given this and that the sensitivity of the proposed residential development is considered to be high, CIRIA C665 (Tables 5.5a and 5.5b) recommends six visits over a minimum period of three months.

Monitoring wells were installed in six boreholes (WS02, WS04 – WS05, WS08 – WS09 and WS13).

7.2 Characteristic Situation

The presence of a hazardous ground gas source does not determine that a risk will be present. Whether a risk is present will be assessed through the potential for generation and subsequent migration of gas. Therefore, the gas concentrations will be considered alongside the recorded gas flows.

The Gas Screening Value (GSV) is the product of the maximum borehole flow rate and the gas concentration, per borehole across all monitoring visits completed. A Characteristic Situation (CS) can be derived from an assessment of the ground gas data and forms the basis of determining mitigation measures (as outlined in BS8485:2015+A1:2019).

7.3 Results

Detailed monitoring data from the visits is presented as Appendix E.

The barometric pressure was recorded during each monitoring visit, with the lowest recorded at 1007 mBar during Round 4 and highest recorded at 1030 mBar during Round 2.

None of the installed monitoring locations experienced flooded response zones during the monitoring period.

Monitoring data obtained from the six rounds of monitoring undertaken at the site are summarised in the table below.

Monitoring Well	Response Zone (m bgl)	Max Flow (l/hr)*	Max Methane Concentration (% v/v)*	Methane CS	Max Carbon Dioxide Concentration (% v/v)*	Carbon Dioxide CS	Flooded?	Comments
WS02	1.0 – 3.0	<0.1	0.1	CS1	0.2	CS1	No (6/6)	-
WS04	1.0 – 2.5	<0.1	0.1	CS1	0.7	CS1	No (6/6)	-
WS05	1.0 – 5.0	<0.1	0.1	CS1	2.0	CS1	No (6/6)	-
WS08	1.0 – 2.0	<0.1	0.1	CS1	1.7	CS1	No (6/6)	-
WS09	1.0 – 2.5	0.1	<0.1	CS1	1.6	CS1	No (6/6)	-
WS13	0.5 - 1.0	<0.1	0.1	CS1	1.2	CS1	No (6/6)	-

Note: * = Maximum Steady State Conditions

7.4 Discussion

The results from the six monitoring rounds are discussed below. In the absence of any notable flow or elevated concentrations of methane or carbon dioxide, the ground gas regime for the site is considered CS1. As such, no ground gas protection measures are considered necessary.

7.5 Organic Vapours

No sources of volatile vapours have been identified as part of the ground investigation.

8.0 Geotechnical Assessment

8.1 Geotechnical Analysis

8.1.1 Geotechnical Analysis Rationale

Alongside the environmental intrusive investigation undertaken across the site on 24th to 27th March and 1st May 2025, in-situ testing, soil sampling and geotechnical laboratory analysis was undertaken to inform preliminary foundation solutions, floor slabs, earthworks and other geotechnical considerations.

A summary of geotechnical testing is presented in the table below.

Laboratory Test	Rational	ber of Samples
Moisture Content	For general classification, to assess plasticity and potential volume change of cohesive soils due to variations in moisture content.	9
Liquid and Plastic Limits (Atterberg Test)		9
Particle Size Distribution (PSD)	ess suitability of earthworks in accordance with the Specification for Highways Works (SHW).	21
BRE Concrete Suite	To inform to inform concrete design with resp aggressive ground conditions.	3

8.2 Geotechnical Testing

8.2.1 In-Situ Tests

Standard Penetration Tests (SPTs) were undertaken every 1.0 m up to a maximum depth of 5.0 m bgl, in every borehole apart from where refusal or shallow bedrock was encountered.

With reference to Figure 2, an SPT N_{60} vs depth chart, the SPT N_{60} values showed a general increase with depth within the Devensian Till and a clear linear increase with depth in the Glaciofluvial Deposits. Ten dynamic probe tests were undertaken (DP01 – DP10) across the site, the dynamic probes refusal depths broadly correlate to the SPT / drilling and excavations refusals observed within nearby boreholes and trial pits, although some locations showed local variations.

Three tests were undertaken in TP06, TP07 and TP10. Three successful tests were undertaken in TP10, with Test 1 at 1.89E-04 m/s, Test 2 at 1.95E-04 m/s and Test 3 at 1.66E-04 m/s. Both TP06 and TP07 did not reach the required 75% effective drainage in order to calculate an infiltration rate in accordance with BRE365.

8.2.2 Geotechnical Laboratory Results

A summary of the geotechnical test results is presented in the table below. Full details of the geotechnical results are presented in Appendix D.

Parameter	o of Tests	Minimum	Maximum	Average
Superficial – Glaciofluvial Deposits (east)				
pH	7	7.7	8.7	7.9
Water soluble sulphate (mg/l)	7	8.39	140	71.49
Moisture Content (%)	3	16.7	23.7	21.3
Plasticity Index (%)	3	15	38	24
Modified Plasticity Index (%)	3	15	38	24
SPT 'N ₆₀ ' Value	11	10	61	29
Superficial – Devensian Till (west)				
pH	10	7.6	8.3	7.9
Water soluble sulphate (mg/l)	10	7.33	67	33.3
Moisture Content (%)	5	15.9	20.9	19
Plasticity Index (%)	5	16	23	19
Modified Plasticity Index (%)	5	14	22	18
SPT 'N ₆₀ ' Value	10	9	61	21
Bedrock – Weathered Roker Formation				
Moisture Content (%)	1	16.2		
Plasticity Index (%)	1	21		
Modified Plasticity Index (%)	1	21		
SPT 'N ₆₀ ' Value	12	33	61	54

The calculated modified plasticity index for the cohesive layers within the Glaciofluvial deposits is 15 - 22% and 13 – 38% for the Devensian Till which indicates the material to be of low to medium volume change potential in accordance with NHBC Standards, Chapter 4.2 'Building Near Trees'.

Particle Size Distribution (PSD) testing using wet sieve techniques was carried out on 15 samples of the Superficial Deposits and weathered bedrock between 0.3 m to 4.0m bgl, which recorded the following constituents:

Glaciofluvial Deposits

- *Gravel: 1% to 16%*
- *Sand: 31% to 40%*
- *Silt: 30% - 38%*
- *Clay: 18% - 29%*

Devensian Till

- *Gravel: 1% to 24%*
- *Sand: 26% to 86%*
- *Fines <0.063 mm: 10% to 67%*

Weathered Limestone

- *Very coarse: 0% to 14%*
- *Gravel: 4% to 27%*
- *Sand: 9% to 25%*
- *Fines <0.063 mm: 47% to 85%*

8.3 Assessment Introduction

It is understood that the proposed development of the site comprises a residential housing scheme, although there is currently no development plan available. It is assumed that the development will include the construction of low-rise dwellings, roads and pavements, limited soft landscaping and associated infrastructure. As a result, some of the below sections are considered preliminary at this stage and may require re-assessment when a fixed development plan is available.

8.4 Preliminary Foundation Assessment Assumptions

The following foundation assessment is considered to be preliminary in nature given the following limitations:

- No detailed building dimensions, foundation or floor slab loads and earthworks plans have been provided to Geo² for review. However, loadings are anticipated to be comparatively low given the proposed use for residential dwellings; and

- It is assumed there are no significant basements, slopes or retaining features required as part of the proposed development.

Therefore, the preliminary recommendations below will need to be revisited if any of the above information becomes available or assumptions change.

8.5 Preliminary Geotechnical Risk Register

The table below is intended as a register of the potential geotechnical hazards associated with the development. It provides an assessment of whether the site is likely to be affected by the hazard, the possible consequences and engineering requirements.

Hazard	Initial A / Low / Medium / High	Engineering Consequences / Remarks
Variable ground conditions (lateral and vertical)	Medium	Variable ground conditions were encountered during the site investigation. The ground was found to be composed of a mix of hard and soft bedrock. The hard bedrock was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The soft bedrock was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth. Based on this, shallow foundations are recommended to be placed at a minimum depth of 1.50m below ground level (or to the top of the hard bedrock) and may achieve an allowable bearing pressure of 100kN/m ² .
Compressible ground / low bearing capacity soils (i.e., soft clays, peat, loose Made Ground)	Low	The ground was found to be composed of a mix of hard and soft bedrock. The hard bedrock was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The soft bedrock was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth. However the potential for localised soft spots may require shallow foundations being placed to a greater depth or soft spots excavated and backfilled with engineered granular fill.
Volume change potential (shrinking and swelling characteristics)	Low to medium	The ground was found to be composed of a mix of hard and soft bedrock. The hard bedrock was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The soft bedrock was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The index superficial deposits have a low to medium volume change potential. Recommendations in chapter 4.2 of the NHBC guidance should be adopted.
Retaining wall / slope stability issues	Low	Whilst no significant slopes are present on site, any temporary slopes created as part of the development should be subject to appropriate geotechnical design based on site-specific information.
Infilled and Made Ground (including embankments)	Low	The ground was found to be composed of a mix of hard and soft bedrock. The hard bedrock was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The soft bedrock was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a medium to strong nature, ranging from 1.3m to 2.4m depth. The ground was found to be of a weak nature, ranging from 1.3m to 2.4m depth.
Groundwater	Low	Groundwater was only encountered in one location during the intrusive works undertaken. No groundwater was encountered during the return monitoring period at the site.
Obstructions / buried structures (including foundations,	Low	According to the reviewed historical data for the site, there has been no development at the site which has remained in agricultural use since the mid-1800s. It is considered unlikely that relic structures would be encountered.

basements, tunnels, and services)		
Dissolution features	Low to medium	Limestone bedrock, particularly dolomitic limestone is associated with being at risk of ground dissolution. Although the findings of the ground investigation did not identify any evidence of dissolution, a watching brief during future excavation works is recommended and advice should be a sort from a geotechnical engineer should evidence of dissolution be found.
Mining	to medium	porting area but not ated by the MRA, therefore the investigation was not designed to investigate this risk.
Concrete Classification	Low to medium	Testing has indicated a Design Sulphate Class of DS-2 and would be appropriate for all buried concrete structures, however, it is noted that no samples of weathered limestone bedrock were tested.
Seismicity	Low	The PGA for a site under the 475-year return period is approximately 0.00g to 0.02g which is considered very low.

8.6 Adopted Ground Model & Geotechnical Parameters

The following table shows the preliminary anticipated ground model and geotechnical parameters based of the findings of the intrusive investigation and subsequent testing.

Stratum	Level at top of Stratum (m bgl)	Bulk Unit Weight, γ_b (kN/m ³)	Undrained Shear Strength, c_u (kN/m ²)	Effective Cohesion, c' (kN/m ²)	Angle of Friction ϕ' (°)
Glaciofluvial Deposits (cohesive)	0.3	18	70	0	27
Devensian Till (cohesive)	1.5	18	70	0	27
Devensian Till (granular)	5	19	-	0	32
Weathered Roker Formation (Limestone)	10	20	-	0	34

For the purposes of this assessment a design groundwater level of 5.00m bgl has been adopted.

8.7 Foundation Assessment

In reference to Eurocode 7, this assessment has considered both the Ultimate Limit State (ULS) bearing capacity and Serviceable Limit State (SLS) for the preliminary and outline design of shallow

foundations. As detailed structural loads are not available, Design Approach 1 (DA1) Combination 2 (A2 + M2) has been assumed with the associated partial factors applied to soil parameters only.

8.7.1 Spread Foundations

Weathered Limestone was encountered in all ten trial pit excavations, with refusals on suspected bedrock observed at depths between approximately 1.30m and 2.40m bgl. As a result, it is generally recommended that shallow foundations are extended to competent bedrock geology where it is in economic reach (typically 2m bgl or less). However, it is noted that the depth to weathered bedrock / refusals is variable across the site and was locally observed to a greater depth than 2.40m bgl in several of the window sample borehole locations, notably WS05 and WS12. The overlying superficial geology comprises a combination of glacial clay and sands which are typically indicated as being firm to stiff or medium dense to dense. Therefore, where shallow bedrock is not encountered within the upper 2m, shallow pad / strip footing foundations placed at a minimum depth of 1.50m bgl are considered suitable. Assuming the foundation is placed on a firm / medium dense soil (or early refusal on bedrock), an SLS bearing capacity of 100kN/m² may be achieved (Limited to less than 25mm of settlement) for pad sizes up to 2m x 2m and 0.80m wide strips.

At detailed design stage, consideration should be given to the variable and permanent actions on the foundation. Should the variable actions be greater than 50% of the overall load, a larger size foundation may be required to achieve the necessary bearing capacity.

Consideration should be given to ensure that foundations across the building footprint are cast in uniform strata in order limit the potential for differential settlement. All foundation excavations should be inspected by a suitably qualified engineer prior to casting to ensure the appropriate depth, founding medium and strength characteristics have been achieved.

8.7.2 Floor Slabs

In principle, given the typically firm and medium dense consistency of the superficial geology and observed shallow bedrock, ground bearing floor slabs are considered feasible. However, this should be reassessed when the loading tolerances and gradient levels have been confirmed. Prior to the placement of any fill materials, the formation should be thoroughly proof rolled, with any soft zones removed and replaced with engineered granular fill.

8.8 Volume Change Potential

The volume change potential should be considered in the design for foundation, floor slabs and services with respect to desiccation and tree planting.

As described in BRE Digest 412 "Desiccation in Clay Soils", one method of determining the onset of desiccation is where the soil moisture content is at 40% of the Liquid Limit. Where this is less than 40%, soils may be considered to be in a significantly desiccated condition. Likewise, assessment of Liquidity Index; where a value of zero or greater indicates the soil's water content to be at or above

the plastic limit, while negative values indicate the soil to be drier than the plastic limit can be used to assess whether the soils are artificially deficient in natural moisture content. From analysis of samples recovered from Glaciofluvial Deposits within <5.00 m of ground level, only one sample recorded significant desiccation. Two other samples were recorded to be desiccated, with the rest of the samples were neither significantly desiccated, nor showing evidence of artificial deficiency in moisture content.

Given the low to medium volume change potential (typically low) and the limited desiccation status, the risk of heave as a result of the rehydration of desiccated soils is considered to be low and it is unlikely specific mitigation measures are required. However, as there is no development plan currently available, and the extent to which proposed tree planting is not known, further assessment may be required when this information is confirmed. Notwithstanding this any proposed tree planting at the site should be undertaken in accordance with NHBC Part 4.2 - building nature ease to ensure minimum foundation depths are achieved.

8.9 Earthworks

At the time of writing, no cut and fill plans have been made available to Geo² for review. The site is relatively flat and level in elevation, it is understood that site levels are not expected to change significantly. Therefore, it is not anticipated that a significant cut and fill operation will be required as part of the development. If this changes in future, it may be prudent to undertake further confirmatory earthworks classification and compaction testing prior to construction in order to develop an earthworks specification.

8.9.1 Earthworks Material Classification

The table below summarises material grading results and the corresponding earthworks class, in accordance with the 'Specification for Highways Works, Series 600', Table 6/2.

Exploratory Location	Depth (m bgl)	Strata	Series 600 Earthworks Class (Table 6/2)
TP01	1.00 – 2.00	Devensian Till	Class 1B
TP04	2.00 – 3.00	Weathered Limestone	Class 2C
TP05	0.40 – 1.20	Devensian Till	Class 2A & 2B
TP06	0.50 – 1.50	Glaciofluvial	Class 2A & 2B
WS01	0.30 – 0.70	Devensian Till	Class 2A & 2B
WS02	3.00 -3.30	Weathered Limestone	Class 2C
WS03	0.30 – 1.00	Devensian Till	Class 2C
WS05	4.00	Glaciofluvial	Class 2A & 2B
WS06	1.50 – 2.50	Devensian Till	Class 1B
WS08	0.40 – 1.00	Devensian Till	Class 1B

WS09	1.20 – 2.00	Glaciofluvial	Class 2A & 2B
WS09	2.00 – 2.50	Weathered Limestone	Class 2A & 2B
WS10	2.00 – 3.00	Weathered Limestone	Class 2A & 2B
WS11	0.30 – 1.50	Devensian Till	Class 1B
WS13	0.30 – 1.00	Devensian Till	Class 2A & 2B

Shallow earthworks on the Site will likely predominantly encounter Devensian Till, Glaciofluvial and weathered Limestone deposits which will likely fall into Class 1B (uniformly graded granular material) and 2A & 2B or Class 2C (wet/dry/stoney cohesive material).

8.10 Roads and Pavements

California Bearing Ratio (CBR) or plate tests were not undertaken within the ground investigation scope. Therefore, it is recommended that a conservative CBR value of 1% should be adopted for shallow cohesive soils following proof rolling, for preliminary pavement design. It would be prudent to carry out plate CBR tests at formation level prior to finalising pavement design.

All materials within 450mm of final finished levels in roads or pavement should comprise non-frost-susceptible soils in accordance with BS 812-124.

8.11 Chemical Attack on Buried Concrete

In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the Devensian Till and Glaciofluvial soils at the site would therefore be classified as Design Sulphate Class DS-2 for soils, when considering the most appropriate type of concrete to be used at the site in order to resist chemical attack from elevated sulphate present in the soils (assuming non pyritic soils - no groundwater data available).

8.12 Excavation, Support and Earthworks

Based on the findings of the ground investigation, the trial pit excavations remained stable during the works. Therefore, it may be assumed that excavations on site will remain stable. However, consideration should be given to the predominately granular superficial deposits encountered across the western region of the site which are more likely to result in instability and may need support in accordance with CIRIA 97 Trenching Practice. Side support for safety purposes should of course be provided to all excavations which appear unstable. In accordance with Health and Safety Regulations, a competent person who fully understands the dangers and necessary precautions should inspect an excavation of any depth at the start of each shift and after any event that may have affected the strength or stability of the excavation.

Excavation through layers of superficial deposits and weathered bedrock should be feasible using conventional site plant and no obstructions were not encountered during intrusive works, although several locations refused on suspected bedrock at depths below 2m bgl.

Should any materials from site be intended to be reused in permanent earthworks, further sampling and testing should be undertaken to confirm its geotechnical and contaminative suitability. All earthworks materials should be tested, handled, classified, placed, compacted and verified in accordance with an appropriate earthworks specification. A Materials Management Plan should be prepared to assist in facilitating materials re-use.

8.13 Groundwater

Groundwater was only encountered in WS04 at 2.10m bgl. During return monitoring the standpipes remained dry. Therefore, it is considered that the groundwater observed likely represented localised perched groundwater. As a result, perched or groundwater inflows, where encountered in shallow excavations on site, are likely to be adequately controlled by traditional pumping from sumps.

Three soakaway infiltration tests were conducted in accordance with BRE 365 'Soakaway Design', two of the three tests failed as 75% effective drainage was not reached, notably these tests were carried out in predominantly cohesive strata of Glaciofluvial Deposits. The successful test was carried out in TP10 within gravelly sand of Devensian Till, the test results indicated a permeability of between $1.66\text{E-}04$ m/s to $1.95\text{E-}04$ m/s. Based on this, infiltration-based drainage such as soakaway or other sustainable urban drainage systems (SuDS) is theoretically suitable where more granular soils are present, such as to the western regions of the site. However, consideration should be given to the potential risk of dissolution within the underlying Limestone bedrock. Therefore, should a form of infiltration-based drainage be adopted, the soakaway must be located at least 20m away from any structures to mitigate the risk.

8.14 Limestone Dissolution

Geological dissolution can occur when physical and chemical weathering occurs within soluble rocks such as limestone. The risk associated with this is called karstification, which includes the formation of cavities and voids as a result dissolution which may lead to sinkholes or subsidence at the ground surface. The Landmark Envirocheck report included within the Dunelm Desk Study report indicated the potential for ground dissolution stability hazards at the site is indicated to be very low. However, it is noted this information is approximately 9 years old. It is noted that there are several relict sinkholes approximately 500m northeast of the site along the coastline. However, this was likely caused by the coastal processes of wave action and seawater infiltration into the headland through joints and fissures, creating a pathway for chemical and physical weathering. Whilst it is not considered this dissolution mechanism is operating at the site, it is still feasible that dissolution features may exist from natural infiltration through the soils and bedrock. Whilst the findings of the ground investigation did not encounter any obvious dissolution features a varying bedrock profile was observed which could be indicative of dissolution occurring at the site. It would therefore be considered prudent to undertake a watching brief for dissolution features during any earthworks, or excavation for foundations and services. If any such features are encountered or suspected, the work should be temporarily suspended whilst further geotechnical advice is sought.

9.0 Risk Estimation

9.1 Discussion of Investigation Findings

The historic use of the land adjacent to the east of the site, mainly consisting of Whitburn Colliery and quarries beyond were identified in the Preliminary Risk Assessment as the main potential sources of site contamination.

Encountered ground conditions across the site identified Made Ground (Topsoil) in all instructive locations up to a maximum depth of 0.4 m bgl. Natural underlying superficial deposits varied across the site, generally comprising sandy gravelly clay and/or and gravelly sand. Weathered bedrock was encountered in ten locations between depths of 1.0 and 2.6 m bgl.

Chemical analysis was undertaken on a selection of soil samples for a range of contaminants associated with the historical and current use of the site. One marginal exceedance of Arsenic was identified in the shallow superficial deposits at WS05. The remainder of the soil samples tested did not contain concentrations of contaminants in excess of their respective GAC.

Groundwater samples were not able to be obtained due to the five out six monitoring visiting undertaken so far not encountering any groundwater. However, given the lack of Made Ground or contamination discovered in the soil samples it can be assumed that groundwater is unlikely to be notably impacted by contamination originating from site.

Based on the data obtained during the site investigation, evidence of an off-site source impacting the site or off-site migration of contaminants was not identified.

Limitations are discussed in Section 5.3.

9.2 Qualitative Risk Assessment

Each of the identified potential contamination linkages in the preliminary conceptual site model is reviewed based upon the findings of the site investigation which allows a greater understanding of the ground conditions at the site, site observations, soil and groundwater quality and chemical analysis.

The qualitative risk assessment is undertaken, detailed in the table on the following page, in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practice CIRIA C552, 2001. The purpose of this assessment is to determine the relative significance of the identified contamination linkages by assessing the probability of an impact occurring and by assessing the perceived severity of an impact to a receptor.

The perceived risk is based on a consideration of both the likelihood of an event (probability) occurring, and the severity of the potential consequence. Classification of these two factors is detailed in Appendix F.

Those linkages considered of low risk or less on the basis of the available site data will not be considered any further in this assessment. Linkages considered to be more significant are identified as presenting potentially unacceptable risk to the identified receptor. In these instances, further works may be considered necessary.

Source(s)	Pathway(s)	Receptor(s)	Confirmed Risk?	Comments/Mitigation	Risk (Probability x Severity)
Heavy metal (arsenic) within the shallow superficial material	in of home produce and stored soil	future residents	Yes	Investigation, location is close to the edge of natural vegetation, not elevated risk. Limited area surrounding the location is considered prudent, prior to topsoil strip, to assess for other elevated concentrations. Anticipated surplus of topsoil generated as part of the development, additional analysis will be required to inform options for off-site re-use of the material.	Low (Unlikely x Medium)
	contact, on and/or erosion of soil/dust	ground users and maintenance workers	Yes	When Arsenic was only detected within one of the samples that concentrations detected do not require construction/maintenance to be considered unlikely. Use of Personal Protection Equipment and of suitable welfare facilities should be implemented.	
	migration of contaminants into controlled waters	fluvial and Principal (nine Middle Coal Measures) Aquifers The North Sea (600 m east)	No	Heavy metal (arsenic) is not very mobile/soluble and the underlying clay in the location of WS05 would reduce the migration into the Principal Aquifer and North Sea.	

Source(s)	Pathway(s)	Receptor(s)	Confirmed Risk?	Comments/Mitigation	Risk (Probability x Severity)
Made Ground	Leakage or void space contamination of ground as (explosive hazard)	Residents and construction/maintenance workers	No	Workers did not identify carbon dioxide or methane. No detected at any of the locations during the monitoring period.	Low Unlikely x Medium)
Contaminants in the groundwater beneath the site.	Direct contact and ingestion	Proposed residential site users.	No	Groundwater samples were unable to be obtained due to low volumes of groundwater in the monitoring wells. However, in the absence of notable sources of contamination with soils it is considered unlikely that groundwater is impacted by contamination originating from the site.	Low (Unlikely x Medium)
	Migration of contaminants into controlled waters	Surface water features including the North Sea to the east of the site. Secondary A (Glaciofluvial Deposits) and Principal (Pennine Middle Coal Measures) Aquifers			

10.0 Conclusions and Recommendations

10.1 Conclusions

A Geo-Environmental Assessment of the site known as Lizard Lane was undertaken, prior to proposed redevelopment of the site.

The purpose of the assessment was to evaluate the potential for risks to be posed to human health and controlled water receptors from historical and current use of the site as well as providing geotechnical data for preliminary design.

10.1.1 Contaminated Land Considerations

During the site investigation undertaken, no visual evidence of contamination was identified on site.

The site has no prior developed land use and is currently in use as agricultural land. Historically the adjacent land was used as a wash house associated with Whitburn Colliery present in the wider area and a limited thickness of Made Ground present on site. The chemical analysis of the soils identified one marginally elevated concentration of a heavy metal (arsenic) when compared to the applied residential with plant uptake GAC. The proposed development is likely to largely comprise a mixture of hardstanding, gardens and soft landscaping.

It would be prudent to allow for a limited number of soil samples to be obtained in the area surrounding (10m radius) the elevated arsenic prior to or during topsoil strip with materials stockpiled separately until such time results are available and decisions can be made on the suitability of re-use of this material. Additionally, given the anticipated surplus of topsoil generated as part of the development, further analysis will be required to inform options for off-site re-use of the material.

Geo² consider there to be a **Low** risk to human health from asbestos in soils without mitigation.

Results from the six rounds of ground gas monitoring did not identify elevated methane and carbon dioxide. As such, Geo² considers there is a **Low** risk to human health receptors/built environment and groundwater.

As no gross contamination has been identified during the investigation, Geo² considers the risk to controlled waters to be **Low**.

10.1.2 Geotechnical Considerations

The ground conditions encountered at the site comprises locally shallow bedrock (>2m bgl) and variable thickness of Glaciofluvial and Devensian Till superficial deposits which were typically found to be firm clay or medium dense to dense sand. Based on this, shallow

foundations are considered suitable to achieve an SLS bearing capacity of 100kNm² (limited to less than 25mm of settlement) for pad sizes up to 2m x 2m and 0.80m wide strip footings. It must be ensured that foundations are cast in uniform strata (i.e., not spanning granular and cohesive strata) in order limit the potential for differential settlement.

In theory, ground bearing floor slabs should be feasible, however this should be re-assessed when final loading tolerances and levels are confirmed.

The findings of the site investigation indicate that infiltration-based drainage may be feasible within more granular strata, predominantly located to the western regions of site. However, consideration should be given to the potential risk of dissolution within the underlying Limestone bedrock as a result of infiltration.

California Bearing Ratio (CBR) or plate tests were not undertaken within the ground investigation scope. Therefore, it is recommended that a conservative CBR value of 1% should be adopted for shallow cohesive soils following proof rolling, for preliminary pavement design for external areas.

Groundwater was only encountered in one exploratory hole location during the drilling works and all the standpipe installations were dry throughout the monitoring period. Therefore, it is considered that the groundwater observed likely represented localised perched groundwater. As a result, perched or groundwater inflows, where encountered in shallow excavations on site, are likely to be adequately controlled by traditional pumping from sumps.

A design sulphate classification of DS-2 would be required for buried concrete in the superficial deposits.

10.2 Recommendations

The following measures are recommended to address the identified risks and facilitate future redevelopment:

- Undertake additional testing in the vicinity of the identified elevated arsenic to further assess whether this is localised/ sporadic or more representative of soil conditions in this part of the site. Further testing will also be required to support off-site re-use of soils.
- Production of a Materials Management Plan (MMP) to facilitate sustainable materials re-use.
- When areas of soils to be removed from site are identified, e.g. service trenches, surface water attenuation, additional sampling, analysis and assessment should be undertaken to inform off-site management routes. Waste classification was not undertaken as part of the scope of works.

- As CBR testing was not carried out as part of the site investigation works, it would be prudent to carry out plate CBR tests at formation level prior to finalising pavement design.
- It is recommended that a watching brief is carried out during any earthworks or excavations works for dissolution risk.
- Should infiltration based drainage be adopted, soakaways must be at least 20m away from any structures.

11.0 Limitations

This Report was prepared by Geo² for the sole and exclusive use of the Client and for the specific purpose for which Geo² was instructed. Unless explicitly agreed otherwise, in writing, this Report has been prepared under Geo²'s Standard Terms and Conditions.

Geo² does not intend, without its written consent through a formal letter of reliance or warranty, for this Report to be disseminated to any party other than the named Client or to be used or relied upon by any party other than the named Client. Use of the Report by any other party is unauthorised and such use is at the sole risk of the user. Any party using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Geo² from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by Geo².

The recommendations contained within this Report represent Geo²'s professional opinions, based upon the information detailed within the Report, exercising the reasonable skill and care to be expected of a professional consultant holding itself out as having the competence, experience, and resources necessary for the purpose of carrying out similar work in scope and character to the services performed. The Report needs to be considered in the light of the proposal and associated limitations of scope. The Report needs to be read and considered in full and isolated sections cannot be used without full reference to other elements of the Report and any previous works referenced within the Report.

12.0 References

British Standards Institute

BS10175:2011 Investigation of potentially contaminated land sites – code of practice.

BS8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

British Geological Society

Geology of Britain Viewer, <https://mapapps2.bgs.ac.uk/geoindex/home.html>

CIRIA

C552 Contaminated Land Risk Assessment, a guide to good practise, 2001.

C665, Assessing risks posed by hazardous ground gases to buildings, 2007.

CL:AIRE

Good Practice For Risk Assessment For Coal Mine Gas Emissions, October 2021.

Environmental Agency

Land Contamination Risk Management (LCRM) Guidance, 2020.

Mining Remediation Authority

Mining Remediation Authority Interactive Viewer, <https://datamine-cauk.hub.arcgis.com/>

Zetica UXO

Risk Maps Viewer, <https://zeticauxo.com/guidance/risk-maps/>

Screening Assessment

Category 4 Screening Levels (C4SLs) published by DEFRA.

Guidance values produced by the Environmental Industries Commission (EIC), the Associated of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Application in Real Environments (CL:AIRE) in December 2009.

Land Quality Management/CIEH S4UIs for Human Health Risk Assessment, 2014. *Copyright Land Quality Management Limited, reproduced with permission. Publication Number S4UL3369. All rights reserved.*

Acute Generic Assessment Criteria published by the Society of Brownfield Risk Assessment (SoBRA) 2019.

The Water Supply (Water Quality) Regulations 2016 [UK Drinking Water Standards].

WHO background documents to Guidelines for Drinking Water Quality, 2003.

WHO Guidelines for Drinking Water Quality (4th Edition), 2017.

Society of Brownfield Risk Assessment “Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater”, dated September 2024 (Version 2.0).



Appendix A – Drawings and Figures



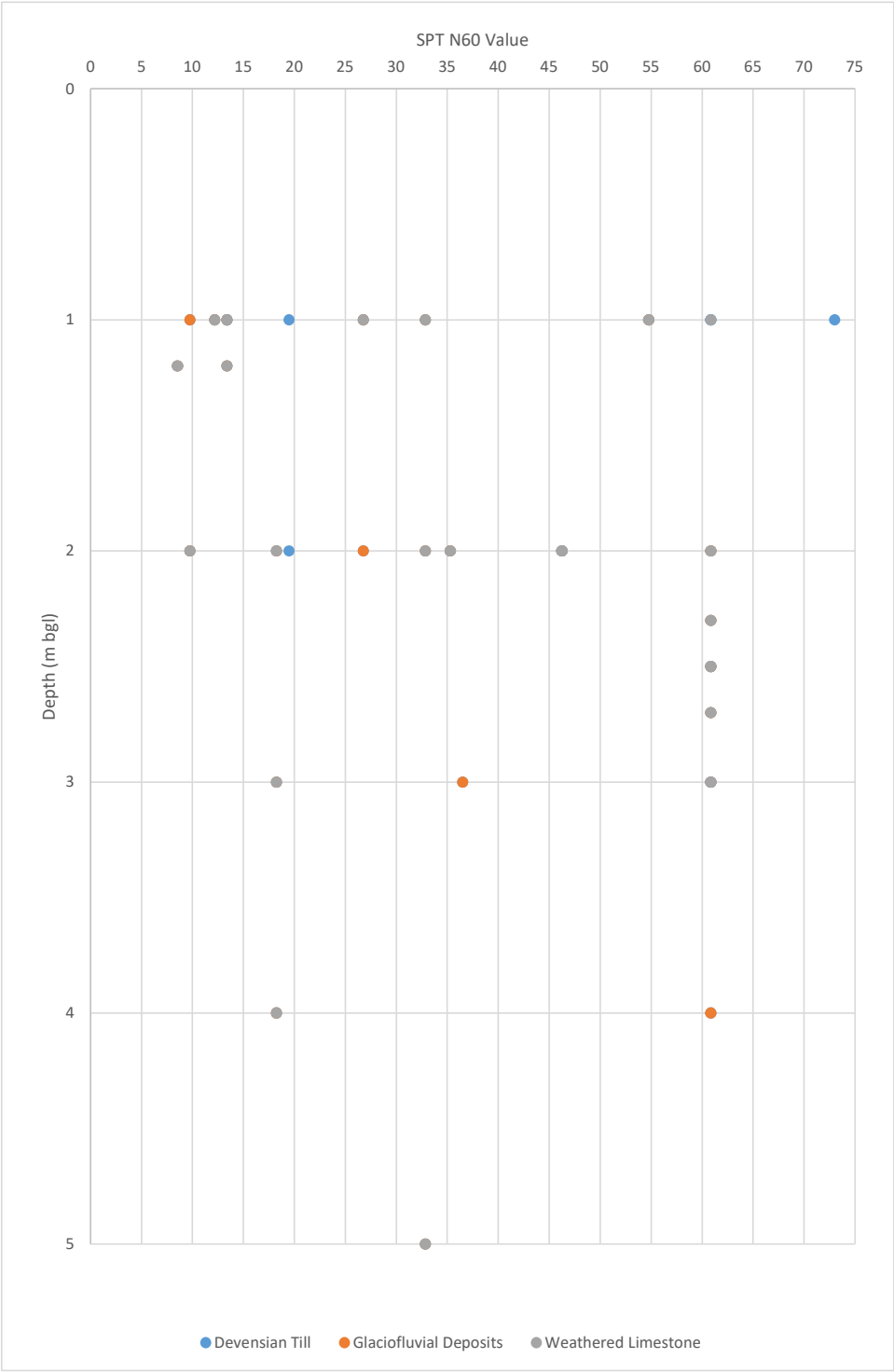
Legend

- Exploratory Holes
- Dynamic Sample Location
 - Trial Pit Location
 - Dynamic Probe Test Location
 - Site Boundary



DO NOT SCALE. NOT FOR CONSTRUCTION

Figure Figure 1 - Exploratory Hole Location Plan		
Job Lizad Lane		
Client Story Contracting		
Figure No. 1	Revision 1	Date 29 May 2025
Drawn by AH	Checked by MOH	Scale 1:2,000
Job No. 4660		



TITLE:

Lizard Lane

Plot (m bgl)

Drawn:

FEM

Project No.:

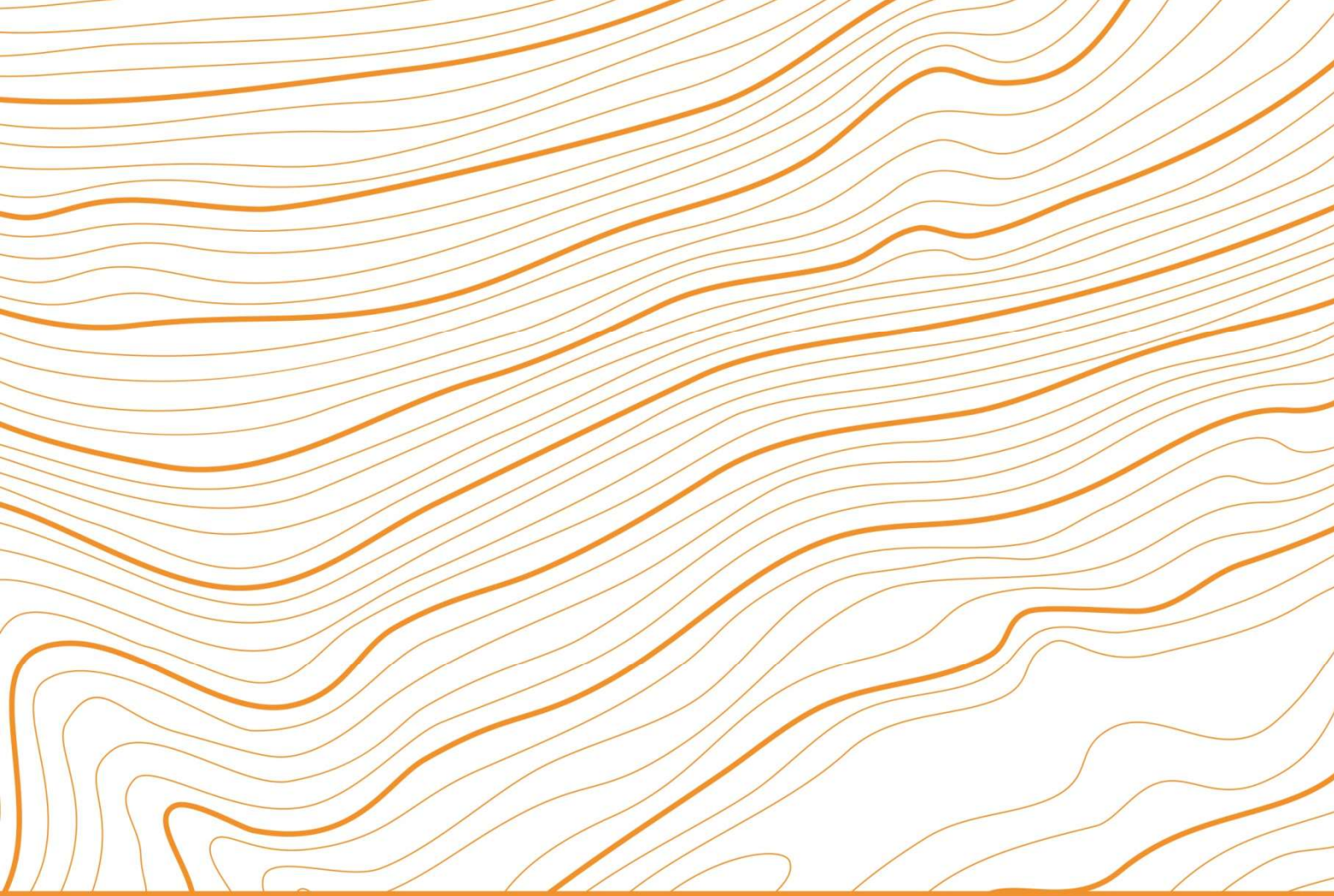
4660

Date:

