BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

D MORGAN

Newhey Quarry, Rochdale

Geo-Environmental Assessment Report

SM/C4315/9000 Rev B

February 2020

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EXECUTIVE SUMMARY

Location and Brief Site Description	The site is irregular in shape and currently comprises the suspended Newhey Quarry in the south of the site. Extensive workings have left an approximately 40-50m high cliff face at the northern edge of the quarrying activities. Along the southern areas of the quarry the site slopes down towards Huddersfield Road. The asphalt access road also slopes down towards the site entrance and very steeply toward a large pond on site. There are numerous ponds on the quarry floor and above the cliff face in the fields. A small brick building is also present in the centre of the quarry. Historical mapping describes the building as a 'Ruin' since 1955. Above the quarry to the north are grass covered fields with associated post, wire and stone fencing. The fields are primarily used for livestock grazing. .
Site History	Historical mapping shows the quarrying began in the late 19th Century with the brickworks and kilns, associated tanks, chimneys and electrical sub-station shown from the 1893 map in the southern area of the site and carried on until the mid to late 20th Century.
Geology	No superficial deposits are recorded at the site, although in the wider area there are deposits of Glacial Till (sandy and gravelly clays). The solid geology underlying the site consist of the Pennine Lower Coal Measures, which typically comprises mudstone, siltstone, sandstone and coal.
Mining	It is anticipated unrecorded coal working could be present on site. An unnamed coal seam circa 200m to the north dipping 5° south which would place this coal seam circa 17.5m beneath northern boundary and circa 32m beneath southern boundary of the site. This does not take into account the topography, the fault on site and quarrying activities, therefore could be shallower across the southern portion of the site. Further investigation is recommended.
Hydrogeology and Hydrology	Piethorne Brook flows broadly east to west in the valley floor south of the quarry. Ten surface water abstraction points are located within 1km of the site, including two from the River Beal for cooling and boiling water and one from Butterworth Brook for cooling water. Four groundwater abstraction points within 1km of the site. The closest is 300m north and used for agricultural processes. The bedrock Aquifer designation is given as a Secondary A Aquifer and the Site is located within a Source Protection Zone. The site is located in EA Flood Zone 1 and over 250m from the nearest area of Zone 2/Zone 3 flood risk.
Ground Conditions	*Made ground* Made ground was encountered within stockpiles and mounds/raised topography across the quarry floor and was observed from ground level to proven depths between 0.10m and 3.40m bgl. Areas of deeper made ground generally represent the height of stockpiles, made ground generally reached depths of 0.40m bgl. No made ground was encountered on top of the quarry within the fields to the north of the quarry face. The composition of the made ground varied across the site, however generally represented sandy gravel quarried aggregate and occasional waste material of slightly sandy clayey gravel with gravel of mudstone, sandstone, brick, rare clinker, metal and glass. Made ground topsoil remained relatively consistent across the site and was encountered from ground level to between 0.05m to 0.25m bgl, comprising slightly gravelly sand clay. *Natural strata* Natural topsoil was encountered in sporadic areas of vegetation across the quarry floor and across the fields above the cliff top in the north, encountered as slightly sandy gravely clay or sandy clay, from depths ranging between ground level to 0.05m to 0.35m bgl. In general, the natural strata encountered in the quarry consisted of mainly slightly sandy clay gravel and occasional slightly sandy gravely clay, underlain by shallow mudstone in the quarry floor. Underlying the natural topsoil to the north of the site in the field was generally a firm orange brown gravelly sandy clay with a high cobble content of mudstone and sandstone and gravel of fine to course sub-rounded to angular mudstone and sandstone. Subsequently underlain by a sandstone bedrock. *Bedrock* The quarry face consists of interbedded sandstone and mudstone and the majority of the quarry floor consists of mudstone, interpreted to be part of the Pennine Lower Coal Measures Formation.

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	Beneath the superficial deposits in the northern fields, sandstone was encountered, interpreted to represent the Riddle Scout Rock.
Soil Contamination	The proposed development is of residential end use therefore residential with plant uptake screening values have been used. Based on the testing undertaken it would appear that there is localised contamination within one made ground (TP105, 1.00m) in a localised stockpile in the form of arsenic. No PAH, petroleum hydrocarbons or asbestos contamination was identified within any soil samples across the site.
Groundwater Contamination	Four groundwater samples were collected from surface water across the site. Two samples were taken from ponds in the quarry floor (West pond and South pond), one sample was collected from a stream flowing east to west along the former brick road/foot path (Path stream) in the centre of the quarry and one sample was collected from the pond in the upper northern corner of the site where the former tank was recorded (North pond). Results shows show slight exceedances above EQS screening values of copper elevations in the ponds and stream in the quarry floor and slight elevation in copper, lead, nickel and zinc in the northern pond.
Outline Remedial Strategy	Elevated arsenic has been identified in one localised sample taken from a stockpile in the centre of the quarry. The following remedial measures can be used to mitigate the risk to human health: • The material could be removed off site to a licensed landfill prior to the process of cut and fill. • During the process of reprofiling the site, the materials could be placed at depth, thus breaking the pathway to end users. • The material could be segregated and placed in an area of public open space (POS) as the level of arsenic does not exceed screening levels for POS. A gas risk assessment has not been completed to date. However, based on the preliminary CSM, ground gas protection measures may be required due to the potential presence of mine gas associated with coal underlying the site. Further assessment is recommended. A watching brief is recommended during groundworks for any unidentified sources of contamination.
Waste	Based on the waste classification database assessment, the soils have been classified as non-hazardous. Based on WAC testing the soils will potentially be suitable for disposal as inert waste.
Foundations and Floor Slabs	Due to the site being regraded to a south east trending slope, the majority of the ground will either be re-engineered during earthworks or the underlying superficial strata or bedrock will be exposed at shallow depth. Where natural undisturbed granular and cohesive strata are present at shallow depths (circa <2.00m) after site reprofiling works, shallow strip footings should be suitable. Based on the data available, a safe bearing pressure of 200kN/m^2 should be assumed for natural soils and 250kN/m^2 where natural sandstone and mudstone bedrock is present, subject to inspections post earthworks by a suitably qualified geotechnical engineer. In areas of engineered fill, possible foundation options include the use of vibro ground improvement techniques or placement of fill to a suitable engineering specification in order to facilitate the construction of reinforced strip foundation within engineered structural fill, although careful consideration and analysis will be required to ensure this option is viable. After the completion of site wide earthworks, it would be prudent to undertake a post earthworks ground investigation in order to provide adequate information for detailed foundation design. Suspended floor slabs are recommended throughout the development. For concrete classification, results indicate ACEC Class AC-1s and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005.
Highways	Based on Table 5.1 from DMRB IAN 73/06 Rev 1 equilibrium CBR values of 5% are likely to be achieved in undisturbed natural granular soils and 2% for natural clays soils for pavement design purposes. Where the CBR is found to be less than 2% in natural clay soils, the sub-grade is unlikely to be suitable for both the trafficking of site plant and as a permanent highway foundation without improvement of the soils.

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	Where soils and rock are to be re-engineered as part of site wide earthworks, minimum equilibrium CBR values of 5% should be achievable, providing the materials are placed and compacted in accordance with a suitable specification.
Mining Risk	Based on the previous Coal Mining Risk assessment completed by BSL (ref. JMC/C4315/8856, November 2019) it is anticipated unrecorded coal working could be present on site. An unnamed coal seam circa 200m to the north dipping 5° south which would place this coal seam circa 17.5m beneath northern boundary and circa 32m beneath southern boundary of the site. This does not take into account the topography, the fault on site and quarrying activities, therefore could be shallower across the southern portion of the site. Further investigation is required.

Further Work	• Ground gas monitoring and risk assessment.
	• Supplementary Intrusive site investigation comprising:
	    • Rotary borehole coring to target potential coal mine workings.
	    • Confirmatory trial pitting in previously inaccessible areas
	    • Further chemical testing, targeting historical tanks and electricity sub-station.
	    • Installation of gas monitoring standpipes.
	    • Update risk assessments based on the above.
	• Appraisal of proposed slope designs and remedial measures.
	• Demolition Asbestos survey (single building on site).
	• Tree survey by qualified arboriculturist.
	• Detailed volumetric appraisal with 3D modelling of cut and fill balance.
	• Development of Earthworks Strategy.
	• Production of Materials Management Plan (MMP) under the CL:AIRE DoWCoP, if required.
	• Implementation of the Remedial Strategy and verification of the remedial works, if required
	• Completion of post earthworks ground investigation in order to provide adequate information for detailed foundation design.
	• Undertake detailed foundation design.

This executive summary should be read in conjunction with the full report, reference SM/C4315/9000 Rev B,and not as a standalone document.

PROJECT QUALITY CONTROL DATA SHEET

Site Name:	Newhey Quarry, Rochdale		
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Issued By:	**Client:**	**Engineer:**
Brownfield Solutions Ltd William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP Tel: 01606 334 844 brownfield-solutions.com	D Morgan Chester Road Great Sutton Ellesmere Port CH66 2LS	
	Contact: Mr Ian Byrne	Contact:

Written by:	Checked by:	Approved by:
[redacted]	[redacted]	[redacted]
S Murray	J Campion	A J Stokoe
MGeol (Hons) FGS	BSc (Hons) FGS AMIEnvSc	BSc (Hons) CSci MIEnvSc FGS
Project Engineer	Senior Project Engineer	Principal Project Engineer
		CSci Chartered Scientist

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C4315/04	-	Exploratory Hole Location Plan

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Appendix A	BSL Methodology and Guidance
Appendix B	Exploratory Hole Logs
Appendix C	Chemical Testing Results
Appendix D	Geotechnical Testing Results
Appendix E	Waste Assessment Report

1.0 INTRODUCTION

1.1 Objectives

This report describes a Geo-Environmental Assessment carried out by Brownfield Solutions Limited (BSL) for D Morgan at the former quarry off Huddersfield Road, Newhey and has been completed in general accordance with the following guidance:

- CLR11 Model Procedures for the Management of Land Contamination.
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites.
- BS5930: 2015 Code of Practice for Ground Investigations.
- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design. General rules plus UK National Annex.
- BS EN 1997-2:2007 Eurocode 7 Geotechnical design. Ground investigation and testing plus UK National Annex.

1.2 Objectives and Scope

The objectives of this Geo-Environmental Assessment were to determine the environmental setting and ground conditions of the site, highlighting potential risks and areas of concern that may govern the development under the current planning regime. This assessment is also intended to fulfil the requirements of a Ground Investigation Report (GIR) as detailed in BS EN 1997-2:2007.

Following the Desk Study and a Coal Mining Risk Assessment produced for the site, an intrusive investigation was undertaken to confirm the findings of the preliminary Conceptual Site Model (CSM) and meet any objectives that had not been satisfied. The exploratory investigation was undertaken using trial pitting and window sampling, laboratory chemical and geotechnical testing, with reporting on the findings.

1.3 Proposed Development

The proposed development is for a residential end use comprising traditional low-rise housing, gardens and associated access roads. No detailed development layout plans were available at the time of writing this report.

It is understood the site will undergo regrading to mitigate against the slope stability risk from the cliff face within the former quarry. The extent of the works to be completed are not formalised at this stage.

1.4 Previous Reports

This following reports have been produced for the site and should be read in conjunction with this assessment:

- Robson Fletcher Consultants Ltd, Landfill Development Assessment , Report No. 16131/2, issued December 1994.
- Robson Fletcher Consultants Ltd, Mineral Extraction Under Existing Planning Permission, Quarry Management Considerations, Slope Stability Assessment and Safe System of Work, Report No. UK94/16131/21f, issued January 1996.
- Lees Roxburgh Consulting Engineers, Phase 1 Geo-environmental Assessment (Desk Study), Report Ref: 6400/R1, issued July 2019.
- BSL, Coal Mining Risk Assessment Report, Report Ref: JMC/C4315/8856, dated November 2019.

1.5 Limitations

This assessment has been prepared in accordance with the relevant current legislative framework, guidance and risk assessment methodology as outlined in Appendix A. BSL is not liable for any subsequent changes in the guidance and legislation.

The findings and opinions conveyed via this report are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been considered by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, D Morgan. No other third parties may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL). If any unauthorised third party comes into possession of this report, they rely on it at their own risk and BSL do not owe them any Duty of Care.

The investigation carried out on the site has been conducted to provide the best information on the ground conditions within site access and budgetary constraints. The inherent variation of ground conditions allows only for definition of the actual conditions at the locations and depths of exploratory locations at the time of the investigation. Different ground conditions may exist that have not been identified within this investigation.

The recommendations in this report assume that ground levels will remain as existing, unless stated otherwise within the report. If there is to be any re-profiling (e.g. to create development platforms or flood defences) then the recommendations may not apply.

The groundwater results described are only representative of the dates on which they were recorded, and levels may vary seasonally (e.g. due to changes in weather).

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

Although every effort has been made to position exploratory holes in the least sensitive areas of the site, exploratory hole positions were located approximately as part of this investigation and no guarantee can be given as to their accuracy. Consideration should be given to the possibility that exploratory holes excavated as part of this investigation and indeed any previous ground investigation work by others may be encountered beneath or within the influence of individual foundations. BSL cannot be held responsible for structural failures caused by the location of foundations of any form of structure within the influence of exploratory holes.

Where it has not been possible to reasonably use an EC7 compliant investigation technique, a practical alternative has been adopted to obtain indicative soil parameters and any interpretation is based upon engineering experience, local precedent where applicable and relevant published information.

The chemical testing carried out for this report was not scoped to comply with the requirements of the water supply company and further work may be required, unless otherwise stated.

Notwithstanding site observations concerning the presence or otherwise of archaeological issues, asbestos-containing materials (ACM) or invasive weeds (e.g. Japanese knotweed), this report does not constitute a formal survey of these potential issues.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

2.0 THE SITE

2.1 Location

The site is located off Huddersfield Road, on the north eastern outskirts of Newhey, circa 4.50km south east of Rochdale Town Centre. The site is centred on National Grid Reference 394080, 412010 as shown on the Site Location Plan, Drawing No. C4315/01.

2.2 Site Description

A walkover survey was carried out on the site on the 9th September 2019. The main site features and potential issues identified during this survey are detailed below and are shown on Drawing No. C4315/04.

Feature	Description
Site Area	The site covers an area of 18.3 hectares.
Site Access	The main area of the quarry to the south of the development area can be accessed via a locked gated entrance off Huddersfield Road, followed by an asphalt road leading into the quarry. The upper fields above the quarry face can be accessed via Bradley Lane.
Current Land Use and Site Features	The site is irregular in shape and currently comprises the suspended Newhey Quarry in the south of the site. Extensive workings have left an approximately 40-50m high cliff face at the northern edge of the quarrying activities. Along the southern areas of the quarry the site slopes down towards Huddersfield Road. The asphalt access road also slopes down towards the site entrance and very steeply toward a large pond on site. Numerous ponds are present within the quarry, one is located to the north of the asphalt road and the other is located in the central southern area of the quarry. A small brick building is also present in the centre of the quarry. Historical mapping describes the building as a 'Ruin' since 1955. Above the quarry to the north are grass covered fields with associated post, wire and stone fencing. The fields are primarily used for horse grazing. There are also two ponds located in the upper fields, one located in the centre of the fields and the other is located in the upper north eastern corner of the fields.
Potential Sources of Contamination	There is likely to be made ground on site which could contain contaminants associated with the former brick works and quarrying activities.
Vegetation	There are various mature and semi mature trees are present on the slope along the southern boundary which is densely populated with primarily semi-mature trees within the main area of the quarry, including abundant birch and occasional oak trees.
Topography	The site varies significantly in topography. As noted, there is a high cliff face approximately 40m to 50m in height, orientated east-west through the centre of the site. There is also a steep to gentle slope at the top of the cliff leading toward the fields. The southern boundary and access road slopes steeply towards Huddersfield Road. Due to this the access road becomes a higher elevation then the main quarry floor and therefore slopes steeply towards the quarry/pond to north of the asphalt road. The fields in the north of the site show a gentle slope from the farm to the west of the site and slopes steeply towards the quarry cliff.
Site Boundaries	The external boundaries consist largely of post and wire fencing with stone walls in places with farm units located west directly adjacent to the site. The quarry is largely bordered by trees and fencing and residential dwellings in the south, east and west.
Surrounding Area	The surrounding area is generally residential to the south, east and west of the quarry, open fields and farmland. The M62 motorway is circa 250m north of the site.