Jun-25

Figure:

2



Appendix B – Exploratory Hole Logs

STORY Ripley Drive Normanton West Yorkshire WF6 1QT		Exploratory Hole Log				Dynamic (Windowless) Sampler				Hole ID: WS01 FINAL Sheet 1 of 1		
		Project No.: GT00175		Project Title: Lizard Lane						Drilled By: LA/RA		
		Client: Story Homes		Coordinates: E 440529.75 N 563605.07				Scale		Logged By: AH		
		Date(s): 25/03/2025		Ground Level: 37.58 mAOD				1:25		Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description						Water Strike(s)	Legend	Well
B1 0.00 - 0.30	1.00m - SPT(S) 50 (4,8/50 for 115mm) Er = 73%	37.28	(0.30)	Dark brown slightly gravelly slightly sandy CLAY with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)						0.5		
B2 0.30 - 0.70			0.30	Brown slightly gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)								
D3 0.80			(0.70)									
SPTLS4 1.20 - 1.27			1.00	Stiff brown sandy CLAY. Sand is fine to coarse. (TILL/Diamicton)								
			1.20	Highly weathered yellowish grey LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse.								
		36.58	(0.20)	End of Borehole at 1.27m Refusal						1.0		
		36.38	(0.07)							1.5		
		36.31	1.27							2.0		
										2.5		
										3.0		
										3.5		
										4.0		
										4.5		
Sampling Run Details				General Remarks:						Location:		
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks						South Shields		
				1. Hand dug trial pit from 0.00m to 1.00m then window sampled from 1.00m to 1.27m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.						Plant Used: Dart 524		

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS02 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440607.52 N 563635.38		Scale	Logged By: AG		
	Date(s): 25/03/2025		Ground Level: 34.66 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
D1 0.00 - 0.30	1.00m - SPT(S) N=16 (2,3/4,4,5,3) Er = 73%	34.36	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
B2 0.30 - 1.00			(0.30)	Firm brown sandy CLAY. Sand is fine to coarse. (TILL/Diamicton)				
B5 1.20 - 2.50 SPTLS3 1.20 - 1.45	2.00m - SPT(S) N=16 (1,0/3,4,5,4) Er = 73%	33.46	(0.90)	Medium dense brown clayey fine to coarse SAND. (TILL/Diamicton)	1.0			
SPTLS4 2.00			(1.40)					
B6 2.50 - 3.00	3.00m - SPT(S) 50 (9,8/50 for 200mm) Er = 73%	32.06	2.60	Highly weathered yellowish grey LIMESTONE recovered as a silty angular to subangular fine to coarse gravel.	2.5			
SPTLS7 3.00 - 3.30			(0.75)	3.35	End of Borehole at 3.35m Refusal			3.0
		31.31			3.5			
					4.0			
					4.5			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 3.35m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 3.00m.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Plant Used: Dart 524			
1.20	2.00	86	100					
2.00	3.00	76	80					

STORY Ripley Drive Normanton West Yorkshire WF6 1QT		Exploratory Hole Log				Dynamic (Windowless) Sampler				Hole ID: WS03 FINAL Sheet 1 of 1			
		Project No.: GT00175		Project Title: Lizard Lane						Drilled By: LA/RA			
		Client: Story Homes		Coordinates: E 440480.99 N 563527.86				Scale		Logged By: AG			
		Date(s): 27/03/2025		Ground Level: 37.77 mAOD				1:25		Checked By: NB			
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description						Water Strike(s)	Legend	Well	
B1 0.00 - 0.30	1.00m - SPT(S) 50 (25 for 105mm/50 for 50mm) Er = 73%	37.47 36.77 36.61	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)						0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5			
0.30			Brown clayey very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of limestone and sandstone. (TILL/Diamicton)										
(0.70)													
1.00			Weathered yellow LIMESTONE recovered as angular to subangular fine to coarse sandy gravel.										
(0.16)			End of Borehole at 1.16m Refusal										
1.16													
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.00m then window sampled from 1.00m to 1.16m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.						Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)							Remarks	Plant Used: Dart 524		

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS04 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440600.35 N 563577.19		Scale	Logged By: AG		
	Date(s): 25/03/2025		Ground Level: 33.49 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.30 - 1.20	1.00m - SPT(S) N=11 (3,4/3,2,3,3) Er = 73%	33.19	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
B4 1.20 - 1.90 SPTLS2 1.20			0.30	Stiff brown sandy CLAY. Sand is fine to coarse. (TILL/Diamicton)				
B5 1.90 - 2.50 SPTLS3 2.00	2.00m - SPT(S) N=38 (5,7/12,13,6,7) Er = 73%	31.59	1.90	Weathered yellow LIMESTONE recovered as a dense silty angular to subrounded fine to coarse gravel.	2.0			
	2.50m - SPT(S) 50 (25 for 50mm/50 for 30mm) Er = 73%		(0.68)					
		30.91	2.58	End of Borehole at 2.58m Refusal	2.5			
					3.0			
					3.5			
					4.0			
					4.5			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.58m. 2. Groundwater encountered at 2.10m. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 2.50m.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Plant Used: Dart 524			
1.20	2.00	86	90					
2.00	2.50	76	100					

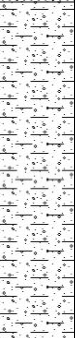
STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS05 FINAL Sheet 1 of 2		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440644.79 N 563524.95		Scale	Logged By: AG		
	Date(s): 25/03/2025		Ground Level: 32.03 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 1.00	1.00m - SPT(S) N=11 (2,3/2,2,3,4) Er = 73%	31.73	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
ES101 0.50			0.30	Firm brown slightly sandy slightly gravelly CLAY with roots. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone, (GFDU)				
SPTLS2 1.20			(1.00)					
B3 1.30 - 2.00			1.30	Firm to stiff light greyish brown sandy CLAY. (GFDU)				
B4 2.00 - 3.00	2.00m - SPT(S) N=15 (3,3/3,4,4,4) Er = 73%	30.73	(1.70)		2.0			
B7 3.00 - 4.00 SPTLS5 3.00	3.00m - SPT(S) N=15 (3,3/3,4,4,4) Er = 73%		29.03	3.00	2.80m to 3.00m: thinly to thickly laminated. Stiff greyish yellow sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (GFDU)			3.0
				(1.00)				3.5
				B8 4.00 - 5.00 SPTLS6 4.00	4.00			Weathered yellowish grey LIMESTONE recovered as firm sandy gravelly clay.
SPTLS9 5.00	4.00m - SPT(S) N=15 (2,5/3,4,4,4) Er = 73%	28.03	(1.00)		4.5			
	5.00		27.03	5.00	Continued on next sheet			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 5.00m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 4.00m.	Location:			
From (m)	To (m)	Dia. (mm)	Rec. (%)		South Sheilds			
1.20	2.00	86	100					
2.00	3.00	86	100					
3.00	4.00	76	100					
4.00	5.00	76	100			Plant Used:		
						Dart 524		

STORY Ripley Drive Normanton West Yorkshire WF6 1QT		Exploratory Hole Log				Dynamic (Windowless) Sampler				Hole ID: WS05 FINAL Sheet 2 of 2																			
		Project No.: GT00175		Project Title: Lizard Lane						Drilled By: LA/RA Logged By: AG Checked By: NB																			
		Client: Story Homes			Coordinates: E 440644.79 N 563524.95			Scale																					
		Date(s): 25/03/2025			Ground Level: 32.03 mAOD			1:25																					
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description						Water Strike(s)	Legend	Well																	
	5.00m - SPT(S) N=27 (6,6/5,7,7,8) Er = 73%			End of Borehole at 5.00m Complete																									
Sampling Run Details <table><tr><td>From (m)</td><td>To (m)</td><td>Dia. (mm)</td><td>Rec. (%)</td><td>Remarks</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>												From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks						General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 5.00m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 4.00m.				Location: South Shields		Plant Used: Dart 524  REGISTERED USER 2024	
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks																									

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS05	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 5.00m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 4.00m.																														
	Project No.: GT00175		Project Title: Lizard Lane		FINAL Sheet 1 of 2																															
	Client: Story Homes		Coordinates: E 440644.79 N 563524.95		Logged By: AG																															
	Date(s): 25/03/2025		Ground Level: 32.03 mAOD		Checked By: NB																															
STORY PROJECT NAME LIZARD LANE HOLE NO. WS05 PROJECT NO. GT00175 SAMPLE NO. 25 DATE 25/3/25 DEPTH FROM 1.20 m TO 3.00 m Gray Scale Colour Control Patches 0.0m0.1m0.2m0.3m0.4m0.5m0.6m0.7m0.8m0.9m1.0m WS05 1.20m-3.00m						<table><tr><th colspan="5">Sampling Run Details</th></tr><tr><th>From (m)</th><th>To (m)</th><th>Dia. (mm)</th><th>Rec. (%)</th><th>Remarks</th></tr><tr><td>1.20</td><td>2.00</td><td>86</td><td>100</td><td></td></tr><tr><td>2.00</td><td>3.00</td><td>86</td><td>100</td><td></td></tr><tr><td>3.00</td><td>4.00</td><td>76</td><td>100</td><td></td></tr><tr><td>4.00</td><td>5.00</td><td>76</td><td>100</td><td></td></tr></table>	Sampling Run Details					From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks	1.20	2.00	86	100		2.00	3.00	86	100		3.00	4.00	76	100		4.00	5.00	76	100	
Sampling Run Details																																				
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks																																
1.20	2.00	86	100																																	
2.00	3.00	86	100																																	
3.00	4.00	76	100																																	
4.00	5.00	76	100																																	

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS05	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 5.00m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 4.00m.																													
	Project No.: GT00175		Project Title: Lizard Lane		FINAL Sheet 2 of 2																														
	Client: Story Homes		Coordinates: E 440644.79 N 563524.95		Logged By: AG																														
	Date(s): 25/03/2025		Ground Level: 32.03 mAOD		Checked By: NB																														
STORY PROJECT NAME LIZARD LANE HOLE NO. WS05 PROJECT NO. GT00175 SAMPLE NO. DATE 25/3/25 DEPTH FROM 3.0 m TO 5.0 m Grey Scale Colour Control Patches 0.0m0.1m0.2m0.3m0.4m0.5m0.6m0.7m0.8m0.9m1.0m WS05 3.0-5.0m						Sampling Run Details <table><tr><th>From (m)</th><th>To (m)</th><th>Dia. (mm)</th><th>Rec. (%)</th><th>Remarks</th></tr><tr><td>1.20</td><td>2.00</td><td>86</td><td>100</td><td></td></tr><tr><td>2.00</td><td>3.00</td><td>86</td><td>100</td><td></td></tr><tr><td>3.00</td><td>4.00</td><td>76</td><td>100</td><td></td></tr><tr><td>4.00</td><td>5.00</td><td>76</td><td>100</td><td></td></tr></table>					From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks	1.20	2.00	86	100		2.00	3.00	86	100		3.00	4.00	76	100		4.00	5.00	76	100	
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks																															
1.20	2.00	86	100																																
2.00	3.00	86	100																																
3.00	4.00	76	100																																
4.00	5.00	76	100																																

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS06 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440512.67 N 563427.24		Scale	Logged By: AG		
	Date(s): 27/03/2025		Ground Level: 34.17 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.30 ES101 0.25 B2 0.30 - 1.00	1.20m - SPT(S) N=7 (2,1/2,2,1,2) Er = 73%	33.87	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5			
SPTLS3 1.20 B5 1.50 - 2.50			(2.20)	Loose brown slightly gravelly clayey fine to medium SAND. Gravel is angular to subrounded fine to coarse of limestone and sandstone. (TILL/Diamicton)				
SPTLS4 2.00			2.00m - SPT(S) N=8 (2,2/1,2,3,2) Er = 73%	31.67				2.50 (0.29)
SPTLS6 2.70	2.70m - SPT(S) 50 (25 for 30mm/50 for 50mm) Er = 73%	31.38	2.79	End of Borehole at 2.79m Refusal				
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.79m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.	Location:			
From (m)	To (m)	Dia. (mm)	Rec. (%)		South Shields			
1.20	2.00	87	100		Plant Used: Dart 524			

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS07 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440603.53 N 563468.64		Scale	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 31.22 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.30	1.00m - SPT(S) N=45 (4,8/45 for 230mm) Er = 73%	30.92	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5 1.0			
B2 0.30 - 1.00			0.30	Firm dark brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of limestone and sandstone. (GFDU)				
			(1.12)					
		29.80	1.42	End of Borehole at 1.42m Refusal	1.5 2.0 2.5 3.0 3.5 4.0 4.5			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 1.42m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.	Location:			
From (m)	To (m)	Dia. (mm)	Rec. (%)		South Shields			
					Plant Used: DART524			

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS08 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440483.71 N 563348.02		Scale	Logged By: AG		
	Date(s): 27/03/2025		Ground Level: 35.52 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.40	1.20m - SPT(S) N=11 (2,3/3,2,3,3) Er = 73%	35.12	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
ES101 0.30 B2 0.40 - 1.00			0.40	Brown fine to coarse SAND (TILL/Diamicton)				
SPTLS3 1.20 - 1.45			(0.80)					
			1.20	Weathered yellowish brown LIMESTONE recovered as very gravelly silty fine to medium sand. Gravel is angular to subangular fine to coarse.				
	2.00m - SPT(S) N=50 (8,14/50 for 255mm) Er = 73%	34.32	(1.21)		1.5			
	33.11	2.41	End of Borehole at 2.41m Refusal	2.0				
				2.5				
				3.0				
					3.5			
					4.0			
					4.5			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.41m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 2.00m.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Remarks	Plant Used: Dart 524		
1.20	2.00	87	100					

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS08	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.41m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 2.00m.
	Project No.: GT00175		Project Title: Lizard Lane		FINAL Sheet 1 of 1	
	Client: Story Homes		Coordinates: E 440483.71 N 563348.02		Logged By: AG	
	Date(s): 27/03/2025		Ground Level: 35.52 mAOD		Checked By: NB	
STORY Story Contracting Ltd www.storycontracting.com 01228 590444 PROJECT NAME LIZARD LANE PROJECT NO. GT00175 DATE 27/3/25 HOLE NO. WS08 SAMPLE NO. DEPTH FROM 1.20 m TO 2.0 m Grey Scale A 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Colour Control Patches Blue Cyan Green Yellow Red Magenta White 5 Colour Black 0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m  WS08						
Sampling Run Details						
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks		
1.20	2.00	87	100			

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS09 FINAL Sheet 1 of 1				
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: RA/LA				
	Client: Story Homes		Coordinates: E 440631.92 N 563368.00		Scale	Logged By: AG				
	Date(s): 26/03/2025		Ground Level: 30.99 mAOD		1:25	Checked By: NB				
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well			
B1 0.00 - 0.30	1.00m - SPT(S) N=10 (2,1/2,1,2,5) Er = 73%	30.59	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5					
B2 0.50 - 1.00			0.40	Brown slightly gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium of various lithologies. (GFDU)						
D5 0.80		29.79	(0.80)	Firm dark brown slightly sand slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of limestone and sandstone. (GFDU)						
B3 1.20 - 2.00			1.20							
D6 1.50	1.50m - () HV(p)=50kPa HV(r)=15kPa	28.99	(0.80)	Weathered yellow LIMESTONE recovered as slightly sandy slightly gravelly SILT. Gravel is angular to subangular fine to coarse.						
B4 2.00 - 2.50	2.00m - SPT(S) N=38 (4,5/6,7,12,13) Er = 73%		2.00							
	2.50m - SPT(S) 50 (10,15/50 for 210mm) Er = 73%	28.14	(0.85)	End of Borehole at 2.85m Refusal						
			2.85							
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.85m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 2.50m.	Location: South Shields					
From (m)	To (m)	Dia. (mm)	Rec. (%)		Remarks	Plant Used: DART524				
1.20	2.00	87	100							
2.00	2.50	87	100							

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS09	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.85m. 2. No groundwater encountered during drilling. 3. 50mm standpipe piezometer installed. Response zone from 1.00m to 2.50m.				
	Project No.: GT00175	Project Title: Lizard Lane			FINAL Sheet 1 of 1					
	Client: Story Homes	Coordinates: E 440631.92 N 563368.00			Logged By: AG					
	Date(s): 26/03/2025	Ground Level: 30.99 mAOD			Checked By: NB					
STORY Story Contracting Ltd www.storycontracting.com 01228 590444 PROJECT NAME LIZARD LANE DATE 28/3/25 BOREHOLE NO. WS09 ENGINEER GEO 2 PROJECT NO. GT00175 CLIENT STORY HOMES BOX NO. 1 DEPTH FROM 1.20 m TO 2.50 m Colour Checker Printout Blue Cyan Green Yellow Red Magenta White Black Grey Scale 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m						Sampling Run Details				
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks						
1.20	2.00	87	100							
2.00	2.50	87	100							

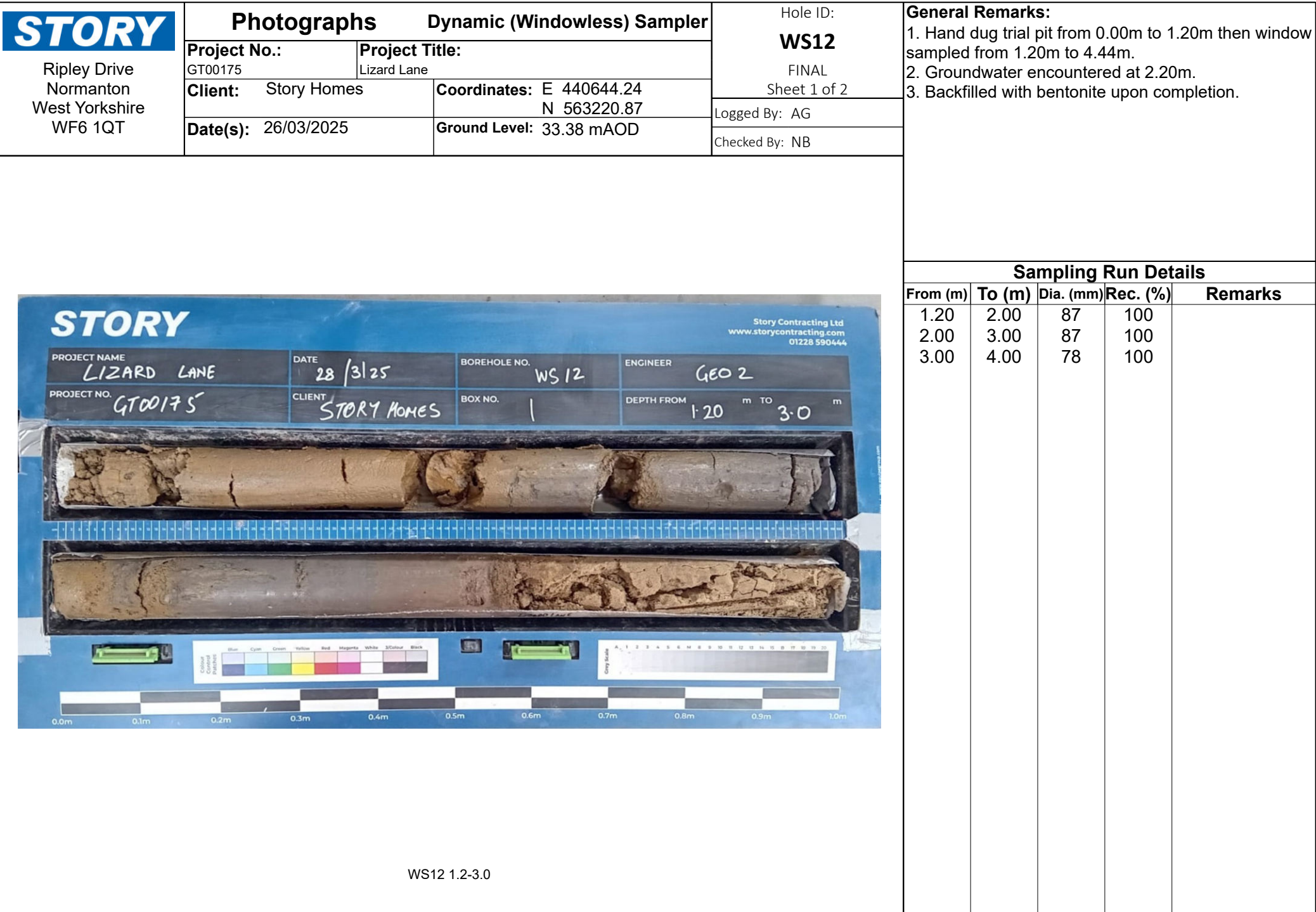
WS09

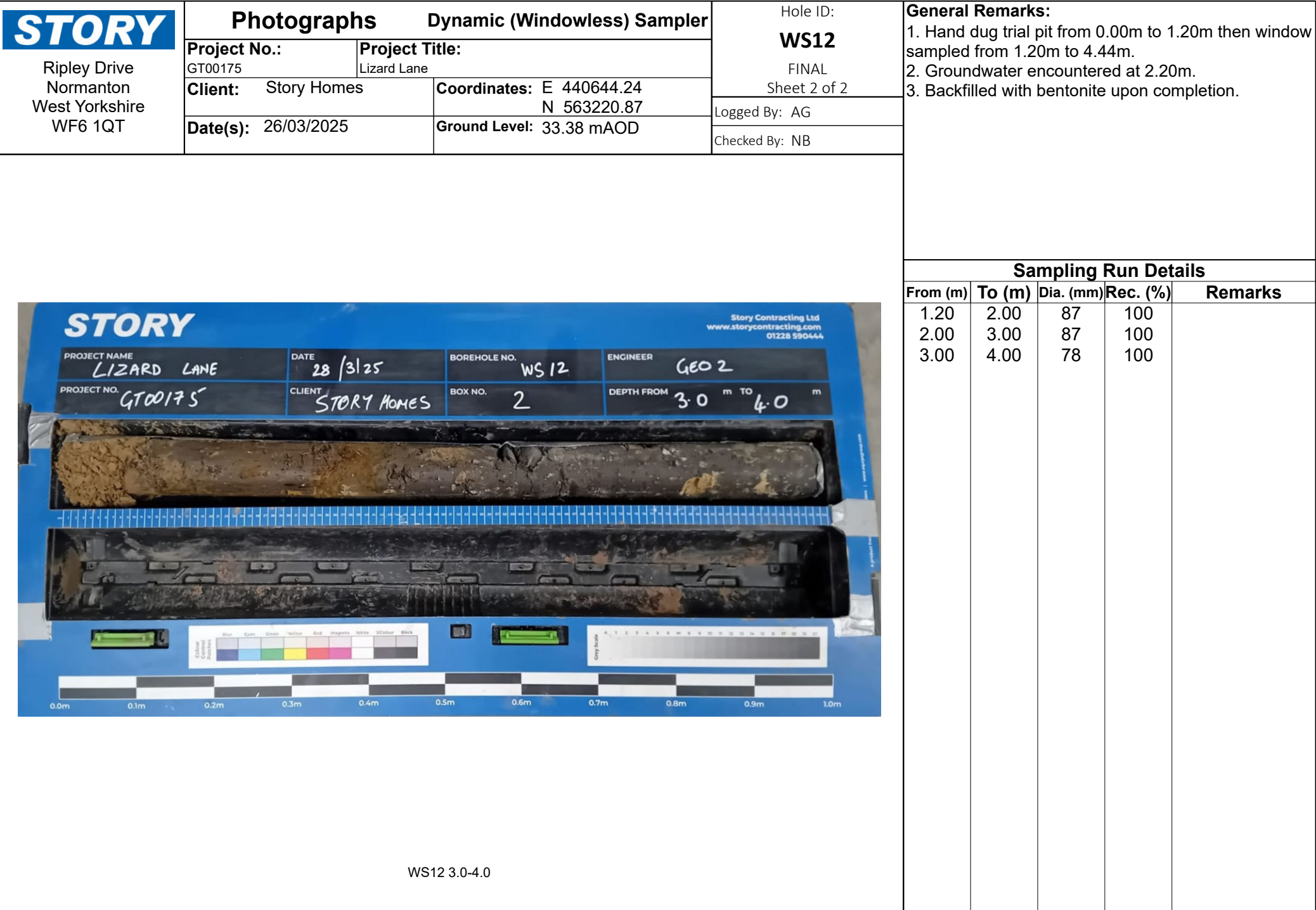
STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS10 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440607.33 N 563291.00		Scale	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 32.29 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.30	1.00m - SPT(S) N=22 (3,3/3,5,7,7) Er = 73%	31.99	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
B2 0.30 - 1.20			(0.30)	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and mudstone. (GFDU)				(0.90)
B3 1.20 - 2.00	2.00m - SPT(S) N=29 (10,9/6,7,6,10) Er = 73%	31.09	1.20	Extremely weathered yellow LIMESTONE recovered as a very stiff slightly sandy slightly gravelly CLAY.	1.5			
B4 2.00 - 3.00			(2.16)	End of Borehole at 3.36m Refusal				3.5
	3.00m - SPT(S) 50 (6,18/50 for 210mm) Er = 73%	28.93	3.36		3.0	3.5	4.0	
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 3.36m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Remarks	Plant Used: Dart 524		
1.20	2.00	87	100					
2.00	3.00	76	100					

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS10	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 3.36m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.																							
	Project No.: GT00175		Project Title: Lizard Lane		FINAL Sheet 1 of 1																								
	Client: Story Homes		Coordinates: E 440607.33 N 563291.00		Logged By: AG																								
	Date(s): 26/03/2025		Ground Level: 32.29 mAOD		Checked By: NB																								
STORY Story Contracting Ltd www.storycontracting.com 01228 590444 PROJECT NAME LIZARD LANE PROJECT NO. GT00175 DATE 27/3/25 HOLE NO. WS10 SAMPLE NO. DEPTH FROM 1.20 m TO 3.0 m Grey Scale Colour Control Patches 0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m 6.2 1.0  WS10						<table><tr><th colspan="5">Sampling Run Details</th></tr><tr><th>From (m)</th><th>To (m)</th><th>Dia. (mm)</th><th>Rec. (%)</th><th>Remarks</th></tr><tr><td>1.20</td><td>2.00</td><td>87</td><td>100</td><td rowspan="2"></td></tr><tr><td>2.00</td><td>3.00</td><td>76</td><td>100</td></tr></table>					Sampling Run Details					From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks	1.20	2.00	87	100		2.00	3.00	76	100
Sampling Run Details																													
From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks																									
1.20	2.00	87	100																										
2.00	3.00	76	100																										

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS11 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440483.56 N 563242.73		Scale	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 36.28 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.30 ES101 0.25 B2 0.30 - 1.50	1.00m - SPT(S) N=27 (2,2/3,5,8,11) Er = 73%	35.88	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5			
B3 1.50 - 2.30			0.40	Brown slightly gravelly slightly clayey SAND. Gravel is subangular to rounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)				
			(1.40)	Highly weathered yellow LIMESTONE recovered as a clayey angular to subrounded fine to coarse gravel.				
	2.00m - SPT(S) N=27 (5,5/7,4,3,13) Er = 73%	34.48	1.80	Highly weathered yellow LIMESTONE recovered as a clayey angular to subrounded fine to coarse gravel.	2.0 2.5 3.0 3.5 4.0 4.5			
	2.30m - SPT(S) 50 (25 for 60mm/50 for 95mm) Er = 73%		2.46	End of Borehole at 2.46m Refusal				
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 2.46m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Plant Used: Dart 524			

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log Dynamic (Windowless) Sampler					Hole ID: WS12 FINAL Sheet 1 of 1		
	Project No.: GT00175		Project Title: Lizard Lane			Drilled By: LA/RA		
	Client: Story Homes		Coordinates: E 440644.24 N 563220.87		Scale	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 33.38 mAOD		1:25	Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend	Well	
B1 0.00 - 0.30	1.00m - SPT(S) N=8 (3,3/3,1,2,2) Er = 73%	33.08	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5			
B2 0.50 - 1.50			0.30	Loose brown slightly gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium of various lithologies. (GFDU)				
D6 1.00			(1.30)					
B3 1.60 - 2.50	2.00m - SPT(S) N=22 (3,2/3,4,7,8) Er = 73% 2.00m - () HV(p)=50kPa HV(r)=10kPa	31.78	1.60	Firm dark brown slightly sand slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of limestone and sandstone. (GFDU)	1.5			
B4 2.50 - 3.10			(0.90)		2.0			
B5 3.10 - 4.00	3.00m - SPT(S) N=30 (6,8/6,8,9,7) Er = 73% 3.50m - () HV(p)=70kPa HV(r)=20kPa	30.88	2.50	Light brown fine to coarse SAND. (GFDU)	2.5			
			(0.60)		3.0			
	4.00m - SPT(S) N=50 (5,6/50 for 295mm) Er = 73%	30.28	3.10	Highly weathered brownish grey LIMESTONE recovered as stiff slightly sand slightly gravelly clay. Sand is fine to medium. Gravel is angular to subrounded fine to coarse.	3.5			
			(1.34)		4.0			
		28.94	4.44	End of Borehole at 4.44m Refusal	4.5			
Sampling Run Details				General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 4.44m. 2. Groundwater encountered at 2.20m. 3. Backfilled with bentonite upon completion.	Location: South Shields			
From (m)	To (m)	Dia. (mm)	Rec. (%)		Plant Used: DART 524			
1.20	2.00	87	100					
2.00	3.00	87	100					
3.00	4.00	78	100					





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STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs		Dynamic (Windowless) Sampler		Hole ID: WS13	General Remarks: 1. Hand dug trial pit from 0.00m to 1.20m then window sampled from 1.20m to 1.39m. 2. No groundwater encountered during drilling. 3. Backfilled with bentonite upon completion.				
	Project No.: GT00175		Project Title: Lizard Lane		FINAL Sheet 1 of 1					
	Client: Story Homes		Coordinates: E 440478.17 N 563106.60		Logged By: AG					
	Date(s): 26/03/2025		Ground Level: 35.82 mAOD		Checked By: NB					
STORY PROJECT NAME LIZARD LANE PROJECT NO. GT00175 DATE 27/3/25 HOLE NO. WS13 SAMPLE NO. DEPTH FROM 1.20 m TO 2.30 m Grey Scale Colour Control Patches 0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m 100 160 WS13						Sampling Run Details				
						From (m)	To (m)	Dia. (mm)	Rec. (%)	Remarks
1.20	2.00	87	100							
2.00	2.30	78	100							

STORY Ripley Drive Normanton West Yorkshire WF6 1QT		Exploratory Hole Log				Trial Pit		Hole ID: TP01 FINAL Sheet 1 of 1	
		Project No.: GT00175		Project Title: Lizard Lane				Logged By: AG Checked By: NB	
		Client: Story Homes		Coordinates: E 440545.10 N 563549.00		Scale			
		Date(s): 26/03/2025		Ground Level: 34.36 mAOD		1:25			
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description				Water Strike(s)	Legend
B1 0.00 - 0.30		34.06	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)				0.5	
B2 1.00 - 2.00			0.30	Brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)					
	(2.10)					1.0			
						1.5			
2.40	31.96	(2.10)	End of Hole at 2.40m Refusal				2.0		
							2.5		
								3.0	
								3.5	
								4.0	
								4.5	
								5.0	
								5.5	
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								6.5	
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								7.5	
								8.0	
								8.5	
								9.0	
								9.5	
								10.0	
								10.5	
								11.0	
								11.5	
								12.0	
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								44.5	
				</					

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP01 FINAL Sheet 1 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 2.40m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.	
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG			
	Client: Story Homes		Coordinates: E 440545.10 N 563549.00		Checked By: NB			
	Date(s): 26/03/2025		Ground Level: 34.36 mAOD					
 TP01								0.90m 2.90m



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440545.10 N 563549.00	
Date(s): 26/03/2025		Ground Level: 34.36 mAOD	

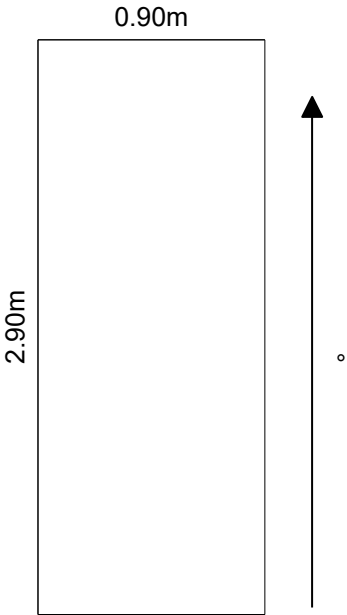
Hole ID: TP01 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.40m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE A





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440545.10
N 563549.00

Date(s): 26/03/2025

Ground Level: 34.36 mAOD

Hole ID:

TP01

FINAL

Sheet 3 of 5

Logged By: AG

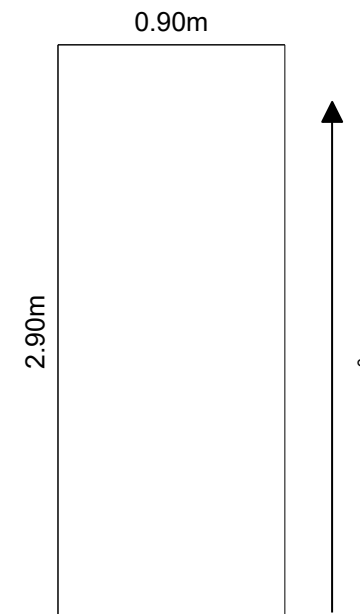
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 2.40m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440545.10
N 563549.00

Date(s): 26/03/2025

Ground Level: 34.36 mAOD

Hole ID:

TP01

FINAL
Sheet 4 of 5

Logged By: AG

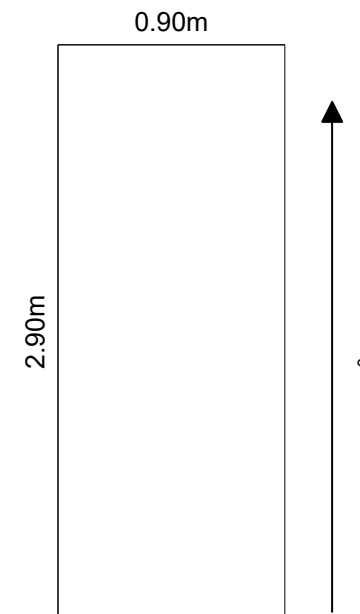
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 2.40m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE D





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

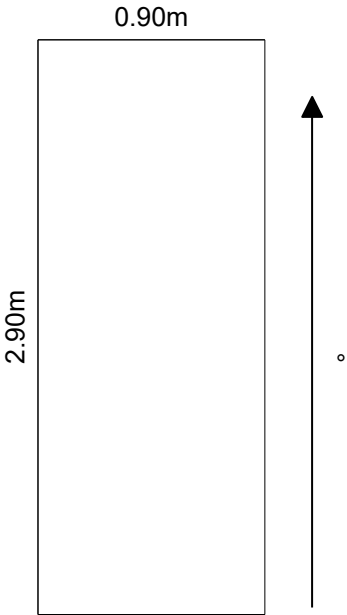
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440545.10 N 563549.00	
Date(s): 26/03/2025		Ground Level: 34.36 mAOD	

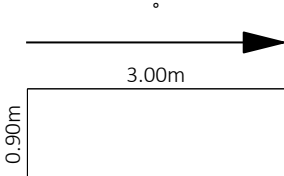
Hole ID: TP01 FINAL Sheet 5 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 2.40m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP Arisings



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Trial Pit		Hole ID: TP02 FINAL Sheet 1 of 1	
	Project No.: GT00175		Project Title: Lizard Lane				Logged By: AG	
	Client: Story Homes		Coordinates: E 440548.32 N 563496.93		Scale: 1:25		Checked By: NB	
	Date(s): 26/03/2025		Ground Level: 33.39 mAOD					
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description			Water Strike(s)	Legend
B1 0.00 - 0.50		32.89	(0.50)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)			0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	
ES101 0.30			0.50	Brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)				
B2 0.50 - 1.50			(1.30)					
		31.59	1.80	Weathered LIMESTONE. End of Hole at 1.80m Refusal				
General Remarks:							Location:	
1. Machine dug trial pit from 0.00m to 1.80m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							South Shields	
				Plant Used:				
				JCB 3CX				

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP02 FINAL Sheet 1 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 1.80m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG		
	Client: Story Homes		Coordinates: E 440548.32 N 563496.93		Checked By: NB		
	Date(s): 26/03/2025		Ground Level: 33.39 mAOD				
 TP Photo							
0.90m 3.00m							



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440548.32
N 563496.93

Date(s): 26/03/2025

Ground Level: 33.39 mAOD

Hole ID:

TP02

FINAL

Sheet 2 of 5

Logged By: AG

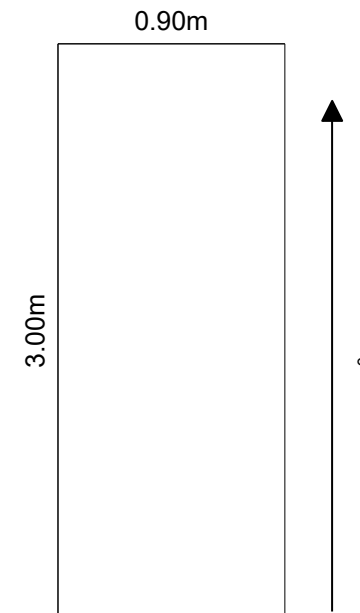
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP02





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440548.32 N 563496.93	
Date(s): 26/03/2025		Ground Level: 33.39 mAOD	

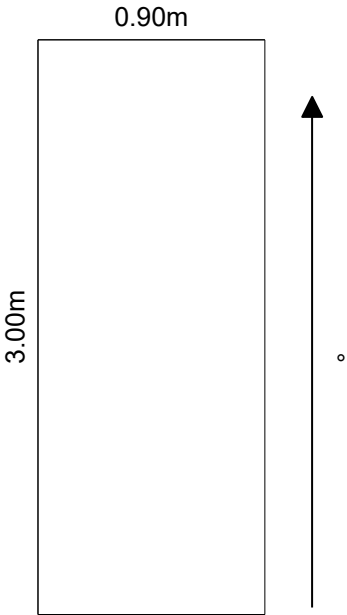
Hole ID: TP02 FINAL Sheet 3 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 1.80m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440548.32
N 563496.93

Date(s): 26/03/2025

Ground Level: 33.39 mAOD

Hole ID:

TP02

FINAL

Sheet 4 of 5

Logged By: AG

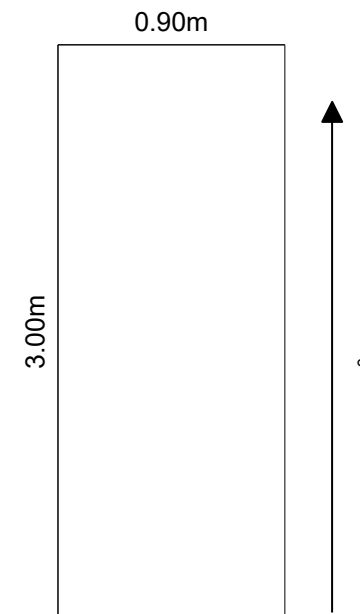
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE D



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440548.32
N 563496.93

Date(s): 26/03/2025

Ground Level: 33.39 mAOD

Hole ID:

TP02

FINAL

Sheet 5 of 5

Logged By: AG

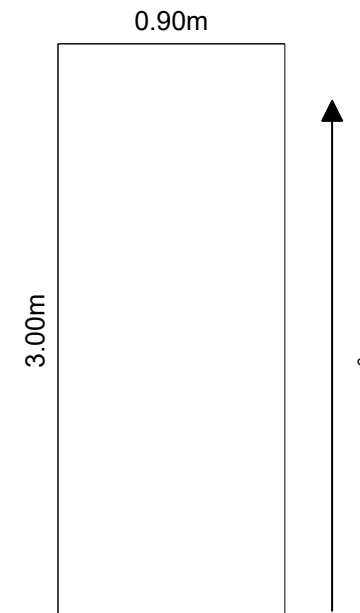
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP Arisings



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP03 FINAL Sheet 1 of 1	
	Project No.: GT00175		Project Title: Lizard Lane					Logged By: AG	
	Client: Story Homes		Coordinates: E 440596.42 N 563525.88			Scale: 1:25		Checked By: NB	
	Date(s): 26/03/2025		Ground Level: 32.42 mAOD						
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description			Water Strike(s)	Legend	
B1 0.00 - 0.30		32.12	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)			0.5 1.0		
B2 0.30 - 1.20			0.30	Firm brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)					
B3 1.50 - 2.10		31.02	1.40	(1.10)	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse.				1.5
	30.32	2.10	(0.70)	End of Hole at 2.10m Refusal			2.0		
							2.5		
							3.0		
							3.5		
							4.0		
							4.5		
General Remarks:				0.90m 2.50m			Location:		
1. Machine dug trial pit from 0.00m to 2.10m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							South Shields		
				Plant Used:					
				JCB 3CX			REGISTERED USER 2024		



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440596.42 N 563525.88	
Date(s): 26/03/2025		Ground Level: 32.42 mAOD	

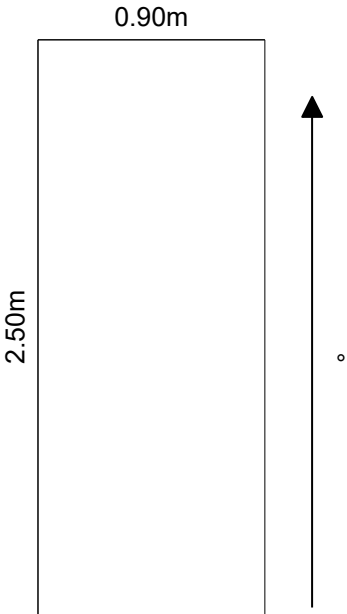
Hole ID: TP03 FINAL Sheet 1 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.10m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



TP03





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440596.42 N 563525.88	
Date(s): 26/03/2025		Ground Level: 32.42 mAOD	

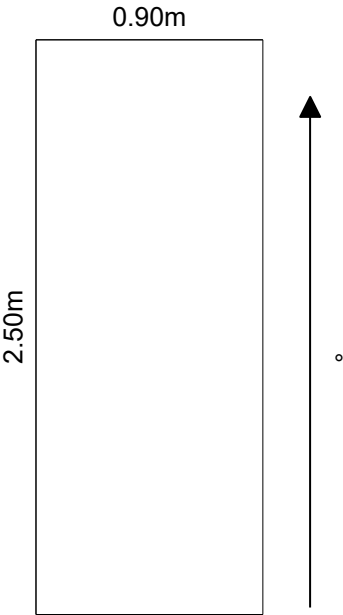
Hole ID: TP03 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.10m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE A





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440596.42 N 563525.88	
Date(s): 26/03/2025		Ground Level: 32.42 mAOD	

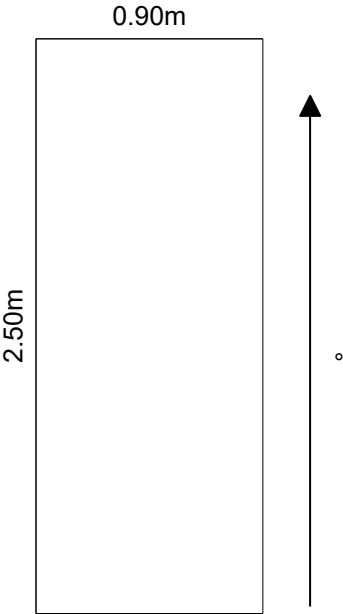
Hole ID: TP03 FINAL Sheet 3 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.10m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440596.42 N 563525.88	
Date(s): 26/03/2025		Ground Level: 32.42 mAOD	

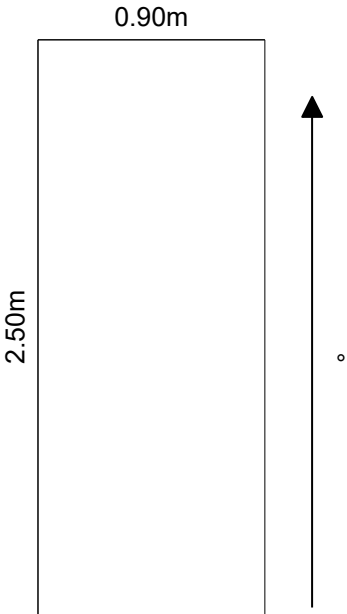
Hole ID: TP03 FINAL Sheet 4 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.10m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



TP ARISINGS



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP03 FINAL Sheet 5 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 2.10m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG		
	Client: Story Homes		Coordinates: E 440596.42 N 563525.88		Checked By: NB		
	Date(s): 26/03/2025		Ground Level: 32.42 mAOD				
 TP ARISINGS							
0.90m 2.50m							

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP04	
	Project No.: GT00175		Project Title: Lizard Lane					FINAL	
	Client: Story Homes		Coordinates: E 440550.44 N 563383.44			Scale 1:25	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 32.91 mAOD				Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description			Water Strike(s)	Legend	
B1 0.00 - 0.40		32.51	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)			0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		
B2 0.40 - 2.00			0.40	Brown slightly gravelly clayey SAND. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (GFDU)					
B3 2.00 - 3.00		30.91	2.00	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse.					
		29.91	3.00	End of Hole at 3.00m Refusal					
General Remarks:				0.90m 3.00m			Location:		
1. Machine dug trial pit from 0.00m to 3.00m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							South Shields		
				Plant Used:					
				JCB 3CX			REGISTERED USER 2024		

STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440550.44
N 563383.44

Date(s): 26/03/2025

Ground Level: 32.91 mAOD

Hole ID:

TP04

FINAL

Sheet 1 of 5

Logged By: AG

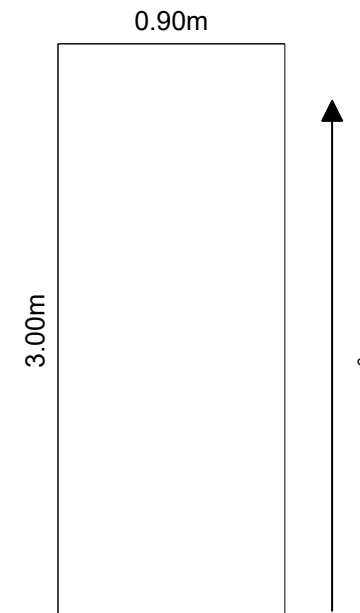
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 3.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP04





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

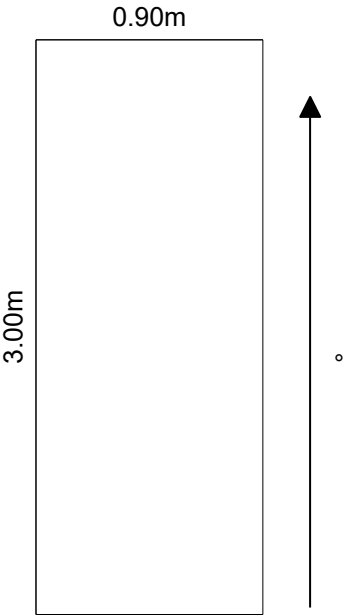
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440550.44 N 563383.44	
Date(s): 26/03/2025		Ground Level: 32.91 mAOD	

Hole ID: TP04 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 3.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE A



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Project No.: GT00175

Project Title:	Lizard Lane
-----------------------	-------------

Client: Story Homes

Date(s): 26/03/2025

Trial Pit / Trench

Coordinates:	E 440550.44
	N 563383.44

Ground Level: 32.91 mAOD

Hole ID:

TP04

FINAL

Sheet 3 of 5

Logged By: AG

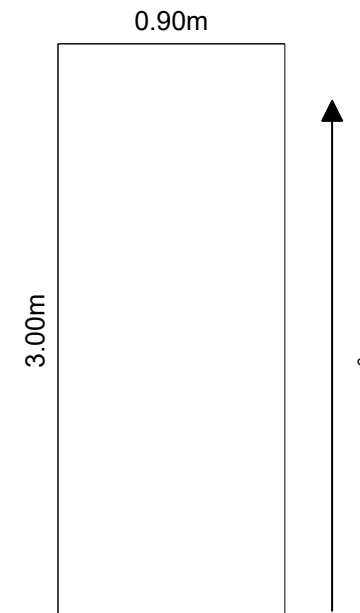
Checked By: NB

General Remarks:	
-------------------------	--

1. Machine dug trial pit from 0.00m to 3.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440550.44 N 563383.44	
Date(s): 26/03/2025		Ground Level: 32.91 mAOD	

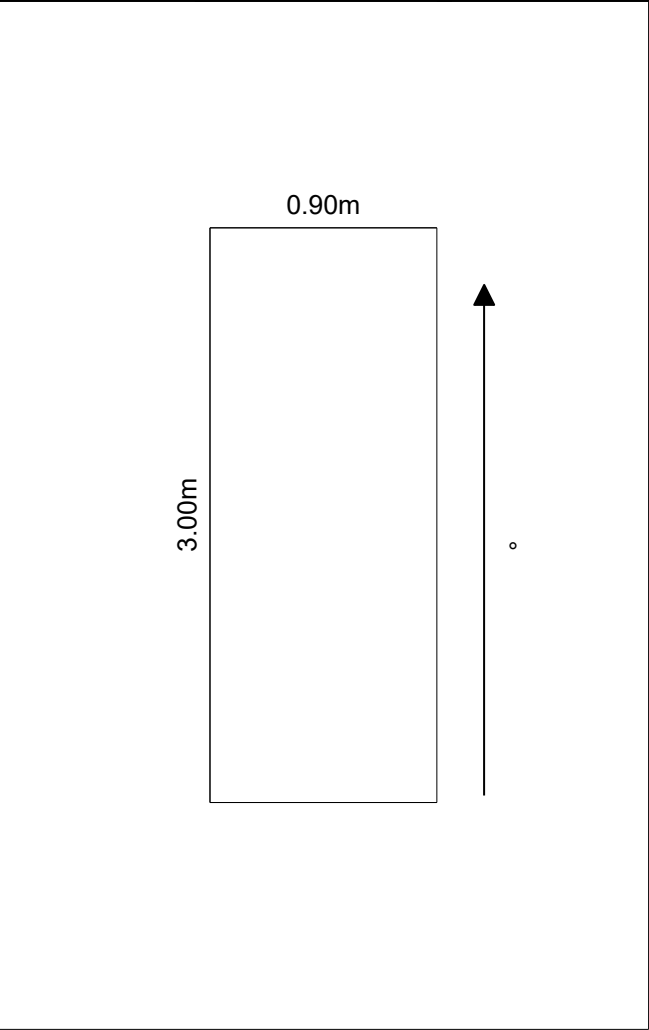
Hole ID: TP04 FINAL Sheet 4 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 3.00m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE C



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440550.44

N 563383.44

Date(s): 26/03/2025

Ground Level: 32.91 mAOD

Hole ID:

TP04

FINAL

Sheet 5 of 5

Logged By: AG

Checked By: NB

General Remarks:

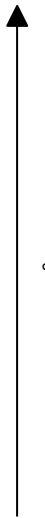
1. Machine dug trial pit from 0.00m to 3.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP ARISINGS

0.90m

3.00m



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP05	
	Project No.: GT00175		Project Title: Lizard Lane					FINAL	
	Client: Story Homes		Coordinates: E 440480.35 N 563476.58			Scale 1:25	Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 36.34 mAOD				Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description			Water Strike(s)	Legend	
B1 0.00 - 0.40		35.94	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)			0.5 1.0		
B2 0.40 - 1.20			0.40	Brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)					
		35.04 34.94	1.30 (0.10) 1.40	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse. End of Hole at 1.40m Refusal					1.5 2.0 2.5 3.0 3.5 4.0 4.5
General Remarks: 1. Machine dug trial pit from 0.00m to 1.40m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							Location: South Shields		
							Plant Used: JCB 3CX		

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP05 FINAL Sheet 1 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 1.40m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.	
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG			
	Client: Story Homes		Coordinates: E 440480.35 N 563476.58		Checked By: NB			
	Date(s): 26/03/2025		Ground Level: 36.34 mAOD					
 TP05								0.90m 2.80m 

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP05 FINAL Sheet 2 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 1.40m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.	
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG			
	Client: Story Homes		Coordinates: E 440480.35 N 563476.58		Checked By: NB			
	Date(s): 26/03/2025		Ground Level: 36.34 mAOD					
 FACE A								0.90m 2.80m



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440480.35 N 563476.58	
Date(s): 26/03/2025		Ground Level: 36.34 mAOD	

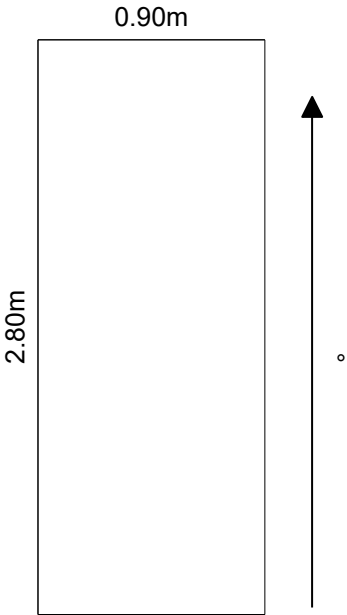
Hole ID: TP05 FINAL Sheet 3 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 1.40m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440480.35 N 563476.58	
Date(s): 26/03/2025		Ground Level: 36.34 mAOD	

Hole ID:

TP05

FINAL
Sheet 4 of 5

Logged By: AG

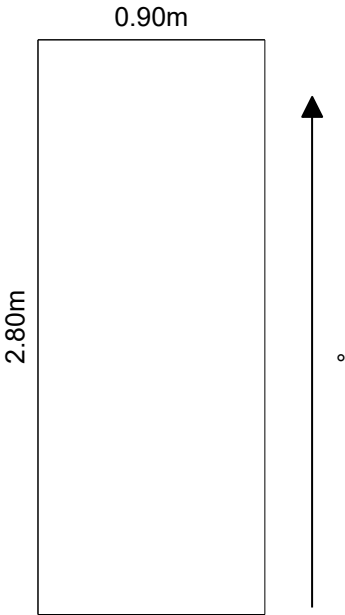
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.40m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP ARISINGS



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440480.35

N 563476.58

Date(s): 26/03/2025

Ground Level: 36.34 mAOD

Hole ID:

TP05

FINAL

Sheet 5 of 5

Logged By: AG

Checked By: NB

General Remarks:

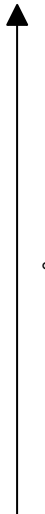
1. Machine dug trial pit from 0.00m to 1.40m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP ARISINGS

0.90m

2.80m



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP06	
	Project No.: GT00175		Project Title: Lizard Lane					FINAL	
	Client: Story Homes		Coordinates: E 440631.32 N 563434.35			Scale		Logged By: AG	
	Date(s): 26/03/2025		Ground Level: 29.94 mAOD			1:25		Checked By: NB	
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description				Water Strike(s)	Legend
B1 0.00 - 0.40 ES101 0.25		29.54	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)				0.5	
B2 0.50 - 1.50			0.40	Brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (GFDU)					
B3 1.70 - 2.00		28.24	1.70	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse.				1.0	
			(0.30)					1.5	
		27.94	2.00	End of Hole at 2.00m Refusal				2.0	
								2.5	
								3.0	
								3.5	
								4.0	
								4.5	
General Remarks: 1. Machine dug trial pit from 0.00m to 2.00m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.					0.90m 2.80m		Location: South Shields		
							Plant Used: JCB 3CX		

STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175	Project Title: Lizard Lane
Client: Story Homes	Coordinates: E 440631.32 N 563434.35
Date(s): 26/03/2025	Ground Level: 29.94 mAOD

Hole ID:

TP06

FINAL

Sheet 1 of 5

Logged By: AG

Checked By: NB

General Remarks:

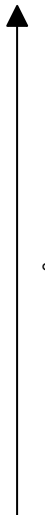
1. Machine dug trial pit from 0.00m to 2.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP06

0.90m

2.80m





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

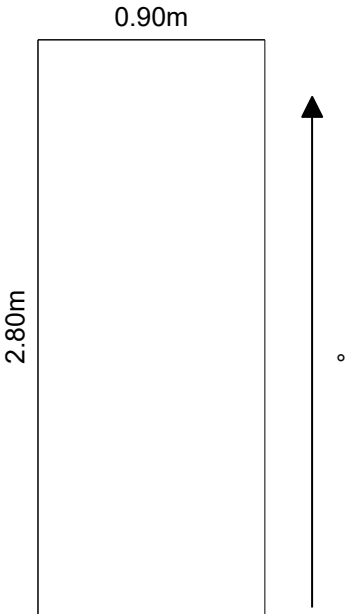
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440631.32 N 563434.35	
Date(s): 26/03/2025		Ground Level: 29.94 mAOD	

Hole ID: TP06 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 2.00m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE A



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP06		General Remarks: 1. Machine dug trial pit from 0.00m to 2.00m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.
	Project No.: GT00175		Project Title: Lizard Lane		FINAL		
	Client: Story Homes		Coordinates: E 440631.32 N 563434.35		Sheet 3 of 5		
	Date(s): 26/03/2025		Ground Level: 29.94 mAOD		Logged By: AG		
					Checked By: NB		
 FACE D							
0.90m 2.80m							



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440631.32 N 563434.35	
Date(s): 26/03/2025		Ground Level: 29.94 mAOD	

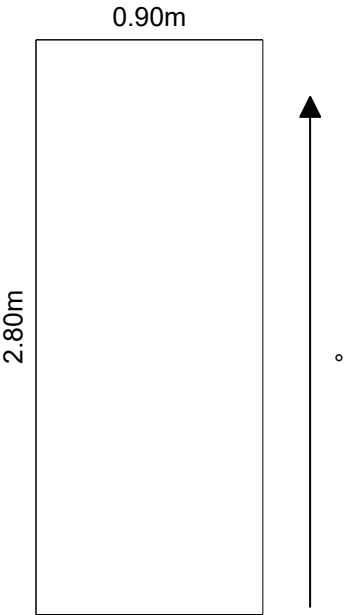
Hole ID: TP06 FINAL Sheet 4 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 2.00m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE B



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP06 FINAL Sheet 5 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 2.00m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG		
	Client: Story Homes		Coordinates: E 440631.32 N 563434.35		Checked By: NB		
	Date(s): 26/03/2025		Ground Level: 29.94 mAOD				
 TP ARISINGS							
0.90m 2.80m							



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Exploratory Hole Log

Trial Pit

Hole ID:

TP07

FINAL

Sheet 1 of 1

Logged By: AC

Checked By: N

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

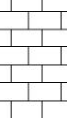
Coordinates:	E 440549.85
	N 563326.40

Scale

1:25

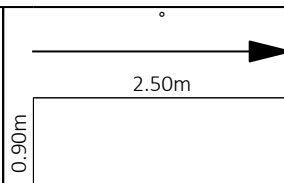
Date(s): 26/03/2025

Ground Level: 33.00 mAOD

Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description	Water Strike(s)	Legend
B1 0.00 - 0.30 ES101 0.25		32.70	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	
B2 0.50 - 1.50			0.30	Stiff dark brown sandy CLAY. Sand is fine to coarse. (GFDU)		
B3 1.50 - 1.90		31.50	1.50	Highly weathered yellow LIMESTONE recovered as gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse.		
			(0.40)			
			31.10	1.90		End of Hole at 1.90m Refusal

General Remarks:

1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging
3. Backfilled with arisings upon completion.



Location:

South Sheilds

Plant Used:

JCB 3CX



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440549.85
N 563326.40

Date(s): 26/03/2025

Ground Level: 33.00 mAOD

Hole ID:

TP07

FINAL

Sheet 1 of 5

Logged By: AG

Checked By: NB

General Remarks:

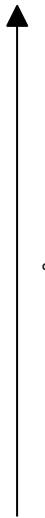
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP07

0.90m

2.50m





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

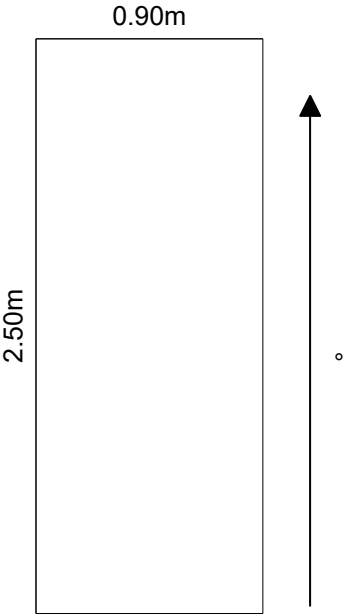
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440549.85 N 563326.40	
Date(s): 26/03/2025		Ground Level: 33.00 mAOD	

Hole ID: TP07 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE D





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

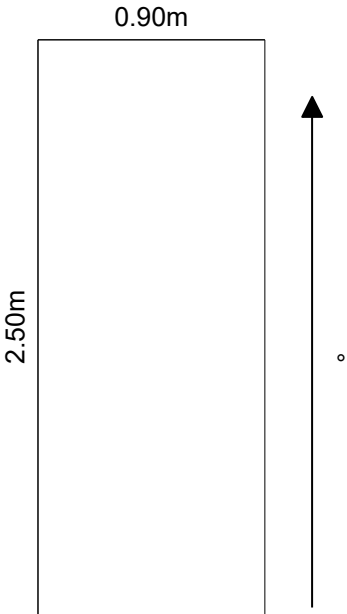
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440549.85 N 563326.40	
Date(s): 26/03/2025		Ground Level: 33.00 mAOD	

Hole ID: TP07 FINAL Sheet 3 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B



STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440549.85

N 563326.40

Date(s): 26/03/2025

Ground Level: 33.00 mAOD

Hole ID:

TP07

FINAL

Sheet 4 of 5

Logged By: AG

Checked By: NB

General Remarks:

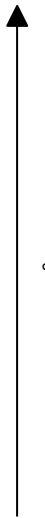
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP ARISINGS

0.90m

2.50m



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Photographs / Sketches		Trial Pit / Trench		Hole ID: TP07 FINAL Sheet 5 of 5		General Remarks: 1. Machine dug trial pit from 0.00m to 1.90m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.
	Project No.: GT00175		Project Title: Lizard Lane		Logged By: AG		
	Client: Story Homes		Coordinates: E 440549.85 N 563326.40		Checked By: NB		
	Date(s): 26/03/2025		Ground Level: 33.00 mAOD				
 TP ARISINGS							
0.90m 2.50m							

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP08	
	Project No.: GT00175		Project Title: Lizard Lane					FINAL	
	Client: Story Homes		Coordinates: E 440506.21 N 563290.09			Scale		Logged By: AG	
	Date(s): 26/03/2025		Ground Level: 34.84 mAOD			1:25		Checked By: NB	
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description				Water Strike(s)	Legend
B1 0.00 - 0.30 ES101 0.25		34.53	(0.30)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)				0.5	
B2 0.50 - 1.50		33.03	0.30	Brown slightly gravelly clayey SAND. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)					
			(1.50)					1.0	
								1.5	
			1.80	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse.				2.0	
				End of Hole at 1.80m Refusal				2.5	
								3.0	
								3.5	
								4.0	
								4.5	
General Remarks:				0.90m 0.30m				Location:	
1. Machine dug trial pit from 0.00m to 1.80m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.								South Shields	
				Plant Used:					
				JCB 3CX				REGISTERED USER 2024	

STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440506.21

N 563290.09

Date(s): 26/03/2025

Ground Level: 34.84 mAOD

Hole ID:

TP08

FINAL

Sheet 1 of 5

Logged By: AG

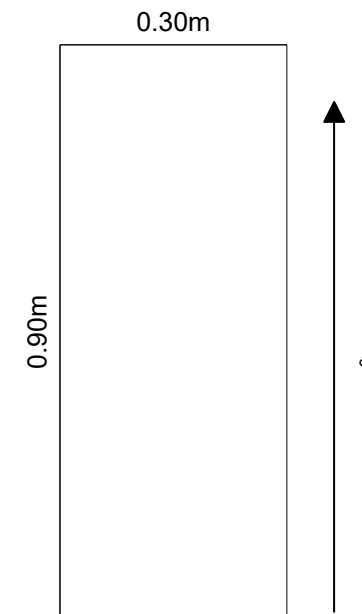
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP08





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440506.21
N 563290.09

Date(s): 26/03/2025

Ground Level: 34.84 mAOD

Hole ID:

TP08

FINAL

Sheet 2 of 5

Logged By: AG

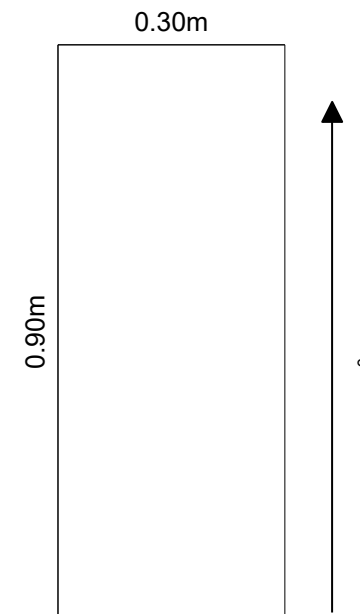
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP08





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440506.21
N 563290.09

Date(s): 26/03/2025

Ground Level: 34.84 mAOD

Hole ID:

TP08

FINAL

Sheet 3 of 5

Logged By: AG

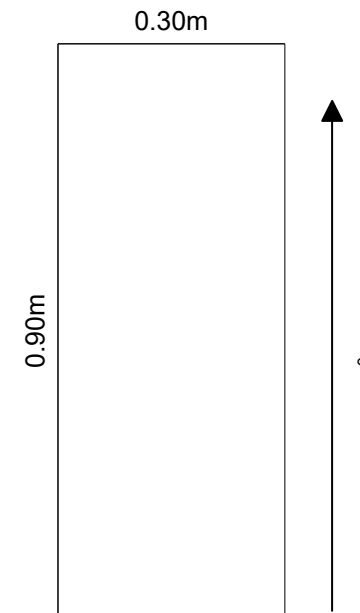
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440506.21
N 563290.09

Date(s): 26/03/2025

Ground Level: 34.84 mAOD

Hole ID:

TP08

FINAL
Sheet 4 of 5

Logged By: AG

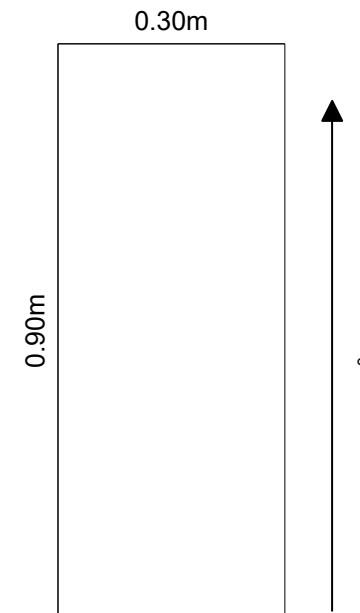
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE D





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440506.21
N 563290.09

Date(s): 26/03/2025

Ground Level: 34.84 mAOD

Hole ID:

TP08

FINAL
Sheet 5 of 5

Logged By: AG

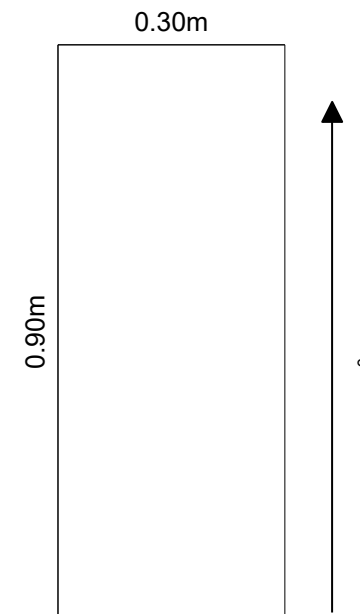
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.80m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP ARISINGS



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP09	
	Project No.: GT00175		Project Title: Lizard Lane					FINAL	
	Client: Story Homes		Coordinates: E 440564.85 N 563247.85		Scale		Logged By: AG		
	Date(s): 26/03/2025		Ground Level: 33.54 mAOD		1:25		Checked By: NB		
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description			Water Strike(s)	Legend	
B1 0.00 - 0.40		33.14	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)			0.5		
ES101 0.30 B2 0.40 - 1.40			0.40	Firm to stiff brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of limestone, coal and sandstone. (GFDU)					
			(1.00)						
B3 1.40 - 1.70		32.14	1.40	Weathered yellowish brown LIMESTONE recovered as very sandy angular to subangular fine to coarse gravel,			1.5		
		31.84	1.70	End of Hole at 1.70m Refusal.					
							2.0		
							2.5		
							3.0		
							3.5		
							4.0		
							4.5		
General Remarks:				0.90m 2.50m			Location:		
1. Machine dug trial pit from 0.00m to 1.70m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							South Shields		
				Plant Used:					
				JCB 3CX					

STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440564.85
N 563247.85

Date(s): 26/03/2025

Ground Level: 33.54 mAOD

Hole ID:

TP09

FINAL

Sheet 1 of 5

Logged By: AG

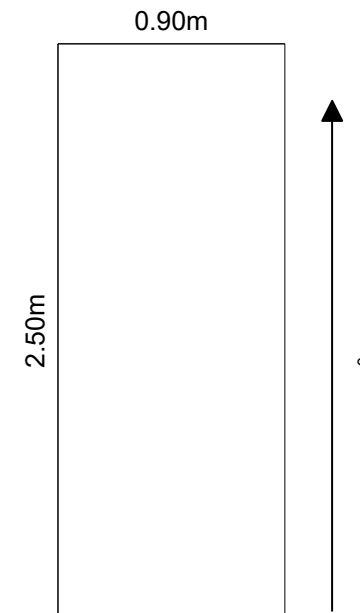
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.70m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP09





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440564.85
N 563247.85

Date(s): 26/03/2025

Ground Level: 33.54 mAOD

Hole ID:

TP09

FINAL

Sheet 2 of 5

Logged By: AG

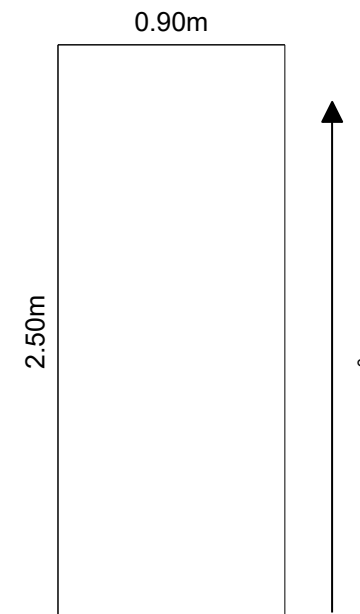
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.70m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP09





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440564.85

N 563247.85

Date(s): 26/03/2025

Ground Level: 33.54 mAOD

Hole ID:

TP09

FINAL

Sheet 3 of 5

Logged By: AG

Checked By: NB

General Remarks:

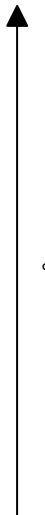
1. Machine dug trial pit from 0.00m to 1.70m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE D

0.90m

2.50m





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

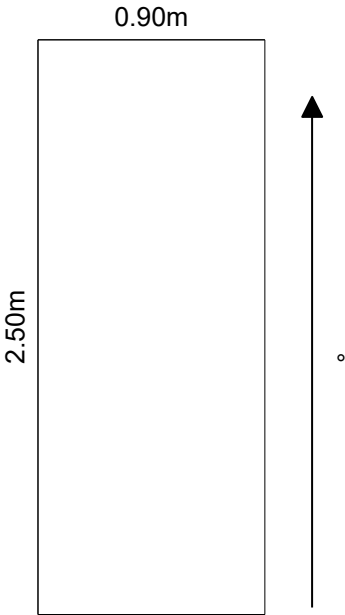
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440564.85 N 563247.85	
Date(s): 26/03/2025		Ground Level: 33.54 mAOD	

Hole ID: TP09 FINAL Sheet 4 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.70m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

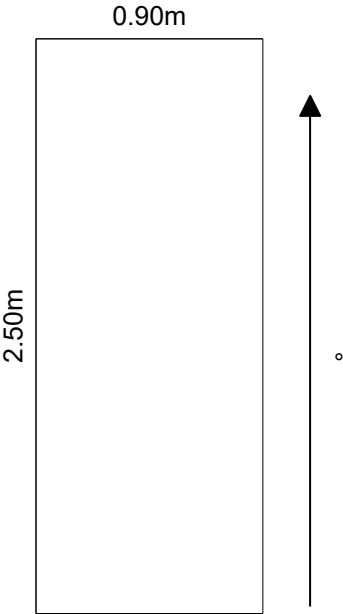
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440564.85 N 563247.85	
Date(s): 26/03/2025		Ground Level: 33.54 mAOD	

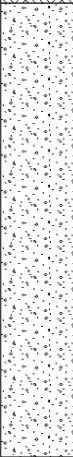
Hole ID: TP09 FINAL Sheet 5 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.70m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE C



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log					Trial Pit		Hole ID: TP10						
	Project No.: GT00175		Project Title: Lizard Lane					FINAL						
	Client: Story Homes		Coordinates: E 440471.11 N 563160.35			Scale		Logged By: AG						
	Date(s): 26/03/2025		Ground Level: 36.18 mAOD			1:25		Checked By: NB						
Sample Depth (m)	Tests	Level (mAOD)	Depth (m) (Thickness)	Stratum Description				Water Strike(s)	Legend					
B1 0.00 - 0.40		35.78	(0.40)	Dark brown slightly gravelly slightly clayey SAND with roots. Gravel is angular to subrounded fine to medium of limestone, coal and sandstone. (TOPSOIL)				0.5						
ES101 0.30			0.40	Brown very gravelly SAND. Gravel is subangular to rounded fine to coarse of limestone, coal and sandstone. (TILL/Diamicton)					1.0					
B2 0.50 - 1.50			(1.50)	Highly weathered yellow LIIMESTONE recovered as gravelly fine to medium sand. Gravel is angular to subangular fine to coarse. End of Hole at 1.90m Refusal							1.5			
	34.28	1.90						2.0	2.5	3.0		3.5	4.0	4.5
General Remarks:				0.90m 2.50m			Location:							
1. Machine dug trial pit from 0.00m to 1.90m. 2. No groundwater encountered during digging. 3. Backfilled with arisings upon completion.							Plant Used:							
							JCB 3CX							

STORY

Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches

Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440471.11
N 563160.35

Date(s): 26/03/2025

Ground Level: 36.18 mAOD

Hole ID:

TP10

FINAL

Sheet 1 of 5

Logged By: AG

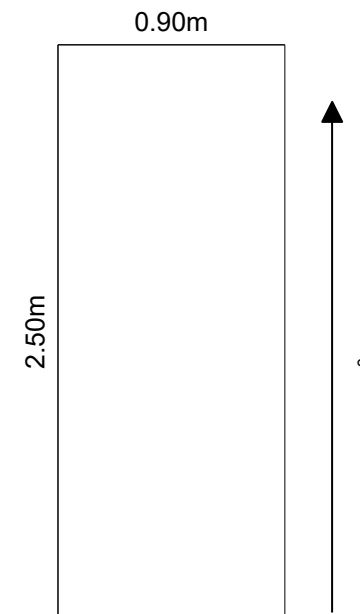
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP10





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440471.11 N 563160.35	
Date(s): 26/03/2025		Ground Level: 36.18 mAOD	

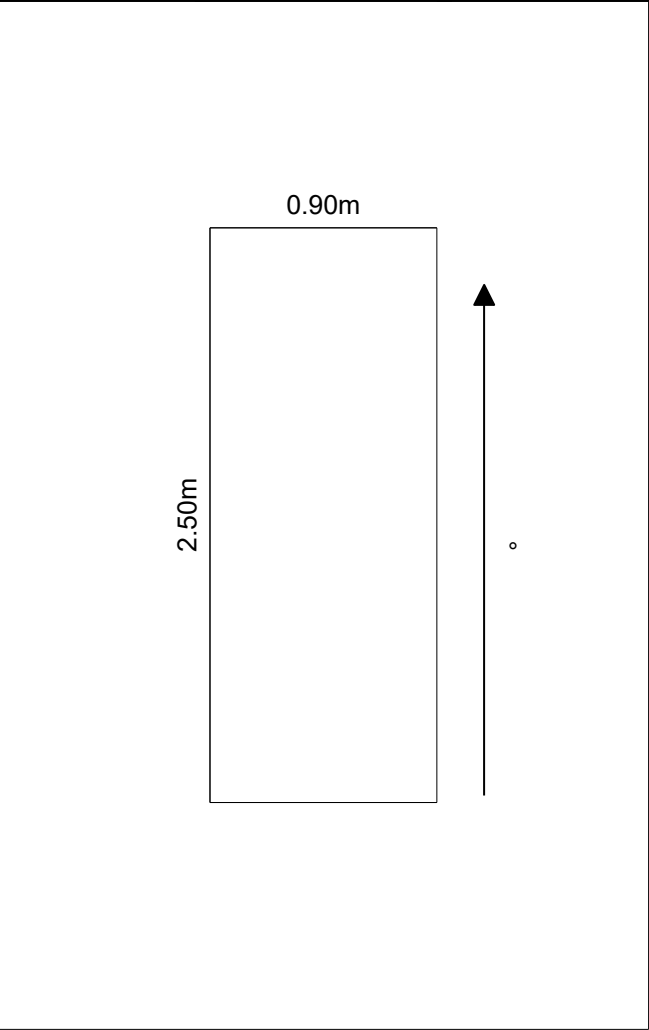
Hole ID: TP10 FINAL Sheet 2 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:

- 1. Machine dug trial pit from 0.00m to 1.90m.
- 2. No groundwater encountered during digging.
- 3. Backfilled with arisings upon completion.