3.0 PREVIOUS REPORTS

3.1 Robson Fletcher Consultants Ltd, Landfill Development Assessment (ref. 16131/2, Dec 1994)

This report was commissioned by Brock PLC to assess the former brickworks quarry for potential development including the extension to mudstone extraction and restoration by controlled waste disposal. A summary of the relevant points from the above report completed by Robson Fletcher Consultants Ltd is presented below:

- Historical mapping shows the quarrying began in the late 19th Century with the brickworks and kilns shown on the 1893 map in the southern area of the site and carried on until the mid to late 20th Century.
- Drift deposits in the vicinity of the quarry comprise thin deposits of sand and gravel covering some of the lower ground, and patchy gravelly boulder clay (Glacial Till) occupying the higher ground to the north and east quarry. Immediately to the north of the quarry wall is a thin stony Till.
- The solid strata comprise the Lower Coal Measures, including shales, sandstone, seat earths and thin coal horizons.
- The geology sequence dips between 5° and 35° north west, as part of the regional westerly dipping structure. Faulting is evident in the quarry wall with both northerly and north easterly trends.
- Cored boreholes completed on top of the high wall/quarry face shows interbedded sandstone, mudstone and a thin coal horizon (Group F) between 29.79m to 31.41m bgl, comprising interbedded seat earth and coal seams up to 0.03m thick, which outcrop in the quarry face.
- A perched water horizon occurs within the coal horizon in the quarry face.
- BGS boreholes north of the site were completed in 1976 for mineral exploration purposes. These indicate the sandstone (Group H) continues north and attains a thickness of 18.60m. These are underlain by grey and black mudstones.
- Prior to 1872 records show coal was worked from a single seam 160m to 220m below the site. As thin seams of coal occur at shallower depths on site, Robson Fletcher concluded there is a possibility that unrecorded workings occurred at shallow depths.
- Stream drainage is dominated by the Piethorne Brook flowing broadly east to west in the valley floor south of the quarry.
- Ten surface water abstraction points lie within 1km of the site, including two from the River Beal for cooling and boiling water and one from Butterworth Brook for cooling water.
- Four groundwater abstraction points lie within 1km of the site. The closest is 300m north and used for agricultural processes.
- Due to faulting and other discontinuities, fracture flow can occur in the sandstone, mudstone and coal seams, and can be further impacted by coal mining due to further voids being produced.
- Although not located, there is evidence of a well utilising the groundwater for the brickworks. Discharge of the water from the quarry floor is known to be via the well and towards the River Beal.

3.2 Robson Fletcher Consultants Ltd, Mineral Extraction Under Existing Planning Permission, Quarry Management Consideration, Slope Stability Assessment and Safe System of Work (ref. UK94/16131/21f, Jan 1996)

A summary of the relevant points from the above report completed by Robson Fletcher Consultants Ltd is presented below:

- The basic quarry profile is of a massive sandstone (Lower Old Lawrence Rock) overlain by two beds of mudstone separated by a sandstone bed (Upper Old Lawrence Rock) with a noticeably coaly seat earth immediately above. Above these strata, but not exposed in the quarry is another massive sandstone (Riddle Scout Rock) which outcrops on New Hey Hill.
- Existing slopes are up to 70° and do not appear to have been subject to major instability since cessation of quarrying, other than localised failure of the Upper Old Lawrence strata due to weathering of the underlying mudstone.
- The mudstone is likely to naturally degenerate to their natural angle of repose, the overall slopes in the mudstone should be designed to 40°, although benching may allow the slope to be 70°. The sandstone can be cut near vertical to 80°.
- The outer weathered zone of the mudstone could become unstable if subject to additional loading.
- Any instability has taken to form of small-scale spalling of mudstone fragments due to frost, weathering and erosion.
- The scree slope is interpreted to be stable as it will stand at its natural angle of repose corresponding to the angle of friction (35°- 40°).
- It is unlikely any unrecorded shallow mine workings will result in significant instability of the slopes on site.

3.3 Lees Roxburgh Consulting Engineers, Phase 1 Geo-environmental Assessment (ref. 6400/R1, July 2019)

A summary of the relevant points from the above report is presented below:

- By the 1890s to the mid-1900s, the site is recorded as being surrounded by numerous mills, collieries and quarrying works.
- In the late 1890s two small ponds and a small old quarry are recorded to the north area of the site. From the 1890s to 1980s a brickworks was present in the south west of the site including numerous buildings, an electric substation, a conveyor and a tramway which extended north east up to the site boundary. A tank is also recorded in the northern corner from 1890s, by the 1980s it is no longer present on historical mapping and a small pond takes its place.
- No superficial deposits were noted on site. The site is underlain by mudstone, siltstone and sandstone.
- The bedrock aquifer designation is given as a Secondary A Aquifer and the site is located within a Source Protection Zone (SPZ II).
- The site lies within EA Flood Zone 1 and over 250m from the nearest area of Zone 2/Zone 3 flood risk.
- 2 No. historical landfill sites are present over 250m from the site, but within 500m , located at Ogden Mill to the east. Landfill gas was assigned a low to medium risk.
- The site is not affected by radon and no protective measures required.

BSL noted additional tanks during review of the historical ordnance survey maps. Three historical storage tanks were noted on historical maps in the south west of the site and in the northern corner of the site. The tanks in the south west were associated with the former brick works and are no longer present on mapping by the mid-1980’s. The former tank in the north is shown as a pond by the late 1980s.

A potential source of Poly Chlorinated Biphenyl (PCB) contamination is associated with the historic electrical substation present from pre 1955 to pre 1992.

3.4 Brownfield Solution Ltd, Coal Mining Risk Assessment (ref. JMC/C4315/8856, November 2019)

A summary of the relevant points from the Coal Mining Risk Assessment completed by BSL is presented below:

- No superficial deposits are recorded at the site, although in the wider area there are deposits of Glacial Till (sandy and gravelly clays).
- The solid geology underlying the site consists of the Pennine Lower Coal Measures, which typically comprises mudstone, siltstone, sandstone and coal.
- The site is interpreted to be located within a fault block, although the latest geological map available (2010) no longer shows the fault across the north of the site and the western fault, is now indicated to downthrow strata to the west, although still trends in the same direction,.

Fault Location	Trending	Downthrow
On site - north	East-West	South
On site - Western boundary	North-South,	East, then west (2010)
Immediately off site – North Eastern boundary	North west-South East	North east

- An unnamed coal seam circa 200m to the north dipping 5° south would place this coal seam circa 17.5m beneath the northern boundary and circa 32m beneath the southern boundary of the site. This does not take into account the topography, the fault on site and quarrying activities, therefore could be shallower across the southern portion of the site.
- Several coal seams are present towards the east of the site in a syncline. The dip varies according to the geological records and is interpreted to be 8° degrees based on a worst-case scenario.
- The Geological Memoir states the Lower Mountain Mine is considered to be a valuable coking coal, which has been widely exploited in the past throughout the area. The coal seam worked is most likely to be the Lower Mountain Mine, however the Upper Mountain Mine is shallower on site. Therefore, the lower Mountain Mine is not considered to potentially impact the proposed development as substantial bedrock cover would exist over any workings.
- The coal seams present of significant thickness are shown in the table below.

Seam	Approximate Distance from Site (m)	Direction and Dip	Thickness (m)	Anticipated Depth (m)
Upper Mountain Mine (U.M.M)	230-790	8 degrees NW	0.30	32-109
Lower Mountain Mine (L.M.M)	500-1060		0.30-0.80	70-147
Bassey Mine (B.M)	680-1240		0.90	95-172

- The Jubilee Colliery is located circa 750m south and the Tunchill Colliery is located circa 750m north-north east of the site where the Mountain Mine seams were worked.
- There are several BGS borehole records on site in addition to a number of boreholes in the close proximity to the north of the site. In summary, no recovery or negligible recovery has been encountered in three of the locations due to the strata being noted as "wet", which is interpreted by BSL to be potential signs of coal being present or possible signs of historical extraction of the coal.
- Two mine entries were indicated to be onsite towards the north eastern boundary, which appeared to conflict the shaft data sheets obtained by BSL. Following correspondence and further assessment by the Coal Authority, it was concluded that these shafts had been positioned incorrectly and are not located on site.
- The risk from recorded mine shafts was subsequently assessed as very low.

4.0 METHOD OF INVESTIGATION

4.1 Objectives

To confirm the risks to the identified receptors and confirm the ground conditions in respect to the identified geotechnical and geo-environmental risks, an appropriate intrusive investigation was undertaken as per the recommendations of the Phase I Desk Study Assessment.

The aim of the fieldwork was to:

- Investigate ground conditions on the site and the potential need for detailed investigation.
- Assess the potential contamination on the site and obtain samples for contamination screening.
- Assess the potential impact of any contamination on controlled waters.
- Obtain geotechnical information on the ground conditions at the site for preliminary foundation design and preliminary pavement design purposes.
- Give an assessment of the geo-environmental risks associated with redevelopment of the site.

4.2 Site Works

The following site works have been undertaken as part of the intrusive investigation between the dates of 4th and 8th November, with further intrusive site investigation carried out 21st November.

Method	No.	Range Depths (m bgl)	Purpose
Trial pits	53	0.10 – 3.40	Establish general ground conditions, determine the depth of rock head and gain good coverage. TP101 – TP150 located within the quarry floor to target stockpiles, bunds and any potential made ground from the former brickworks and quarrying activities. TP151-TP153 located on top of the quarry face in the north west of the site. TP133 and TP134 were placed to target the historic tanks and electrical substation near the south site entrance.
Window sample boreholes – Tracked WS rig	7	1.40 – 3.45	Establish general ground conditions and the depth of bedrock in the north of the site on top of the quarry face. Allow Standard Penetration Tests (SPTs) to be carried out and obtain samples for contamination and geotechnical and testing. WS105 was placed to target a former fuel tank in the north east of the site.

The surveyed locations for TP101 to TP153, WS101 to WS103 and the approximate locations of WS104 to WS107 are indicated on the Exploratory Hole Location Plan, Drawing No C4315/04. The exploratory hole logs are presented in Appendix B.

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

- BS 5930:2015 Code of Practice for Site Investigations.
- BS EN 14688-1:2018 Geotechnical Investigation and Testing – Identification and classification of soil.
- BS EN ISO 14689:2018 Geotechnical investigation and testing – Identification and classification of rock'.

4.3 Sampling

During the drilling and excavation of the exploratory holes, representative samples were taken at regular intervals to assist in the identification of the soils and to allow subsequent laboratory testing. They were stored and transported in general accordance with BS 10175:2011+A2:2017.

The type of sample was dependent upon the stratum and the purpose of analysis in accordance with current environmental and geotechnical guidance.

The distribution of samples taken across the site is recorded on the exploratory logs and a summary of the samples taken is presented in the table below:

Type	Number
Environmental (ES)	124
Disturbed (D)	130
Bulk (B)	34

4.4 Laboratory Testing

As part of the initial assessment for potential contamination of the site, selected samples were taken for the purpose of chemical contamination testing.

The potential contaminative process on site were on site therefore the following suite of determinands were chosen to screen for potential site impacts at a UKAS approved laboratory:

Determinand	No of Samples
BSL Default Soil Suite: Arsenic, Cadmium, Chromium (III), Chromium (VI), Copper, Nickel, Mercury, Lead, Zinc, Selenium, speciated polycyclic hydrocarbons (PAH 16), total phenol, free cyanide, water soluble sulphate (2:1 Extract), soil organic matter and pH.	24
Petroleum Hydrocarbons (TPH CWG) inc BTEX and MTBE.	6
Asbestos Screen.	24
PCB Compounds (7 Congeners).	4
Waste Acceptance Criteria (WAC).	6

The following tests were scheduled on surface water samples at a UKAS approved laboratory:

Determinand	No of Samples
BSL Default Water Suite: Arsenic, Boron, Cadmium, Calcium, Chromium (III), Chromium (VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc, total and free cyanide, speciated polycyclic hydrocarbons (PAH 16), total phenol, sulphate as SO4, sulphide, sulphur, chloride, Ammonium as NH_4, Nitrate as N, Nitrate as NO_3, Nitrite as NO_2, pH, hardness, electrical conductivity, dissolved organic carbon (DOC).	4
Petroleum Hydrocarbons (TPH CWG) inc BTEX and MTBE.	4

The Chemical Laboratory Testing Results are presented in Appendix C.

Representative disturbed samples were obtained for all soil types encountered. Selected samples were scheduled for testing at an approved laboratory in accordance with BS 1377 'Method of Test for Soils for Civil Engineering Purposes' and BS EN ISO 17892- Parts 1-12:2018 'Geotechnical investigation and testing. Laboratory testing of soil'.

The following tests were scheduled for geotechnical purposes:

Description	No of Samples
Moisture Content.	10
Plasticity Index Analysis.	10
Particle Size Distribution (PSD).	16
pH Value.	23
Water Soluble Sulphate Contents.	24
SD1 BRE Full Suite.	4
Determination of dry density/moisture content relationship (4.5kg)	10

The Geotechnical Laboratory Testing Results are presented in Appendix D.

5.0 GROUND CONDITIONS

5.1 Made Ground

Made ground was encountered within stockpiles and mounds/raised topography across the quarry floor and was observed from ground level to depths proven to between 0.10m and 3.40m bgl. No made ground was encountered beneath the fields to the north of the quarry face.

The composition of the made ground varied across the site, however it generally represented quarried aggregate, brick (assumedly from the former brick works) and occasional waste material comprising various plastics, metal fragments and rubber.

The stockpiles of quarried material (TP115, TP122, TP126, TP127, TP129 and TP144) generally comprise slightly sandy clayey gravel with a high cobble and boulder content of mudstone and sandstone, with boulders recorded up to 1.60m in diameter. The gravel consists of fine to coarse angular mudstone and sandstone.

A stockpile located in the east of the site (TP144) was largely overgrown in vegetation with a thin layer of made ground topsoil (0.15m thick), overlying a thin weathered layer of gravelly clay (0.25m thick), followed by clayey gravel. Approximate stockpile locations are displayed on Drawing C4315/04 for reference.

Other made ground deposits included deposits in the centre of the quarry, adjacent to a derelict building (TP103, TP104, TP105, TP110 and TP111). Made ground in these locations generally comprised slightly sandy clayey gravel and occasional slightly sandy gravelly clay with low to high cobble and boulder contents. Gravel comprises angular sandstone, mudstone, occasional brick, metal, rare clinker and glass. In addition, TP105 also contained a slightly ashy dark grey slightly sandy clayey gravel between 1.30m to 1.50m bgl.

Adjacent to the edge of the asphalt road and carpark are bunds of made ground deposits approximately 1.20m to 1.80m in height. Between 0.15m to 0.25m bgl there is a layer of made ground topsoil of dark brown slightly gravelly sandy clay, with gravel of fine to medium sub-angular to angular sandstone, mudstone, occasional brick and rare glass. This is underlain by generally a dark brown and mottled brown and grey slightly sandy clayey gravel with a high to low cobble and boulder content of brick, sandstone and mudstone, and gravel consisting of angular sandstone, mudstone, occasional brick, plastic and rare glass. In addition, a slightly more cohesive deposit of slightly sandy very gravelly clay is present within the carpark (TP134). Trial pits where terminated between 0.60m to 1.00m below road level due to the presence of grey mudstone gravel (pea gravel), denoting the possible presence of underground services.

Where encountered, the composition of made ground topsoil remained relatively consistent across the site and was recorded from ground level to between 0.05m to 0.25m bgl, generally comprising vegetation covering brown slightly gravelly sandy clay with rootlets, with gravel of fine to coarse angular to sub-angular mudstone and sandstone with rare brick and glass.

5.2 Natural Topsoil

Natural topsoil was encountered in sporadic areas of vegetation across the quarry floor and across the fields above the cliff top in the north. On the quarry floor topsoil was encountered from ground level to between 0.05m and 0.25m bgl, generally comprising dark brown or grey slightly sandy gravelly clay with rootlets.

In the north of the site the topsoil comprised dark brown fine to medium sandy clay with rootlets, from ground level to between 0.06m to 0.35m bgl.

For the purpose of this assessment, topsoil is defined as the upper darker and more fertile layer of the soil profile which is a product of natural chemical, physical, biological and environmental processes. This does not imply compliance with BS 3882:2015.

5.3 Natural Superficial Strata

In the slope along the south of the quarry floor the natural strata varied significantly from slightly sandy gravelly clay to sand and clayey gravel. In general, the only locations within the quarry interpreted to be underlain by natural superficial strata were the scree material near the base of the cliff (TP116), within the embankment/slope along the south of the site (TP106, TP107, TP108, TP137, TP146 and TP147) and beneath the fields to the north of the quarry face.

A layer of scree was encountered between 0.10m to 0.35m (TP116), before encountering mudstone bedrock. It comprised grey slightly clayey gravel with a high cobble and boulder content of mudstone and sandstone (up to 800mm in diameter), with gravel of fine to course angular mudstone and sandstone. Based on visual observations, it is reasonable to interpolate the thickness of scree material is likely to increase towards the base of the cliff.

The natural strata within the slope along the south of the site consists of both granular and cohesive deposits. In TP107 underlying the natural topsoil was a thin layer of orange brown fine to medium sand between 0.20m to 0.30m bgl, equally within TP147 a dark brown very clayey gravel with high cobble and boulder content was encountered between 0.25m to 1.80m bgl, with cobbles and boulders of mudstone and sandstone alongside gravel consisting of fine to coarse angular mudstone and sandstone. Alternatively, TP106, TP108, TP137 and TP146 contained soft to firm cohesive deposits from 0.05m to depths of 1.30m bgl of gravelly clay and slightly sandy very gravelly clay with gravel of fine to course angular mudstone.

A very soft black slightly sandy silty clay with a slight organic odour was encountered from 1.30m to 1.50m bgl within TP146.

Natural deposits were encountered within all exploratory holes in the fields to the north of the quarry face and was observed from ground level to depths up to 3.45m bgl. Underlying the natural topsoil was majority of the natural strata consist of firm orange brown gravelly sandy clay with high cobble content of mudstone and sandstone and gravel of fine to course sub-rounded to angular mudstone and sandstone.