FACE A





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

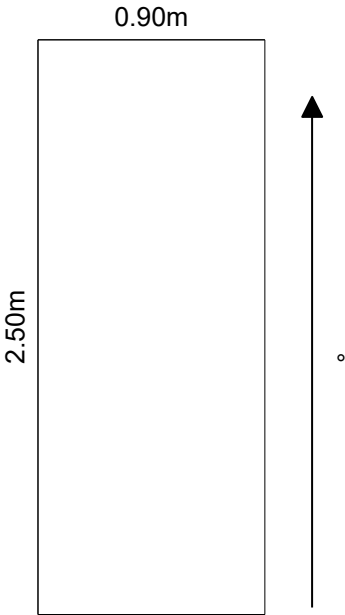
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440471.11 N 563160.35	
Date(s): 26/03/2025		Ground Level: 36.18 mAOD	

Hole ID: TP10 FINAL Sheet 3 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

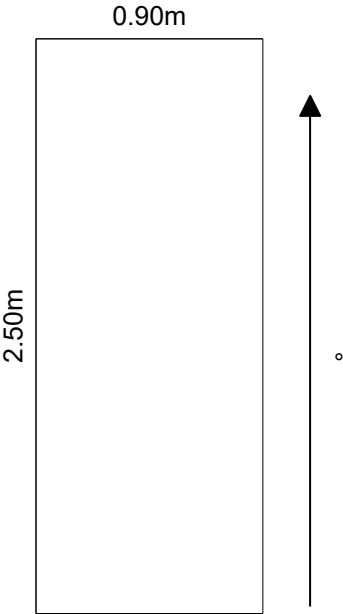
Project No.: GT00175		Project Title: Lizard Lane	
Client: Story Homes		Coordinates: E 440471.11 N 563160.35	
Date(s): 26/03/2025		Ground Level: 36.18 mAOD	

Hole ID: TP10 FINAL Sheet 4 of 5	
Logged By: AG	
Checked By:	NB

General Remarks:
1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



FACE B





Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Photographs / Sketches Trial Pit / Trench

Project No.:
GT00175

Project Title:
Lizard Lane

Client: Story Homes

Coordinates: E 440471.11
N 563160.35

Date(s): 26/03/2025

Ground Level: 36.18 mAOD

Hole ID:

TP10

FINAL

Sheet 5 of 5

Logged By: AG

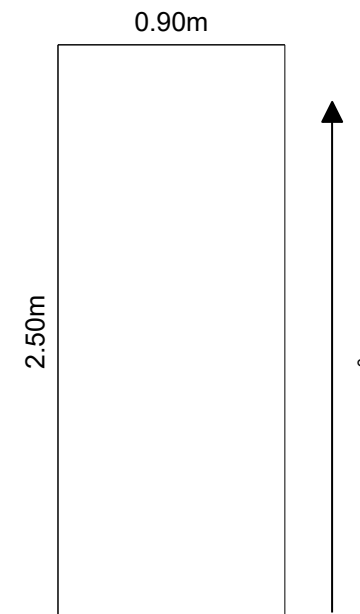
Checked By: NB

General Remarks:

1. Machine dug trial pit from 0.00m to 1.90m.
2. No groundwater encountered during digging.
3. Backfilled with arisings upon completion.



TP10



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP01	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440564.80 N 563619.37		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 35.99 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	3/100mm												
0.20	5/100mm												
0.30	5/100mm												
0.40	5/100mm												
0.50	3/100mm												
0.60	2/100mm												
0.70	1/100mm												
0.80	2/100mm												
0.90	2/100mm												
1.00	2/100mm												
1.10	3/100mm												
1.20	3/100mm												
1.30	4/100mm												
1.40	5/100mm												
1.50	4/100mm												
1.60	5/100mm												
1.70	5/100mm												
1.80	5/100mm												
1.90	5/100mm												
2.00	6/100mm												
2.10	6/100mm												
2.20	4/100mm												
2.30	4/100mm												
2.40	5/100mm												
2.50	5/100mm												
2.60	4/100mm												
2.70	3/100mm												
2.80	1/100mm												
2.90	0/100mm												
3.00	1/100mm												
3.10	10/100mm												
3.20	21/100mm												
3.30	45/100mm												
3.40	50/85mm												
3.50													
3.60													
3.70													
3.80													
3.90													
4.00													
4.10													
4.20													
4.30													
4.40													
4.50													
4.60													
4.70													
4.80													
4.90													
5.00													

Probe Details:				General Remarks:				Location:	
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 3.385m.				South Shields	
Hammer Mass (kg): 64		Final Depth (m): 3.39							
Drop Height (mm): 750		Termination Reason:							
Cone Diameter (mm): 50.5		Refusal.							
								Plant Used: Dart 524	



AGS
REGISTERED USER 2024

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP02			
	Project No.: GT00175		Project Title: Lizard Lane				FINAL			
	Client: Story Homes		Coordinates: E 440508.42 N 563533.32		Scale		Sheet 1 of 1			
	Date(s): 01/05/2025		Ground Level: 35.68 mAOD		1:25		Drilled By: Neil Anderson			
								Checked By: NB		
Depth (m) Blow Count 0 5 10 15 20 25 30 35 40 45 50 Torque (Nm)										
0.10	3/100mm									
0.20	4/100mm									
0.30	6/100mm									
0.40	4/100mm									
0.50	4/100mm									
0.60	2/100mm									
0.70	2/100mm									
0.80	1/100mm									
0.90	2/100mm									
1.00	2/100mm									
1.10	3/100mm									
1.20	3/100mm									
1.30	5/100mm									
1.40	7/100mm									
1.50	14/100mm									
1.60	19/100mm									
1.70	23/100mm									
1.80	28/100mm									
1.90	30/100mm									
2.00	48/100mm									
2.10										
2.20										
2.30										
2.40										
2.50										
2.60										
2.70										
2.80										
2.90										
3.00										
3.10										
3.20										
3.30										
3.40										
3.50										
3.60										
3.70										
3.80										
3.90										
4.00										
4.10										
4.20										
4.30										
4.40										
4.50										
4.60										
4.70										
4.80										
4.90										
5.00										
Probe Details:				General Remarks:				Location:		
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 2m.				South Shields		
Hammer Mass (kg): 64		Final Depth (m): 2.00								
Drop Height (mm): 750		Termination Reason:								
Cone Diameter (mm): 50.5		Refusal.								
								Plant Used:		
								Dart 524		
								AGS REGISTERED USER 2024		



Ripley Drive
Normanton
West Yorkshire
WF6 1QT

Exploratory Hole Log

Dynamic Probe

Project No.:

GT00175

Project Title:

Lizard Lane

Client: Story Homes

Coordinates: E 440629.68
N 563493.83

Scale

Date(s): 01/05/2025

Ground Level: 31.26 mAOD

1:25

Hole ID:

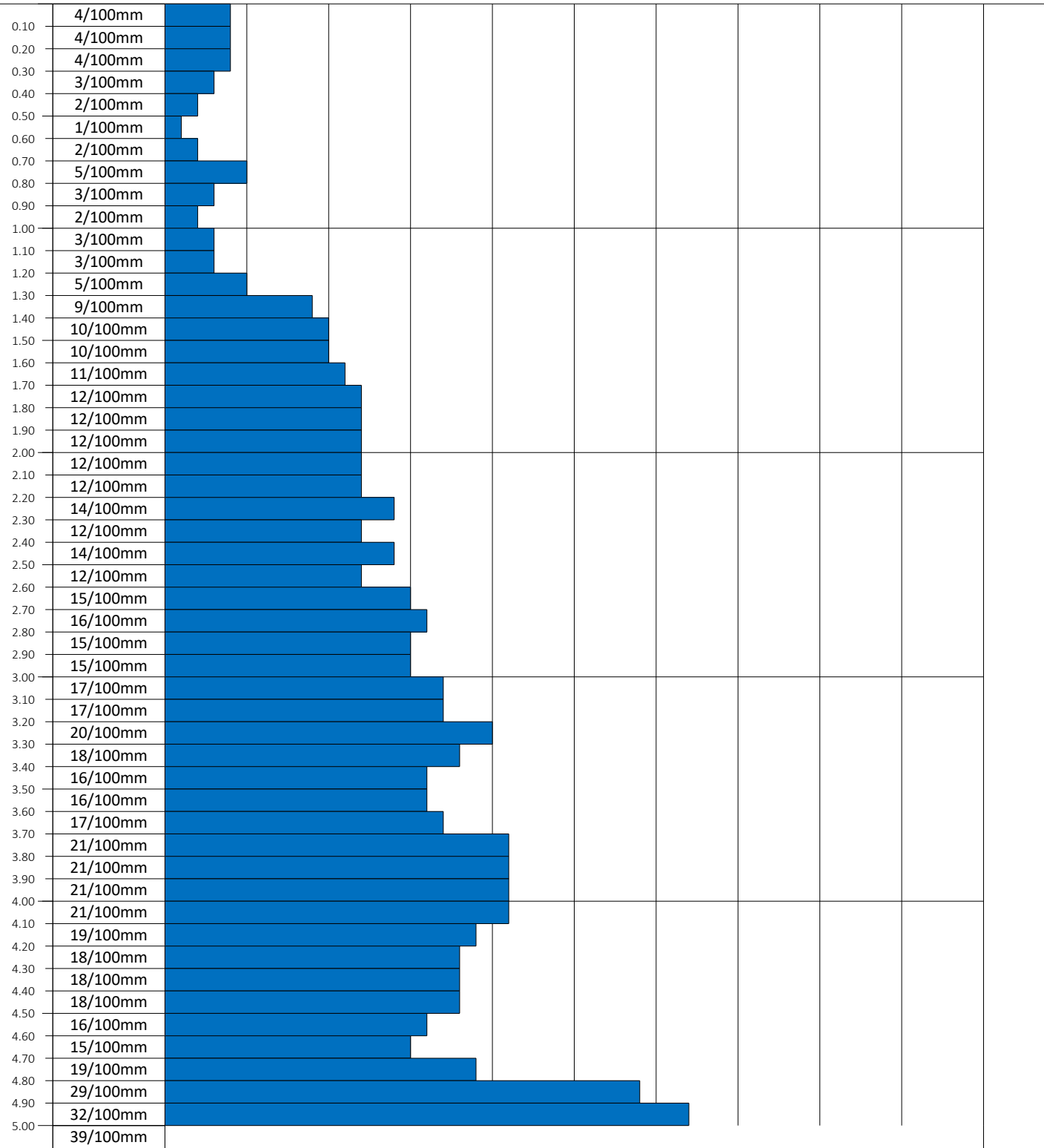
DP03

FINAL

Sheet 1 of 2

Drilled By: Neil Anderson

Checked By: NB



Probe Details:

Probe Type: DPSH-B

Hammer Mass (kg): 64

Drop Height (mm): 750

Cone Diameter (mm): 50.5

Water Level (m):

Final Depth (m): 5.16

Termination Reason:

Refusal.

General Remarks:

1. Dynamic Probe (DPSH) to 5.16m

Location:

South Sheilds

Plant Used:

Dart 524



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log		Dynamic Probe		Hole ID: DP03							
	Project No.: GT00175		Project Title: Lizard Lane		FINAL							
	Client: Story Homes		Coordinates: E 440629.68 N 563493.83		Scale							
	Date(s): 01/05/2025		Ground Level: 31.26 mAOD		1:25							
					Sheet 2 of 2							
					Drilled By: Neil Anderson							
					Checked By: NB							
Depth (m) Blow Count 0 5 10 15 20 25 30 35 40 45 50 Torque (Nm)												
5.10	50/60mm											
5.20												
5.30												
5.40												
5.50												
5.60												
5.70												
5.80												
5.90												
6.00												
6.10												
6.20												
6.30												
6.40												
6.50												
6.60												
6.70												
6.80												
6.90												
7.00												
7.10												
7.20												
7.30												
7.40												
7.50												
7.60												
7.70												
7.80												
7.90												
8.00												
8.10												
8.20												
8.30												
8.40												
8.50												
8.60												
8.70												
8.80												
8.90												
9.00												
9.10												
9.20												
9.30												
9.40												
9.50												
9.60												
9.70												
9.80												
9.90												
10.00												
Probe Details:				General Remarks:			Location:					
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 5.16m.			South Shields		AGS REGISTERED USER 2024			
Hammer Mass (kg): 64		Final Depth (m): 5.16										
Drop Height (mm): 750		Termination Reason:										
Cone Diameter (mm): 50.5		Refusal.										

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP04		
	Project No.: GT00175		Project Title: Lizard Lane				FINAL		
	Client: Story Homes		Coordinates: E 440559.25 N 563442.20		Scale		Drilled By: Neil Anderson		
	Date(s): 01/05/2025		Ground Level: 32.75 mAOD		1:25		Checked By: NB		
Depth (m) Blow Count 0 5 10 15 20 25 30 35 40 45 50 Torque (Nm)									
0.10	3/100mm								
0.20	5/100mm								
0.30	4/100mm								
0.40	4/100mm								
0.50	2/100mm								
0.60	1/100mm								
0.70	1/100mm								
0.80	1/100mm								
0.90	1/100mm								
1.00	2/100mm								
1.10	2/100mm								
1.20	3/100mm								
1.30	3/100mm								
1.40	2/100mm								
1.50	2/100mm								
1.60	1/100mm								
1.70	1/100mm								
1.80	1/100mm								
1.90	3/100mm								
2.00	6/100mm								
2.10	14/100mm								
2.20	14/100mm								
2.30	9/100mm								
2.40	35/100mm								
2.50	37/100mm								
2.60	44/100mm								
2.70	50/65mm								
2.80									
2.90									
3.00									
3.10									
3.20									
3.30									
3.40									
3.50									
3.60									
3.70									
3.80									
3.90									
4.00									
4.10									
4.20									
4.30									
4.40									
4.50									
4.60									
4.70									
4.80									
4.90									
5.00									
Probe Details:				General Remarks:			Location:		
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 2.665m.			South Shields		
Hammer Mass (kg): 64		Final Depth (m): 2.67					Plant Used:		
Drop Height (mm): 750		Termination Reason:					Dart 524		
Cone Diameter (mm): 50.5		Refusal.							



STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP05	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440479.23 N 563417.90		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 35.55 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	4/100mm												
0.20	4/100mm												
0.30	5/100mm												
0.40	4/100mm												
0.50	3/100mm												
0.60	2/100mm												
0.70	2/100mm												
0.80	3/100mm												
0.90	2/100mm												
1.00	3/100mm												
1.10	5/100mm												
1.20	10/100mm												
1.30	15/100mm												
1.40	20/100mm												
1.50	23/100mm												
1.60	30/100mm												
1.70	34/100mm												
1.80	41/100mm												
1.90	39/100mm												
2.00	21/100mm												
2.10	15/100mm												
2.20	11/100mm												
2.30	9/100mm												
2.40	9/100mm												
2.50	13/100mm												
2.60	14/100mm												
2.70	16/100mm												
2.80	15/100mm												
2.90	12/100mm												
3.00	50/90mm												
3.10													
3.20													
3.30													
3.40													
3.50													
3.60													
3.70													
3.80													
3.90													
4.00													
4.10													
4.20													
4.30													
4.40													
4.50													
4.60													
4.70													
4.80													
4.90													
5.00													

Probe Details:				General Remarks:		Location:	
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 2.99m.		South Shields	
Hammer Mass (kg): 64		Final Depth (m): 2.99				Plant Used:	
Drop Height (mm): 750		Termination Reason:				Dart 524	
Cone Diameter (mm): 50.5		Refusal.					

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STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP06	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440590.10 N 563373.38		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 31.98 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	4/100mm												
0.20	5/100mm												
0.30	6/100mm												
0.40	4/100mm												
0.50	2/100mm												
0.60	3/100mm												
0.70	2/100mm												
0.80	2/100mm												
0.90	2/100mm												
1.00	4/100mm												
1.10	8/100mm												
1.20	12/100mm												
1.30	19/100mm												
1.40	23/100mm												
1.50	33/100mm												
1.60	40/100mm												
1.70	21/100mm												
1.80	23/100mm												
1.90	27/100mm												
2.00	28/100mm												
2.10	19/100mm												
2.20	12/100mm												
2.30	14/100mm												
2.40	12/100mm												
2.50	13/100mm												
2.60	18/100mm												
2.70	50/80mm												
2.80													
2.90													
3.00													
3.10													
3.20													
3.30													
3.40													
3.50													
3.60													
3.70													
3.80													
3.90													
4.00													
4.10													
4.20													
4.30													
4.40													
4.50													
4.60													
4.70													
4.80													
4.90													
5.00													

Probe Details:				General Remarks:		Location:	
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 2.68m.		South Shields	
Hammer Mass (kg): 64		Final Depth (m): 2.68				Plant Used: Dart 524	
Drop Height (mm): 750		Termination Reason:					
Cone Diameter (mm): 50.5		Refusal.					



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STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP07	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440474.88 N 563290.63		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 36.18 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	4/100mm												
0.20	4/100mm												
0.30	4/100mm												
0.40	3/100mm												
0.50	3/100mm												
0.60	3/100mm												
0.70	3/100mm												
0.80	7/100mm												
0.90	16/100mm												
1.00	23/100mm												
1.10	50/75mm												
1.20													
1.30													
1.40													
1.50													
1.60													
1.70													
1.80													
1.90													
2.00													
2.10													
2.20													
2.30													
2.40													
2.50													
2.60													
2.70													
2.80													
2.90													
3.00													
3.10													
3.20													
3.30													
3.40													
3.50													
3.60													
3.70													
3.80													
3.90													
4.00													
4.10													
4.20													
4.30													
4.40													
4.50													
4.60													
4.70													
4.80													
4.90													
5.00													

Probe Details:			General Remarks:		Location:	
Probe Type:	DPSH-B	Water Level (m):	1. Dynamic Probe (DPSH) to 1.075m.		South Shields	
Hammer Mass (kg):	64	Final Depth (m):			Plant Used:	
Drop Height (mm):	750	Termination Reason:			Dart 524	
Cone Diameter (mm):	50.5	Refusal.				



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STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP08	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440639.68 N 563300.07		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 31.98 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	4/100mm												
0.20	4/100mm												
0.30	5/100mm												
0.40	4/100mm												
0.50	3/100mm												
0.60	3/100mm												
0.70	3/100mm												
0.80	2/100mm												
0.90	1/100mm												
1.00	2/100mm												
1.10	2/100mm												
1.20	3/100mm												
1.30	3/100mm												
1.40	4/100mm												
1.50	9/100mm												
1.60	7/100mm												
1.70	8/100mm												
1.80	7/100mm												
1.90	6/100mm												
2.00	5/100mm												
2.10	4/100mm												
2.20	8/100mm												
2.30	14/100mm												
2.40	13/100mm												
2.50	12/100mm												
2.60	15/100mm												
2.70	16/100mm												
2.80	13/100mm												
2.90	12/100mm												
3.00	12/100mm												
3.10	12/100mm												
3.20	16/100mm												
3.30	14/100mm												
3.40	14/100mm												
3.50	16/100mm												
3.60	17/100mm												
3.70	17/100mm												
3.80	20/100mm												
3.90	23/100mm												
4.00	23/100mm												
4.10	25/100mm												
4.20	25/100mm												
4.30	22/100mm												
4.40	17/100mm												
4.50	16/100mm												
4.60	11/100mm												
4.70	10/100mm												
4.80	19/100mm												
4.90	23/100mm												
5.00	27/100mm												
	33/100mm												

Probe Details:			General Remarks:		Location:	
Probe Type:	DPSH-B	Water Level (m):	1. Dynamic Probe (DPSH) to 5.19m.		South Shields	
Hammer Mass (kg):	64	Final Depth (m):			Plant Used:	
Drop Height (mm):	750	Termination Reason:			Dart 524	
Cone Diameter (mm):	50.5	Refusal.			AGS REGISTERED USER 2024	

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log		Dynamic Probe		Hole ID: DP08						
	Project No.: GT00175	Project Title: Lizard Lane				FINAL					
	Client: Story Homes		Coordinates: E 440639.68 N 563300.07		Scale						
	Date(s): 01/05/2025		Ground Level: 31.98 mAOD		1:25						
						Drilled By: Neil Anderson					
						Checked By: NB					
Depth (m) Blow Count 0 5 10 15 20 25 30 35 40 45 50 Torque (Nm)											
5.10	50/90mm										
5.20											
5.30											
5.40											
5.50											
5.60											
5.70											
5.80											
5.90											
6.00											
6.10											
6.20											
6.30											
6.40											
6.50											
6.60											
6.70											
6.80											
6.90											
7.00											
7.10											
7.20											
7.30											
7.40											
7.50											
7.60											
7.70											
7.80											
7.90											
8.00											
8.10											
8.20											
8.30											
8.40											
8.50											
8.60											
8.70											
8.80											
8.90											
9.00											
9.10											
9.20											
9.30											
9.40											
9.50											
9.60											
9.70											
9.80											
9.90											
10.00											
Probe Details:				General Remarks:				Location:			
Probe Type: DPSH-B		Water Level (m):		1. Dynamic Probe (DPSH) to 5.19m.				South Sheilds			
Hammer Mass (kg): 64		Final Depth (m): 5.19						Plant Used:			
Drop Height (mm): 750		Termination Reason:						Dart 524			
Cone Diameter (mm): 50.5		Refusal.									
AGS REGISTERED USER 2024											

STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP09	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440559.69 N 563210.51		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 33.47 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)	
0.10	5/100mm													
0.20	6/100mm													
0.30	5/100mm													
0.40	4/100mm													
0.50	3/100mm													
0.60	3/100mm													
0.70	3/100mm													
0.80	3/100mm													
0.90	2/100mm													
1.00	3/100mm													
1.10	4/100mm													
1.20	6/100mm													
1.30	11/100mm													
1.40	9/100mm													
1.50	9/100mm													
1.60	10/100mm													
1.70	15/100mm													
1.80	13/100mm													
1.90	14/100mm													
2.00	14/100mm													
2.10	15/100mm													
2.20	27/100mm													
2.30	48/100mm													
2.40	50/50mm													
2.50														
2.60														
2.70														
2.80														
2.90														
3.00														
3.10														
3.20														
3.30														
3.40														
3.50														
3.60														
3.70														
3.80														
3.90														
4.00														
4.10														
4.20														
4.30														
4.40														
4.50														
4.60														
4.70														
4.80														
4.90														
5.00														

Probe Details:			General Remarks:		Location:	
Probe Type:	DPSH-B	Water Level (m):	1. Dynamic Probe (DPSH) to 2.35m.		South Shields	
Hammer Mass (kg):	64	Final Depth (m):				
Drop Height (mm):	750	Termination Reason:				
Cone Diameter (mm):	50.5	Refusal.				
					Plant Used: Dart 524	



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STORY Ripley Drive Normanton West Yorkshire WF6 1QT	Exploratory Hole Log				Dynamic Probe		Hole ID: DP10	
	Project No.: GT00175		Project Title: Lizard Lane				FINAL	
	Client: Story Homes		Coordinates: E 440488.27 N 563146.25		Scale		Drilled By: Neil Anderson	
	Date(s): 01/05/2025		Ground Level: 35.15 mAOD		1:25		Checked By: NB	

Depth (m)	Blow Count	0	5	10	15	20	25	30	35	40	45	50	Torque (Nm)
0.10	4/100mm												
0.20	6/100mm												
0.30	5/100mm												
0.40	5/100mm												
0.50	6/100mm												
0.60	6/100mm												
0.70	7/100mm												
0.80	10/100mm												
0.90	10/100mm												
1.00	11/100mm												
1.10	11/100mm												
1.20	10/100mm												
1.30	17/100mm												
1.40	26/100mm												
1.50	36/100mm												
1.60	40/100mm												
1.70	50/95mm												
1.80													
1.90													
2.00													
2.10													
2.20													
2.30													
2.40													
2.50													
2.60													
2.70													
2.80													
2.90													
3.00													
3.10													
3.20													
3.30													
3.40													
3.50													
3.60													
3.70													
3.80													
3.90													
4.00													
4.10													
4.20													
4.30													
4.40													
4.50													
4.60													
4.70													
4.80													
4.90													
5.00													

Probe Details:			General Remarks:		Location:	
Probe Type:	DPSH-B	Water Level (m):	1. Dynamic Probe (DPSH) to 1.7m.		South Shields	
Hammer Mass (kg):	64	Final Depth (m):			1.70	
Drop Height (mm):	750	Termination Reason:				
Cone Diameter (mm):	50.5	Refusal.				
					Plant Used: Dart 524	



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Appendix C – Environmental Testing Results

GEO2 Remediation Ltd
Coniston House
Louisa Street
Idle
BD10 8NE

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

e: Mike.OHalloran@geo2.co.uk

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-016415

Project / Site name:	Lizard Lane, Whitburn	Samples received on:	01/04/2025
Your job number:	4660	Samples instructed on/ Analysis started on:	01/04/2025
Your order number:	3763	Analysis completed by:	10/04/2025
Report Issue Number:	1	Report issued on:	10/04/2025
Samples Analysed:	12 soil samples		

Signed.

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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

Analytical Report Number: 25-016415
Project / Site name: Lizard Lane, Whitburn
Your Order No: 3763

Lab Sample Number				500641	500642	500643	500644	500645
Sample Reference				TP02	TP06	TP07	TP08	TP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.25	0.25	0.25	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	17	14	15	12
Total mass of sample received	kg	0.1	NONE	0.6	0.5	0.6	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ	KSZ
Analysis completed	N/A	N/A	N/A	04/04/2025	04/04/2025	04/04/2025	04/04/2025	04/04/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	7.8	8.2	7.8	8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	41	15	14	18	20
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	7.33	-	9.1	-
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	20.3	-	6.76	-	9.93
Organic Matter (automated)	%	0.1	MCERTS	1.3	-	4.4	-	5.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.08	0.07
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.08	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.08	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.37	0.18	1.1	0.18
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.08	< 0.05	0.3	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.6	0.28	1.4	0.29
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.52	0.22	1.1	0.23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.29	0.11	0.53	0.14
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.35	0.18	0.6	0.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.38	0.2	0.64	0.25
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.18	0.06	0.28	0.07
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.3	0.12	0.56	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.18	0.09	0.27	0.11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.21	0.1	0.3	0.15

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	3.46	1.53	7.49	1.84
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.4	14	12	12	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.5	0.4	0.5	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	18	19	20	20	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	20	20	21	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	33	26	30	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	26	82	67	75	77
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	19	18	19	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	61	100	93	110	130



4041



Environmental Science

Analytical Report Number: 25-016415

Project / Site name: Lizard Lane, Whitburn

Your Order No: 3763

Lab Sample Number				500641	500642	500643	500644	500645
Sample Reference				TP02	TP06	TP07	TP08	TP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.25	0.25	0.25	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	-	< 10	-	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	-	< 10	-	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	-	< 0.020	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	-	< 10	-	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	-	< 10	-	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10	-	< 10	-	< 10
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TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	-	< 10	-	11	-
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0

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

Analytical Report Number: 25-016415
Project / Site name: Lizard Lane, Whitburn
Your Order No: 3763

Lab Sample Number				500646	500647	500648	500649	500650
Sample Reference				TP10	WS03	WS05	WS06	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.25	0.50	0.25	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	11.9	2.8	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	13	17	13	12
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.7	0.7	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ	KSZ
Analysis completed	N/A	N/A	N/A	04/04/2025	04/04/2025	04/04/2025	04/04/2025	04/04/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.7	7.8	8.7	7.9	7.8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	17	32	39	24	29
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.39	-	-	12	-
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	16.1	19.5	-	14.7
Organic Matter (automated)	%	0.1	MCERTS	-	3.8	1.3	4.1	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.15	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.25	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.18	0.15	1.8	0.49	0.16
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.58	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.27	0.23	1.9	0.62	0.28
Pyrene	mg/kg	0.05	MCERTS	0.21	0.2	1.4	0.46	0.23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.11	0.14	0.8	0.09	0.11
Chrysene	mg/kg	0.05	MCERTS	0.2	0.16	0.88	0.34	0.17
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.22	0.18	0.78	0.34	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.06	0.1	0.29	0.15	0.09
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.14	0.15	0.53	0.19	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.08	0.09	0.29	0.14	0.08
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.12	0.11	0.3	0.15	0.09

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.6	1.51	10.1	2.96	1.57
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	13	63	10	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	< 0.2	0.4	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	19	22	44	19	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	23	44	19	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	25	16	24	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	51	29	60	60
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	16	36	17	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	88	230	87	91

Analytical Report Number: 25-016415
Project / Site name: Lizard Lane, Whitburn
Your Order No: 3763

Lab Sample Number				500646	500647	500648	500649	500650
Sample Reference				TP10	WS03	WS05	WS06	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.25	0.50	0.25	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	< 2.0	< 2.0	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	-	< 10	< 10	-	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	< 10	< 10	-	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-	< 0.020	< 0.020	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-	< 2.0	< 2.0	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10	< 10	-	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10	< 10	-	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	-	< 10	< 10	-	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-	< 10	< 10	-	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	-	< 10	< 10	-	< 10
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TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	< 10	-	-	< 10	-
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	< 5.0	< 5.0	-	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	< 5.0	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	< 8.0	< 8.0	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	< 5.0	-	< 5.0

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

Analytical Report Number: 25-016415
Project / Site name: Lizard Lane, Whitburn
Your Order No: 3763

Lab Sample Number				500651	500652
Sample Reference				WS11	WS13
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.25	0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	13
Total mass of sample received	kg	0.1	NONE	0.7	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ
Analysis completed	N/A	N/A	N/A	04/04/2025	04/04/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3	7.8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	31	15
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	15.5	-
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	7.66
Organic Matter (automated)	%	0.1	MCERTS	3.9	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.11	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.23	0.18
Pyrene	mg/kg	0.05	MCERTS	0.2	0.15
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.12	0.09
Chrysene	mg/kg	0.05	MCERTS	0.17	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.25	0.16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.08	0.07
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.17	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.08	0.06
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.1	0.06

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.51	1.13
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	12
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	61
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	87	94

Analytical Report Number: 25-016415
 Project / Site name: Lizard Lane, Whitburn
 Your Order No: 3763

Lab Sample Number				500651	500652
Sample Reference				WS11	WS13
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.25	0.25
Date Sampled				Deviating	Deviating
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	-	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	-	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	-	< 10
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TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	< 10	-
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	-	< 5.0

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

**Analytical Report Number : 25-016415****Project / Site name: Lizard Lane, Whitburn**

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
500641	TP02	None Supplied	0.3	Brown loam and clay
500642	TP06	None Supplied	0.25	Brown loam with vegetation
500643	TP07	None Supplied	0.25	Brown loam with vegetation
500644	TP08	None Supplied	0.25	Brown loam with vegetation
500645	TP09	None Supplied	0.3	Brown loam with gravel and vegetation
500646	TP10	None Supplied	0.3	Brown loam with vegetation and stones
500647	WS03	None Supplied	0.25	Brown loam with vegetation and stones
500648	WS05	None Supplied	0.5	Brown clay and loam
500649	WS06	None Supplied	0.25	Brown loam with vegetation
500650	WS08	None Supplied	0.3	Brown loam and clay with vegetation
500651	WS11	None Supplied	0.25	Brown loam and clay with vegetation
500652	WS13	None Supplied	0.25	Brown loam and clay with vegetation

Analytical Report Number : 25-016415

Project / Site name: Lizard Lane, Whitburn

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
TPH Chromatogram in soil	TPH Chromatogram in soil	In-house method	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE



Analytical Report Number : 25-016415

Project / Site name: Lizard Lane, Whitburn

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Analytical Report Number : 25-016415

Project / Site name: Lizard Lane, Whitburn

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP02	N/A	S	500641	a	Asbestos identification in Soil	A001B	a
TP02	N/A	S	500641	a	Asbestos types if id positive	N/A	a
TP02	N/A	S	500641	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TP02	N/A	S	500641	a	Chromium III in soil	L080-PL/L130B	a
TP02	N/A	S	500641	a	Hexavalent chromium in soil	L080-PL	a
TP02	N/A	S	500641	a	Metals in soil by ICP-OES	L038B	a
TP02	N/A	S	500641	a	Moisture Content	L019B	a
TP02	N/A	S	500641	a	Organic matter (Automated) in soil	L009B	a
TP02	N/A	S	500641	a	Sample preparation	L019B	a
TP02	N/A	S	500641	a	Soil Descriptions	L019B	a
TP02	N/A	S	500641	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP02	N/A	S	500641	a	Stones content of soil	L019B	a
TP02	N/A	S	500641	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TP02	N/A	S	500641	a	TPH Chromatogram in soil	L064B	a
TP02	N/A	S	500641	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP02	N/A	S	500641	a	pH in soil (automated)	L099-PL	a
TP06	N/A	S	500642	a	Asbestos identification in Soil	A001B	a
TP06	N/A	S	500642	a	Asbestos types if id positive	N/A	a
TP06	N/A	S	500642	a	Chromium III in soil	L080-PL/L130B	a
TP06	N/A	S	500642	a	Hexavalent chromium in soil	L080-PL	a
TP06	N/A	S	500642	a	Metals in soil by ICP-OES	L038B	a
TP06	N/A	S	500642	a	Moisture Content	L019B	a
TP06	N/A	S	500642	a	Sample preparation	L019B	a
TP06	N/A	S	500642	a	Soil Descriptions	L019B	a
TP06	N/A	S	500642	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP06	N/A	S	500642	a	Stones content of soil	L019B	a
TP06	N/A	S	500642	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TP06	N/A	S	500642	a	TPH Chromatogram in soil	L064B	a
TP06	N/A	S	500642	a	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP06	N/A	S	500642	a	pH in soil (automated)	L099-PL	a
TP07	N/A	S	500643	a	Asbestos identification in Soil	A001B	a
TP07	N/A	S	500643	a	Asbestos types if id positive	N/A	a
TP07	N/A	S	500643	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TP07	N/A	S	500643	a	Chromium III in soil	L080-PL/L130B	a
TP07	N/A	S	500643	a	Hexavalent chromium in soil	L080-PL	a
TP07	N/A	S	500643	a	Metals in soil by ICP-OES	L038B	a
TP07	N/A	S	500643	a	Moisture Content	L019B	a
TP07	N/A	S	500643	a	Organic matter (Automated) in soil	L009B	a
TP07	N/A	S	500643	a	Sample preparation	L019B	a
TP07	N/A	S	500643	a	Soil Descriptions	L019B	a
TP07	N/A	S	500643	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP07	N/A	S	500643	a	Stones content of soil	L019B	a
TP07	N/A	S	500643	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TP07	N/A	S	500643	a	TPH Chromatogram in soil	L064B	a
TP07	N/A	S	500643	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP07	N/A	S	500643	a	pH in soil (automated)	L099-PL	a
TP08	N/A	S	500644	a	Asbestos identification in Soil	A001B	a
TP08	N/A	S	500644	a	Asbestos types if id positive	N/A	a
TP08	N/A	S	500644	a	Chromium III in soil	L080-PL/L130B	a
TP08	N/A	S	500644	a	Hexavalent chromium in soil	L080-PL	a
TP08	N/A	S	500644	a	Metals in soil by ICP-OES	L038B	a
TP08	N/A	S	500644	a	Moisture Content	L019B	a
TP08	N/A	S	500644	a	Sample preparation	L019B	a
TP08	N/A	S	500644	a	Soil Descriptions	L019B	a
TP08	N/A	S	500644	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP08	N/A	S	500644	a	Stones content of soil	L019B	a
TP08	N/A	S	500644	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a

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Project / Site name: Lizard Lane, Whitburn

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP08	N/A	S	500644	a	TPH Chromatogram in soil	L064B	a
TP08	N/A	S	500644	a	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP08	N/A	S	500644	a	pH in soil (automated)	L099-PL	a
TP09	N/A	S	500645	a	Asbestos identification in Soil	A001B	a
TP09	N/A	S	500645	a	Asbestos types if id positive	N/A	a
TP09	N/A	S	500645	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TP09	N/A	S	500645	a	Chromium III in soil	L080-PL/L130B	a
TP09	N/A	S	500645	a	Hexavalent chromium in soil	L080-PL	a
TP09	N/A	S	500645	a	Metals in soil by ICP-OES	L038B	a
TP09	N/A	S	500645	a	Moisture Content	L019B	a
TP09	N/A	S	500645	a	Organic matter (Automated) in soil	L009B	a
TP09	N/A	S	500645	a	Sample preparation	L019B	a
TP09	N/A	S	500645	a	Soil Descriptions	L019B	a
TP09	N/A	S	500645	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP09	N/A	S	500645	a	Stones content of soil	L019B	a
TP09	N/A	S	500645	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TP09	N/A	S	500645	a	TPH Chromatogram in soil	L064B	a
TP09	N/A	S	500645	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP09	N/A	S	500645	a	pH in soil (automated)	L099-PL	a
TP10	N/A	S	500646	a	Asbestos identification in Soil	A001B	a
TP10	N/A	S	500646	a	Asbestos types if id positive	N/A	a
TP10	N/A	S	500646	a	Chromium III in soil	L080-PL/L130B	a
TP10	N/A	S	500646	a	Hexavalent chromium in soil	L080-PL	a
TP10	N/A	S	500646	a	Metals in soil by ICP-OES	L038B	a
TP10	N/A	S	500646	a	Moisture Content	L019B	a
TP10	N/A	S	500646	a	Sample preparation	L019B	a
TP10	N/A	S	500646	a	Soil Descriptions	L019B	a
TP10	N/A	S	500646	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TP10	N/A	S	500646	a	Stones content of soil	L019B	a
TP10	N/A	S	500646	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TP10	N/A	S	500646	a	TPH Chromatogram in soil	L064B	a
TP10	N/A	S	500646	a	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TP10	N/A	S	500646	a	pH in soil (automated)	L099-PL	a
WS03	N/A	S	500647	a	Asbestos identification in Soil	A001B	a
WS03	N/A	S	500647	a	Asbestos types if id positive	N/A	a
WS03	N/A	S	500647	a	BTEX and/or Volatile organic compounds in soil	L073B	a
WS03	N/A	S	500647	a	Chromium III in soil	L080-PL/L130B	a
WS03	N/A	S	500647	a	Hexavalent chromium in soil	L080-PL	a
WS03	N/A	S	500647	a	Metals in soil by ICP-OES	L038B	a
WS03	N/A	S	500647	a	Moisture Content	L019B	a
WS03	N/A	S	500647	a	Organic matter (Automated) in soil	L009B	a
WS03	N/A	S	500647	a	Sample preparation	L019B	a
WS03	N/A	S	500647	a	Soil Descriptions	L019B	a
WS03	N/A	S	500647	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS03	N/A	S	500647	a	Stones content of soil	L019B	a
WS03	N/A	S	500647	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS03	N/A	S	500647	a	TPH Chromatogram in soil	L064B	a
WS03	N/A	S	500647	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS03	N/A	S	500647	a	pH in soil (automated)	L099-PL	a
WS05	N/A	S	500648	a	Asbestos identification in Soil	A001B	a
WS05	N/A	S	500648	a	Asbestos types if id positive	N/A	a
WS05	N/A	S	500648	a	BTEX and/or Volatile organic compounds in soil	L073B	a
WS05	N/A	S	500648	a	Chromium III in soil	L080-PL/L130B	a
WS05	N/A	S	500648	a	Hexavalent chromium in soil	L080-PL	a
WS05	N/A	S	500648	a	Metals in soil by ICP-OES	L038B	a
WS05	N/A	S	500648	a	Moisture Content	L019B	a
WS05	N/A	S	500648	a	Organic matter (Automated) in soil	L009B	a

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Project / Site name: Lizard Lane, Whitburn

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS05	N/A	S	500648	a	Sample preparation	L019B	a
WS05	N/A	S	500648	a	Soil Descriptions	L019B	a
WS05	N/A	S	500648	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS05	N/A	S	500648	a	Stones content of soil	L019B	a
WS05	N/A	S	500648	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS05	N/A	S	500648	a	TPH Chromatogram in soil	L064B	a
WS05	N/A	S	500648	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS05	N/A	S	500648	a	pH in soil (automated)	L099-PL	a
WS06	N/A	S	500649	a	Asbestos identification in Soil	A001B	a
WS06	N/A	S	500649	a	Asbestos types if id positive	N/A	a
WS06	N/A	S	500649	a	Chromium III in soil	L080-PL/L130B	a
WS06	N/A	S	500649	a	Hexavalent chromium in soil	L080-PL	a
WS06	N/A	S	500649	a	Metals in soil by ICP-OES	L038B	a
WS06	N/A	S	500649	a	Moisture Content	L019B	a
WS06	N/A	S	500649	a	Organic matter (Automated) in soil	L009B	a
WS06	N/A	S	500649	a	Sample preparation	L019B	a
WS06	N/A	S	500649	a	Soil Descriptions	L019B	a
WS06	N/A	S	500649	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS06	N/A	S	500649	a	Stones content of soil	L019B	a
WS06	N/A	S	500649	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS06	N/A	S	500649	a	TPH Chromatogram in soil	L064B	a
WS06	N/A	S	500649	a	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS06	N/A	S	500649	a	pH in soil (automated)	L099-PL	a
WS08	N/A	S	500650	a	Asbestos identification in Soil	A001B	a
WS08	N/A	S	500650	a	Asbestos types if id positive	N/A	a
WS08	N/A	S	500650	a	BTEX and/or Volatile organic compounds in soil	L073B	a
WS08	N/A	S	500650	a	Chromium III in soil	L080-PL/L130B	a
WS08	N/A	S	500650	a	Hexavalent chromium in soil	L080-PL	a
WS08	N/A	S	500650	a	Metals in soil by ICP-OES	L038B	a
WS08	N/A	S	500650	a	Moisture Content	L019B	a
WS08	N/A	S	500650	a	Sample preparation	L019B	a
WS08	N/A	S	500650	a	Soil Descriptions	L019B	a
WS08	N/A	S	500650	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS08	N/A	S	500650	a	Stones content of soil	L019B	a
WS08	N/A	S	500650	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS08	N/A	S	500650	a	TPH Chromatogram in soil	L064B	a
WS08	N/A	S	500650	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS08	N/A	S	500650	a	pH in soil (automated)	L099-PL	a
WS11	N/A	S	500651	a	Asbestos identification in Soil	A001B	a
WS11	N/A	S	500651	a	Asbestos types if id positive	N/A	a
WS11	N/A	S	500651	a	Chromium III in soil	L080-PL/L130B	a
WS11	N/A	S	500651	a	Hexavalent chromium in soil	L080-PL	a
WS11	N/A	S	500651	a	Metals in soil by ICP-OES	L038B	a
WS11	N/A	S	500651	a	Moisture Content	L019B	a
WS11	N/A	S	500651	a	Organic matter (Automated) in soil	L009B	a
WS11	N/A	S	500651	a	Sample preparation	L019B	a
WS11	N/A	S	500651	a	Soil Descriptions	L019B	a
WS11	N/A	S	500651	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS11	N/A	S	500651	a	Stones content of soil	L019B	a
WS11	N/A	S	500651	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS11	N/A	S	500651	a	TPH Chromatogram in soil	L064B	a
WS11	N/A	S	500651	a	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS11	N/A	S	500651	a	pH in soil (automated)	L099-PL	a
WS13	N/A	S	500652	a	Asbestos identification in Soil	A001B	a
WS13	N/A	S	500652	a	Asbestos types if id positive	N/A	a
WS13	N/A	S	500652	a	BTEX and/or Volatile organic compounds in soil	L073B	a
WS13	N/A	S	500652	a	Chromium III in soil	L080-PL/L130B	a

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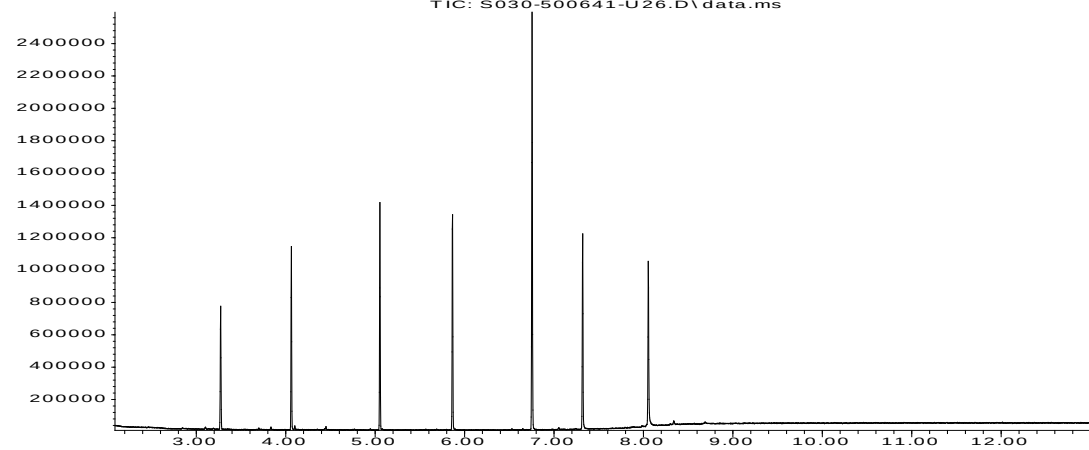
This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS13	N/A	S	500652	a	Hexavalent chromium in soil	L080-PL	a
WS13	N/A	S	500652	a	Metals in soil by ICP-OES	L038B	a
WS13	N/A	S	500652	a	Moisture Content	L019B	a
WS13	N/A	S	500652	a	Sample preparation	L019B	a
WS13	N/A	S	500652	a	Soil Descriptions	L019B	a
WS13	N/A	S	500652	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
WS13	N/A	S	500652	a	Stones content of soil	L019B	a
WS13	N/A	S	500652	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
WS13	N/A	S	500652	a	TPH Chromatogram in soil	L064B	a
WS13	N/A	S	500652	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
WS13	N/A	S	500652	a	pH in soil (automated)	L099-PL	a

Abundance

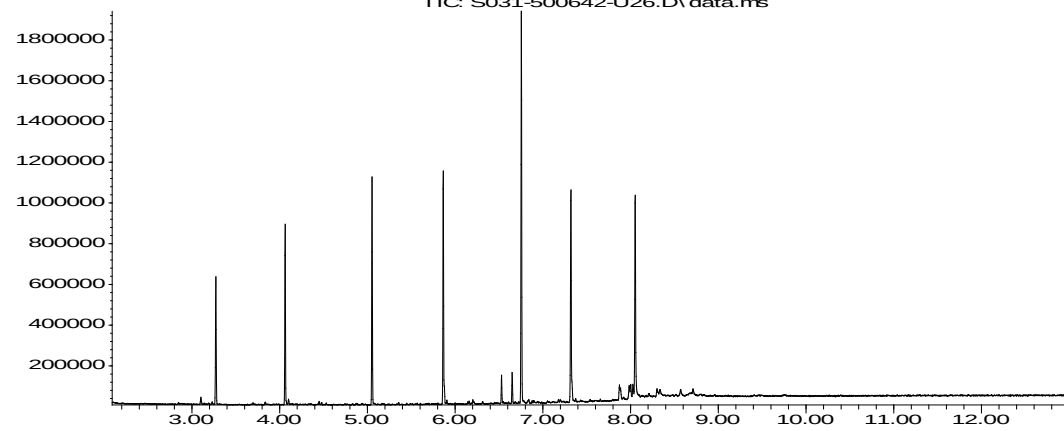
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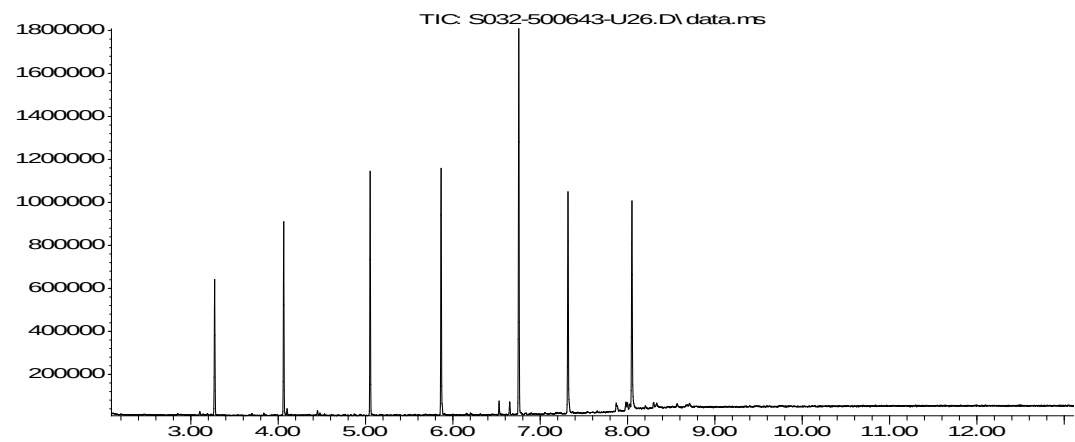
Abundance

TIC: S031-500642-U26.D\data.ms

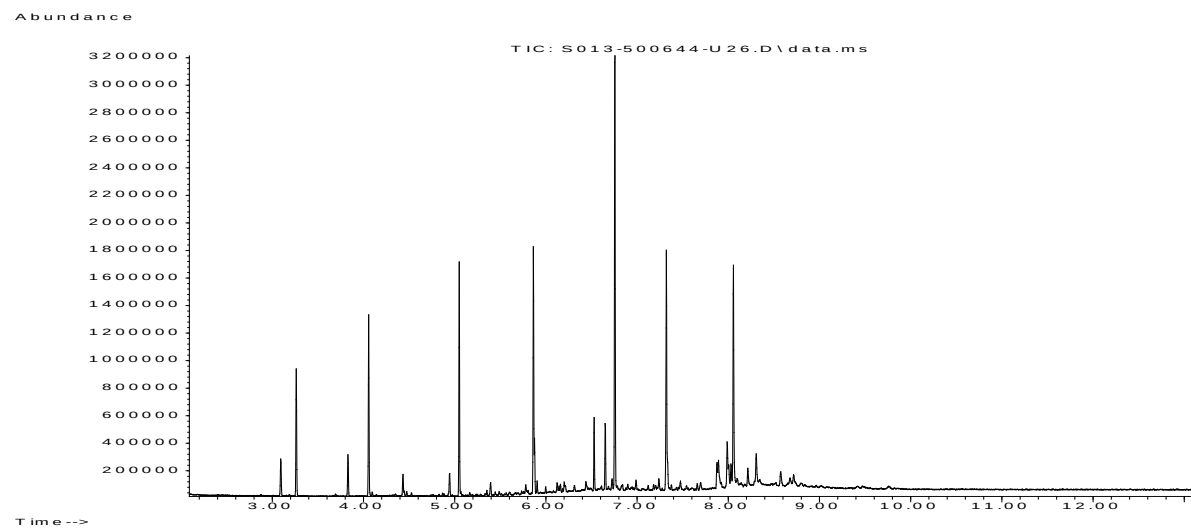


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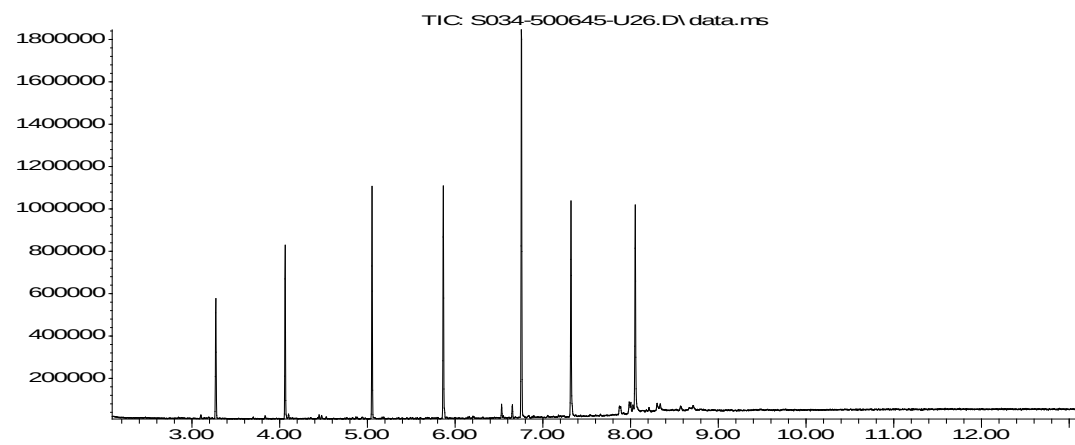
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Time-->

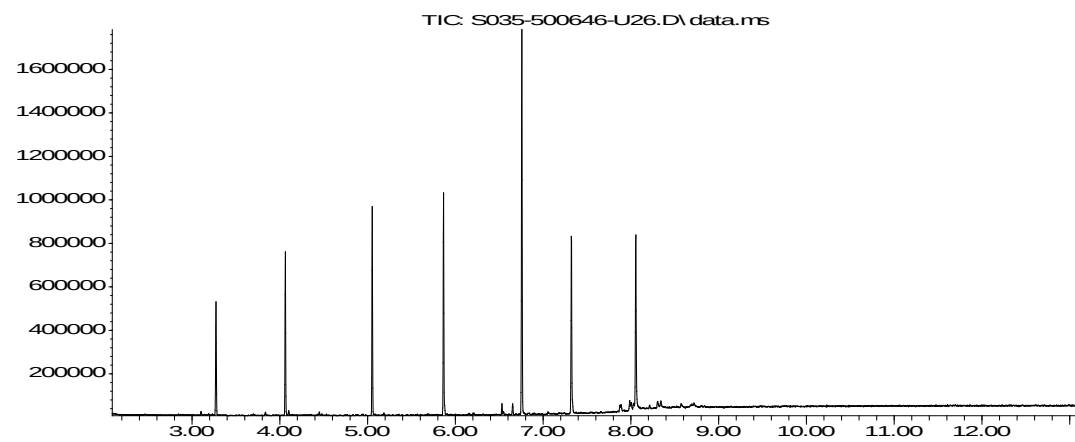


Abundance



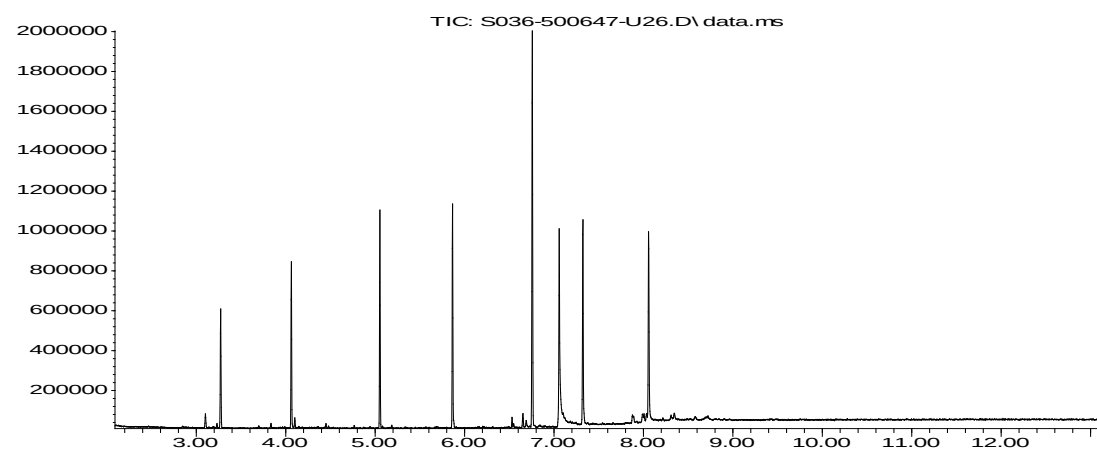
Time-->

Abundance



Time-->

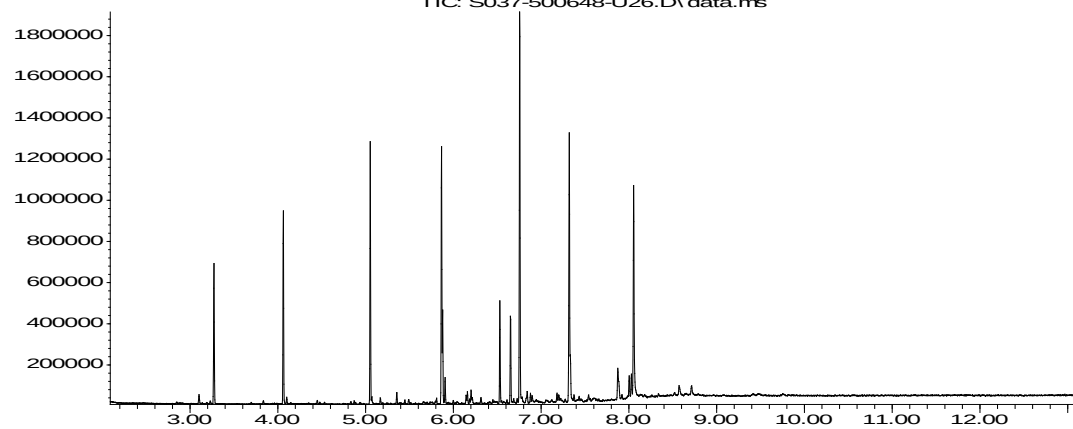
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Time-->

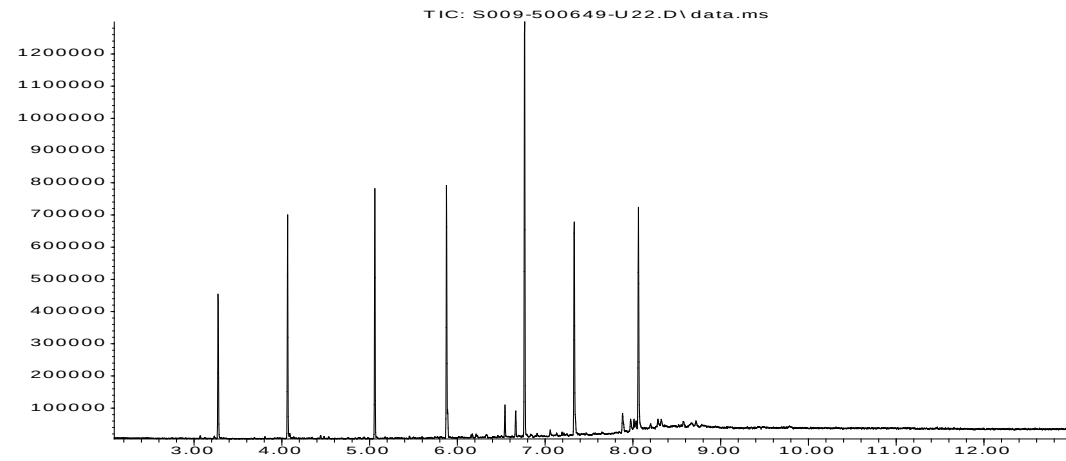
Abundance

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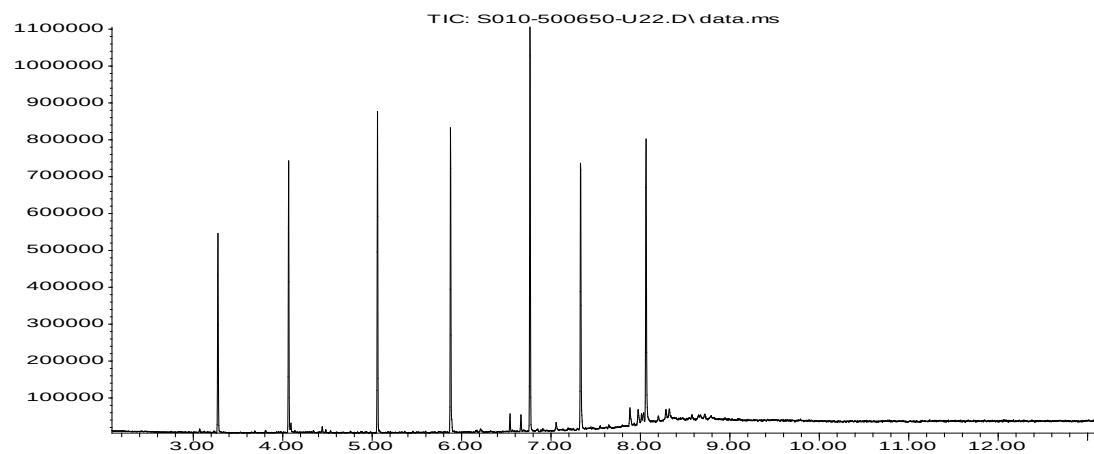
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Abundance



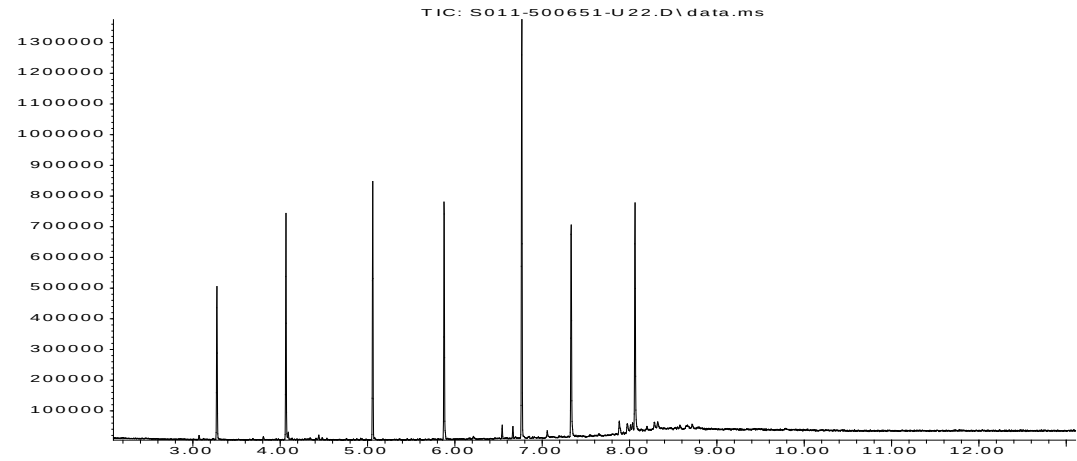
Time-->

Abundance

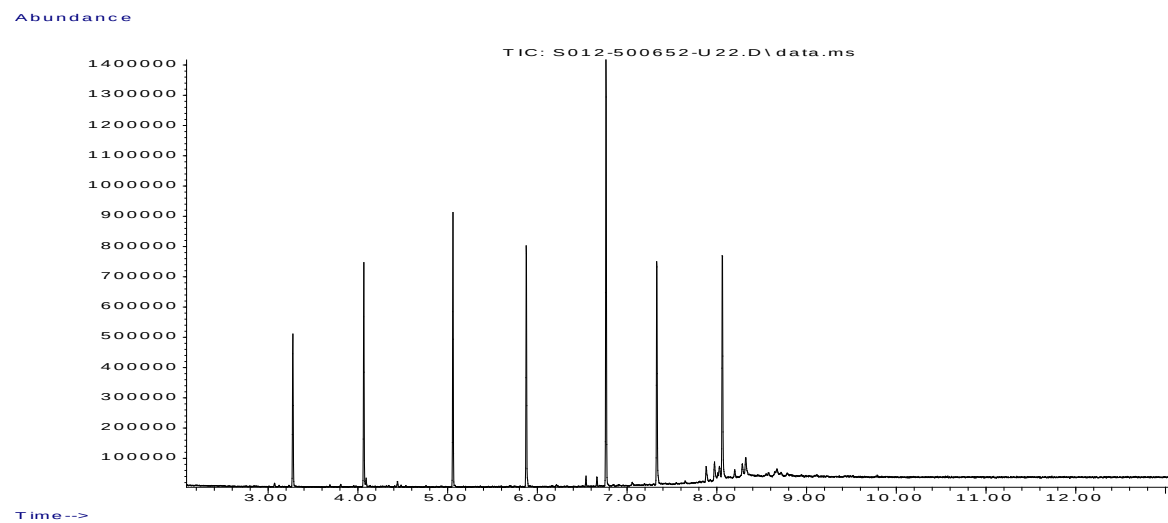


Time-->

Abundance



Time-->



GEO2 Remediation Ltd
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i2 Analytical Ltd.
7 Woodshots Meadow,
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Watford,
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e: Mike.OHalloran@geo2.co.uk
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t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 25-016738

Project / Site name:	Lizard Lane, Whitburn	Samples received on:	03/04/2025
Your job number:	4660 GT00175	Samples instructed on/ Analysis started on:	02/04/2025
Your order number:	3763	Analysis completed by:	11/04/2025
Report Issue Number:	1	Report issued on:	11/04/2025
Samples Analysed:	5 soil samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting
air - once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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



Analytical Report Number: 25-016738
Project / Site name: Lizard Lane, Whitburn
Your Order No: 3763

Lab Sample Number				502305	502306	502307	502308	502309
Sample Reference				WS01	WS02	WS05	WS09	WS12
Sample Number				D3	SPT4	B3	D5	D6
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.80	2.00	1.30-2.00	0.50	1.00
Date Sampled				25/03/2025	25/03/2025	25/03/2025	26/03/2025	26/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	< 0.1	9.5	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	9.1	19	13	16
Total mass of sample received	kg	0.1	NONE	0.6	0.6	0.4	0.6	0.6

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.6	8	7.7	8	8
Total Sulphate as SO ₄	%	0.005	MCERTS	0.068	0.034	0.039	0.04	0.012
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	65	67	140	60	140
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	32.6	33.6	69.8	30.1	69
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.7	7.3	34	4.2	6.2
Total Sulphur	mg/kg	50	MCERTS	270	94	120	140	63
Total Sulphur	%	0.005	MCERTS	0.027	0.009	0.012	0.014	0.006
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	30	8.2	95	6.8	13
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	15	< 5.0	48	< 5.0	6.5

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.1	4.9	7.3	4.9	5
Magnesium (water soluble)	mg/kg	5	NONE	10	9.9	15	9.7	10

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



Analytical Report Number : 25-016738
Project / Site name: Lizard Lane, Whitburn

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
502305	WS01	D3	0.8	Brown loam and clay with gravel and vegetation
502306	WS02	SPT4	2	Brown clay and sand with gravel and stones
502307	WS05	B3	1.30-2.00	Brown clay with gravel
502308	WS09	D5	0.5	Brown loam and clay with gravel
502309	WS12	D6	1	Brown clay and sand

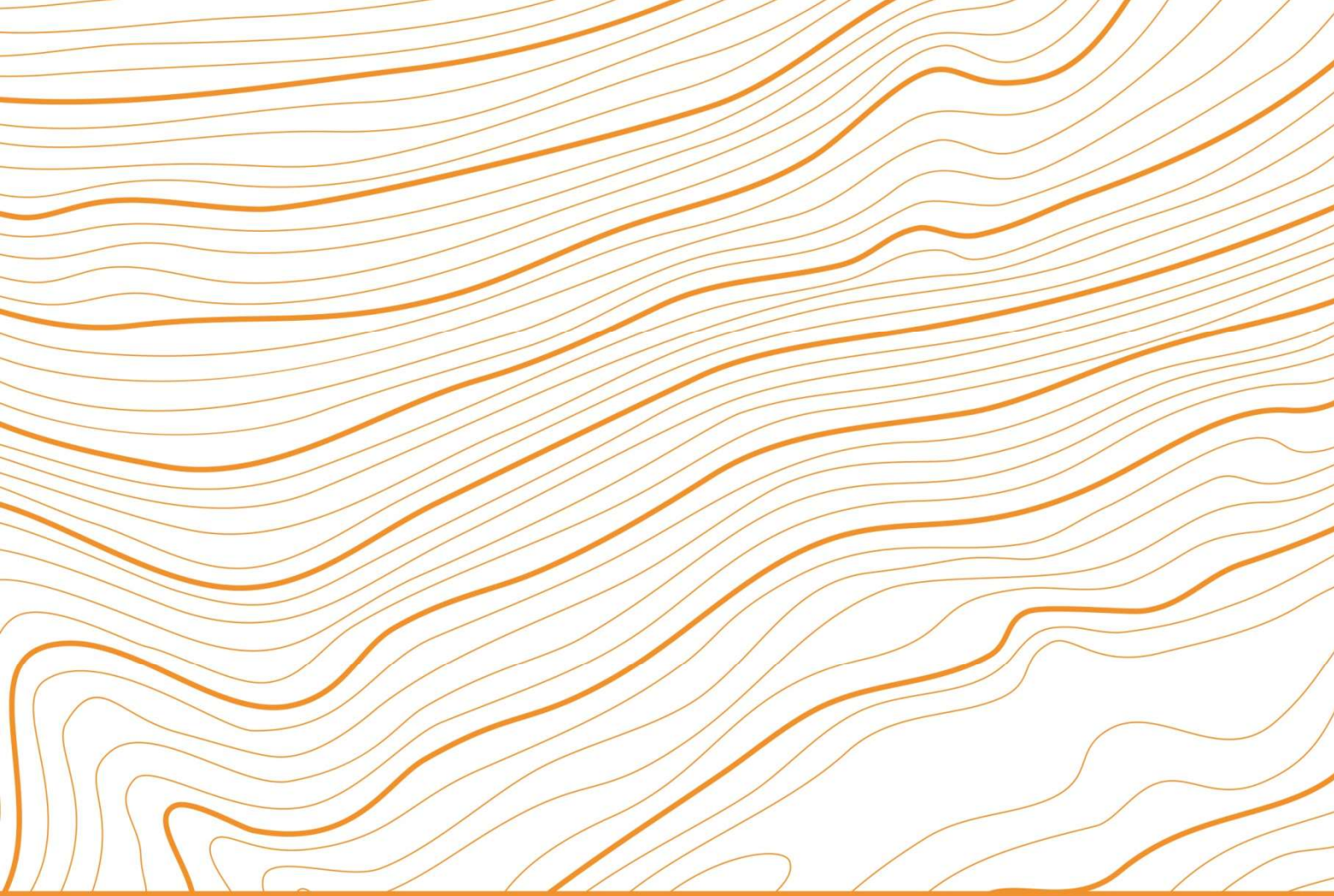
Analytical Report Number : 25-016738
Project / Site name: Lizard Lane, Whitburn