Within WS103 there were granular deposits consisting of slightly clayey sandy gravel with medium to high cobble content between 0.70m to 2.00m bgl, with fine to medium sand and gravel of sub-angular to angular fine to medium sandstone and mudstone.

5.4 Solid Geology

The solid geology of the Ribble Scout Rock (sandstone) and the Pennine Lower Coal Measures Formation (siltstone, sandstone and mudstone) was encountered in this investigation in the majority of trial pits and window sample exploratory holes.

From field observations and previous investigations, the quarry face consists of interbedded sandstone and mudstone. However, the majority of the quarry floor consists of mudstone, interpreted to be part of the Pennine Lower Coal Measures Formation, whereas beneath the superficial deposits in the northern fields above the quarry face, fine to medium grained sandstone was encountered, interpreted to represent the Ribble Scout Rock.

Mudstone deposits within the quarry floor are generally very shallow and often appeared at the surface or directly beneath stockpiles and bunds. Mudstone deposits range from very weak distinctly weathered deposits generally recovered as clayey gravel to weak partially weathered, very thinly laminated to thinly bedded mudstone with occasional orange brown staining, recovered as gravel, cobbles and boulders.

Occasional sandstone deposits were also encountered on the quarry floor (TP155, TP128 and TP149) and generally consisted of weak partially weathered light grey brown fine to medium grained sandstone recovered as gravel, cobbles and boulders.

The majority of the bedrock encountered in the north of the quarry, above the cliff face, consisted of weak partially weathered light brownish grey fine to medium grained sandstone with orange brown staining, recovered as gravel. This was encountered between 0.40m to 2.70m bgl.

Within WS103, a very weak distinctly weathered black and dark grey mudstone was encountered between 2.40m to a proven depth of 3.45m bgl.

5.5 Groundwater

Groundwater was only encountered in one exploratory hole in TP116 at 0.20m bgl as a slow seepage. However, water could also be seen seeping from various strata in the quarry face.

5.6 Observations

Contamination
With the exception of an ashy deposit in TP105 and clinker observed as a minor constituent in the made ground soils (TP104, TP105, TP110, TP111, TP135, TP142, TP144), no other potential evidence of gross contamination was recorded at the site.

Excavations
The sides of the trial pits were generally stable during excavations. There was difficulty excavating in the sandstone and mudstone deposits, however it was noted that there was increased difficulty excavating within the sandstone deposits compared to the mudstone deposits.

6.0 TEST RESULTS

6.1 Chemical Test Results - Soils

The samples were tested for an assessment of the chemical contamination and results were examined with reference to a selection of guidance documents as detailed in Appendix A. In this case the LQM/CIEH S4ULs and DEFRA C4SLs for a residential end use with homegrown produce have been adopted as Tier 1 generic screening values.

The apparent exceedance of the relevant screening value for a residential with homegrown produce is taken as indicating further detailed assessment or remedial action is required.

Metals
One sample tested contained the following elevated determinands:

Location	Metal	Concentration (mg/kg)	S4UL (mg/kg)
TP105 (1.00m)	Arsenic	48	37

This location was noted to be within a stockpile and the material was visually different to other areas, therefore further assessment through statistical analysis is not considered to be appropriate at this stage, based on the available dataset.

Asbestos
Twenty-three made ground samples across the site were tested for asbestos. All results showed no asbestos detected.

Poly Aromatic Hydrocarbons (PAHs)
No elevated PAHs have been detected above residential end use screening values.

Total Petroleum Hydrocarbons (TPH CWG)
No elevated petroleum hydrocarbons have been detected above residential end use screening values.

BTEX and MTBE
No elevated BTEX and MTBE have been detected above residential end use screening values.

Polychlorinated biphenyls (PCB)
No elevated PCBs have been detected above residential end use screening values.

6.2 Chemical Test Results - Groundwater

Four samples were collected from surface water across the site. Two samples were taken from ponds in the quarry floor (West pond and South pond), one sample was collected from a stream along the former brick road/foot path (Path stream) in the centre of the quarry and one sample was collected from the pond in the upper northern corner of the site where the former tank was recorded (North pond).

The results were compared in the first instance to Environmental Quality Standard (EQS) values and UK drinking water standards (DWS) due to the close proximity of the Piethorne Brook, water abstractions and the Secondary A Aquifer in the underlying bedrock.

A table highlighting the elevated values is presented in Appendix C. A summary of the chemical testing is presented below:

Determinand	Location	Concentration (ug/l)	EQS (ug/l)	DWS (ug/l)
Copper	West pond South pond Path stream North pond	5.7 9.0 7.0 9.5	1.0	-
Lead	North pond	13	1.2	7.5
Nickel	North pond	4.8	4.0	15
Zinc	North pond	16	10.9	-

The results show elevations in heavy metals within the eluate from surface water features. However, it should be noted that all surface water features are likely to be removed and levels across the southern part of the site will be significantly raised during the development and regrading of the site.

6.3 Waste Acceptance Criteria (WAC) Results

The Landfill Directive (Directive 1999/31/EC on the landfilling of waste, Decision 2003/33/EC and Landfill Regulations 2005) led to the establishment of a methodology for classifying wastes. Wastes can only be accepted at a landfill if they meet the relevant Waste Acceptance Criteria (WAC) for that type of landfill. There are three different WAC criteria, these are:

- Inert waste.
- Stable Non-Reactive Hazardous Waste.
- Hazardous waste.

WAC testing is used to determine that the waste is suitable to be disposed of into a landfill site. A waste must comply with the WAC limits for the relevant hazardous or non-hazardous landfill (i.e. non-hazardous or inert), otherwise the soil will need to be pre-treated.

Note wastes should first be classified based on their total concentrations and given the classification of either hazardous or non-hazardous. This is discussed in detail in Section 7.7. WAC testing is only required if the end disposal route is a landfill and WAC analysis must **not** be used for waste classification and hazardous waste assessment purposes.

Solid and eluate WAC analysis was undertaken on six samples, the results of which are presented in the table below.

Location	Depth (m)	Strata Type	WAC Analysis
TP105	0.20	MADE GROUND	Inert
TP118	1.20	MADE GROUND	Inert
TP129	0.30	MADE GROUND	Inert
TP133	0.80	MADE GROUND	Inert
TP136	0.50	MADE GROUND	Inert
TP144	1.50	MADE GROUND	Inert

6.4 Geotechnical Testing

In Situ Hand Shear Vane Tests
Three hand shear vane tests were carried out on suitable cohesive soils recovered from the trial pits. Each shear vane result recorded represents the mean value of three tests undertaken at the specified depth.

The results and distribution of the hand shear vane tests are recorded in kPa on the Exploratory Hole Logs which are presented in Appendix E.

In Situ Standard Penetration Tests

Standard Penetration Tests (SPTs) were carried out within the window sample boreholes at regular 1.0m intervals. The results of the individual blows and the N-values are recorded on the Exploratory Hole Logs.

All SPT N values are uncorrected. Density and strength descriptors are reported in accordance with the guidelines stated in BS 5930:2015, incorporating requirements of BS EN ISO 14688-1:2002, BS EN ISO 14688-2:2004 and BS EN ISO 14689-1:2003.

Plasticity Index Analysis

Plasticity index results ranged between 18% and 24% indicating the clays to be of low plasticity. Associated water contents ranged between 12% and 24%.

After modification of particle size in accordance with NHBC Chapter 4.2 the modified plasticity indices are in the range 6.3% to 18% indicating the soils to be of low volume change potential.

Particle Size Density (PSD)

The tests results are generally in accordance with the materials described on the exploratory hole logs. The proportion of fine grain sized particles and sand and gravel sized particles are reflected by the description of the exploratory logs.

Dry Density/Moisture Content

Dry Density/Moisture Content relationship testing was carried out on seven samples. The samples and the results are as follows:

Location and depth (m)	Particle Density (Mg/m^3)	Maximum Dry Density (Mg/m^3)	Initial Moisture Content (%)	Optimum Moisture Content (%)
TP115 (0.05m)	2.55	2.03	4.20	7.10
TP122 (2.00m)	2.75	2.22	6.60	7.50
TP127 (1.20m)	2.70	2.20	3.90	5.70
TP144 (1.00m)	2.70	2.12	4.70	8.60
TP146 (1.00m)	2.75	1.93	14.0	13.0
WS101 (0.80m)	2.70	1.92	10.0	14.0
WS107 (0.50m)	2.75	1.91	8.60	14.0

6.5 Aggressive Ground Conditions

Water soluble sulphate and pH testing was undertaken on 21 samples of the made ground and eleven samples of the natural superficial strata. Full BRE SD1 suite tests were undertaken on 1 sample of the natural superficial strata and 3 samples on the mudstone bedrock.

Made Ground

The results revealed soluble sulphate (SO_4) contents of between 0.0051 g/l and 0.14 g/l. Associated pH values were obtained which ranged between 5.6 and 8.1 indicating acidic to slightly alkaline conditions.

Natural Strata and Bedrock

The results revealed soluble sulphate (SO_4) contents of between 0.011 g/l and 0.059 g/l. Associated pH values were obtained which ranged between 4.3 and 6.0 indicating acidic conditions.

BRE SD1 suite testing was undertaken on one samples of natural clay, one sample of mudstone. The results are shown in the table below.

Determinand	Natural Superficial Strata	Mudstone Bedrock
Soluble Chloride mg/l	14	1.2-1.7
Soluble Nitrate mg/l	< 2.0	< 2.0
Soluble Magnesium mg/l	< 5.0	NA
Soluble Sulphate mg/l	36.9	1.2-10.7
pH	4.3	6.0-7.5
Sulphur as S, Total %	0.079	0.026-0.063
Sulphate, as SO4, Total %	74	0.043-0.069

7.0 GEOTECHNICAL ASSESSMENT

7.1 Ground Model Summary

The site currently comprises the suspended Newhey Quarry in the south of the site. Extensive workings have left an approximately 40-50m high cliff face at the northern edge of the quarrying activities.

The southern areas of the site slope down towards Huddersfield Road. The asphalt access road also slopes down towards the site entrance and very steeply toward a large pond on site.

Numerous ponds are present within the quarry, one large pond is located to the north of the asphalt road and another is located in the central southern area of the quarry, others are located within the dense vegetation.

A small brick building is also present in the centre of the quarry. Historical mapping describes the building as a 'Ruin' since 1955.

Large boulders of mudstone and sandstone are present within stockpiles and near the base of the cliff face.

Above the quarry to the north are grass covered fields with associated post, wire and stone walls. There are also two ponds located in the upper fields, one located in the centre of the fields and the other is located in the upper north eastern corner of the fields.

Made ground was encountered within stockpiles and mounds/raised topography across the quarry floor and was observed from ground level to proven depths between 0.10m and 3.40m bgl. However, areas of deeper made ground generally represent the height of stockpiles, made ground generally reached depths of 0.40m bgl. No made ground was encountered on top of the quarry face within the fields to the north of the site.

The composition of the made ground varied across the site, however generally comprised sandy gravel (quarried aggregate) and occasional waste material of slightly sandy clayey gravel with gravel of mudstone, sandstone, brick, rare clinker, metal and glass.

The composition of made ground topsoil remained relatively consistent across the site and was encountered from ground level to between 0.05m to 0.25m bgl, generally comprising vegetation covered by brown slightly gravelly sand clay with rootlets, with gravel of fine to coarse angular to sub-angular of mudstone, sandstone and rare brick and glass.

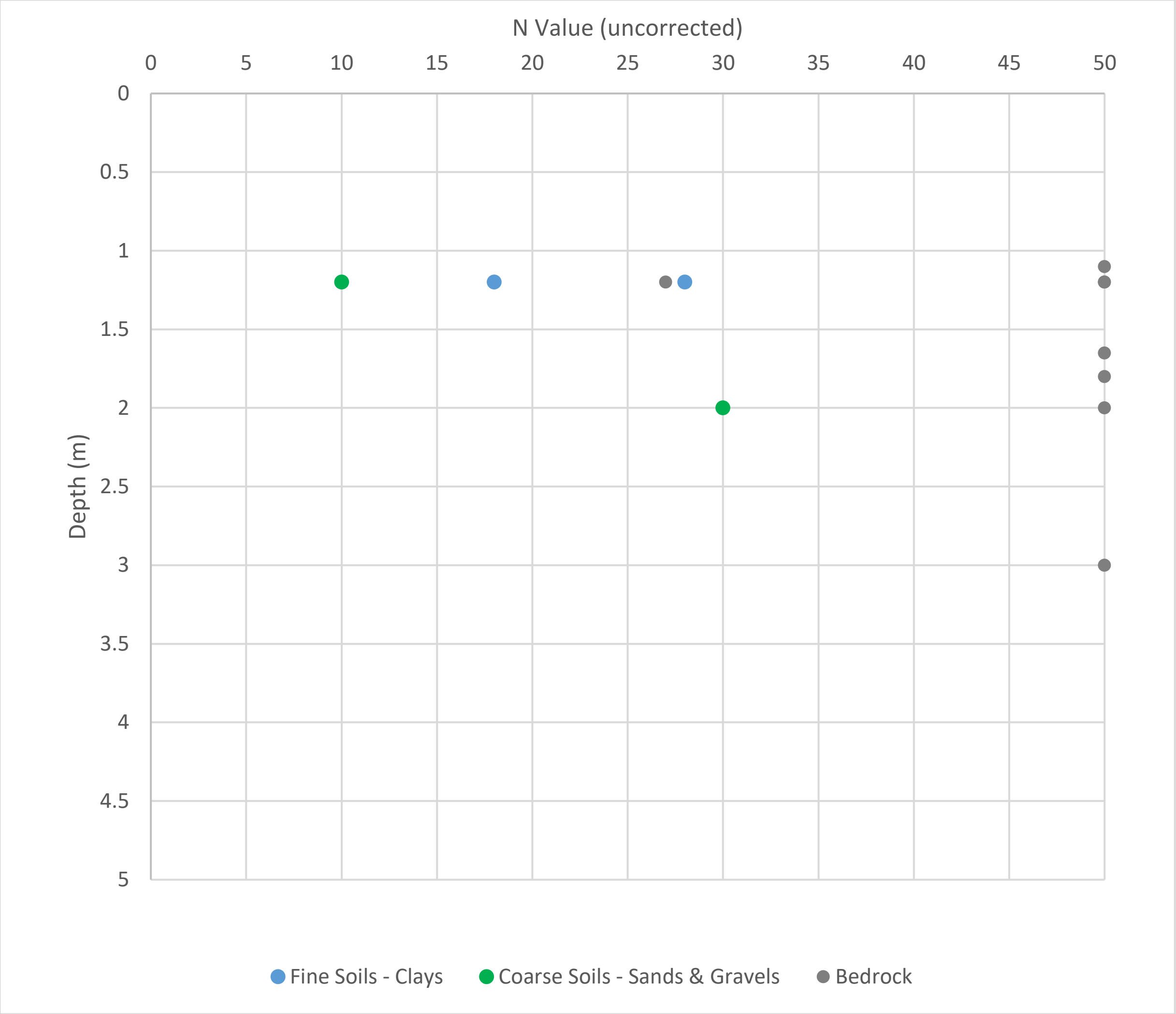
Natural topsoil was encountered in sporadic areas of vegetation across the quarry floor and across the fields above the cliff top in the north. On the quarry floor topsoil was encountered from ground level to between 0.05m and 0.25m bgl, generally comprising dark brown or grey slightly sandy gravely clay with rootlets. In the north of the site the topsoil comprised dark brown fine to medium sandy clay with rootlet, from ground level to between 0.06m to 0.35m bgl.

In general, the natural strata encountered in the quarry consisted of mainly slightly sandy clay gravel and occasional slightly sandy gravely clay, underlain by shallow mudstone in the quarry floor. Underlying the natural topsoil to the north of the site in the field was generally a firm orange brown gravelly sandy clay with high cobble content of mudstone and sandstone and gravel of fine to course sub-rounded to angular mudstone and sandstone. Subsequently underlain by a sandstone bedrock.

Groundwater was only encountered in one exploratory hole in TP116 at 0.20m bgl as a slow seepage.

7.2 Soil Parameters

The test results have been evaluated to derive geotechnical soil parameters for the north of the site, above the cliff face. A depth vs SPT N value graph is provided below to provide a profile of the ground conditions underlying the site.



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

The characteristic SPT N value in the sand and gravels at 1.20m is interpreted to be 20. Therefore, the characteristic ϕ’ value is interpreted to be 33.5° for Ultimate Limit State conditions based on the SPT ‘N’ value data and the correlation of Peck (1967).

The characteristic SPT N value in clays at 1.20m is interpreted to be 23. Based on the correlation of Stroud (1975) based on ‘average’ plasticity and adopting an f1 value of 5.5, this gives a characteristic shear strength of 125kN/m^2.

The characteristic SPT N value in the bedrock is 50. Therefore, characteristic ϕ’ value of 41° for the bedrock across the site has been extrapolated from the SPT ‘N’ value data and visual descriptions of the ground conditions within the Ribble Scout Rock bedrock. The depth to this strata is variable across the north of the site. No SPT tests were carried out in the quarry floor to the south of the site.

7.3 Foundations

The development will likely comprise traditional two storey residential housing and is considered to be classed as Geotechnical Category 2 in accordance with Eurocode 7.