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

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

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution



Appendix D – Geotechnical Results & SPT Calibration Certificates



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502282

Hole No.: TP03

Sample Reference: B2

Sample Description: Dark brown slightly gravelly very sandy CLAY

Depth Top [m]: 0.30

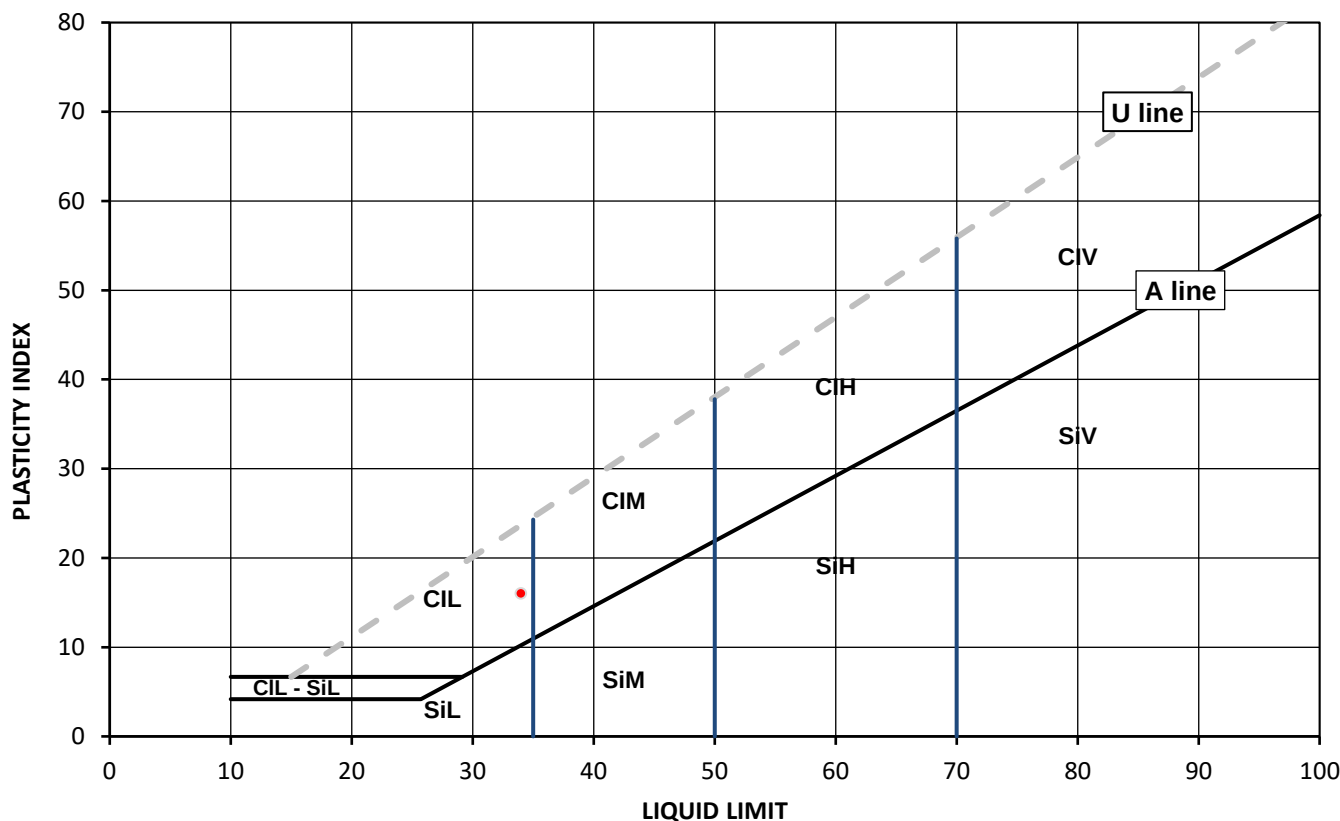
Depth Base [m]: 1.20

Sample Type: B

Sample Preparation: Tested after >0.425mm removed by hand; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
15.9	34	18	16	-0.13	1.13	88



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)
	L Low	
	M Medium	
	H High	
	V Very high	
	O Organic	

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

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Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502286

Hole No.: TP07

Sample Reference: B2

Sample Description: Dark brown sandy CLAY

Depth Top [m]: 0.50

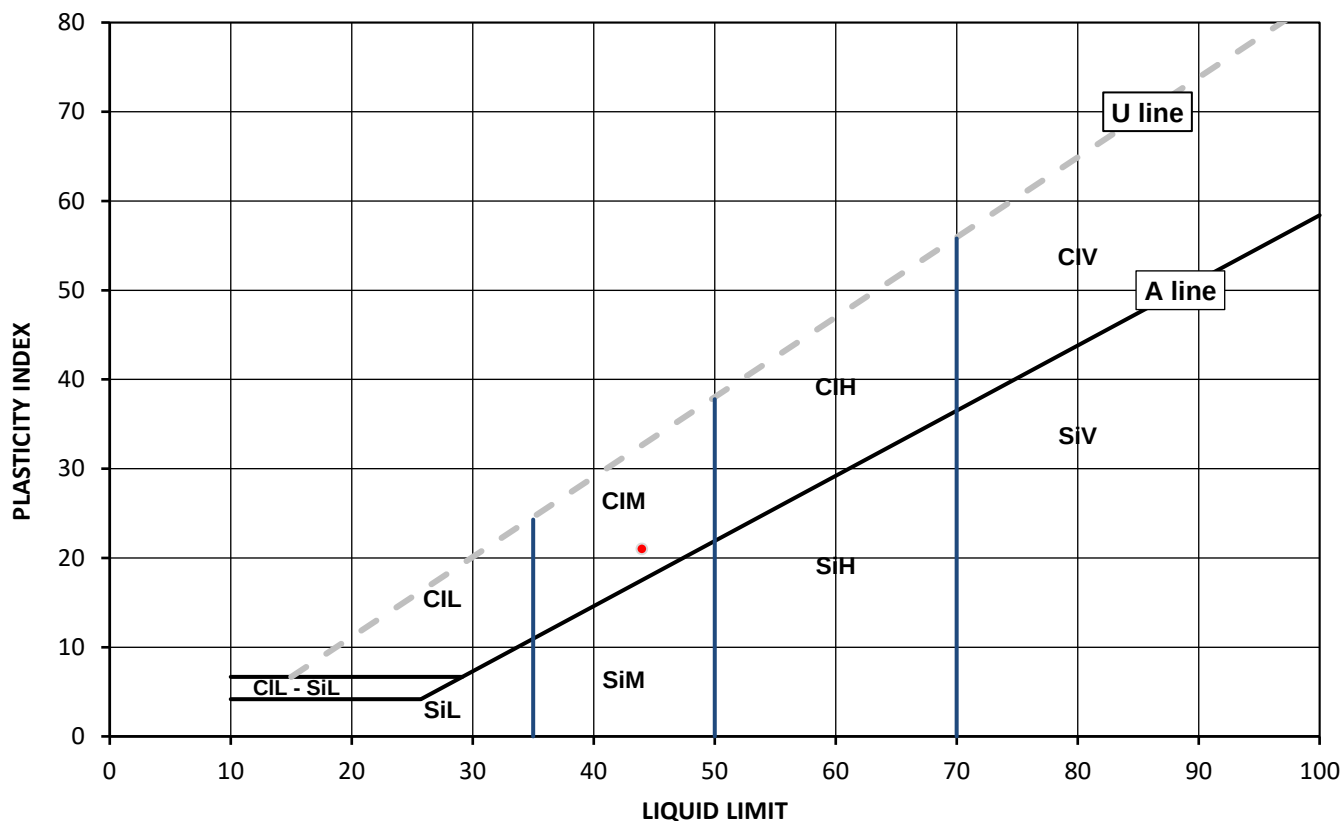
Depth Base [m]: 1.50

Sample Type: B

Sample Preparation: Tested in natural condition; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
19.9	44	23	21	-0.14	1.14	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

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Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6



Environmental Science

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Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Laboratory Reference: 502287
Hole No.: TP09
Sample Reference: B2
Sample Description: Dark brown slightly gravelly sandy CLAY

Depth Top [m]: 0.40

Depth Base [m]: 1.40

Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased

Cone Type: 80g/30deg

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

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Environmental Science

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Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 25/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502289
Hole No.: WS02
Sample Reference: B2
Sample Description: Dark brown slightly gravelly sandy CLAY

Depth Top [m]: 0.30

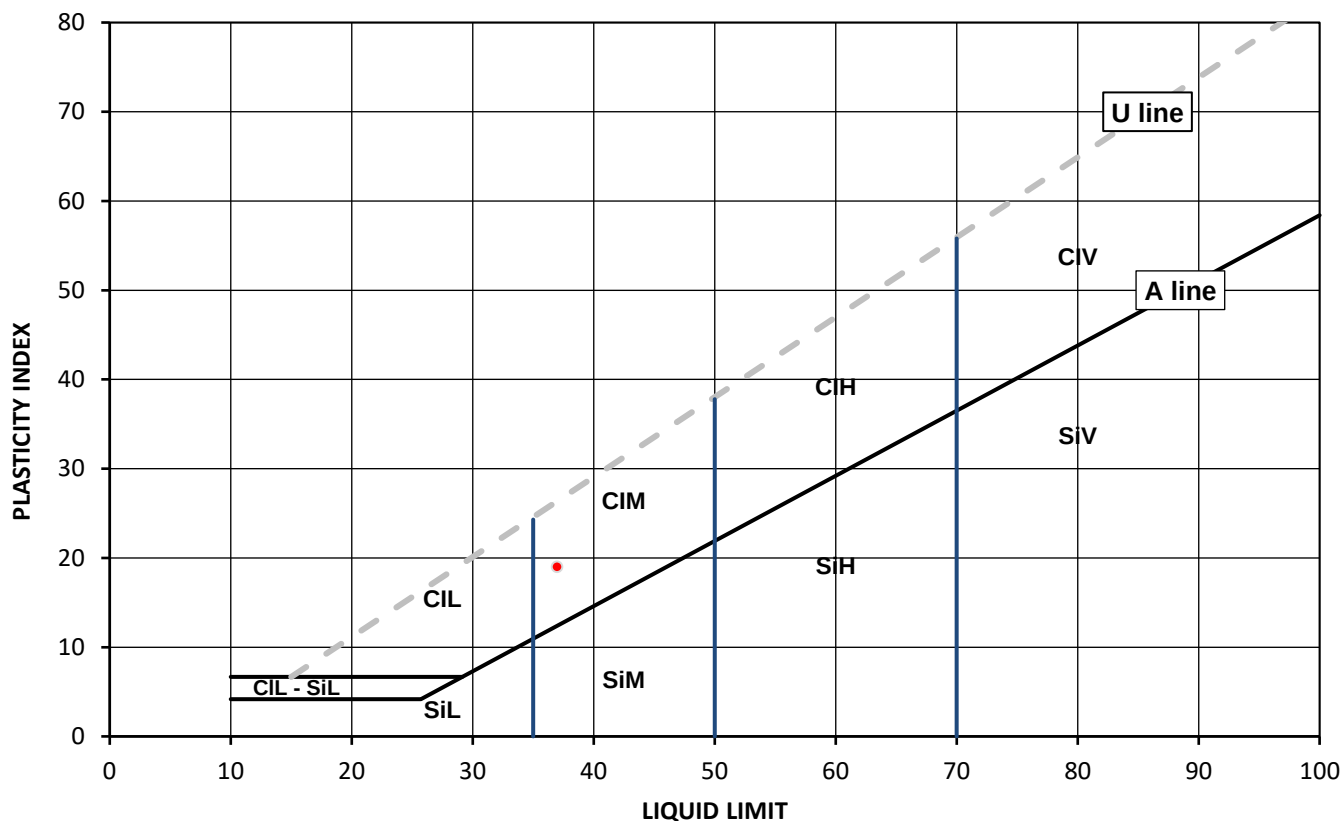
Depth Base [m]: 1.00

Sample Type: B

Sample Preparation: Tested after >0.425mm removed by hand; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
20.9	37	18	19	0.16	0.84	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:



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for and on behalf of i2 Analytical Ltd

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cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

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Environmental Science

4041

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Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 25/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502292
Hole No.: WS04
Sample Reference: B4
Sample Description: Dark brown slightly gravelly sandy CLAY

Depth Top [m]: 1.20

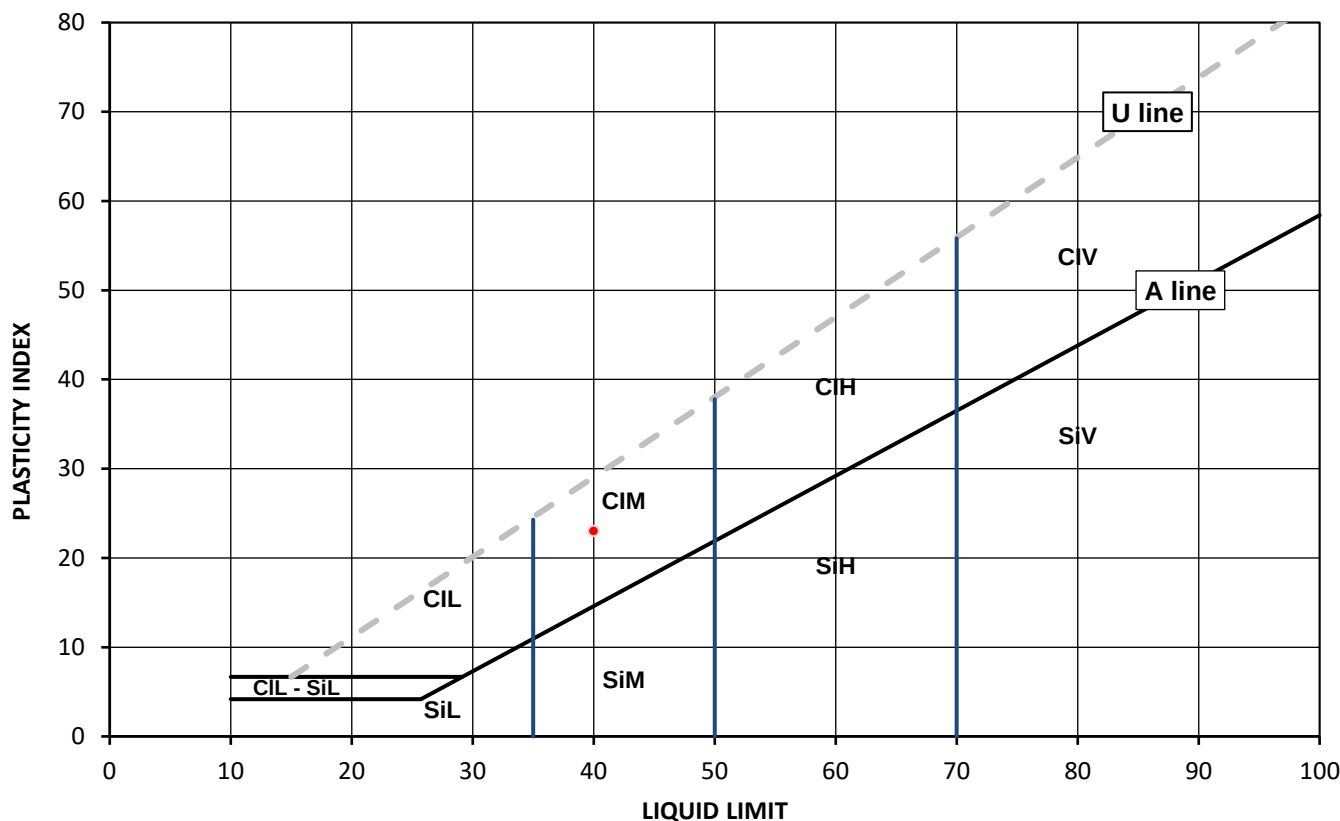
Depth Base [m]: 1.90

Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
20.2	40	17	23	0.13	0.87	97



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

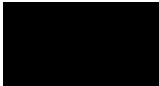
		Plasticity	Liquid Limit
Cl	Clay	L Low	below 35
Si	Silt	M Medium	35 to 50
		H High	50 to 70
		V Very high	exceeding 70
		O Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
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Northampton NN4 7EB



Environmental Science

4041

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Client Address: Coniston House, Louisa Street,
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Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 25/03/2025

Date Received: 03/04/2025

Date Tested: 17/04/2025

Sampled By: Not Given

Test Results:

Laboratory Reference: 502294
Hole No.: WS05
Sample Reference: SPT9
Sample Description: Brown CLAY

Depth Top [m]: 5.00

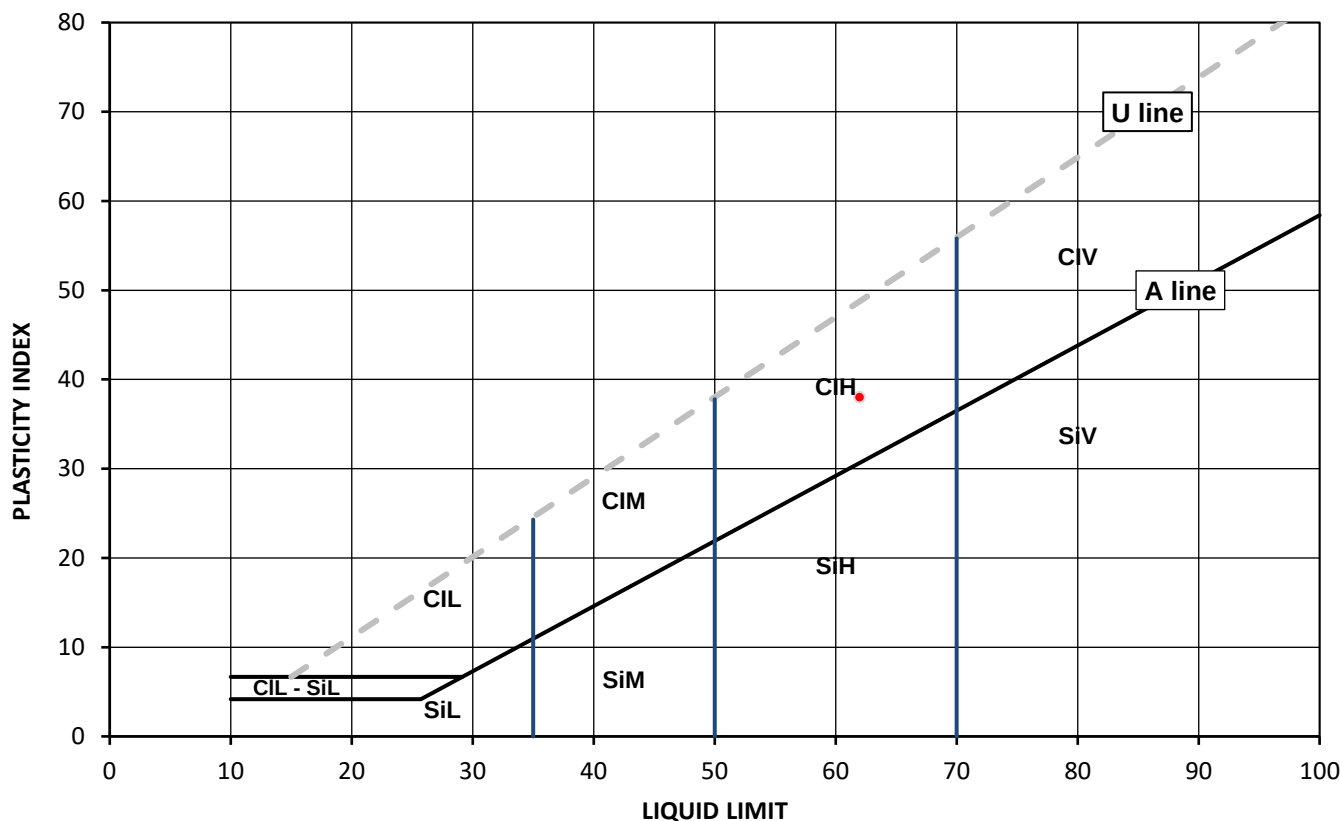
Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
20.0	62	24	38	-0.11	1.11	100



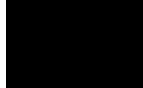
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 25/04/2025

GF 337.14



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502296

Hole No.: WS07

Sample Reference: B2

Sample Description: Dark brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.30

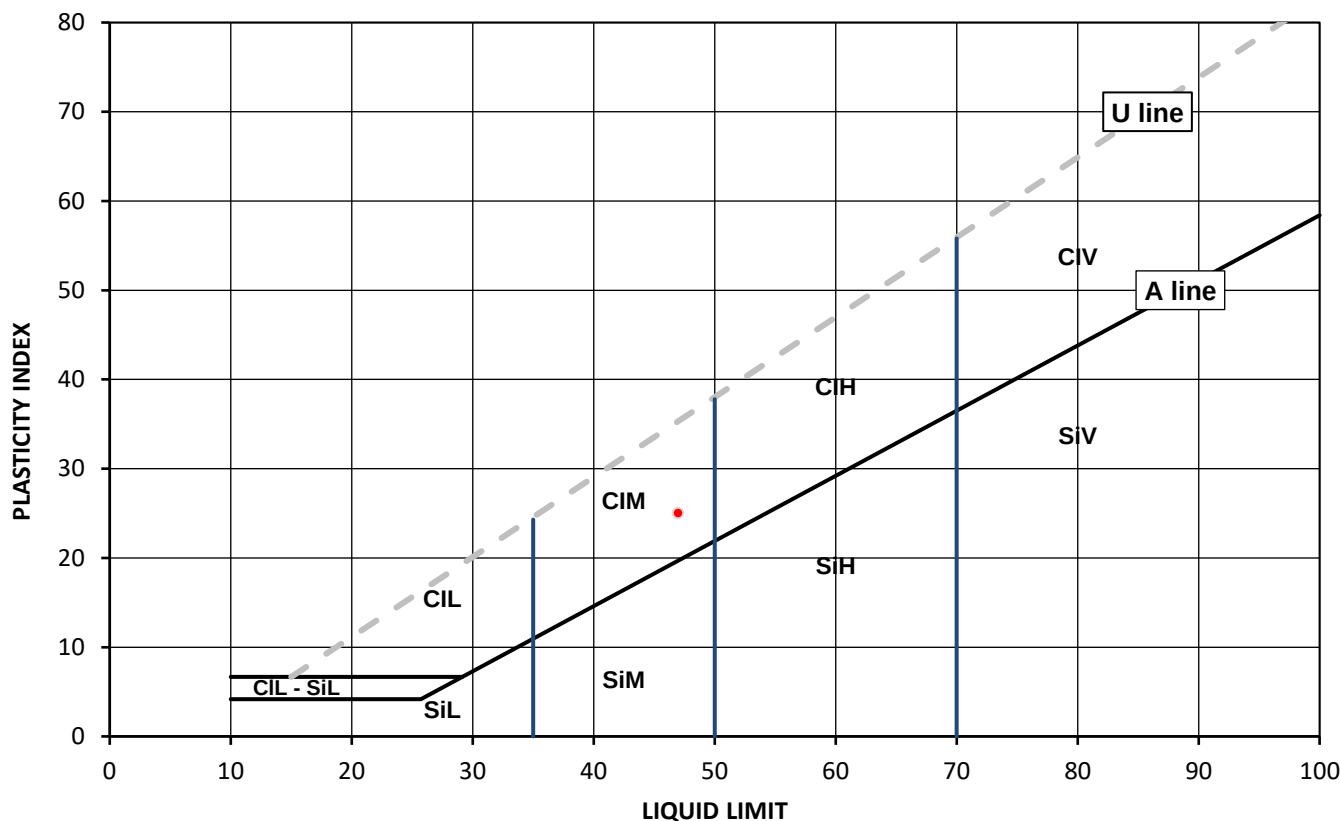
Depth Base [m]: 1.00

Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was decreased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
26.0	47	22	25	0.16	0.84	89



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

Monika Siewior
Reporting Specialist
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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 17/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502300
Hole No.: WS10
Sample Reference: B2
Sample Description: Dark brown slightly gravelly sandy CLAY

Depth Top [m]: 0.30

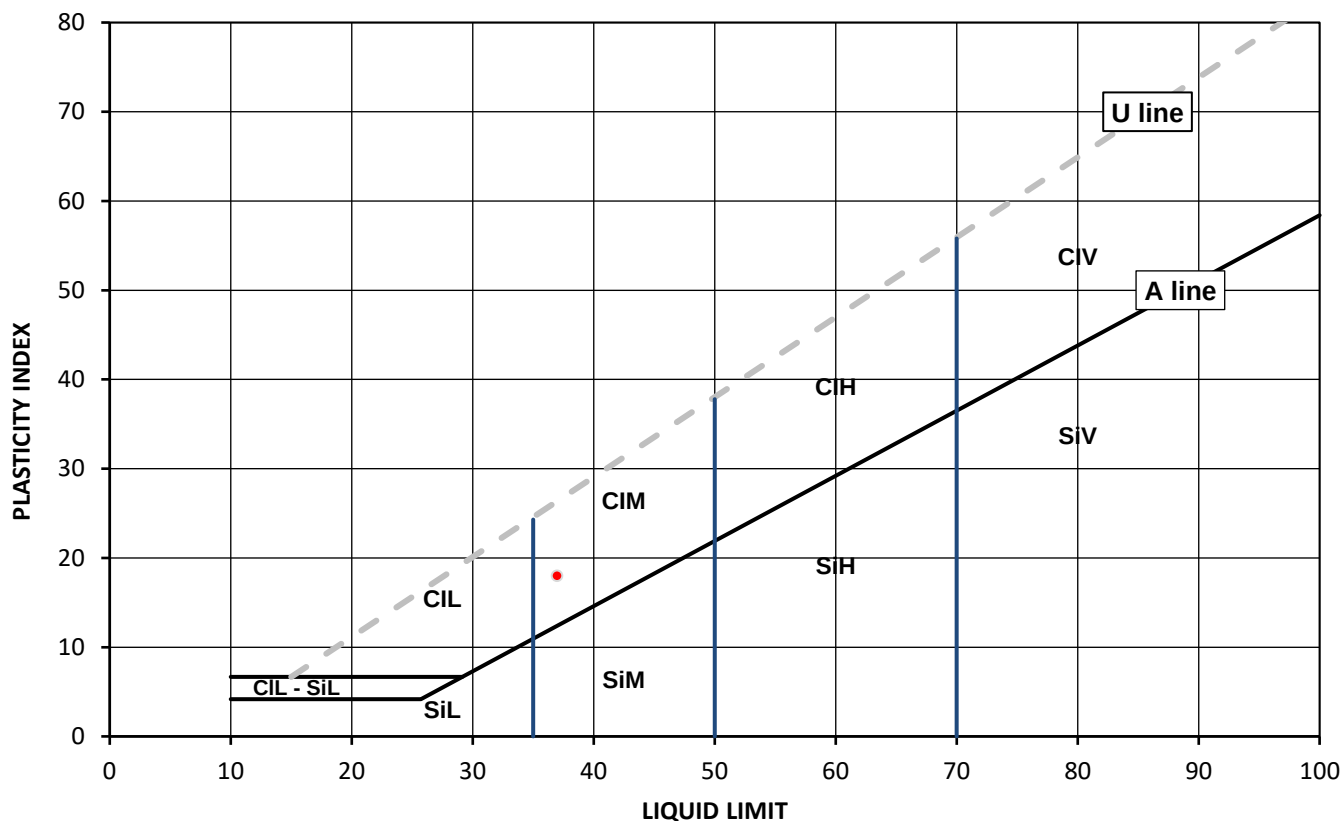
Depth Base [m]: 1.20

Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
23.7	37	19	18	0.28	0.72	81



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

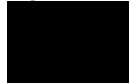
		Plasticity	Liquid Limit
Cl	Clay	L Low	below 35
Si	Silt	M Medium	35 to 50
		H High	50 to 70
		V Very high	exceeding 70
		O Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 26/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502303

Hole No.: WS12

Sample Reference: B5

Sample Description: Dark brown slightly gravelly very sandy CLAY

Depth Top [m]: 3.10

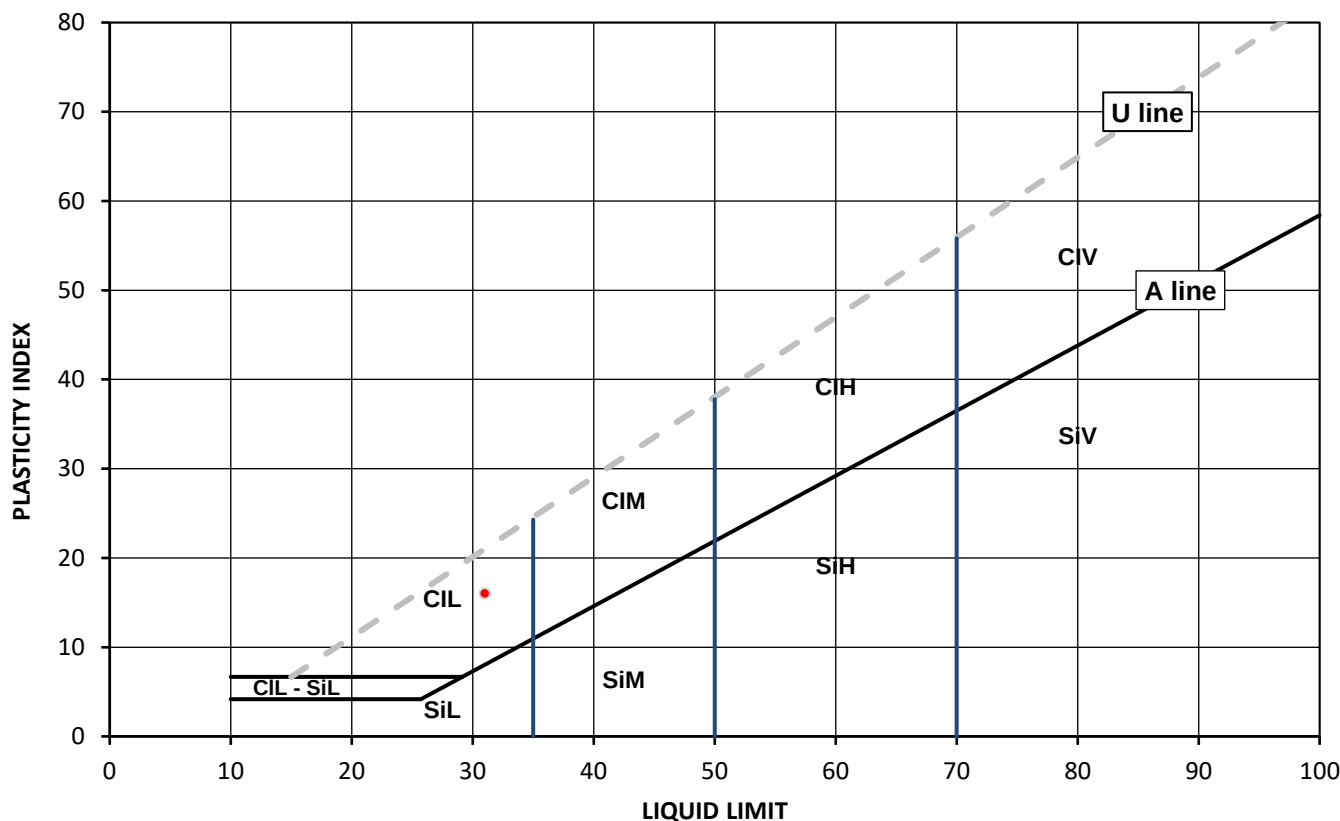
Depth Base [m]: 4.00

Sample Type: B

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased

Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
16.2	31	15	16	0.06	0.94	81



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		50 to 70
		exceeding 70
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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Signed:



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Reporting Specialist
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd

Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran

Site Address: Lizard Lane, Whitburn

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt
Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 25/03 - 26/03/2025

Date Received: 03/04/2025

Date Tested: 17/04 - 18/04/2025

Sampled By: Not Given

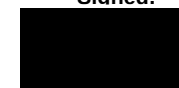
Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top	Depth Base	Type				% Passing 425um	WL*	Correlation Factor	Wp	Ip	Cone type	Sample Preparation	bulk	dry	PD
			m	m					%	%		%	%			Mg/m3	Mg/m3	Mg/m
502282	TP03	B2	0.30	1.20	B	Dark brown slightly gravelly very sandy CLAY	Atterberg 4 Point	15.9	88	34	-	18	16	80g/30 deg	R / I			
502286	TP07	B2	0.50	1.50	B	Dark brown sandy CLAY	Atterberg 4 Point	19.9	100	44	-	23	21	80g/30 deg	N / I			
502287	TP09	B2	0.40	1.40	B	Dark brown slightly gravelly sandy CLAY	Atterberg 4 Point	16.7	90	37	-	17	20	80g/30 deg	WR / I			
502289	WS02	B2	0.30	1.00	B	Dark brown slightly gravelly sandy CLAY	Atterberg 4 Point	20.9	99	37	-	18	19	80g/30 deg	R / I			
502292	WS04	B4	1.20	1.90	B	Dark brown slightly gravelly sandy CLAY	Atterberg 4 Point	20.2	97	40	-	17	23	80g/30 deg	WR / I			
502294	WS05	SPT9	5.00	Not Given	D	Brown CLAY	Atterberg 4 Point	20.0	100	62	-	24	38	80g/30 deg	N / I			
502296	WS07	B2	0.30	1.00	B	Dark brown slightly gravelly slightly sandy CLAY	Atterberg 4 Point	26.0	89	47	-	22	25	80g/30 deg	WR / D			
502300	WS10	B2	0.30	1.20	B	Dark brown slightly gravelly sandy CLAY	Atterberg 4 Point	23.7	81	37	-	19	18	80g/30 deg	WR / I			
502303	WS12	B5	3.10	4.00	B	Dark brown slightly gravelly very sandy CLAY	Atterberg 4 Point	16.2	81	31	-	15	16	80g/30 deg	WR / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased, D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 25/03 - 26/03/2025
Date Received: 03/04/2025
Date Tested: 17/04 - 18/04/2025
Sampled By: Not Given

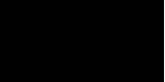
Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type														
502282	TP03	B2	0.30	1.20	B	Dark brown slightly gravelly very sandy CLAY		15.9											
502286	TP07	B2	0.50	1.50	B	Dark brown sandy CLAY		19.9											
502287	TP09	B2	0.40	1.40	B	Dark brown slightly gravelly sandy CLAY		16.7											
502289	WS02	B2	0.30	1.00	B	Dark brown slightly gravelly sandy CLAY		20.9											
502292	WS04	B4	1.20	1.90	B	Dark brown slightly gravelly sandy CLAY		20.2											
502294	WS05	SPT9	5.00	Not Given	D	Brown CLAY		20.0											
502296	WS07	B2	0.30	1.00	B	Dark brown slightly gravelly slightly sandy CLAY		26.0											
502300	WS10	B2	0.30	1.20	B	Dark brown slightly gravelly sandy CLAY		23.7											
502303	WS12	B5	3.10	4.00	B	Dark brown slightly gravelly very sandy CLAY		16.2											

Comments:

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Signed:



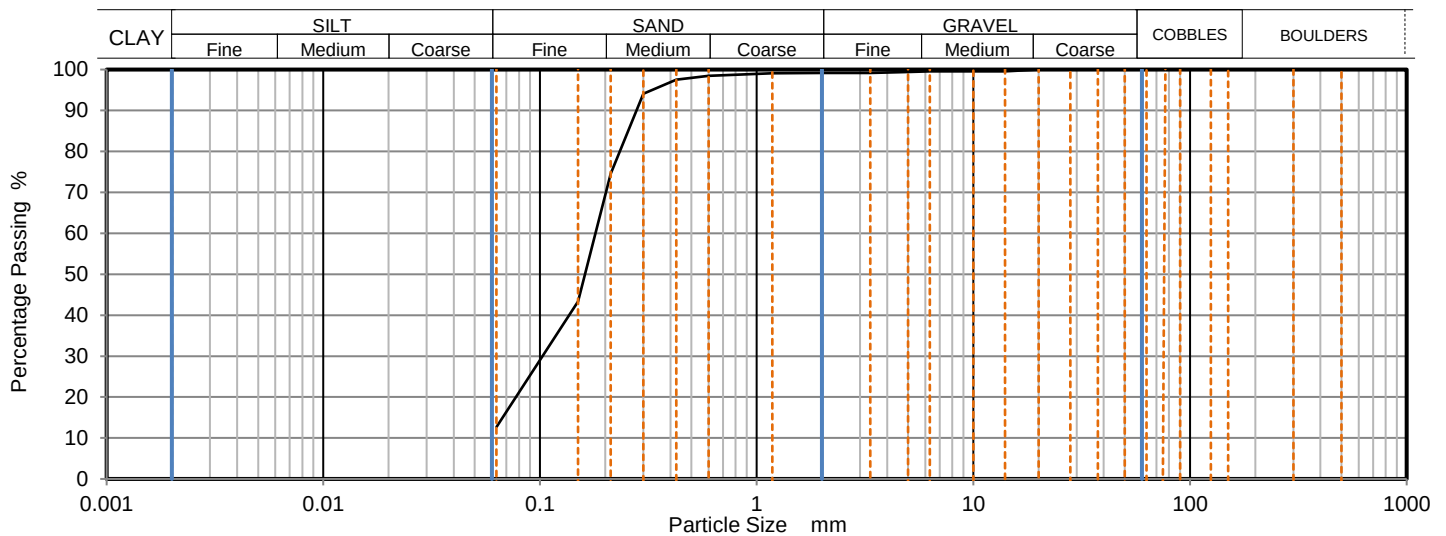
Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 17/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502281
Hole No.: TP01
Sample Reference: B2
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.Depth Top [m]: 1.00
Depth Base [m]: 2.00
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	99		
0.6	99		
0.425	98		
0.3	94		
0.212	75		
0.15	43		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	86
Fines <0.063 mm	13