Preliminary design by calculation has been undertaken to determine the design resistance of the bearing strata in the following sections. No proposed structural loads were available at the time of writing, therefore the following recommendations are provisional and should be reviewed at the detailed design stage. However, for the purpose of this assessment a typical load of 50kN has been assumed per storey.

As the site will be regraded to a south east trending slope, the majority of the ground will either be re-engineered during earthworks or much of the underlying bedrock will be exposed at shallow depth. Elsewhere there will potentially be areas of deep fill where levels are to be raised. A detailed 3D volumetric appraisal and earthworks strategy will therefore need to be devised and this should be undertaken with consideration to detailed foundation design.

Shallow Foundations – Strip
Where natural sands and gravels are encountered at shallow depths (i.e. less than 2.00m) after reprofiling, strip foundations are likely to be suitable placed at a minimum depth of 0.45m bgl or bearing at least 300mm into the natural granular material if this is present deeper than 0.45m bgl. A nett allowable bearing pressure not exceeding 200kN/m^2 should be assumed in undisturbed granular strata, subject to inspections post earthworks by a suitably qualified geotechnical engineer.

Where natural clay deposits are encountered at shallow depths (i.e. less than 2.00m) after reprofiling, strip foundations are likely to be suitable placed at a minimum depth of 0.75m due to the low volume change potential of the cohesive deposits and deeper near trees and hedges in accordance with NHBC Chapter 4.2. Based on the available data, a nett allowable bearing pressure not exceeding 200kN/m^2 should be assumed for undisturbed clays, where present, subject to inspections post earthworks by a suitably qualified geotechnical engineer. In the areas where the foundation bearing strata will likely be in the shallow bedrock after site reprofiling and in the absence of unconfirmed compressive strength (UCS) data, a presumed bearing pressure not exceeding 250kN/m^2 should be assumed for the mudstone and sandstone bedrock, based on BS EN 1997-1:2004+A1:2013, Annex G.

General Advice for Shallow Foundations
Note where foundations require deepening to greater than 2.5m below ground level, they must be designed by an engineer, as specified in NHBC Technical Requirement R5. Also, the excavations are likely to be wider than anticipated due to the presence of cobbles and boulders and an excess volume of concrete may be required within the plots.

Trees are noted across the site proposed for development, in particular in the south of the site. Depending on their size, type and maturity, the required depth of founding based on the recommendations of NHBC Chapter 4.2 could exceed 2.50m, although this is highly dependent on the cut and fill levels to be proposed. Should this prove to be the case, then piled foundations may be more economical, unless it can be proven that the soils are not desiccated.

The bearing stratum should be inspected for ‘soft spots’ within the strata, resulting for instance from localised groundwater perched within the overlying fill materials. If soft soils are encountered then foundations will need to be deepened to found on suitable strata.

If the ground conditions encountered during the construction phase differ significantly to the conditions encountered during construction, work should cease and BSL contacted for further advice.

During the construction phase supervision should be on a continuous basis to check the design assumptions are correct and construction conforms to design. Supervision should include inspections, Control Ground Investigations and monitoring.

After the completion of site wide earthworks, it would be prudent to undertake a post earthworks ground investigation in order to provide adequate information for detailed foundation design to help adopt a value engineering approach.

Ground improvement

Where reprofiling of the site will lead to the creation of areas of deep fill materials, ground improvement methods are likely to provide a suitable foundation solution.

A number of possible options exist for foundation and floor slab construction of the residential houses, including:

- Placement of fill material to a suitable engineering specification, with structural fill placed beneath plots and reinforced shallow strip foundation constructed within the structural fill.
- Vibro-compaction or the installation of vibro stone columns (VSCs) in the footprints of the houses together with reinforced strip foundations at a minimum depth of 600mm and the construction of a suspended floor slab.
- Vibro-compaction or the installation of VSCs in the footprints of the houses, as well as the areas beneath floor slabs, together with reinforced strip foundations at a minimum depth of 600mm and the construction of a ground bearing floor slab, with the improved areas or columns acting as ‘rigid inclusions’ to support the floor slab.

On completion of the vibro treatment works, in-situ testing would need to be carried out to confirm the treatment meets the bearing capacity and deformation criteria for construction of the development.

It is recommended that specialist vibro compaction contractors are consulted to ensure that the ground conditions that have been encountered are suitable for treatment, and whether a piling/vibro matt is required. If this option is preferred, detailed designs would need to be taken into consideration during the production of any earthwork’s specification.

Note highly organic soils are considered unsuitable for VSCs and an appropriate contractor should be contacted to confirm suitability. A thin band of very soft slightly sandy silty clay (TP146) was recorded locally in the east of the site, 200mm thick.

Following ground improvement, reinforced strip foundations could be used bearing onto the improved ground over the vibro compacted ground or VSCs. Typically, allowable bearing capacities of the order of 150kN/m^2 – 200kN/m^2 can be achieved, keeping total and differential settlements within tolerable limits, although this should be discussed with specialist VSC contractors.

Other forms of ground improvement may be possible, such as construction of reinforced strip foundations within engineered structural fill, placed and compacted to a suitable specification, with the end performance validation prior to the construction of foundations. Other options also include surcharging areas of deep fill in order to induce settlement. These options would require detailed specification, design of a suitable monitoring programme and careful analysis prior to implementation.

Raft Foundations and Piles

Alternatively, a raft foundation solution could be adopted which would spread the loads of the proposed structures evenly across a large surface area. The design and analysis of the raft would need to be undertaken by a suitably competent engineer.

Piles may also provide an alternative foundation solution in areas of deeper fill, although this may be influenced by the potential risk from mining and costs for installation of piles socketed into the bedrock may prove to be more costly than vibratory ground improvement techniques. In any case, their adoption should be considered at the detailed design stage when detailed proposals are produced for the site.

If piles are preferred, information gained from this ground investigation and any future investigations should be assessed by an experienced piling contractor such that appropriate pile types are selected and designed given the site conditions that have been encountered.

7.4 Building Near Trees

The clay soils on site are of low volume change potential. Where foundation excavations (or piles if adopted) encounter cohesive strata in the vicinity of existing, proposed or recently removed trees, foundations should be adjusted in full accordance with NHBC Standards Chapter 4.2. All foundations should be deepened below roots of greater than 5mm diameter during excavations for footings.

A survey of all trees and hedges on the site and within influencing distance of the site boundary should be undertaken to identify tree species and heights by a qualified arboriculturist in accordance with BS 5837:2012. This information will be required in order to assess the effects of trees on the cohesive strata, but will also need to be assessed in conjunction with proposed site levels and reprofiling works.

Where foundation depths due to trees already present or recently removed exceeds 1.50m there is a possibility for heave to occur on removal of the tree and guidance states that compressible material or void former is required against the inside face of the foundation.

7.5 Floor Slabs

Due to the low volume change potential of the clays (where encountered) and likley fill depths after earthworks, alongside the potential gas risks, suspended floor slabs are recommended for housing at the site in accordance with NHBC standards.

Ground floor slabs should also be designed to incorporate any ground gas protections measures. A gas risk assessment was not in the scope of this investigation, however is recommended as part of any future investigations.

7.6 Site Preparation and Construction

Topsoil and subsoil should be removed from beneath all buildings and hardstanding areas. If organic soils are encountered below the proposed building these will need to be removed.

Potential services were identified adjacent to the asphalt road. To allow remediation and construction, all services will need to be disconnected and any suspected dead services are confirmed as dead by testing.

Instability of excavations through soils is not anticipated provided they are not exposed to adverse weather conditions for any substantial period of time. All excavations should be carried out in accordance with CIRIA Report 97 ‘Trenching Practice’.

Excavation to rock head should generally be readily achieved using conventional plant (JCB or similar) although high specification plant (tracked 360^{o} or similar) is recommended to maintain the build programme. Breaking equipment may also be required locally to penetrate old foundations associated with the derelict building, intact rock quality strata and large boulders. Also, an allowance should be made for the removal and crushing of oversize materials such as boulders in the made ground and superficial deposits.

An organic deposit was encountered in TP146 below the development area of the site. These are considered to be highly susceptible to consolidation settlement over time, which may lead to unacceptable total and differential settlements for proposed structures in this area. However, due to the regrading and cut and fill of the site, any soft organic should be removed during earthworks.

7.7 Mine Workings and Entries

The Coal Mining Risk Assessment (BSL, JMC/C4315/8856 2019) identified a risk to the proposed development from unrecorded mine workings.

Six-Inch Geological Maps (Sheet 89) show an unnamed coal seam circa 200m to the north dipping 5° south which would place this coal seam circa 17.5m beneath northern boundary and circa 32m beneath southern boundary of the site. This does not take into account the topography, the fault on site and quarrying activities, therefore could be shallower across the southern portion of the site.

Potential evidence of coal mine workings has been interpreted to be present due to the lack of recovery encountered in boreholes to the north of the site. In summary, no recovery or negligible recovery has been encountered in 3 of the locations from 16.46m to 18.59m (2.13m) in BH51, 22.55m to 24.69m (2.14m) in BH40 and 26.21m to 29.87m (3.66m) in BH39, due to the strata being wet.

Following consultation with Coal Authority, it was concluded that the two mine entries previously indicated to be present in the north-east of the site had been incorrectly positioned historically. Therefore, the risk from recorded mine entries is considered to be very low.

The Coal Mining Risk Assessment identified a moderate risk from unrecorded coal workings and unrecorded mine entries. No investigation of the potential coal seams was undertaken during this site investigation. Therefore, it is recommended that further investigation is undertaken to fully access the risk from coal mining risk.

7.8 Concrete Classification

Made ground
Results indicate ACEC Class AC-1s and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005. Summary sheets are presented in Appendix D.

Natural Superficial strata and Mudstone
Results indicate ACEC Class AC-1s and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005. Summary sheets are presented in Appendix D.

The specific concrete mixes (the Design Concrete Class) to be used on site will be determined by the site-specific concrete requirements in terms of the durability and structural performance. These are assessed in terms of the Structural Performance Level (SPL) and any need for Additional Protective Measures (APM) detailed in Part D of BRE Special Digest 1 with further guidance in Pt E and F.

7.9 Highways

Based on Table 5.1 from DMRB IAN 73/06 Rev 1 equilibrium CBR values of 5% are likely to be achieved in undisturbed natural granular soils and 2% for natural clays soils for pavement design purposes where they are encountered at formation level, unless proven otherwise by in-situ testing at formation level by a specialist geotechnical engineer.

Where soils and rock are to be re-engineered as part of site wide earthworks, minimum equilibrium CBR values of 5% should be achievable, providing the materials are placed and compacted in accordance with a suitable specification.

Where the CBR is found to be less than 2% in natural clay soils, the sub-grade is unlikely to be suitable for both the trafficking of site plant and as a permanent highway foundation without improvement of the soils.

To achieve the required design CBR value, improvement works should be carried out in accordance with DMRB IAN 73/06 Rev 1 Chapter 5 and may include proof rolling, excavation and re-engineering / replacement of weaker soils, the inclusion of a geogrid or use of stabilisation techniques such as the addition of hydraulic binders (e.g. cement/lime).

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

Care should be taken to ensure the stratum at formation level is protected against inclement weather, as this is likely to lead to surface deterioration and a decrease in soils strengths.

7.10 Slope Stability

The topography of the site varied significantly across the site. The quarry face is present through the centre of the site, orientated NE-SW and is approximately 40-50m in height. Steep slopes covered in dense vegetation are also present along the south of the site.

A risk assessment undertaken by Robson fletcher (ref. UK94/16131/21f, Jan 1996) recorded existing slopes are up to 70° and do not appear to have been subject to major instability since cessation of quarrying, other than localised failure of the Upper Old Lawrence strata due to weathering of the underlying mudstone. The mudstone is likely to naturally degenerate to their natural angle of repose. However, the outer weathered zone of the mudstone could become unstable if subject to additional loading. The scree slope will is interpreted to be stable as it will stand at its natural angle of repose corresponding to the angle of friction (35°- 40°).

The recommended angle of stability for the mudstone slopes within the report is 40 and 80 degrees for sandstone. The report also recommends the inclusion of benches within the face if it was to be taken back.

Whilst it was outside the scope of this investigation to undertake a detailed slope stability assessment, the information contained within the Robson Fletcher Report provides a basis for the design of reprofiling the cliff face and should be taken into consideration at the detailed design stage. Assuming the face is taken back to a safe angle, differential erosion may be a limiting factor, causing undermining of sandstone blocks that could become unstable in the future. Assessments should consider the possibility for the potential of rock falls/rolls and the impact on the proposed development.

Careful consideration will need to be given over the order and nature of works that will reduce the cliff face profile to avoid causing instability, potentially leading to disproportionate effects such as rock falls that will affect other site works or surrounding land uses.

7.11 Earthworks

Given the variability of existing site levels and the presence of a large cliff face, earthworks will be required in order to achieve the desired development platform levels, with reprofiling of the cliff face back to a suitable and safe angle.

Design of the earthworks should consider the stability of any cut and fill slopes. Any fill should be placed in accordance with an appropriate specification, discussed further below. Designs should allow for incorporation of suitable drainage to prevent the build-up of pore water pressure which could lead to slope instability.

The natural topsoil may only be used as landscaping fill subject to the necessary approvals. All made ground topsoil should be disposed of off the site to a suitable facility.

Compaction testing carried out on samples of the quarried made ground material indicate Optimum Moisture Contents (OMC) of between 5.7% and 7.5%, with corresponding Maximum Dry Density (MDD) values between 2.02Mg/m^3 and 2.22 Mg/m^3. Based on the initial water contents between 3.90 and 14.0, this indicates these materials are predominantly “dry” of optimum and may require the addition of water during placement to ensure adequate compaction. However, one clay sample from TP146 (1.0mbgl) is slightly ‘’wet’’ compared to the optimum moisture content and may require some form of treatment prior to placement and compaction (e.g. possible stabilisation techniques).

Where it is proposed to re-use site won materials as an engineered fill during the reprofiling of the site, it will be necessary to develop an appropriate Earthworks Specification. The basis for the Specification should be BS 6031:2009 and the latest version of the SHW, Series 600 Earthworks.

If site-won material is to be re-used on site, it is recommended this is carried out under the CL:AIRE Development Industry Code of Practice (DoWCoP CL:AIRE March 2011).

8.0 ENVIRONMENTAL ASSESSMENT

8.1 Contamination

Soils
The proposed development is for a residential end use therefore residential with plant uptake screening values have been used as Tier 1 screening values

Based on the testing undertaken to date, there is localised contamination within one made ground sample (TP105, 1.00m) from a stockpile in the form of arsenic, therefore further assessment is required.

No PAH, petroleum hydrocarbons or asbestos contamination was identified within any soil samples across the site.

Groundwater
Four groundwater samples were collected from surface water across the site. Two samples were taken from ponds in the quarry floor (West pond and South pond), one sample was collected from a stream flowing east to west along the former brick road/foot path (Path stream) in the centre of the quarry and one sample was collected from the pond in the upper northern corner of the site where the former tank was recorded (North pond).

Results show slight exceedances above EQS screening values of copper elevations in the ponds and stream in the quarry floor and slight elevation in copper, lead, nickel and zinc in the northern pond.

The groundwater flow is likely to be towards the Piethorne Brook which runs from the east and along the south of the site to the east, although the actual flow direction of the surface streams on the quarry floor flowed to the west, following the topographic gradient.

As the surface water bodies will be removed during the reprofiling and regrading of the site it is considered any mobile contamination is unlikely to adversely affect the Piethorne Brook, water abstraction point and the underlying Secondary A Aquifer.

The inland waters EQS for copper, nickel, lead and zinc are based on the bioavailable fraction and because bioavailability has not been calculated for these metals the assessment is conservative as it is based on the assumption of 100% bioavailability.

Whilst there are minor exceedances of the EQS for copper, lead, nickel and zinc, at the concentrations identified it would also be technically challenging and disproportionately costly to remove these contaminants from the groundwater.

Whilst there are elevated concentrations of contaminants, based on the investigation works undertaken to date and subject to agreement with the Environment Agency, the site is not considered to pose a significant risk to controlled water for the following reasons:

- The EQS for lead, nickel, zinc and copper are also based on bioavailability and so this risk assessment is conservative as it assumes 100% bioavailability.
- There is no significant discernible difference between samples of made ground and samples of natural soil across much of the site. Considering it would be impossible to do anything about metals in natural deposits, it would be pointless and disproportionate to consider removing all made ground from the site.
- The majority of the made ground on site originated from quarry aggregate, there are very small amounts of made ground deposits outside of the quarried material, with only one soil sample with slightly elevated arsenic. Therefore, it is likely to be representative of naturally occurring background concentrations.
- There is no indication under present conditions of pollution of controlled waters and conditions following development of the site will not be any worse, indeed they may improve with increased hard cover and the removal of surface water features during the reprofiling of the site.
- The concentrations of leachable substances that could emanate from the site will be subject to dilution and dispersal during transport and so the risks will reduce with distance from the site and into the identified receptors.
- It would be technically challenging and probably disproportionately costly to remove the contaminants from the water to the pre-input stage.
- No significant contamination has been identified on site in soils based on the results obtained as a potential indicator of groundwater contamination.

Permanent Ground Gases

A ground gas risk assessment was not completed in the scope of this ground investigation. It is recommended a further assessment is completed into the ground gas risk due to the potential presence of workable coal seams at depth.

Utilities

The level of protection for the clean potable water supply pipes should be determined using the local water company risk assessment criteria in accordance with UKWIR.

8.2 Qualitative Risk Assessment

The CSM has been revised based on the findings of the site investigation and laboratory testing results and these are presented overleaf.

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
On site **Made Ground/historic Collieries** Ground gases and mine gas (carbon dioxide, methane)	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / property / structures	Likely	Severe	High	A ground gas risk assessment was not undertaken in the scope of this investigation. However, due to historical land use and potential coal workings on site at shallow depth it is considered likely there is a potential ground gas risk. Due to the absence of significant drift cover in the quarry floor, the possibility of ground gases associated with the former coal workings migrating to the surface is considered to be likely at this stage. Therefore, without site data for further assessment, the overall risk is high and further investigation is required.
On site **Made Ground** Metals	Root uptake, ingestion, direct contact	End-users	Unlikely	Medium	Low	A single sample containing marginally elevated arsenic has been detected within a localised stockpile on-site (TP105, 1.00m). As the site will require reprofiling, this material will likely be removed during earthworks, thus breaking the pollution linkage. Therefore, the risk is considered low to end users.
On site **Made Ground** Metals and organic contamination	Migration into/chemical attack of water supply pipelines	Water Pipelines / End users	Unlikely	Medium	Low	Based on the testing undertaken to date, significant levels of contamination have not been identified. Contaminants within the soil/groundwater could potentially attack the clean potable water supply pipe. Contaminants should be assessed to determine the correct pipe material and level of precautions required though a risk assessment and with the supply water company.
Historic Storage Tanks Petroleum Hydrocarbons	Ingestion, direct contact, inhalation of vapours	End-users	Low Likelihood	Medium	Moderate / Low	An historic tank was located in the northern corner of the site from 1890s, by the 1980s it is no longer present on historical mapping and a small pond takes its place Another three tanks associated with the former brick works where located near the southern site entrance between 1910 to mid-1980s. Soil and water analysis show no evidence of contamination in the areas adjacent to the former tanks and no visual signs of contamination were noted during the investigation. Additionally, in the south west corner of the site the levels have been raised for the development of the asphalt road, therefore if any contamination is present it is unlikely to migrate to the surface. Therefore, the risk is considered to be moderate to low to end users based on the existing site levels. If levels were to be significantly reduced in the vicinity of the asphalt road, further investigation and risk assessments would be required.

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
On site Electricity Substation PCBs	Ingestion, direct contact, inhalation of dusts	End-users	Unlikely	Medium	Low	An historical electrical sub-station was located adjacent to the southern entrance of the site from pre 1955 to pre 1992. The exact location of the former sub-station was inaccessible during the site investigation. Testing of the shallow made ground circa 30m NE of the former sub-station did not detect any PCBs (closer samples were not able to be obtained because of dense vegetation), indicating any contamination has not migrated and would likely be highly localised, if present at all. In addition, the mobility of this contaminant is low and any volumes present are likely to be small. However, further confirmatory investigation and testing for PCBs is recommended when access allows.

Controlled Waters

Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
Made Ground Arsenic	Overland flow, / migration through saturated zone	Piethorne Brook (Surface waters)	Unlikely	Mild	Very Low	It is considered the minor heavy metal contaminants are unlikely to impact Piethorne Brook. No significant contamination has been identified on site in soils based on the results obtained as a potential indicator of groundwater contamination. The stockpile containing marginal elevations of arsenic is located circa 200m away from the brook and is separated by an embankment along the southern boundary of the site. Based on these factors it is considered unlikely that the contaminants will impact the brook.
	Leaching through unsaturated zone /Migration through saturated zone	Secondary A Aquifer (Bedrock)	Unlikely	Medium	Low	The made ground was typically devoid of any contamination, with a single sample marginally elevated in arsenic above residential screening values. Due to the low concentrations of contaminants the made ground is unlikely to represent a significant potentially contaminative source and the risk is considered to be low.
Made Ground Metals	Overland flow, / migration through saturated zone	Piethorne Brook (Surface waters)	Unlikely	Mild	Very Low	Concentrations of metals including copper, zinc, nickel and lead were marginally elevated above EQS screening levels in several ponds and a small stream. The elevated concentrations are based on 100% bioavailability and therefore the levels of bioavailable contaminants are likely to be below EQS levels. Furthermore, all surface water bodies will be removed during the reprofiling of the site, thus removing the source and breaking the pollution linkage.
	Leaching through unsaturated zone /Migration through saturated zone	Secondary A Aquifer (Bedrock)	Unlikely	Medium	Low	As stated above, despite minor elevations of metals in the surface water bodies, a linkage between the sources and the underlying aquifer will be broken by source removal and therefore no linkage will exist following redevelopment of the site. By virtue of the development taking place, this will contribute to an overall “betterment” of groundwater quality beneath the site.
Former Tanks Petroleum Hydrocarbons, VOCs	Overland flow, leaching through unsaturated zone / migration	Piethorne Brook (Surface waters)	Low likelihood	Mild	Low	Chemical testing in soil and water samples show no evidence of petroleum hydrocarbon contamination in areas surrounding the former tanks and no visual signs of contamination were noted during the investigation. Additionally, the reprofiling of the site would contribute to the ‘betterment’ of the site. Therefore, the risk is considered low.

Controlled Waters

Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
	through saturated zone				🟩	
	Leaching through unsaturated zone / Migration through saturated zone	Secondary A Aquifer (Bedrock)	Low likelihood	Medium	Moderate / Low	As stated above, chemical testing in soil and water samples show no evidence of petroleum hydrocarbon contamination in areas surrounding the former tanks and no visual signs of contamination were noted during the investigation. However, site levels are understood to have increased in the vicinity of the historical tanks and therefore the presence of hydrocarbon impaction cannot be entirely ruled out based on the information available. Further investigation in this area and chemical testing is required to confirm the risk.

8.3 Summary of Identified Risks

Human Health
No significant sources of contamination have been identified in respect to human health for a residential end use, with the exception of one sample marginally elevated in arsenic within a localised stockpile.

A ground gas risk assessment was not commissioned as part of this investigation. Due to the potential site ground gas risks it is recommended ground gas monitoring and subsequent risk assessments are undertaken.

The south-eastern area of the site in the vicinity of the asphalt road was largely inaccessible, preventing targeted investigation of the former electricity substation adjacent to the site entrance. In addition, historical tanks are understood to have been present in the area associated with the former brickworks, however levels have been raised across the area since the tanks were present and the investigation methods used comprised generally shallow excavations, which are unlikely to have encountered any potential contamination associated with the former tanks at depth, which therefore cannot be ruled out. Further confirmatory investigation using deeper investigation methods is required in this area to confirm the risk. Limited confirmatory investigations should also be undertaken in the location of the former electricity substation, when access allows.

Controlled Waters
Whilst minor heavy metal contamination has been identified within surface water bodies on site, based on the assessments and updated CSM, BSL believe there is a very low risk between the surface water bodies containing marginally elevated metals and the identified controlled waters receptors. This assessment is based on the removal of contaminated surface waters which is understood to be taking place as part of the redevelopment of the site.

8.4 Remedial Measures

The level of protection for the clean potable water supply pipes should be determined using the local water company risk assessment criteria in accordance with UKWIR.

Elevated arsenic has been identified in one localised sample taken from a stockpile in the centre of the quarry. One of the following remedial measures could be used to mitigate the risk to human health:

- The material could be removed off site to a licensed landfill prior to the process of cut and fill.
- During the process of reprofiling the site, the materials could be placed at depth, thus breaking the pathway to end users.
- The material could be segregated and placed in an area of public open space (POS) as the level of arsenic does not exceed screening levels for POS.

Gas Protection Measures
A gas risk assessment has not been completed to date. However, based on the preliminary CSM, ground gas protection measures may be required due to the potential presence of mine gas associated with coal underlying the site. Further assessment is re required.

General
It is recommended that the approval of the Regulators (Local Authority and warranty provider, e.g. NHBC) is obtained in regard to the above prior to any irrevocable action is taken at the site.

In addition, the writing and approval of a Materials Management Plan (MMP) or suitable exemptions/permits will be required to allow re-use of suitable material at the site.

A watching brief is recommended during groundworks for any unidentified sources of contamination. If any gross contaminated material is encountered works should cease in that area and BSL consulted.

Once remediation is complete, verification reports will need to be produced by a suitably qualified independent geo-environmental engineer, such as BSL, in order to achieve regulatory sign off.

8.5 Health and Safety Issues

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

Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk
Heavy metals	Ingestion, direct contact,	Construction Workers	Unlikely	Minor	Low
Ground gas	Inhalation in confined spaces/trenches	Construction Workers	Likely	Medium	High

The risk from made ground will be mitigated by standard PPE including gloves. Welfare facilities should be made available to wash before hand to mouth activities.

The risk associated with ground gas is unknown at this stage based on the available information.

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

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

8.6 Waste

As described in the ‘Waste Duty of Care Code of Practice (2016)’ any substance or object that the holder discards, intends to discard or is required to discard is a waste. It is the responsibility of the waste producer to classify this waste. The classification process is described in the ‘Guidance on the classification and assessment of waste’ WM3 and aims to determine whether the waste is Hazardous or Non-Hazardous to human health and the environment.

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

The most sustainable and economic method of dealing with waste soil is usually the retention and re-use on site. If soils are required to be removed from site, then there are three main options for the disposal of soils:

1. Re-use on another site (subject to suitability of the soils and complying with relevant waste legislation).
2. Disposal to a permitted waste recycling facility.
3. Disposal to a landfill site.

Note that wastes should first be classified based on their total concentrations and given the classification of either hazardous or non-hazardous. WAC testing is then **only** required if the end disposal route is landfill. Leaching test results obtained as part of landfill WAC analysis must **not** be used for waste classification and hazardous waste assessment purposes.

Details of how material should be classified for waste disposal are presented in the BSL Methodology and Guidance in Appendix A and are summarised in the table below.

	PRIOR TO LEAVING SITE			
Classification based on Total Concentrations[1]	**Non-Hazardous Waste**		**Hazardous Waste**	
	IF SOILS CANNOT BE RE-USED ELSEWHERE AND MUST GO TO LANDFILL			
WAC testing	Below inert WAC limit values	Above inert WAC limit values	Below hazardous WAC limit values[4]	> WAC limit values
Landfill requirements	INERT landfill	NON-HAZARDOUS landfill[2]	HAZARDOUS landfill	PRE-TREATMENT[3]

1 Total concentrations are defined as tests results on solids as opposed to leachate (i.e. a liquid).
2 Individual sites may have certain limit values pre-determined in their licence.
3 After pre-treatment the material characteristics may have changed to an extent that allow the soil to be re-classified.
4 Possibility that wastes could be classified as stable Nonreactive HAZARDOUS waste in non-hazardous Landfill (e.g. soils containing low concentrations of asbestos, gypsum or sulphate bearing soils).

Waste classified as non-hazardous can be accepted into a non-hazardous landfill without having to pass any numerical WAC.

Soils above hazardous WAC limit values require pre-treatment prior to disposal. The effective pre-treatment, typically involving separation, sorting and screening, can offer cost savings through reducing the hazardous nature and volumes of soil. Costs for disposal of non-hazardous/hazardous soils are significant compared to the disposal of inert material.

Waste Classification - Total Concentrations

We have reviewed the testing results and assessed them through a waste classification database which allows users to code and classify waste as defined in the EWC (European Waste Catalogue) based on EC Regulation 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP) and latest Environment Agency guidance (WM3 "Guidance on the classification and assessment of waste - Technical Guidance").

Thirty-four samples were tested to assess whether they contained any contaminants in the hazardous range when screened against assessment criteria within WM3.

Based on the waste classification database assessment, the soils have been classified as **non-hazardous.** The Waste Classification Report is presented in Appendix A.

Waste Acceptance Criteria (WAC)
The WAC testing has revealed that if suitable segregation of different types of soil is put into place and the end disposal route of the made ground is landfill, then the soils will potentially be suitable for disposal as inert waste.

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

Where it is necessary to dispose material off site it is recommended that materials are segregated and sufficient time is allowed to further classify the actual soil arisings that constitute the waste, including discussion with landfill sites and waste transfer stations to find the best disposal route. It is illegal to dilute and mix soils without a suitable permit.

As a significant proportion of the soils likely to be generated on site are clean it is recommended that where possible that the soils could be recycled at a suitable local waste treatment plant or transfer station rather than a landfill disposal route.

Re-use of Soils
By definition in law, any material excavated from the ground becomes waste at the moment of excavation. If that soil (now a “waste”) is then placed on another part of the development site (or used on another development site) without an appropriate materials management plan, permit or exemption being in place, by law this material is defined as “illegally deposited waste”.

Landfill tax rules were updated on 1 April 2018 and as a result of the change, HM Revenue & Customs (HMRC) can now recover landfill tax on illegally deposited waste on construction sites. This could lead to excessive costs without the correct documentation in place. In addition, a person who makes, knowingly causes or knowingly facilitates a disposal to be made at an unauthorised site, is now also liable to pay Landfill Tax.

In order to comply with UK legislation and avoid excessive costs, if the re-use of soils is proposed on site, this should be done in accordance with the CL:AIRE “Development Industry Code of Practice for the Definition of Waste” (CL:AIRE DoWCoP) also known as a Materials Management Plan (MMP). Regardless of implementing the DoWCoP or not, all sites should have some form of materials tracking in place in compliance with current legislation. Any re-use scheme should also be designed to minimise disposal costs. Further guidance is provided in the BSL Methodology and Guidance in Appendix A.

To implement the DoWCoP, there is a requirement to notify the Environment Agency and Local Authority of the intention to use the code of practice in principal, after which there is a 21-day notice period for their response.

In order to re-use soils under the DoWCoP, there are four key criteria that need to be met:

- The aims and objectives of the project meet the requirements of the Waste Framework Directive.
- The soils can be demonstrated to be suitable for use (backed up by chemical/geotechnical testing and assessment).
- There is certainty of use (i.e. materials tacking which should be in place as part of good site practice in any case).
- Quantity (the quantity of materials used should be known).

Information on existing site levels, proposed levels, volumes generated (e.g. foundation / drainage excavation arisings) would need to be known in order to complete the MMP.

If the DoWCoP is the chosen route, it is an absolute that the CoP should be in place and declared by a Qualified Persons (QP) before works commence, otherwise excavated soils could constitute an illegal deposit of waste and enforcement action could be taken by the EA and HMRC.

In regard to “clean” naturally occurring soils only that are to be re-used on their site of origin, these are covered by a Waste Framework Directive (WFD) exclusion. So long as the project can prove the four criteria (listed above) then permits or the DoWCoP are not required. However, many projects still use the DoWCoP to ensure compliance.

In terms of the re-use of brick/concrete crush materials, the DoWCoP does cover aggregates, but only on the site of origin and the EA WRAP aggregate Quality Protocol might best apply to ensure quality standards.

9.0 CONCLUSIONS

9.1 Summary

Environmental

Based on the testing undertaken it would appear that there is localised contamination within one sample of made ground (TP105, 1.00m) from a stockpile in the form of arsenic. However, based on the updated CSM this is believed to pose a low risk to end users.

No PAH, petroleum hydrocarbons or asbestos contamination was identified within any soil samples across the site.

No evidence of contamination in the areas adjacent to the former tanks and no visual signs of contamination were noted during the investigation. However, levels were raised in the areas of the tanks and whilst unlikely, the potential presence of impaction at depth cannot be entirely ruled out based on the information available. Therefore, the risk is considered to be moderate to low for the underlying aquifer. Further investigation in this area and chemical testing is required to confirm the risk.

Based on the waste classification database assessment, the soils have been classified as non-hazardous. Based on WAC testing the soils will potentially be suitable for disposal as inert waste.

Geotechnical

The site will require reprofiling with site wide earthworks undertaken in order to create a level development platform.

Where natural undisturbed granular and cohesive strata are present at shallow depths (circa <2.00m) after site reprofiling works, shallow strip footings should be suitable. Based on the data available, a safe bearing pressure of 200kN/m^2 should be assumed, subject to inspections post earthworks by a suitably qualified geotechnical engineer. Where natural sandstone and mudstone bedrock is present at shallow depth a presumed bearing pressure of 250kN/m^2 should be assumed for the mudstone and sandstone bedrock, based on BS EN 1997-1:2004+A1:2013, Annex G.

In areas of engineered fill, possible foundation options include the use of vibro ground improvement techniques or placement of fill to a suitable engineering specification in order to facilitate the construction of reinforced strip foundation within engineered structural fill, although careful consideration and analysis will be required to ensure this option is viable.

After the completion of site wide earthworks, it would be prudent to undertake a post earthworks ground investigation in order to provide adequate information for detailed foundation design to help adopt a value engineering approach.

It is recommended that suspended floor slabs are adopted across the development in construction of new dwellings.

It was outside the scope of this investigation to undertake a detailed slope stability assessment, although the available previous assessments by third party consultants will provide a basis for detailed design of the reprofiling works.

It is anticipated unrecorded coal workings could be present beneath the site and further investigation is recommended to confirm the risk.

For concrete classification, results indicate ACEC Class AC-1s and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005.