Grading Analysis	
D100	mm 20
D60	mm 0.181
D30	mm 0.103
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

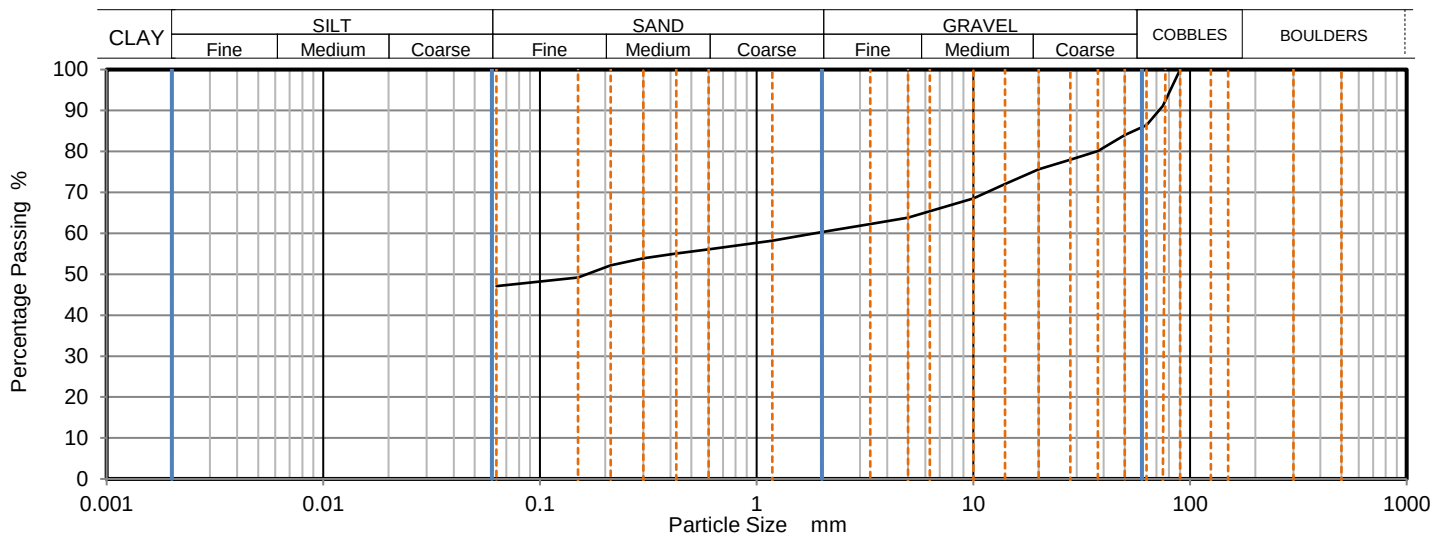
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4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502283
Hole No.: TP04
Sample Reference: B3
Sample Description: Light brown slightly gravelly slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.Depth Top [m]: 2.00
Depth Base [m]: 3.00
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	91		
63	86		
50	84		
37.5	80		
28	78		
20	76		
14	72		
10	69		
6.3	65		
5	64		
3.35	62		
2	60		
1.18	58		
0.6	56		
0.425	55		
0.3	54		
0.212	52		
0.15	49		
0.063	47		

Sample Proportions	% dry mass
Very coarse	14
Gravel	26
Sand	13
Fines <0.063 mm	47

Grading Analysis	
D100	mm 90
D60	mm 1.88
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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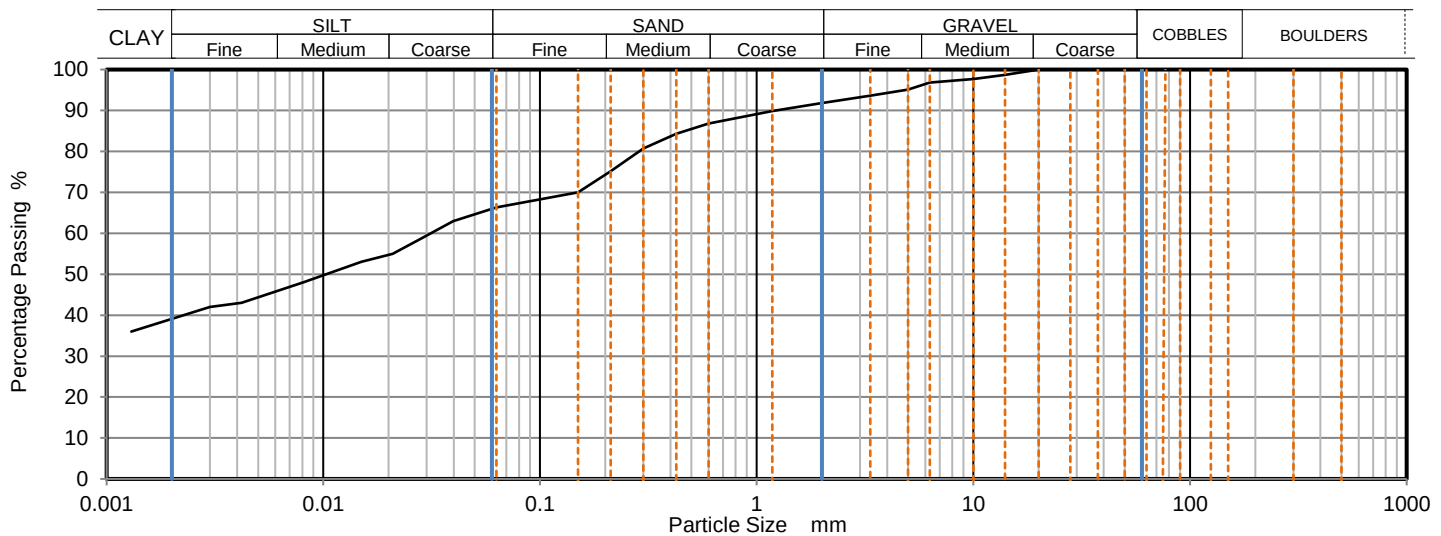
4041

**TEST CERTIFICATE****DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 17/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502284
Hole No.: TP05
Sample Reference: B2
Sample Description: Dark brown slightly gravelly slightly sandy silty CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.Depth Top [m]: 0.40
Depth Base [m]: 1.20
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0397	63
300	100	0.0289	59
150	100	0.0209	55
125	100	0.0150	53
90	100	0.0081	48
75	100	0.0042	43
63	100	0.0030	42
50	100	0.0013	36
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	97		
5	95		
3.35	94		
2	92		
1.18	90		
0.6	87	Particle density (assumed) 2.65 Mg/m3	
0.425	84		
0.3	81		
0.212	75		
0.15	70		
0.063	66		

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	26
Silt	27
Clay	39

Grading Analysis	
D100	mm 20
D60	mm 0.0317
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 25/04/2025

GF 366.12



4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

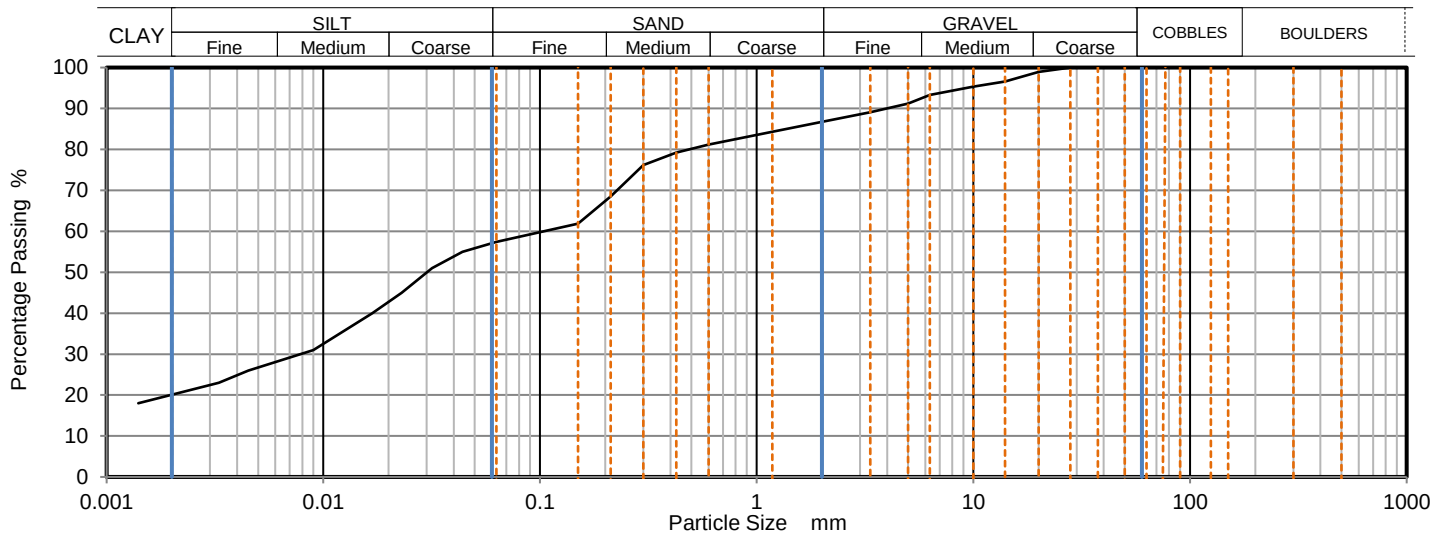
Client Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502285
Hole No.: TP06
Sample Reference: B2
Sample Description: Brown slightly gravelly slightly sandy silty CLAY
Sample Preparation: Sample was quartered, oven dried at 108.1 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0439	55
300	100	0.0318	51
150	100	0.0230	45
125	100	0.0168	40
90	100	0.0090	31
75	100	0.0045	26
63	100	0.0033	23
50	100	0.0014	18
37.5	100		
28	100		
20	99		
14	97		
10	95		
6.3	93		
5	91		
3.35	89		
2	87		
1.18	84		
0.6	81	Particle density (assumed) 2.65 Mg/m3	
0.425	79		
0.3	76		
0.212	69		
0.15	62		
0.063	57		

Sample Proportions	% dry mass
Very coarse	0
Gravel	13
Sand	29
Silt	38
Clay	20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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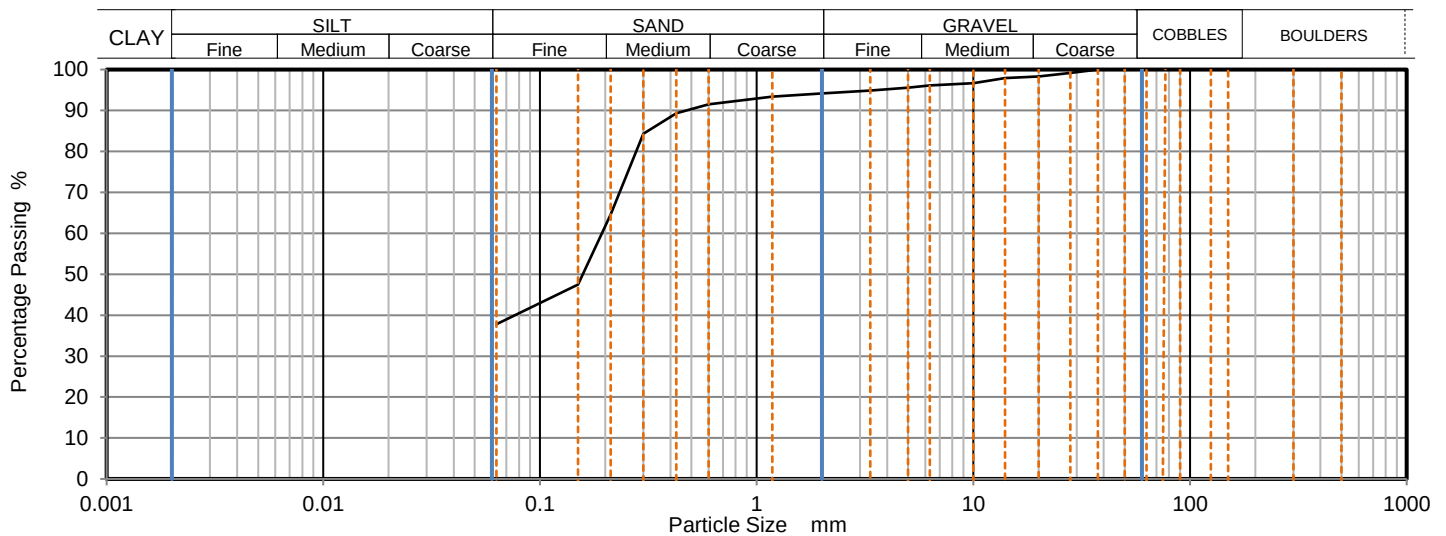
4041

**TEST CERTIFICATE****DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 25/03/2025
Date Received: 03/04/2025
Date Tested: 17/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502288
Hole No.: WS01
Sample Reference: B2
Sample Description: Dark brown slightly gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.Depth Top [m]: 0.30
Depth Base [m]: 0.70
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	98		
14	98		
10	97		
6.3	96		
5	96		
3.35	95		
2	94		
1.18	93		
0.6	92		
0.425	89		
0.3	84		
0.212	65		
0.15	48		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	56
Fines <0.063 mm	38

Grading Analysis	
D100	mm 37.5
D60	mm 0.193
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

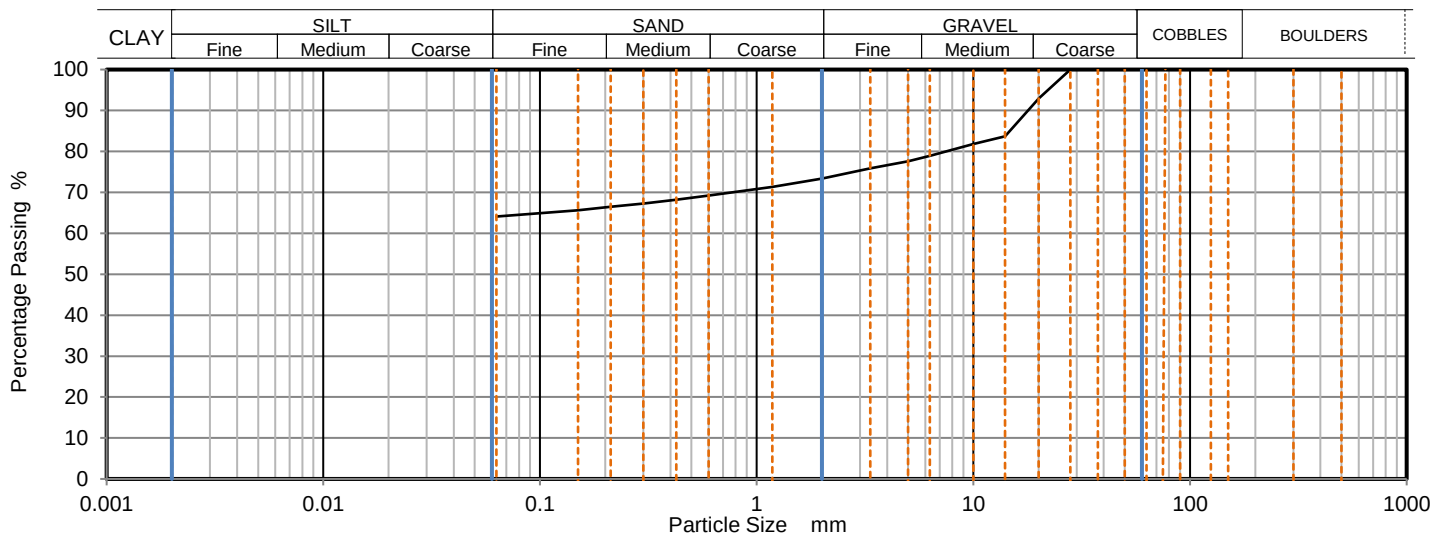
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4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 25/03/2025
Date Received: 03/04/2025
Date Tested: 17/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502290
Hole No.: WS02
Sample Reference: SPT7
Sample Description: Brown slightly gravelly slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.3 °C and broken down by hand.Depth Top [m]: 3.00
Depth Base [m]: 3.30
Sample Type: D

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	84		
10	82		
6.3	79		
5	78		
3.35	76		
2	73		
1.18	71		
0.6	69		
0.425	68		
0.3	67		
0.212	67		
0.15	66		
0.063	64		

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	9
Fines <0.063 mm	64

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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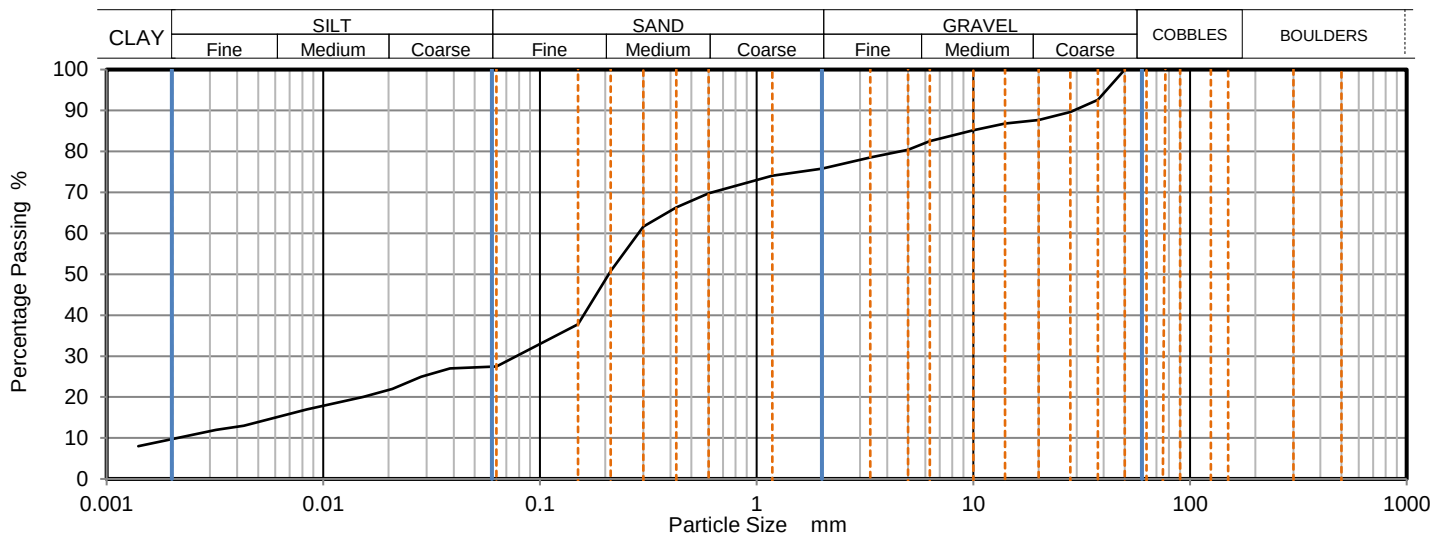
4041

**TEST CERTIFICATE****DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 27/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502291
Hole No.: WS03
Sample Reference: B2
Sample Description: Dark brown very gravelly very clayey SAND
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.Depth Top [m]: 0.30
Depth Base [m]: 1.00
Sample Type: D

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0384	27
300	100	0.0283	25
150	100	0.0208	22
125	100	0.0153	20
90	100	0.0084	17
75	100	0.0043	13
63	100	0.0032	12
50	100	0.0014	8
37.5	93		
28	90		
20	88		
14	87		
10	85		
6.3	83		
5	80		
3.35	79		
2	76		
1.18	74		
0.6	70	Particle density (assumed) 2.65 Mg/m3	
0.425	66		
0.3	62		
0.212	51		
0.15	38		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	49
Silt	17
Clay	10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 25/03/2025

Date Received: 03/04/2025

Date Tested: 17/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502293

Hole No.: WS05

Sample Reference: SPT6

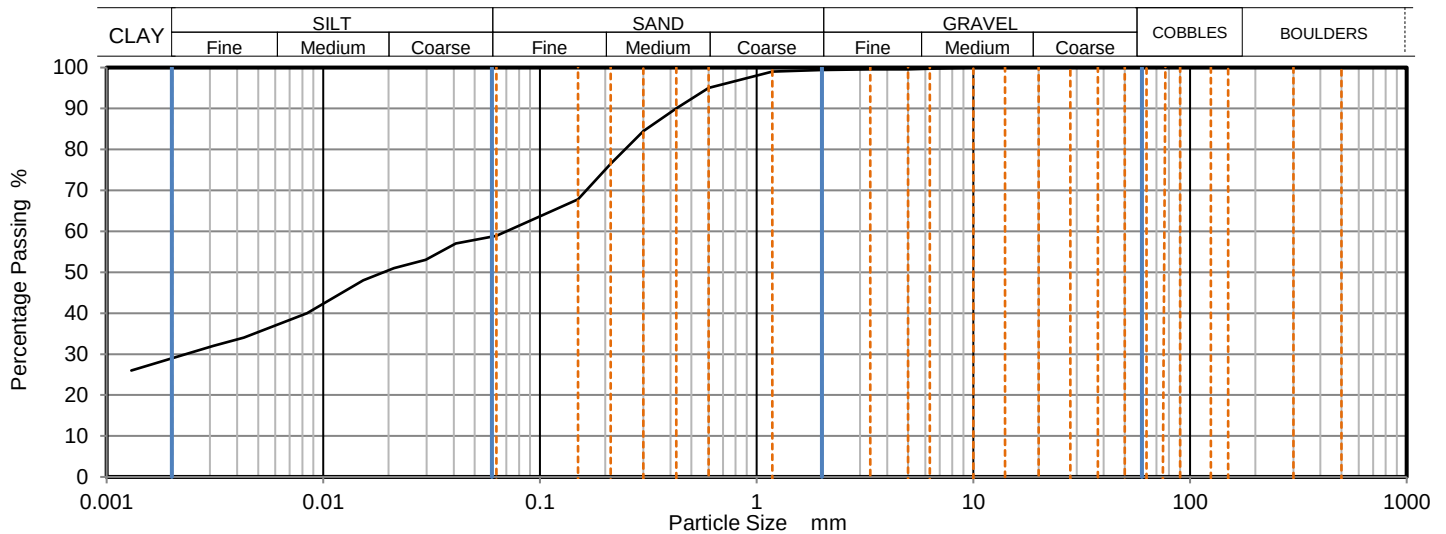
Sample Description: Brown slightly sandy silty CLAY

Sample Preparation: Sample was quartered, oven dried at 106.3 °C and broken down by hand.

Depth Top [m]: 4.00

Depth Base [m]: Not Given

Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0408	57
300	100	0.0297	53
150	100	0.0212	51
125	100	0.0153	48
90	100	0.0084	40
75	100	0.0043	34
63	100	0.0031	32
50	100	0.0013	26
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	95	Particle density (assumed) 2.65 Mg/m3	
0.425	90		
0.3	85		
0.212	77		
0.15	68		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	40
Silt	30
Clay	29

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks:

Signed:

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Reporting Specialist
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Page 1 of 1

Date Reported: 25/04/2025

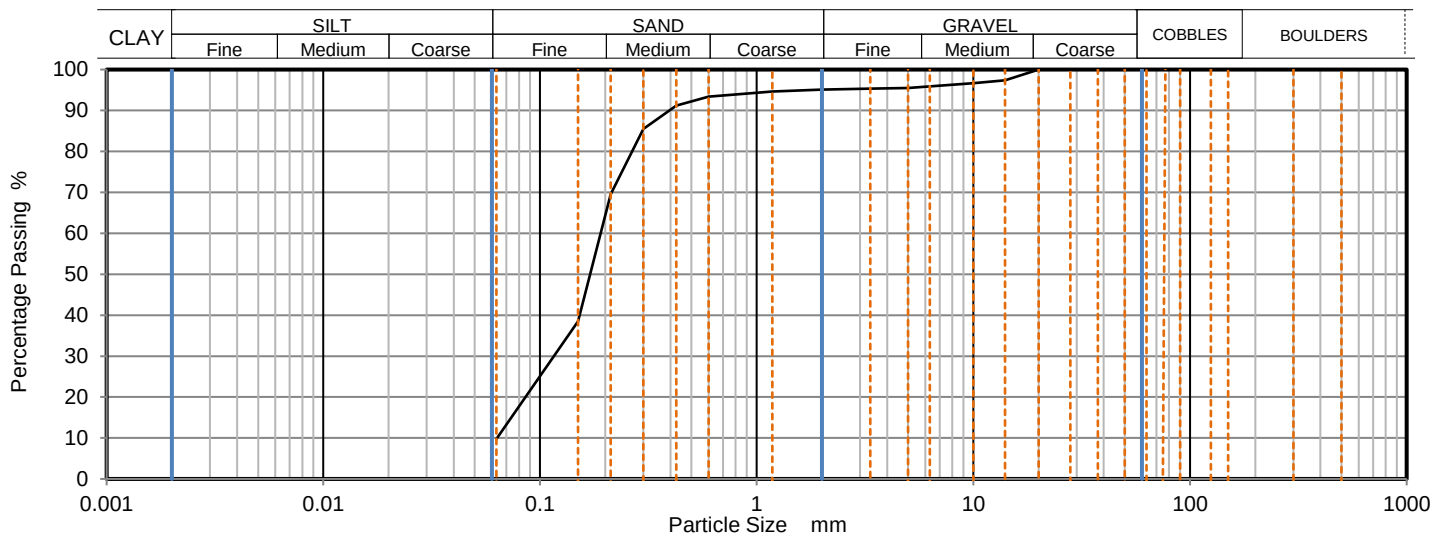
GF 366.12



4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 27/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502295
Hole No.: WS06
Sample Reference: B5
Sample Description: Dark brown slightly gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.Depth Top [m]: 1.50
Depth Base [m]: 2.50
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	97		
6.3	96		
5	96		
3.35	95		
2	95		
1.18	95		
0.6	93		
0.425	91		
0.3	86		
0.212	70		
0.15	39		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	85
Fines <0.063 mm	10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

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Reporting Specialist
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**TEST CERTIFICATE****DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

Client Reference: 4660 GT00175

Job Number: 25-016737-1

Date Sampled: 27/03/2025

Date Received: 03/04/2025

Date Tested: 18/04/2025

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502297

Hole No.: WS08

Sample Reference: B2

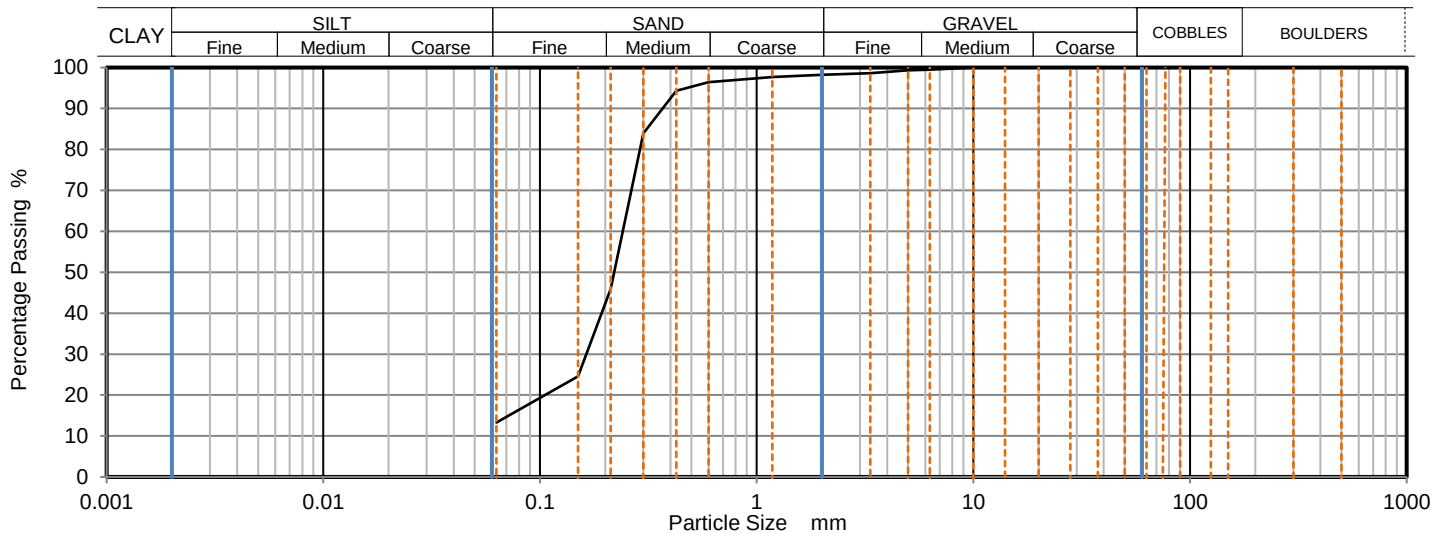
Sample Description: Dark brown clayey SAND

Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.

Depth Top [m]: 0.40

Depth Base [m]: 1.00

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	98		
1.18	98		
0.6	96		
0.425	94		
0.3	84		
0.212	46		
0.15	25		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	85
Fines <0.063 mm	13

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

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Reporting Specialist
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Page 1 of 1

Date Reported: 25/04/2025

GF 366.12



4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NE

Contact: Mike OHalloran
Site Address: Lizard Lane, Whitburn

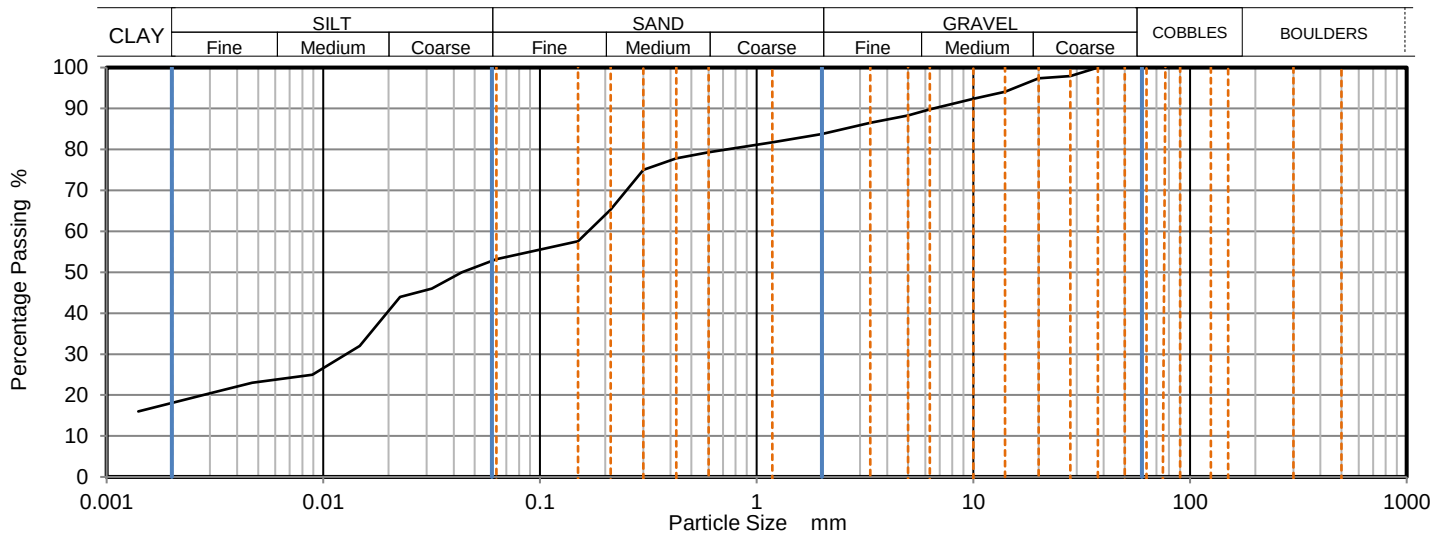
Client Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 17/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 502298
Hole No.: WS09
Sample Reference: B3
Sample Description: Dark brown slightly gravelly slightly sandy silty CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 2.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0436	50
300	100	0.0316	46
150	100	0.0226	44
125	100	0.0147	32
90	100	0.0089	25
75	100	0.0047	23
63	100	0.0033	21
50	100	0.0014	16
37.5	100		
28	98		
20	97		
14	94		
10	92		
6.3	90		
5	88		
3.35	87		
2	84		
1.18	82		
0.6	79	Particle density (assumed) 2.65 Mg/m3	
0.425	78		
0.3	75		
0.212	65		
0.15	58		
0.063	53		

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	31
Silt	35
Clay	18

Grading Analysis	
D100	mm 37.5
D60	mm 0.167
D30	mm 0.0124
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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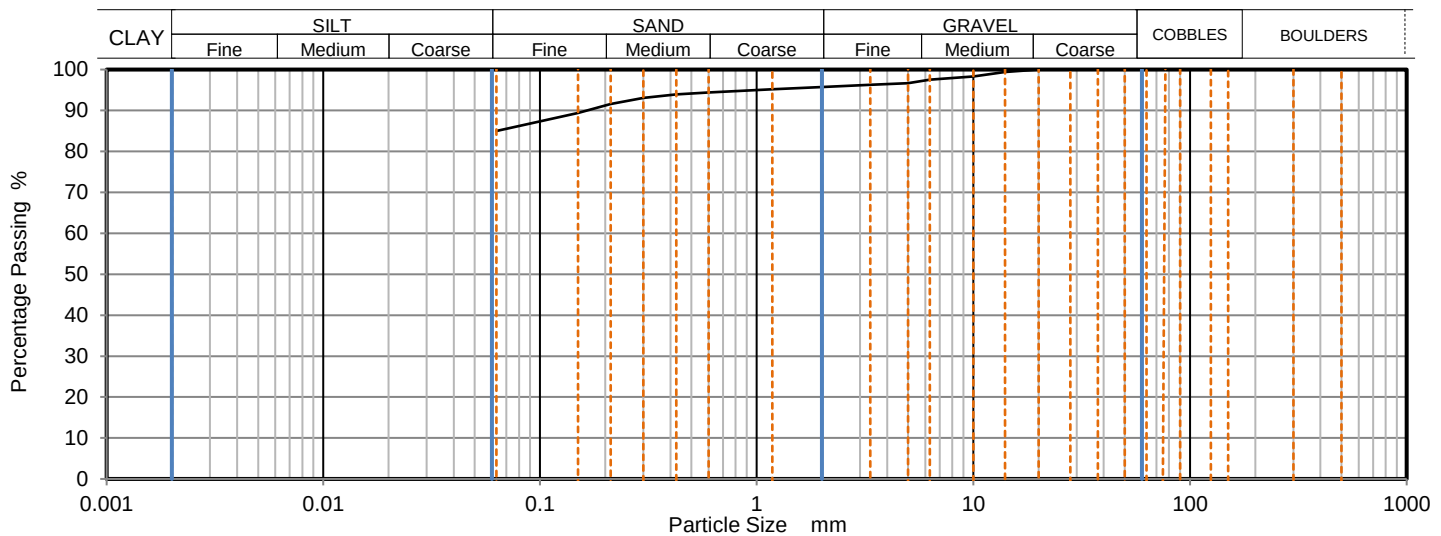
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**TEST CERTIFICATE****DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502299
Hole No.: WS09
Sample Reference: B4
Sample Description: Light brown slightly gravelly slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B

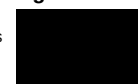
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	98		
5	97		
3.35	96		
2	96		
1.18	95		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	89		
0.063	85		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	11
Fines <0.063 mm	85

Grading Analysis		
D100	mm	20
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:**Signed:**Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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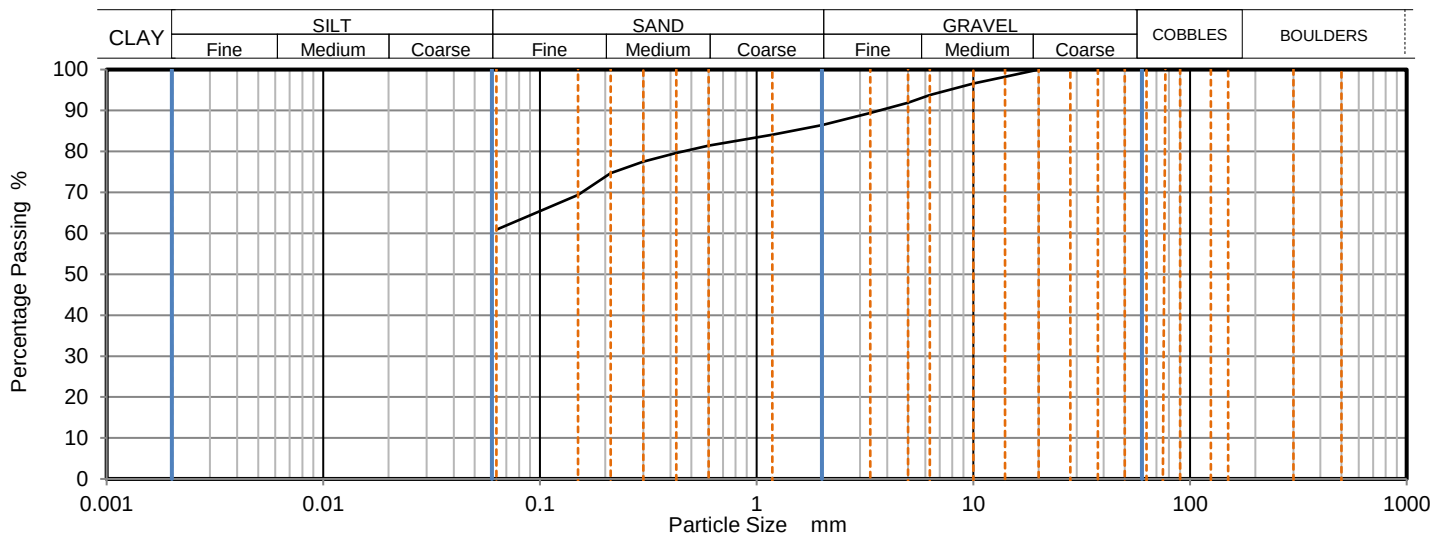
4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502301
Hole No.: WS10
Sample Reference: B4
Sample Description: Light brown slightly gravelly slightly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.1 °C and broken down by hand.Depth Top [m]: 2.00
Depth Base [m]: 3.00
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	94		
5	92		
3.35	89		
2	86		
1.18	84		
0.6	81		
0.425	80		
0.3	78		
0.212	75		
0.15	69		
0.063	61		