9.2 Further Work

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

- Ground gas monitoring and risk assessment.
- Supplementary Intrusive site investigation comprising:
  - Rotary borehole coring to target potential coal mine workings.
  - Confirmatory trial pitting in previously inaccessible areas
  - Further chemical testing, targeting historical tanks and electricity sub-station.
  - Installation of gas monitoring standpipes.
  - Update risk assessments based on the above.
- Appraisal of proposed slope designs and remedial measures.
- Demolition Asbestos survey (single building on site).
- Tree survey by qualified arboriculturist.
- Detailed volumetric appraisal with 3D modelling of cut and fill balance.
- Development of Earthworks Strategy.
- Production of Materials Management Plan (MMP) under the CL:AIRE DoWCoP, if required.
- Implementation of the Remedial Strategy and verification of the remedial works, if required
- Completion of post earthworks ground investigation in order to provide adequate information for detailed foundation design.
- Undertake detailed foundation design.

10.0 REFERENCES

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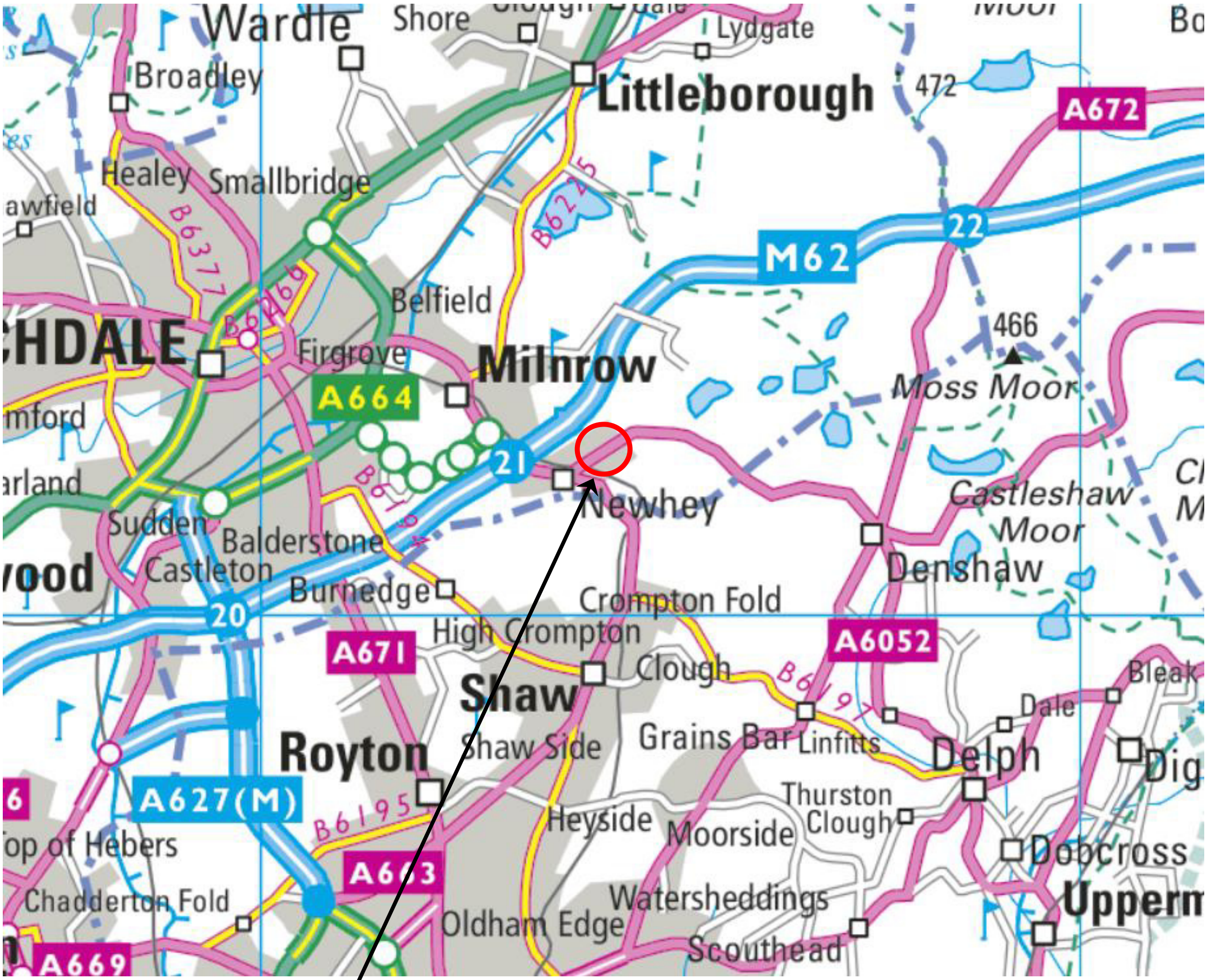
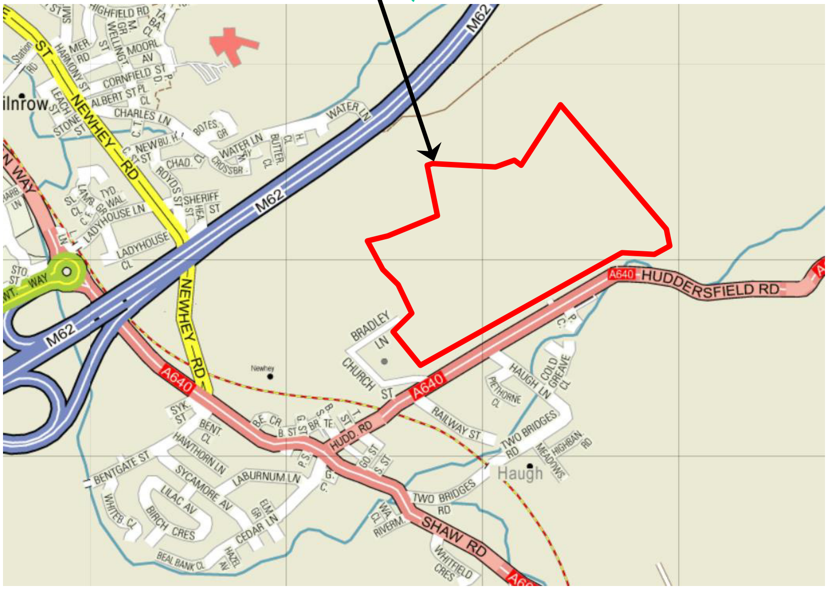
DRAWINGS



SITE LOCATION

NEAREST POSTCODE: OL16 3QG



REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

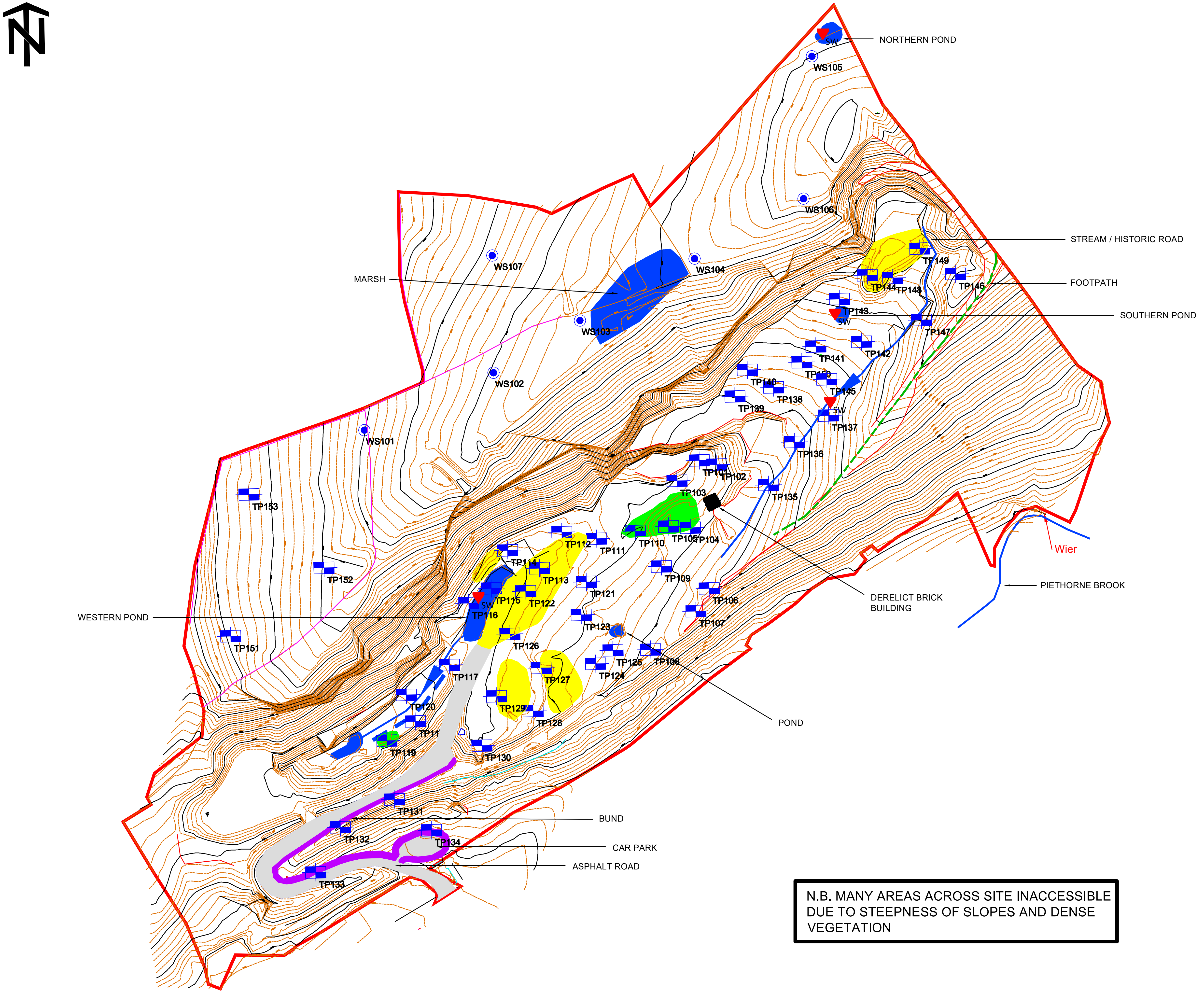
CLIENT
D MORGAN

PROJECT TITLE
NEWHEY QUARRY, ROCHDALE

DRAWING TITLE
SITE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C4315/01	-	NTS	15/11/19

DRAWN BY	CHECKED BY
SD	JMC



N.B. MANY AREAS ACROSS SITE INACCESSIBLE DUE TO STEEPNESS OF SLOPES AND DENSE VEGETATION

KEY

- APPPROXIMATE SITE BOUNDARY
- WATERCOURSE (ARROW IN FLOW DIRECTION)
- FOOTPATH
- STONE WALL
- 🟩 STOCKPILE OF DEMOLITION MATERIAL
- 🟨 STOCKPILE OF QUARRIED STONE
- 🟪 BUNDS
- ● WSXX WINDOW SAMPLE BOREHOLE
- TPXX TRIAL PIT
- ▼ SW SURFACE WATER SAMPLE

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS REPORTS. THIS DRAWING IS COPYRIGHT OF BSL.
3. DRAWING NOT FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT
D MORGAN

PROJECT TITLE
NEWHEY QUARRY, ROCHDALE

DRAWING TITLE
EXPLORATORY HOLE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C4315/04	-	NTS	18/12/19

DRAWN BY	CHECKED BY
TM	AJS

PHOTOGRAPHS

Photo 1: Delelict building in the centre of the quarry

Photo 2: Western pond at the base of the asphalt road.

Photo 3: Mudstone bedrock encountered directly beneath the surface in the quarry floor.

Photo 4: Mudstone bedrock encountered directly beneath the thin layer of topsoil in the quarry floor.

Photo 5: Quarry face.

APPENDIX A

BSL Methodology and Guidance

BSL Methodology and Guidance – Geo-Environmental Assessment Reports

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Desk Studies are written in broad agreement with BS 10175:2011+A2:2017. The first stage of a two-staged investigation and assessment of a site is the Preliminary Investigation (BS 10175:2011+A2:2017), often referred to as a Phase 1 Desk Study Assessment, comprising a desk study and walk-over survey, which culminates in the Preliminary Risk Assessment. A preliminary conceptual site model (CSM) is developed. From this are identified any geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them.

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include the exploratory, main and supplementary Investigations described in BS 10175:2011+A2:2017.

Legislative Background

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

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

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

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

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

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

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

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

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

- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990.
- CLR11 – Model Procedures.
- Brownfields – Managing the development of previously developed land – A client’s guide, CIRIA 2002.
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003).
- BS 10175:2011+A2:2017.

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

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

Contaminated Land Risk Assessment

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

Hazard Identification → Hazard Assessment → Risk Estimation → Risk Evaluation

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under CLR11, three tiers of risk assessment exist - Preliminary, Generic Quantitative and Detailed Quantitative.

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

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

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

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

- **High likelihood**: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;

- **Likely**: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;

- **Low likelihood**: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term;

- **Unlikely**: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

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

- **Severe**: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
  Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;

- **Medium**: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
  Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;

- **Mild**: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment;
  Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.

- **Minor**: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

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

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**Highly likely**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low
	No Linkage	No risk			

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

- **Very high**: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;

- **High**: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;

- **Moderate**: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;

- **Low**: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;

- **Very Low**: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled ‘no linkage’ in the summary table and no further action is required.

Ground Gas Guidance

Redevelopment on brownfield sites is an ever increasing occurrence, including those sites where a potential ground gas issue is present.

BS8485:2015+A1:2019 and CIRIA C665 is the current guidance which gives up-to-date advice on all aspects of ground gas. It outlines good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land. Two semi-quantitative methods are set out for the assessment of risk:

1. For low rise housing with a ventilated under floor void at minimum 150 mm (Boyle and Witherington);
2. For all other development types (Wilson and Card).

Both methods use the concept of Gas Screening Values (GSVs) to identify levels of risk. The mitigation and management of potentially unacceptable risk is described with reference to both passive and active systems of gas. Source removal is also discussed as an option.

CIRIA C665 and the advice it contains has been prepared to be generally consistent with CLR11 *Model Procedures for the management of land contamination* (Defra and Environment Agency, 2004a). The aim of CIRIA C665 is a consistent approach to decision making, particularly relating to the scope of protective design measures on a site specific basis.

Legislative Framework

CIRIA C665 provides technical guidance however also recognises the context into which the guidance has to be employed. Government policy is based upon a "suitable for use approach", which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the "source" in a "pollutant linkage" which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be "contaminated land" under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 *Statutory guidance on contaminated land* (DETR, 2000a).

Frequency and Duration of Monitoring

The monitoring period for a specific site covers the "worst case" scenario. A "worst case" scenario will occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of the additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with soil gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

Typical/idealised periods of monitoring

		Generation of Potential Source				
		Very Low	**Low**	**Moderate**	**High**	**Very High**
Sensitivity of Development	**Low (Commercial)**	1 month	2 months	3 months	6 months	12 months
	Moderate (Flats)	2 months	3 months	6 months	12 months	24 months
	High (Residential with Gardens)	3 months	6 months	6 months	12 months	24 months

Typical/idealised frequency of monitoring

		Generation of Potential Source				
		Very Low	**Low**	**Moderate**	**High**	**Very High**
Sensitivity of Development	**Low (Commercial)**	4	6	6	12	12
	Moderate (Flats)	6	6	9	12	24
	High (Residential with Gardens)	6	9	12	24	24

Note

1 NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).

2 There is no industry consent over “high”, “medium” or “low” generation potential of source.

3 At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

It is recommended that newly installed monitoring wells are left for 24 hours to allow the soil gas to reach equilibrium. It should be recognised, however, that some soil gas regimes could take considerably longer (up to seven days). Interpretation of any initial readings should take this equilibrium process into account.

Contaminated Land Screening Values

In assessing the potential for contamination Brownfield Solutions Limited (BSL) follows UK guidance and current best practice.

General
The current recommended method for assessing contamination is on the basis of:

Source-Pathway-Receptor

Where any one of these "pollution linkages" is absent there is deemed to be no risk.

Fundamentally receptors can be considered as humans and controlled waters (surface and ground waters).

The purpose of using Tier 1 screening levels is to have a simple means of assessing the potential contamination of a site and to inform decisions on whether further investigation is warranted or whether an option to undertake clean up based on the data to hand is cost effective.

Human Health
Current UK guidance is provided by DEFRA and the Environment Agency (EA). Publications forming part of the guidance include; CLEA Model, toxicological reports and soil guideline values (SGV), collectively referred to as the CLEA Guidance. The CLEA Guidance has included a number of publications which have provided initial screening values for soil contamination based on standard land uses and soil assumptions.

CLEA guidance has gone through a number of revisions, all of the original SGV's that were published have been withdrawn and publication of new SGV's commenced in 2009.

For determinands where no SGVs are available, S4UL values have been published using the CLEA 1.06 Model. These are the third set of generic assessment criteria generated by CIEH, and replace the previous two sets of GACs. The revised S4UL values are based on greater knowledge of relevant toxicology and further consideration of exposure frequencies.

No SGV or S4UL is available for lead as this is derived based on blood lead levels. C4SL values for six determinands including lead was published by DEFRA/CL:AIRE in December 2014 and they represent a low risk as opposed to minimal risk. The C4SL values are based on a sandy loam with 6% Soil Organic Matter. These screening values were published by DEFRA for Part 2A use, although with the dual purpose for use under planning. However these have not been officially accepted by Local Government for use under planning. S4ULs remain the first reference due to the broader range of end uses and soil organic content.

The preference from the EA is that site specific screening levels are used wherever possible. Due to numerous factors it is not always possible to utilise site specific values. In these instances the following data sources are used in the order of preference given below:

- CIEH S4UL values (derived by CIEH/LQM)
- DEFRA/CL:AIRE C4SL's
- CL:AIRE GAC values
- Current UK SGV's
- Guidance from other European countries
- Guidance from the outside Europe

Controlled Waters
The European Water Framework Directive (WFD) became UK law in December 2003. It was created to ensure that European countries manage their rivers, groundwater and lakes so that they stay healthy for people and for wildlife.

This is achieved by the use of chemical standards for surface waters and groundwater. These values describe concentrations of chemicals that are not expected to cause harm to environmental organisms or human health, provided they are not exceeded. The same chemical may have several standards for different environmental regimes, and for different protection objectives.

Statutory Standards are set in legislation and if exceeded, this constitutes non-compliance with statutory obligations. European Directives are implemented in England and Wales by corresponding statutory instruments (i.e. regulations). The statutory instruments can be the exact same standards as they appear in the Directive or be more stringent.

A number of non-statutory standards also exist, these are set by various organisations (including the EA) for chemicals that are considered to be of concern, but are not covered by any specific legislation.

The chemical standards used in the UK to control impaction of contamination on controlled waters are Environmental Quality Standards (EQS). The EQS's cover a large number of compounds.

Where certain compounds are not covered by the EQS these are commonly compared to the UK Drinking Water Standards (DWS).

Further Assessment

When screening values are exceeded then further consideration is required. This could include the use of simple measures to break the pollution pathway and mitigate the risk, further more detailed investigation, including the deriving of site specific values to better define the risk and to design appropriate remedial measures.

Source	Contaminant	Unit	Proposed End Use														
			Residential with Homegrown Produce			Residential without Homegrown Produce			Commercial			Public Open Space (POS) resi			Public Open Space (POS) park		
		SOM (%)	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6
LQM S4UL	Arsenic	mg/kg	37	37	37	40	40	40	640	640	640	79	79	79	170	170	170
LQM S4UL	Cadmium	mg/kg	11	11	11	85	85	85	190	190	190	120	120	120	532	532	532
LQM S4UL	Chromium (III)	mg/kg	910	910	910	910	910	910	8600	8600	8600	1500	1500	1500	33000	33000	33000
LQM S4UL	Chromium (VI)	mg/kg	6	6	6	6	6	6	33	33	33	7.7	7.7	7.7	220	220	220
LQM S4UL	Copper	mg/kg	2400	2400	2400	7100	7100	7100	68000	68000	68000	12000	12000	12000	44000	44000	44000
C4SL	Lead	mg/kg	200	200	200	330	330	330	2300	2300	2300	760	760	760	1400	1400	1400
LQM S4UL	Mercury, Elemental	mg/kg	1.2	1.2	1.2	1.2	1.2	1.2	58	58	58	16	16	16	30	30	30
LQM S4UL	Nickel	mg/kg	180	180	180	180	180	180	980	980	980	230	230	230	3400	3400	3400
LQM S4UL	Selenium	mg/kg	250	250	250	430	430	430	12000	12000	12000	1100	1100	1100	1800	1800	1800
LQM S4UL	Zinc	mg/kg	3700	3700	3700	40000	40000	40000	730000	730000	730000	81000	81000	81000	170000	170000	170000
LQM S4UL	Phenol (total)	mg/kg	280	550	1100	750	1300	2300	760	1500	3200	760	1500	3200	760	1500	3200
LQM S4UL	Acenaphthene	mg/kg	210	510	1100	3000	4700	6000	84000	97000	100000	15000	15000	15000	29000	30000	30000
LQM S4UL	Acenaphthylene	mg/kg	170	420	920	2900	4600	6000	83000	97000	100000	15000	15000	15000	29000	30000	30000
LQM S4UL	Anthracene	mg/kg	2400	5400	11000	31000	35000	37000	520000	540000	540000	74000	74000	74000	150000	150000	150000
LQM S4UL	Benz(a)anthracene	mg/kg	7.2	11	13	11	14	15	170	170	180	29	29	29	49	56	62
LQM S4UL	Benzo(a)pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2	35	35	36	5.7	5.7	5.7	11	12	13
LQM S4UL	Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	3.9	4	4	44	44	45	7.1	7.2	7.2	13	15	16
LQM S4UL	Benzo(ghi)perylene	mg/kg	320	340	350	360	360	360	3900	4000	4000	640	640	640	1400	1500	1600
LQM S4UL	Benzo(k)fluoranthene	mg/kg	77	93	100	110	110	110	1200	1200	1200	190	190	190	370	410	440
LQM S4UL	Chrysene	mg/kg	15	22	27	30	31	32	350	350	350	57	57	57	93	110	120
LQM S4UL	Dibenz(a,h)anthracene	mg/kg	0.24	0.28	0.30	0.31	0.32	0.32	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4
LQM S4UL	Fluoranthene	mg/kg	280	560	890	1500	1600	1600	23000	23000	23000	3100	3100	3100	6300	6300	6400
LQM S4UL	Fluorene	mg/kg	170	400	860	2800	3800	4500	63000	68000	71000	9900	9900	9900	20000	20000	20000
LQM S4UL	Indeno(1,2,3,cd)pyrene	mg/kg	27	36	41	45	46	46	500	510	510	82	82	82	150	170	180
LQM S4UL	Naphthalene	mg/kg	2.3	5.6	13	2.3	5.6	13	190	460	1100	4900	4900	4900	1200	1900	3000
LQM S4UL	Phenanthrene	mg/kg	95	220	440	1300	1500	1500	22000	22000	23000	3100	3100	3100	6200	62000	6300
LQM S4UL	Pyrene	mg/kg	620	1200	2000	3700	3800	3800	54000	54000	54000	7400	7400	7400	15000	15000	15000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 5 - 6	mg/kg	42	78	160	42	78	160	3200	5900	12000	570000	590000	600000	95000	130000	180000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 6 - 8	mg/kg	100	230	530	100	230	530	7800	17000	40000	600000	610000	620000	150000	220000	320000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 8 - 10	mg/kg	27	65	150	27	65	150	2000	4800	11000	13000	13000	13000	14000	18000	21000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 10 - 12	mg/kg	130	330	760	130	330	770	9700	23000	47000	13000	13000	13000	21000	23000	24000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 12 - 16	mg/kg	1100	2400	4300	1100	2400	4400	59000	82000	90000	13000	13000	13000	25000	25000	26000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 16 - 35	mg/kg	65000	92000	110000	65000	92000	110000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 35 - 44	mg/kg	65000	92000	110000	65000	92000	110000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 5 - 7	mg/kg	70	140	300	370	690	1400	26000	46000	86000	56000	56000	56000	76000	84000	92000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 7 - 8	mg/kg	130	290	660	860	1800	3900	56000	110000	180000	56000	56000	56000	87000	95000	100000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 8 - 10	mg/kg	34	83	190	47	110	270	3500	8100	17000	5000	5000	5000	7200	8500	9300
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 10 - 12	mg/kg	74	180	380	250	590	1200	16000	28000	34000	5000	5000	5000	9200	9700	10000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 12 -16	mg/kg	140	330	660	1800	2300	2500	36000	37000	38000	5100	5100	5000	10000	10000	10000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 16 - 21	mg/kg	260	540	930	1900	1900	1900	28000	28000	28000	3800	3800	3800	7600	7700	7800
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 21 - 35	mg/kg	1100	1500	1700	1900	1900	1900	28000	28000	28000	3800	3800	3800	7800	7800	7900
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 35 - 44	mg/kg	1100	1500	1700	1900	1900	1900	28200	28200	28200	3800	3800	3800	7800	7800	7900
LQM S4UL	Benzene	mg/kg	0.087	0.17	0.37	0.38	0.7	1.4	27	47	90	72	72	73	90	100	110
LQM S4UL	Toluene	mg/kg	130	290	660	880	1900	3900	56000	110000	180000	56000	56000	56000	87000	95000	100000
LQM S4UL	Ethyl Benzene	mg/kg	47	110	260	83	190	440	5700	13000	27000	24000	24000	25000	17000	22000	27000
LQM S4UL	Xylene - o	mg/kg	60	140	330	88	210	480	6600	15000	33000	41000	42000	43000	17000	24000	33000
LQM S4UL	Xylene - m	mg/kg	59	140	320	82	190	450	6200	14000	31000	41000	42000	43000	17000	24000	32000
LQM S4UL	Xylene - p	mg/kg	56	130	310	79	180	430	5900	14000	30000	41000	42000	43000	17000	23000	31000
CL:AIRE 2010	MTBE (methyl tert-butyl ether)	mg/kg	49	84	160	49	84	160	7900	13000	24000	49	84	160	49	84	160
LQM S4UL	Chloroeth**ene** (Vinyl Chloride)	mg/kg	0.00064	0.00087	0.0014	0.00077	0.001	0.0015	0.059	0.077	0.12	3.5	3.5	3.5	4.8	5	5.4
LQM S4UL	1,2-Dichloroeth**ane** (1,2-DCA)	mg/kg	0.0071	0.011	0.019	0.0092	0.013	0.023	0.67	0.97	1.7	29	29	29	21	24	28
LQM S4UL	1,1,1-Trichloroeth**ane**	mg/kg	8.8	1.8	39	9	18	40	660	1300	3000	14000	14000	14000	57000	76000	100000
LQM S4UL	1,1,2,2-Tetrachloroeth**ane**	mg/kg	1.6	3.4	7.5	3.9	8	17	270	550	11000	1400	1400	1400	1800	2100	2300
LQM S4UL	1,1,1,2-Tetrachloroeth**ane**	mg/kg	1.2	2.8	6.4	1.5	3.5	8.2	0.79	1.9	4.4	1400	1400	1400	1500	1800	2100
LQM S4UL	Tetrachloroeth**ene** (PCE)	mg/kg	0.18	0.39	0.9	0.18	0.4	0.92	19	42	95	1400	1400	1400	810	1100	1500
LQM S4UL	Tetrachlorometh**ane (carbon tetrachloride)**	mg/kg	0.026	0.056	0.13	0.026	0.056	0.13	2.9	6.3	14	890	920	950	190	270	400

			Proposed End Use														
Source	Contaminant	Unit	Residential with Homegrown Produce			Residential without Homegrown Produce			Commercial			Public Open Space (POS) resi			Public Open Space (POS) park		
		SOM (%)	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6
LQM S4UL	Trichloroeth**ene** **(TCE)**	mg/kg	0.016	0.034	0.075	0.017	0.036	0.08	1.2	2.6	5.7	120	120	120	70	91	120
LQM S4UL	Trichlorometh**ane** (chloroform)	mg/kg	0.91	1.7	3.4	1.2	2.1	4.2	99	170	350	2500	2500	2500	2600	2800	3100
LQM S4UL	Chlorobenzene	mg/kg	0.45	1	2.4	0.46	1	2.4	56	130	290	11000	13000	14000	1300	2000	2900
LQM S4UL	1, 2 Dichlorobenzene	mg/kg	23	55	130	24	57	130	2000	4800	11000	90000	95000	98000	24000	26000	51000
LQM S4UL	1, 3 Dichlorobenzene	mg/kg	0.4	1	2.3	0.44	1.1	2.5	30	73	170	300	300	300	390	440	470
LQM S4UL	1, 4 Dichlorobenzene	mg/kg	61	150	350	61	150	340	4400	10000	25000	17000	17000	17000	26000	36000	36000
LQM S4UL	1, 2, 3 Trichlorobenzene	mg/kg	1.5	3.6	8.6	1.5	3.7	8.8	102	250	590	1800	1800	1800	770	1100	1600
LQM S4UL	1, 2, 4 Trichlorobenzene	mg/kg	2.6	6.4	15	2.6	6.4	15	220	530	1300	15000	17000	19000	1700	2600	4000
LQM S4UL	1, 2, 3, 4 Trichlorobenzene	mg/kg	0.33	0.81	1.9	0.33	0.81	1.9	23	55	130	1700	1700	1800	280	580	860
LQM S4UL	1, 2, 3, 4 Tetrachlorobenzene	mg/kg	15	36	78	24	56	120	1700	3080	4400	830	830	830	1500	1600	1600
LQM S4UL	1, 2, 3, 5 Tetrachlorobenzene	mg/kg	0.66	1.6	3.7	0.75	1.9	4.3	49	120	240	78	79	79	110	120	130
LQM S4UL	1, 2, 4, 5 Tetrachlorobenzene	mg/kg	0.33	0.77	1.6	0.73	1.7	3.5	42	72	96	13	13	13	25	26	26
LQM S4UL	Pentachlorobenzene	mg/kg	5.8	12	22	19	30	38	640	770	830	100	100	100	190	190	190
LQM S4UL	Hexachlorobenze	mg/kg	1.8	3.3	4.9	4.1	5.7	6.7	110	120	120	16	16	16	30	30	30

See LQM/CIEH S4ULs for Human Health Risk Assessment document for notes regarding derivation.

Re-Use Of Waste - Guidance Note

Definition of Waste

The Environment Agency considers waste to be *"...any material that is discarded, or intended to be discarded..."* This includes any soil from trenches, footing, site strip etc. It is no longer required in its original location, therefore it is considered to be waste.

CL:AIRE: Code of Practice

Where materials are excavated for construction purposes, wherever possible these should be retained on site for engineering purposes if they are suitable for use. This can be implemented under the CL:AIRE "Development Industry Code of Practice for the Definition of Waste" (CL:AIRE DoWCoP), also commonly referred to as a "Materials Management Plan".

The developer/contractor is advised to complete all works under the DoWCoP.

Potential scenarios where soils may be able to be re-used:

- Material capable of being used in another place on the same site without treatment.
- Material capable of being used in another place on the same site following ex-situ treatment on site.
- Material capable of being used in another development site without treatment (Direct Transfer).
- Material capable of being used in another development site following ex-situ treatment on another site eg Hub site.

The Code of Practice requires 4 No. Factors to be addressed:

1. Protection of human health and protection of the environment.
2. Suitability of use, without further treatment.
3. Certainty of use.
4. Quantity of material.

In order to satisfy these requirements the following are required:

i) Consultation/approval with Local Authority & Environment Agency to confirm they have no objections to the proposed re-use of waste soils, or the risk assessments for the site.
ii) Risk Assessments to demonstrate that the site does not present an Environmental Hazard.
iii) Remediation Strategy for contaminated sites (or Design Statement for non-contaminated sites).
iv) Materials Management Plan (MMP) which details material generated stockpiles and the end use.
v) Volume calculations.
vi) Planning permission for the development.
vii) Contractual details to be clear, regarding who steps in is a contractor goes into administration/liquidation.

The use of the CoP is effectively industry regulated, there is a requirement to appoint an independent Qualified Person (QP) who checks all the requirements have been met and registers the documentation with the Environment Agency. This person must not have had any involvement with the preparing of the risk assessments or remedial strategy on the site.

Soils which require treatment on site (eg bioremediation, stabilisation) will require an Environmental Permit for treatment, together with justification and validation to prove, once treated, this material is suitable for use.

Site management procedures need to be in place to ensure that material is tracked through from excavation stockpiling, treatment and remediation processes. Should the process of material tracking be considered non-robust, or not adhered to, this may fail the test whether excavated materials may be considered non-waste.

Waste Classification For Soils

Introduction

Waste producers have a duty of care to classify the waste they are producing:

- before it is collected, disposed of or recovered.
- to identify the controls that apply to the movement of the waste.
- to complete waste documents and records.
- to identify suitably authorised waste management options.
- to prevent harm to people and the environment.

The most sustainable and economic method of dealing with waste soil is usually the retention and re-use on site. Where this is not possible there are three main options for the disposal of soils:

1. Disposal to a permitted waste recycling facility.
2. Re-use on another site (subject to the suitability).
3. Disposal to a landfill site.

The disposal to a permitted facility will be subject to the **specific conditions of the permits for each individual facility** and will vary dependent on location and environmental sensitivity of the receiving site. Re-use on another site will also be subject to the acceptability criteria of that site.

The guidance below relates to disposal to **landfill sites only**.

Background for Landfill Disposal

In July 2005 the United Kingdom implemented the European Directive 1999/31/EC (The Landfill Directive), this introduced the current regime for waste and waste disposal to landfill. The Landfill Directive places controls on waste disposal. These controls include requirements to follow the waste acceptance procedures and criteria that have been agreed by the Council of the European Union and are laid out in Council Decision 2003/33/EC.

Before a waste can be accepted at a landfill site, the landfill **operator** must be satisfied that the waste meets his permit conditions, the waste acceptance procedures (WAP) and waste acceptance criteria (WAC).

If disposal to landfill is the best management option for the waste soils, these procedures **must** be followed or the operator may refuse to accept the waste.

Key Points

- Not all waste can be landfilled
- Landfills are classified according to whether they can accept **hazardous**, **non-hazardous** or **inert** wastes.
- Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.
- Most wastes must be treated before you can send them to landfill.
- There are formal processes for identifying and checking wastes that must be followed before wastes can be accepted at a landfill site.