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	25
Fines <0.063 mm	61

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

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Reporting Specialist
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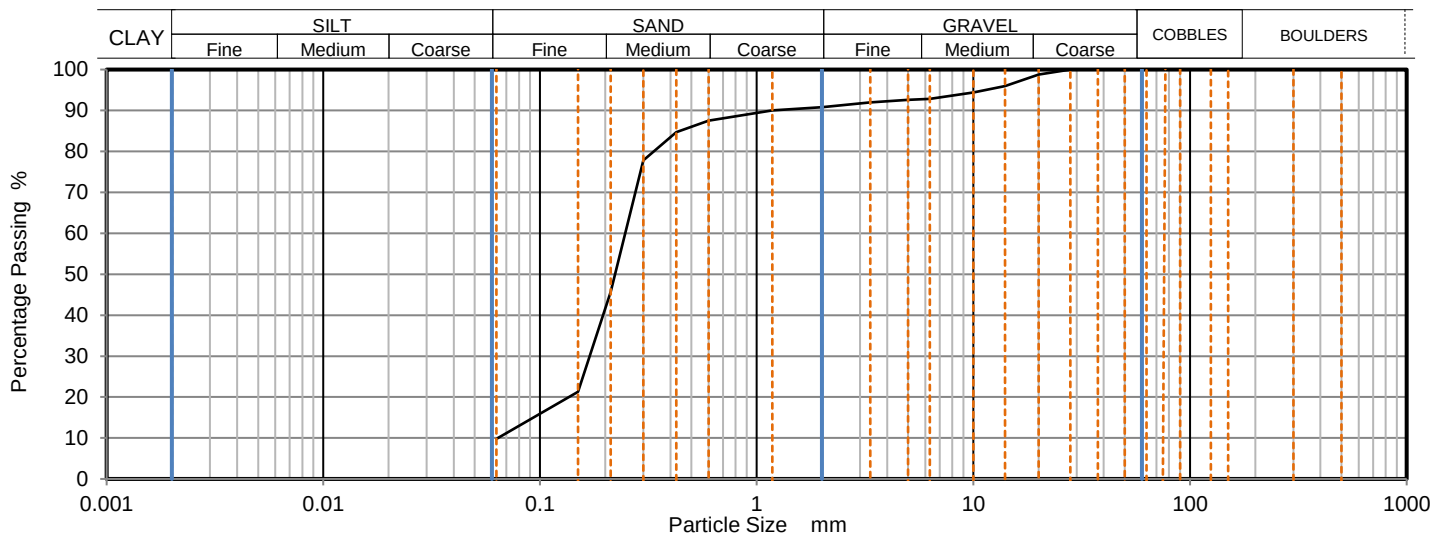
4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502302
Hole No.: WS11
Sample Reference: B2
Sample Description: Dark brown gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.Depth Top [m]: 0.30
Depth Base [m]: 1.50
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	96		
10	94		
6.3	93		
5	93		
3.35	92		
2	91		
1.18	90		
0.6	88		
0.425	85		
0.3	78		
0.212	46		
0.15	21		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0
Gravel	9
Sand	81
Fines <0.063 mm	10

Grading Analysis	
D100	mm 28
D60	mm 0.247
D30	mm 0.17
D10	mm 0.0639
Uniformity Coefficient	3.9
Curvature Coefficient	1.8

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



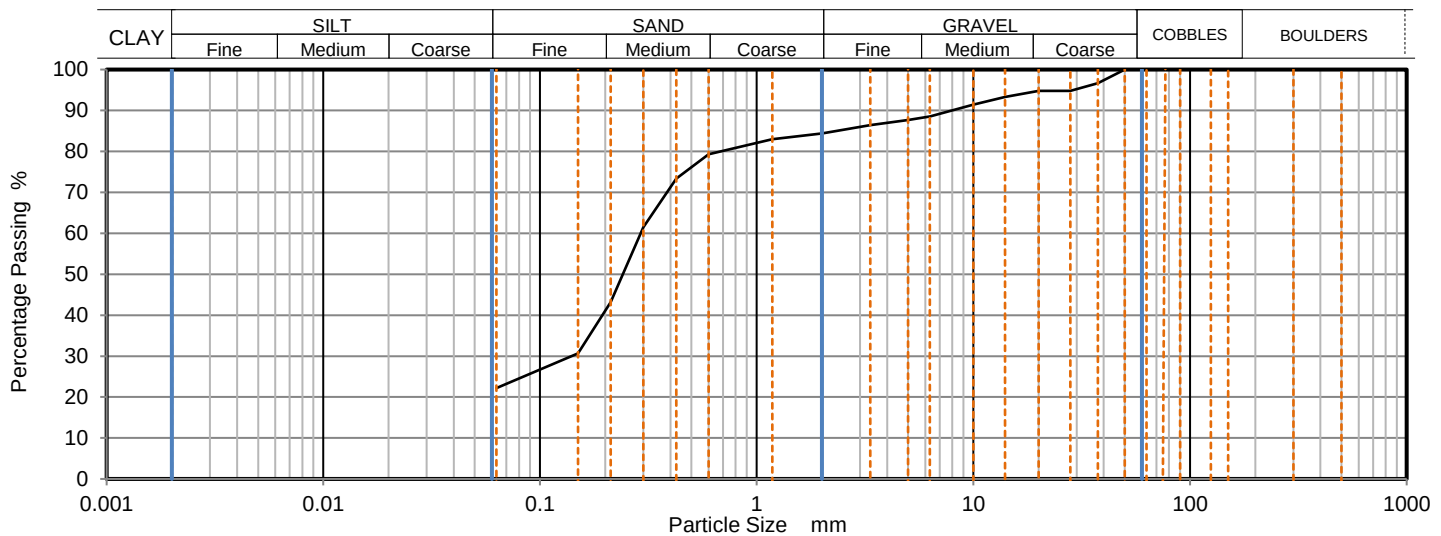
4041

TEST CERTIFICATE**DETERMINATION OF PARTICLE
SIZE DISTRIBUTION**Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: GEO2 Remediation Ltd
Client Address: Coniston House, Louisa Street,
Idle, BD10 8NEContact: Mike OHalloran
Site Address: Lizard Lane, WhitburnClient Reference: 4660 GT00175
Job Number: 25-016737-1
Date Sampled: 26/03/2025
Date Received: 03/04/2025
Date Tested: 18/04/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 502304
Hole No.: WS13
Sample Reference: B2
Sample Description: Brown gravelly very clayey SAND
Sample Preparation: Sample was whole tested, oven dried at 108.1 °C and broken down by hand.Depth Top [m]: 0.30
Depth Base [m]: 1.00
Sample Type: B

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	95		
20	95		
14	93		
10	91		
6.3	89		
5	88		
3.35	86		
2	84		
1.18	83		
0.6	79		
0.425	73		
0.3	62		
0.212	43		
0.15	31		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	62
Fines <0.063 mm	22

Grading Analysis	
D100	mm 50
D60	mm 0.292
D30	mm 0.14
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance
with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: DART524
Test Date: 28/08/2024
Report Date: 28/08/2024
File Name: DART524 (2).spt
Test Operator: CM

Instrumented Rod Data

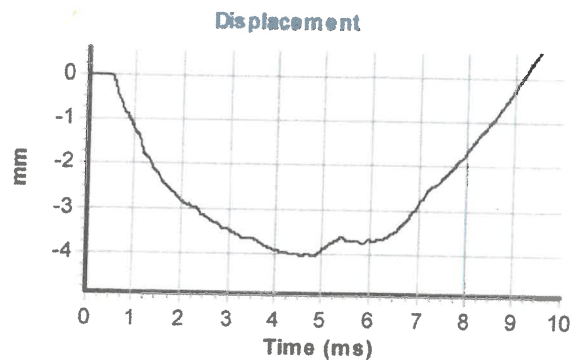
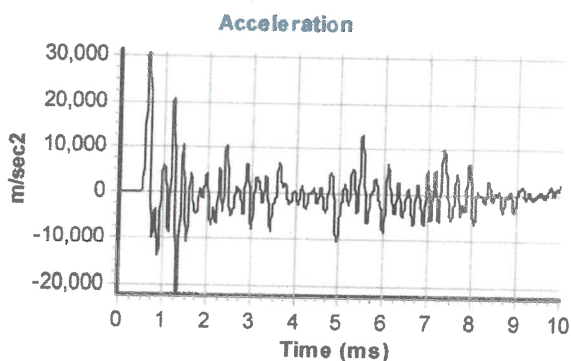
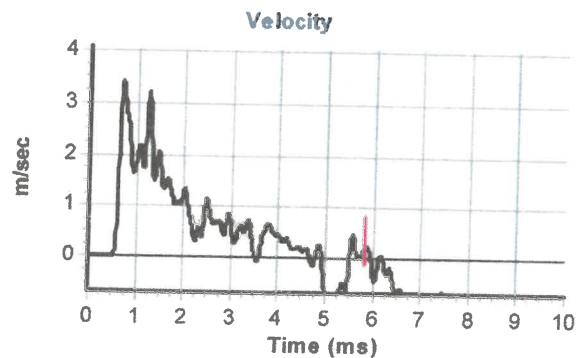
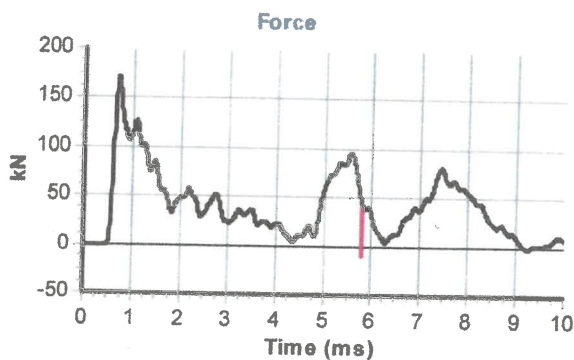
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.4
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 72572
Accelerometer No.2: 72572

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

STORY CONTRACTING LIMITED - 90725



Calculations

Area of Rod A (mm²): 957
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 343

Energy Ratio E_r (%): **73**

Signed: C.McCLUSKEY
Title: FITTER

The recommended calibration interval is 12 months

Soil Infiltration Rate Test

Project No.:	Date of Test:	Project Title:		Test Pit No:
GT00175	26/03/2025			TP10
Client:		Lizard Lane		
Story Homes		Time to fill pit:	Time at start of test:	
Job Location:		5 minutes		
		Engineer:	Is pit prefilled with gravel and/or sand?:	
Lizard Lane		A Gracias	No	
	1			

Elapsed Time		Depth of water below ground level (m)
Minutes	Seconds	
	0.00	1.45
	300.00	1.56
	600.00	1.60
	1800.00	1.79
	2700.00	1.85

vel :	0.00
-------	------

Volume (V) of pit between 75% and 25% depths (m³):
1.63
Effective volume of pit between 75% and 25% depths (V_{p75-25}):
1.63
Internal surface area of pit to 50% pit storage level (a_{ss0}):
7.18

Time at which water is at 75% effective depth shown on the graph:
1800.00
Time at which water is at 25% effective depth shown on the graph:
600.00

t_{p75-25} then equals:	1200.00
--	---------

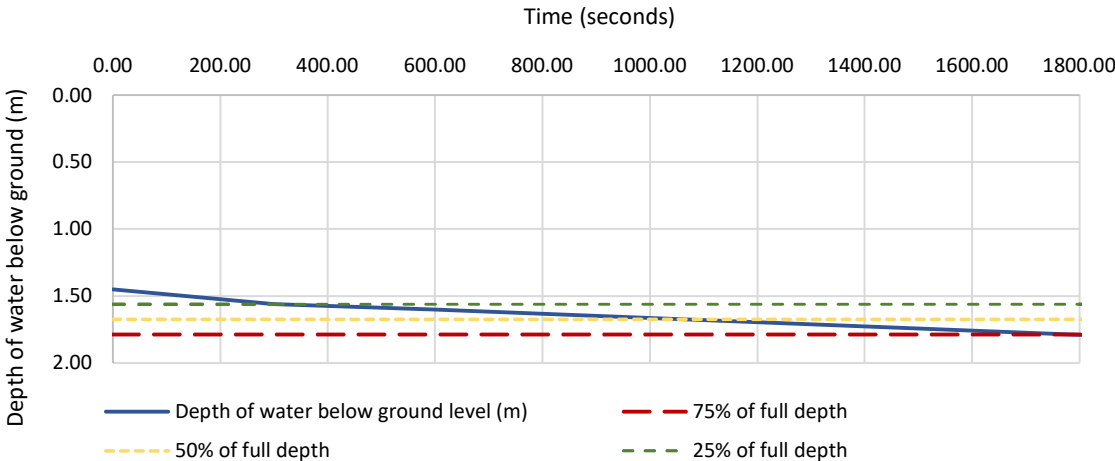
Soil Infiltration Rate, f :
1.89E-04

m/s

Remarks:

- approximately 700 litres of water used to fill pit up to 1.45mbgl.
- Couldn't fully fill pit with water therefore started test at 1.45mbgl.

Time (seconds)



Depth of water below ground (m)

— Depth of water below ground level (m)

- - - 75% of full depth

- - - 50% of full depth

- - - 25% of full depth

Soil Infiltration Rate Test

Project No.:	Date of Test:	Project Title:		Test Pit No:
GT00175	26/03/2025			TP10
Client:		Lizard Lane		
Story Homes		Time to fill pit:	Time at start of test:	
Job Location:		5 minutes		
Lizard Lane		Engineer:	Is pit prefilled with gravel and/or sand?:	
		A Gracias	No	
	2			

Elapsed Time		Depth of water below ground level (m)
Minutes	Seconds	
	0.00	1.50
	320.00	1.60
	600.00	1.65
	1500.00	1.80
	2700.00	1.87

Volume (V) of pit between 75% and 25% depths (m ³):
1.69
Effective volume of pit between 75% and 25% depths (V _{p75-25}):
1.69
Internal surface area of pit to 50% pit storage level (a _{ss0}):
7.35

Time at which water is at 75% effective depth shown on the graph:
1500.00
Time at which water is at 25% effective depth shown on the graph:
320.00

t _{p75-25} then equals:	1180.00
----------------------------------	---------

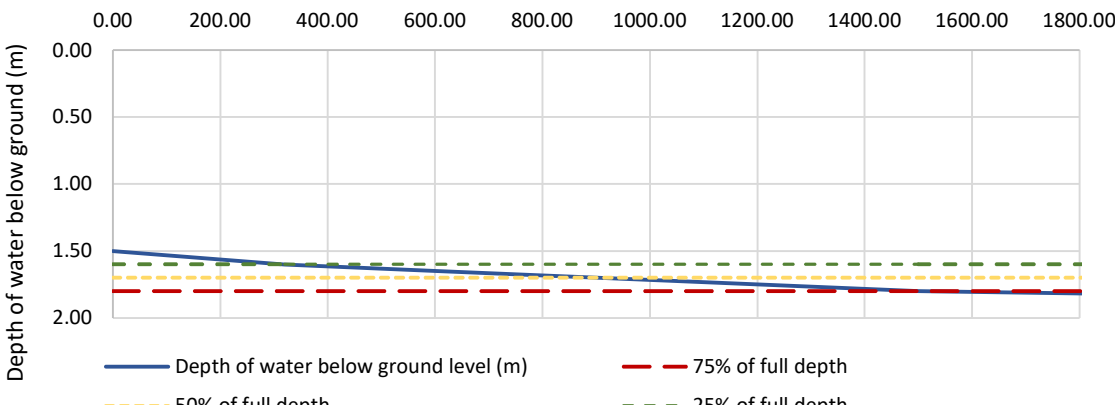
Soil Infiltration Rate, f :
1.95E-04

m/s

Remarks:

- approximately 700 litres of water used to fill pit up to 1.50mbgl.
- Couldn't fully fill pit with water therefore started test at 1.50mbgl.

Time (seconds)



Depth of water below ground (m)

— Depth of water below ground level (m)

- - - 75% of full depth

- - - 50% of full depth

- - - 25% of full depth

Soil Infiltration Rate Test

Project No.:	Date of Test:	Project Title:		Test Pit No:
GT00175	26/03/2025			TP10
Client:		Lizard Lane		
Story Homes		Time to fill pit:	Time at start of test:	
Job Location:		5 minutes		
		Engineer:	Is pit prefilled with gravel and/or sand?:	
Lizard Lane		A Gracias	No	
	3			

Elapsed Time		Depth of water below ground level (m)
Minutes	Seconds	
	0.00	1.50
	420.00	1.60
	600.00	1.65
	1800.00	1.80
	2700.00	1.85

Volume (V) of pit between 75% and 25% depths (m ³):
1.69
Effective volume of pit between 75% and 25% depths (V _{p75-25}):
1.69
Internal surface area of pit to 50% pit storage level (a _{ss0}):
7.35

Time at which water is at 75% effective depth shown on the graph:
1800.00
Time at which water is at 25% effective depth shown on the graph:
420.00

t _{p75-25} then equals:	1380.00
----------------------------------	---------

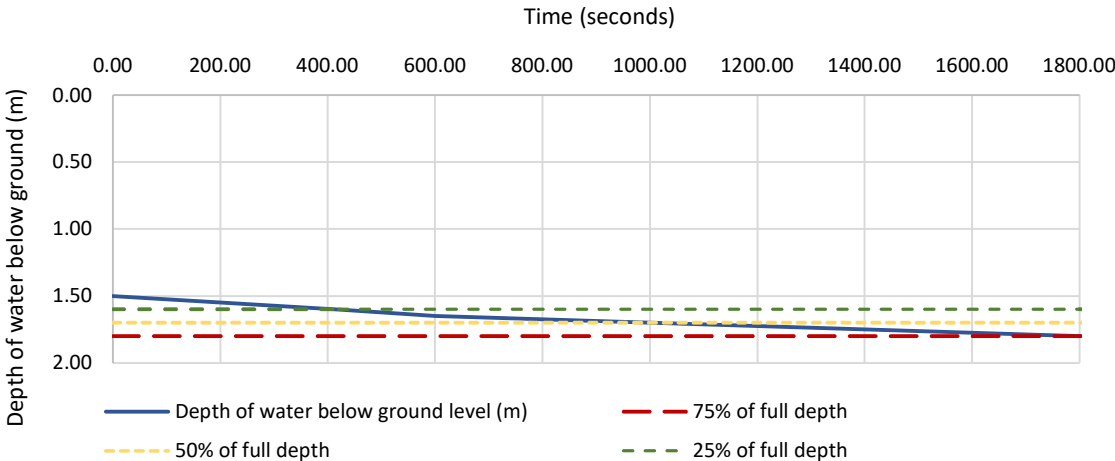
Soil Infiltration Rate, f :
1.66E-04

m/s

Remarks:

- approximately 700 litres of water used to fill pit up to 1.50mbgl.
- Couldn't fully fill pit with water therefore started test at 1.50mbgl.

Time (seconds)



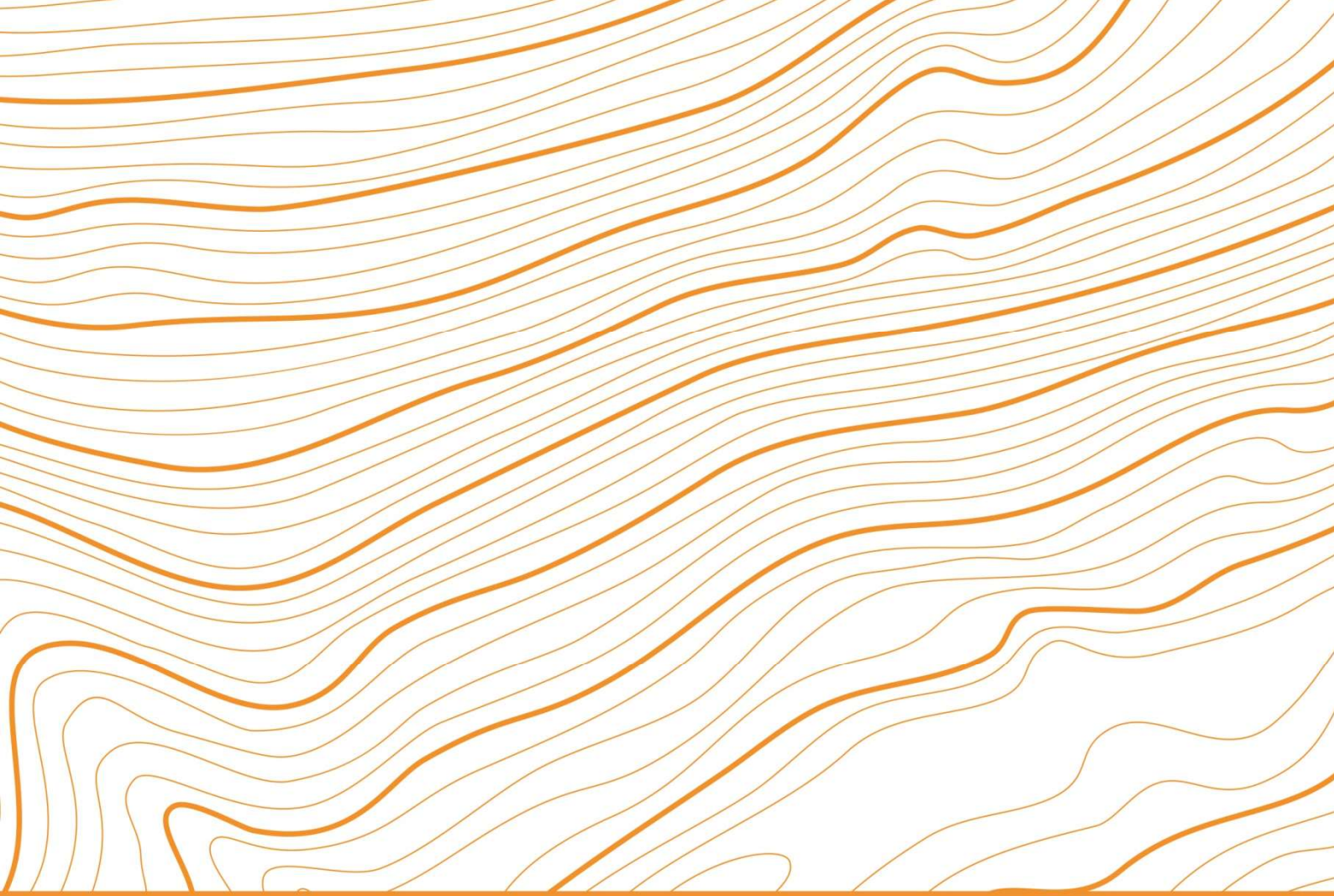
Depth of water below ground (m)

— Depth of water below ground level (m)

- - - 75% of full depth

- - - 50% of full depth

- - - 25% of full depth



Appendix E – Monitoring Data

Project:	Lizard Lane	Date:	02/04/2025	Wind Speed:	10	mph	
Project No.:	GT00175	Weather:	Clear & Sunny	Temperature:	12	°C	

Monitoring	Flow Range (s/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02		1026	0.1	0.1	0	0	0.1	0.1	20.1	20.1	0	0	0	0	Dry	2.72
Monitoring point observations, issues etc:																
WS04		1026	0	0	0	0	0.7	0.7	19.5	19.5	0	0	0	0	Dry	2.47
Monitoring point observations, issues etc:																
WS05		1026	0	0	0	0	1.7	1.7	20.0	18.3	0	0	0	0	Dry	4.88
Monitoring point observations, issues etc:																
WS08		1026	0.1	0.1	0	0	0.9	0.9	19.9	19.9	0	0	0	0	Dry	1.85
Monitoring point observations, issues etc:			Marker peg installed													
WS09		1028	0	0	0	0	1.1	1.1	19.0	18.9	0	0	0	0	Dry	2.50
Monitoring point observations, issues etc:																
WS13		1028	0	0	0	0	1.0	0.9	19.6	19.5	0	0	0	0	Dry	1.00
Monitoring point observations, issues etc:			Marker peg installed													
LEL - Lower Explosive Limit									Technician:			NB				

Project:	Lizard Lane	Date:	10/04/2025	Wind Speed:	8	mph	
Project No.:	GT00175	Weather:	Cloudy	Temperature:	7	°C	

Monitoring	Flow Range (res/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02	0.2	1029	0.1	0.1	2.0	2.0	0.2	0.2	20.8	20.8	0	0	0	0	Dry	2.72
Monitoring point observations, issues etc:																
WS04	0.3	1029	0.1	0.1	2.0	2.0	0.6	0.6	20.7	20.7	0	0	0	0	Dry	2.47
Monitoring point observations, issues etc:																
WS05	0.3	1030	0.1	0.1	2.0	2.0	2.0	2.0	19.4	19.4	0	0	0	0	Dry	4.88
Monitoring point observations, issues etc:																
WS08	0.3	1029	0.1	0.1	2.0	2.0	1.7	1.7	19.8	19.8	0	0	0	0	Dry	1.85
Monitoring point observations, issues etc:																
WS09	0.3	1030	0	0	0	0	1.6	1.6	19.9	19.9	0	0	0	0	Dry	2.50
Monitoring point observations, issues etc:																
WS13	0.2	1030	0.1	0.1	2.0	2.0	1.1	1.1	20.5	20.5	0	0	0	0	Dry	1.00
Monitoring point observations, issues etc:																
LEL - Lower Explosive Limit									Technician:			NB				

Project:	Lizard Lane	Date:	17/04/2025	Wind Speed:	8	mph	
Project No.:	GT00175	Weather:	Sunshine and Clouds	Temperature:	9	°C	

Monitoring	Flow Range (s/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02	0	1007	0.1	0.1	2	2	0.1	0.1	20.4	20.4	0	0	0	0	Dry	2.5
Monitoring point observations, issues etc:																
WS04	0	1007	0	0	0	0	0.4	0.2	20.4	20.4	0	0	0	0	Dry	2.15
Monitoring point observations, issues etc:																
WS05	0	1007	0	0	0	0	2	2	19.2	19.2	0	0	0	0	Dry	5
Monitoring point observations, issues etc:																
WS08	0	1007	0	0	0	0	1.4	1.4	22	20	0	0	0	0	Dry	1.98
Monitoring point observations, issues etc:																
WS09	0.1	1007	0	0	0	0	1.6	1.6	19.7	19.7	0	0	0	0	Dry	2.55
Monitoring point observations, issues etc:																
WS13	0	1007	0	0	0	0	0.7	0.7	21	20.6	0	0	0	0	Dry	1.04
Monitoring point observations, issues etc:																
LEL - Lower Explosive Limit									Technician:			PL				

Project:	Lizard Lane	Date:	24/04/2025	Wind Speed:	6	mph	
Project No.:	GT00175	Weather:	Sun and clouds	Temperature:	11	°C	

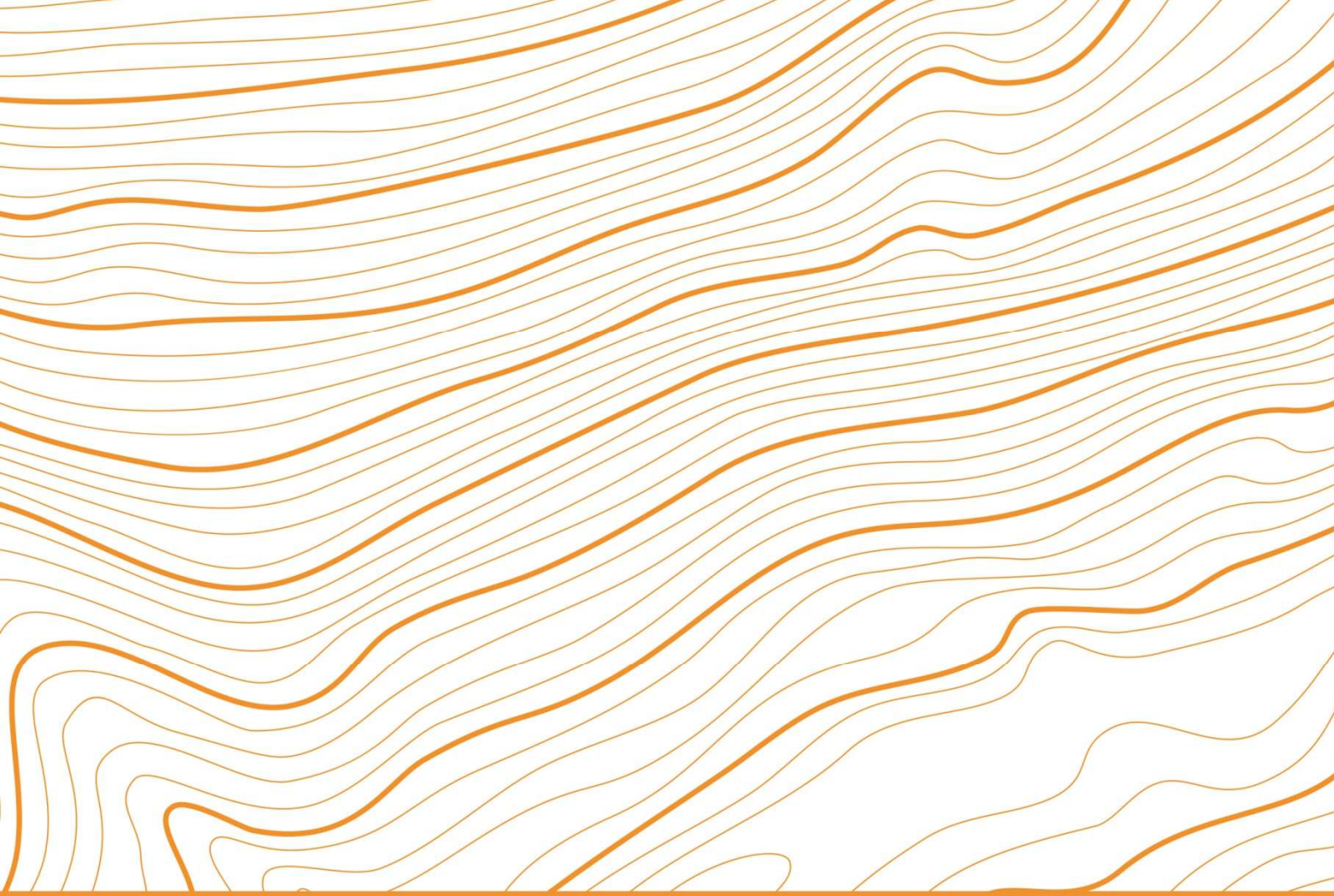
Monitoring	Flow Range (s/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02	0	1021	0.1	0.1	2	2	0.2	0.2	20.7	20.7	0	0	0	0	Dry	2.5
Monitoring point observations, issues etc:																
WS04	0	1022	0	0.1	0	0	0.4	0.4	19.6	19.6	0	0	0	0	Dry	2.15
Monitoring point observations, issues etc:																
WS05	0	1023	0	0	0	0	1.9	1.9	19.6	19.6	0	0	0	0	Dry	5
Monitoring point observations, issues etc:																
WS08	0	1022	0	0	0	0	1.2	1.2	20	20	0	0	0	0	Dry	1.98
Monitoring point observations, issues etc:																
WS09	0	1023	0	0	0	0	1.5	1.5	20	20	0	0	0	0	Dry	2.55
Monitoring point observations, issues etc:																
WS13	0	1022	0	0	0	0	1.2	1.2	20.3	20.3	0	0	0	0	Dry	1.04
Monitoring point observations, issues etc:																
LEL - Lower Explosive Limit									Technician:			AG				

Project:	Lizard Lane	Date:	28/05/2025	Wind Speed:	8	mph	
Project No.:	GT00175	Weather:	Sun and clouds	Temperature:	15	°C	

Monitoring	Flow Range (s/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02	0	1012	0	0	0	0	0.2	0.2	20.7	20.7	0	0	0	0	Dry	2.5
Monitoring point observations, issues etc:																
WS04	0	1012	0.1	0.1	0	0	0.4	0.4	19.6	19.6	0	0	0	0	Dry	2.15
Monitoring point observations, issues etc:																
WS05	0	1012	0	0	0	0	1.9	1.9	19.3	19.3	1	1	0	0	Dry	5.0
Monitoring point observations, issues etc:																
WS08	0	1012	0.1	0.1	0	0	0.8	0.8	20.0	20.0	0	0	0	0	Dry	1.98
Monitoring point observations, issues etc:																
WS09	0	1012	0	0	0	0	1.5	1.5	19.4	19.4	1	1	0	0	Dry	2.55
Monitoring point observations, issues etc:																
WS13	0	1012	0	0	0	0	1.0	1.0	20.5	20.5	0	0	0	0	Dry	1.04
Monitoring point observations, issues etc:																
LEL - Lower Explosive Limit										Technician:		NB				

Project:	Lizard Lane	Date:	01/05/2025	Wind Speed:	2	mph	
Project No.:	GT00175	Weather:	Sunny	Temperature:	23	°C	

Monitoring	Flow Range (s/hr)	Atmospheric pressure range (Mb)	Methane CH ₄ % v/v		Methane CH ₄ % LEL		Carbon Dioxide CO ₂ % v/v		Oxygen O ₂ % v/v		Carbon Monoxide CO % v/v		Hydrogen Sulphide H ₂ S % v/v		Water Level (mbgl)	Depth of well (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady		
WS02	0	1024	0	0	0	0	0.1	0.1	20.6	20.6	1	1	0	0	Dry	2.5
Monitoring point observations, issues etc:																
WS04	0	1024	0	0	0	0	0.1	0.1	20.4	20.4	1	1	0	0	Dry	2.15
Monitoring point observations, issues etc:																
WS05	0	1024	0	0	0	0	1.9	1.9	19.2	19.2	1	1	0	0	Dry	5
Monitoring point observations, issues etc:																
WS08	0	1024	0	0	0	0	1.5	1.5	19.3	19.3	2	2	0	0	Dry	1.98
Monitoring point observations, issues etc:																
WS09	0	1023	0	0	0	0	1.5	1.5	19.3	19.3	1	1	0	0	Dry	2.55
Monitoring point observations, issues etc:																
WS13	0	1024	0	0	0	0	0.8	0.8	20	20	1	1	0	0	Dry	1.04
Monitoring point observations, issues etc:																
LEL - Lower Explosive Limit										Technician:		RC				



Appendix F – Risk Assessment Terminology

Definitions and Classifications of Risk Assessment Terminology.

Probability

Probability can be defined as the chance of a particular event occurring in a given period of time.

Descriptions of each of the four qualitative terms to be use in this report to describe the perceived probability of any identified pollutant linkage becoming realised are shown below in Table W.

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

Table W. Description of Probability Classifications

Severity

Severity (consequence) can be defined as the adverse effects (or harm) arising from a defined hazard, which impairs the quality of human health or the environment in the short or longer term.

Descriptions of each of the four qualitative terms to be used in this report to describe the perceived potential severity of any identified pollutant linkage becoming realised are shown below in Table X.

Term	Description
Severe	Highly elevated concentrations, presenting short-term “acute” hazard, likely to result in “significant harm” to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including short-term hazard and/or persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations presenting a “chronic” hazard which could result in “significant harm” to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure presenting some chronic hazard to human health but unlikely to lead to “significant harm”. Equivalent to EA Category 3 pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short-lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property.
Minor	No long term hazard to human health, non-permanent human health effects easily prevented by mitigation such as personal protective clothing. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Easily repairable effects of damage to buildings, structures and services.

Table X. Description of Severity Classifications

Once the severity and probability of a pollutant linkage has been determined the risk can be assessed using the risk matrix shown overleaf on Table Y.

Risk Matrix

By cross referencing the derived severity and probability in Table Y, below the perceived potential risk can be determined.

		Severity			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table Y. Risk Assessment Matrix

The risk categories detailed above are defined below in the following Table Z.

Term	Description
Very High Risk	There is a high probability that significant harm could arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
High Risk	Significant harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
Moderate Risk	It is possible that without appropriate remedial action, harm could arise to a designated receptor but it is relatively unlikely that any such harm would be severe and if any harm were to occur, it is likely that such harm would be relatively mild.
Low Risk	It is possible that significant harm could arise to a designated receptor from an identified hazard but it is likely that at worst this harm if realised would normally be mild.
Very Low Risk	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.

Table Z. Definition of Risk