Classification

Wastes are listed in the European Waste Catalogue (EWC 2002) and grouped according to generic industry, process or waste types. Wastes within the EWC are either hazardous or non-hazardous. Some of these wastes are hazardous without further assessment (absolute entries) or are 'mirror' entries that require further assessment of their hazardous properties in order to determine whether they are hazardous waste.

Waste soil has mirror entries on the EWC and as such the first phase of the waste classification process is that of determining if the waste is hazardous or not i.e the hazard assessment. The most common EWC waste codes related to soil are:

17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing dangerous substances
17 05 04	soil and stones other than those mentioned in 17 05 03

Soils may contain certain contaminants (eg asbestos, oil,) which have prescribed concentration thresholds, that if breached will render the material hazardous waste. These are based on specific "hazardous properties" which include hazards such as carcinogenicity, flammability and toxicity.

In the first instance the concentrations of plausible contaminants within the soil should be identified and wastes should be **classified based on their total concentrations**.

Waste Definitions

Inert	• Will not undergo any significant physical, chemical or biological transformations. • Will not dissolve. • Will not burn. • Will not physically or chemically react. • Will not biodegrade. • Will not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health. • Has insignificant total leachability and pollutant content. • Produces a leachate with an ecotoxicity that is insignificant (if it produces leachate).
Non-Hazardous	Is not inert (see above) Is not hazardous (see below)
Hazardous	Soil has hazardous properties as defined in WM3 (Guidance on the classification and assessment of waste (1st edition 2015)- Technical Guidance)
Stable Non-reactive hazardous waste#	Hazardous waste, the leaching behaviour of which will not change adversely in the long-term, under landfill design conditions or foreseeable accidents either: in the waste alone (for example, by biodegradation), under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints) or by the impact of other wastes (including waste products such as leachate and gas).

\# This option allows hazardous waste that is stable and thus has a low leaching potential to be deposited in cells with a standard of containment consistent with non-hazardous wastes.

WAC Testing

The purpose of WAC analysis is to confirm that the waste complies with the relevant WAC for the receiving landfill. If the waste has any disposal route other than a landfill site (e.g. recycling facility, incineration etc) the **WAC is not relevant.** Furthermore the WAC limits **cannot be used to make an assessment of whether a waste is hazardous**. WAC testing does however define if a non-hazardous waste is suitable for an inert landfill.

Classification based on Total Concentrations[1]	Non-Hazardous Waste		Hazardous Waste	
WAC testing	Below inert WAC limit values:	Above inert WAC limit values:	Below hazardous WAC limit values	Above hazardous WAC limit values
Landfill requirements	INERT landfill	NON-HAZARDOUS landfill[2]	HAZARDOUS landfill	PRE-TREATMENT[3]

1 Total concentrations are defined as tests results on solids as opposed to leachate (i.e. a liquid).
2 Individual sites may have certain limit values pre-determined in their licence.
3 After pre-treatment the material characteristics may have changed to an extent that allow the soil to be re-classified.

Hydrocarbons in Soils

WM3 uses the term Oil or Waste Oil to cover hydrocarbons products such as fuel oil, petrol or diesel. These are defined by WM3 as hazardous under an absolute entry in the List of Wastes. However hydrocarbons in soils are a mixture rather than a pure product and are therefore not absolute entries.

Known Oils

The simplest scenario is where the identity of the contaminating oil is known or can be identified. If the oil is known the manufacturer's or supplier's REACH compliant safety data sheet for the specific oil can be obtained and the hazard statement codes on that Safety Data Sheet can be used for the hazardous waste assessment.

Where the identity of the oil can only be identified down to a petroleum group level (i.e. the contaminating oil is known to be diesel, but the specific type/brand is unknown), then the classification of that petroleum group should be used in the assessment. The marker compounds associated with that petroleum group may be used to confirm carcinogenicity.

Oils may contain a range of hydrocarbons, so the presence of for instance Diesel Range Organics (DRO) does not enable the assessor to conclude that diesel is present. These hydrocarbons may have arisen from other oils, the laboratory needs to provide an interpretation of the chromatograph to determine if it is consistent with diesel or weathered diesel as a whole.

The concentration of known oils should be determined using a method that as a minimum spans the range in which the carbon numbers for that known oil fall.

Unknown Oils

Where hydrocarbons are contaminating soils it is likely that the oil will be unknown or cannot be determined.

WM3 states that:

> For contaminated land specific consideration must be given to the following before proceeding;
>
> - The presence of other organic contaminants, for example solvents or coal tar that could be detected as hydrocarbons. Coal Tar is not an oil and is considered separately in WM3 example 2. Where the site history or investigation indicates the presence of hydrocarbons from oil and other sources (e.g. coal tar), and the origin of the hydrocarbons cannot reliably be assigned to either, then a worst case approach of considering the hydrocarbons both as waste oil (in accordance with this example) and from other sources, for example coal tar should be taken.
> - The presence of diesel, or weathered diesel, should be specifically considered by the laboratory and where this is confirmed by the hydrocarbon profile the oil should be assessed as a known or identified oil (diesel).

The use of **marker compounds** is optional; however it is recommended that where possible the marker compounds should be used. WM3 states:

> If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic/mutagenic due to the presence of oil if all three of the following criteria are met:
>
> - The waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.1 of the CLP for BaP)
> - This has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D of WM3, and
> - The analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel.

For example:

TPH Concentration (mg/kg)	Petrol or Diesel	BaP (mg/kg)	Classification
10,000	No	0.9	Non- Hazardous
1,000	No	Not available	Hazardous
1,000	Yes	Not relevant	Hazardous

References

1. Environmental Permitting (England and Wales) Regulations 2010 (as amended) (EP Regulations), the Landfill Directive (1999/31/EC) and the subsequent Council Decisions.
2. Environment Agency Environmental Permitting Regulations: “Inert Waste Guidance- Standards and Measures for the Deposit of Inert Waste on Land” 2009.
3. Environment Agency “Waste acceptance at landfills - Guidance on waste acceptance procedures and criteria” Nov 2010.
4. Environment Agency “Guidance on the classification and assessment of waste (Technical Guidance WM3)”.
5. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).
6. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
7. 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament
8. Environmental Permitting Guidance The Landfill Directive For the Environmental Permitting (England and Wales) Regulations 2010 Updated March 2010 Version 3.1
9. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).

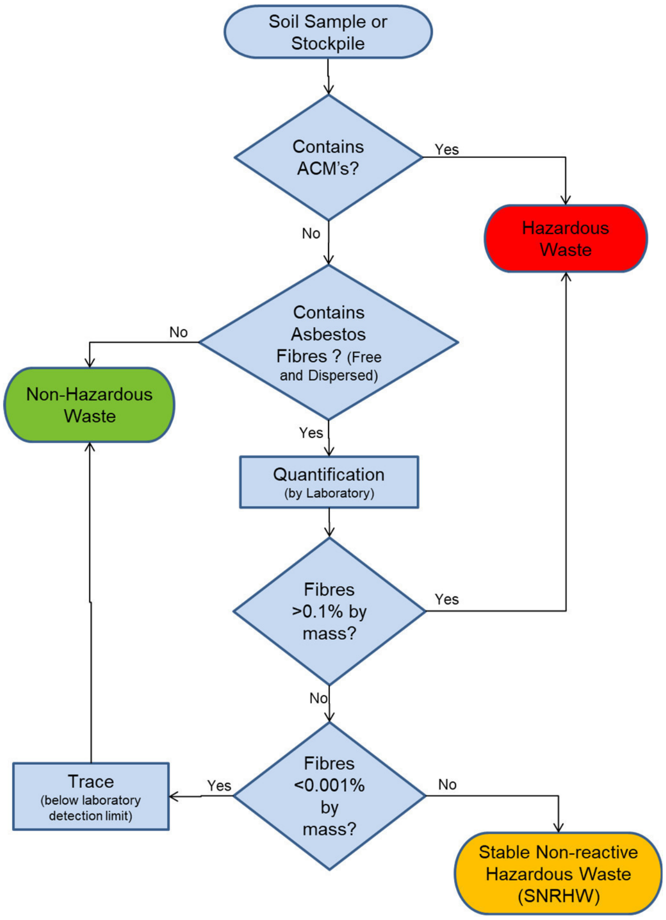
Additional Asbestos Guidance Notes

Disposal

The 1st Edition of WM3 "Guidance on the classification and assessment of waste", details the way in which Asbestos is assessed within soils.

The assessment of asbestos containing waste is dependent on whether the asbestos is present as:

- Fibres that are free and dispersed, or
- Identifiable pieces of asbestos containing materials (ACM's)



Identifiable pieces of asbestos are any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. The result is that commonly soils with visible ACM's are sorted and the ACM's removed by hand picking and separate disposal.

Asbestos concentrations below 0.001% by mass are below standard laboratory detection limits and are not currently regarded as containing asbestos for the purposes of disposal and may be disposed of to an inert landfill site[1]. These levels are often termed "trace" by laboratories.

Asbestos concentrations between 0.001% and 0.1% are stable non-reactive hazardous waste (SNRHW)[1]. Waste transfer stations where soil recycling takes place may be able to take SNRHW, but are unlikely to take soils containing asbestos above trace concentrations.

The following codes should be assigned to the asbestos waste as appropriate:

17 06	**Insulation materials and asbestos-containing construction materials**
17 06 01	Insulation materials containing asbestos
17 06 03	Other insulation materials consisting of or containing hazardous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05	Construction material containing asbestos

WM3 indicates that 17 06 05 would normally be used in preference to 17 06 01 for the asbestos in asbestos contaminated soil and stones.

Construction materials containing asbestos and "*other suitable materials*" may be landfilled at landfills for non-hazardous waste in accordance with the Landfill Directive without testing.

This means that wastes that are only hazardous because of their asbestos content can be disposed of at landfills for non-hazardous waste in separate landfill cells that only accept asbestos wastes and other suitable materials. The Landfill Directive requires that stable non-reactive hazardous waste shall not be deposited with biodegradable waste (for example organic material, household waste, paper etc..) and must meet the waste acceptance criteria set out in accordance with Annex II.

Construction

Health and Safety Executive (HSE) guidance on asbestos is not directly related to soil and much of the guidance focuses on the removal of asbestos from buildings. The overarching legislation is the Control of Asbestos Regulation (CAR 2012). However where work involves (or is likely to involve) contact with asbestos then CAR 2012 requires a risk assessment including whether or not the work is licensed or notifiable non-licensed work and may require an Asbestos Management Plan. Work becomes notifiable if it is considered that the control limit could be exceeded.

Brownfield sites frequently have soils that contain asbestos and the presence of asbestos needs to be considered within the context of construction, particularly in relation to groundworks. The exposure of soils and the use of excavators and plant to move soil around increases the possibility of fibres becoming airborne. However it is good site practice to not generate dusts and to employ dust suppression on all sites regardless of the presence of asbestos.

The legal control limit for asbestos is 0.1f/ml over a continuous four hour period. The control limit is not a '*safe*' level and exposure from work activities involving asbestos must be reduced to as far below the control limit as possible.

Clearly the higher the concentrations in the soil the greater potential there is for fibres to be released, however IOM publication TM/88/14 "the release of dispersed asbestos fibres from soil" 1988 concludes that:

- Mixtures of asbestos in dry soils with asbestos content as low as 0.001% can produce airborne respirable asbestos concentrations greater than 0.1f/ml in dust clouds where the respirable dust concentrations are less than 5mg/m^3.
- An action limit is recommended of no higher than 0.001% asbestos in soils above which steps should be taken to minimise exposure to airborne fibres (eg by wetting).
- The addition of relatively small quantities (10%) of water can reduce the airborne fibre concentrations by an order of magnitude.

Where asbestos has been identified at concentrations above 0.001% as free and dispersed fibres in the soil precautions need to be adopted. Concentrations below this are considered to be normal background, although good site practice dictates that the generation of dusts should be avoided and therefore any fugitive fibre release from minor concentrations should be kept to a practical minimum.

End Use

The use of materials containing asbestos and material containing asbestos is prohibited under EU legislation. There is currently a Joint Industry Working Group (JIWG) tasked with producing a Code of Practice for Asbestos in Soil, Made Ground and Construction & Demolition Material that will clarify in due course the position of the various government agencies.

Asbestos containing materials can remain in situ under a suitable cover system which may be hardsurfacing or soft landscaping (with or without hard dig layers and markers).

There is a risk that future maintenance may compromise such systems and details of the presence of asbestos should be kept in the Health and Safety File.

Preliminary publications from JIWG (April 2015) provide guides for decision making in relation to construction. These are at a "Beta" test stage and further publications will be provided in due course.

The re-use of waste soils should be undertaken in accordance with the CL:AIRE Code of Practice and is subject to suitable risk assessments demonstrating low risk . There is nothing that specifically excludes the re-use of soils containing asbestos as fill to raise levels. However the movement of materials increases the risk of fibres becoming airborne and suitable precautions will be required.

The re-use of soils containing asbestos at concentrations above hazardous waste levels is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be feasible where there is a long program for implementation.

Asbestos in Soil as Free Fibres

Concentration (by weight)	Waste Disposal				Construction Issues	End Use	
	Recycle	Inert	SNR Hazardous	Hazardous		Suitable for re-use on site	Precautions
Not detected	√	√			No precautions necessary, however on a brownfield site asbestos not previously identified may be found during works and a statement within the contractors method statement for how they will deal with this unforeseen asbestos would be good practice to ensure compliance with CAR2012.	Yes	None
Trace (<0.001%)		√ [2]			Precautions are unlikely to be required, however a detailed method statement may be required to ensure compliance with CAR2012. Basic asbestos management good practice will be required. Typically precautions would include: • Ensuring soils do not dry out to become dusty. • Site personnel have the risk communicated at induction stage.	Yes Soils can be re-used under CL:AIRE CoP with the correct precautions in place.	Generally clean cover or hardstanding cover required.
0.001% – 0.099%			√		Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: • Site personnel have the risk communicated at induction stage. • Ensuring personnel have suitable training. • Task monitoring to inform PPE requirements. • Ensuring soils do not dry out to become dusty and that misting is available during groundworks. • Separate stockpiling. • Clean haulage routes.	Possibly Soils may be able to be re-used under CL:AIRE CoP, subject to a satisfactory Risk Assessment and regulatory agreement with the correct precautions in place.	Clean cover or hardstanding cover required.
0.1+%				√	Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: • Site personnel have the risk communicated at induction stage. • Ensuring personnel have suitable training. • Task monitoring to inform PPE requirements. • Site wide and or perimeter monitoring. • Ensuring soils do not dry out to become dusty and that misting is available during groundworks. • Separate stockpiling. • Clean haulage routes. • Decontamination unit	Unlikely [3] Re-use of soils containing asbestos within an earthworks scheme will involve significant engineering and the risk for generating dusts will be significantly increased with repeated handling and compaction.	Clean cover and a hard dig layer. A plan should be in place for future excavations as part of the Health and Safety File.

[2] The standard laboratory detection limit is normally 0.001%. Below 0.001% is trace and currently regarded as not containing asbestos for the purposes of disposal off site. However the waste producer has a duty to fully classify the waste and the presence of trace asbestos should be declared. Consequently it is unlikely that a waste treatment site will take this soil and an inert landfill may make a commercial decision to only take it under some circumstances.

[3] The re-use of soils containing asbestos at concentrations above hazardous waste is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be warranted where there a long program for implementation.

APPENDIX B

Exploratory Hole Logs

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394155E, 412036N	**No.** TP101 Sheet 1 of 1
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Hole Type** TP **Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.15	D ES		0.20		▩	MADE GROUND: Grass over grey clayey gravel with low cobble and boulder content content (reworked bedrock). Gravel is fine to medium angular of mudstone. Cobbles and boulders are angular up to 210mm in diameter of mudstone.
				0.25		≡	Very weak thinly laminated to very thinly bedded partially weathered light and dark grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated, with dark brown orange staining.
							End of Trial Pit at 0.25m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Trail pit stable.
3. Trial pit terminated due to mudstone bedrock.
4. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

				No.
				TP102
				Sheet 1 of 1
PROJECT NO:	C4315	**CO-ORDS:**	394167E, 412034N	**Hole Type** TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.15	D ES		0.25		▩	MADE GROUND: Grass over brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and rare brick.
	0.30	B D ES		0.50		▤	Very weak to weak thinly laminated to very thinly bedded partially weathered MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close grey, sub-horizontal to horizontal, striated with dark orange brown staining.
							End of Trial Pit at 0.50m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope, adjacent to the foot path.
3. Trail pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP103**	Sheet 1 of 1			
PROJECT NO:	C4315	**CO-ORDS:**	394141E, 412023N	**Hole Type**	TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale**	1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM	**Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.50 0.80	D ES D		1.00		▩	MADE GROUND: Grass over grey clayey gravel with high cobble content. Gravel is fine to coarse angular of mudstone. Cobbles are angular up to 160mm in diameter of mudstone.
				1.10		☰	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with orange brown staining.

End of Trial Pit at 1.10m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound at the base of the cliff, within the tree line, approximately 10.0m from the base of the cliff.
3. Trail pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.
TP104
Sheet 1 of 1
Hole Type
TP
Scale
1:15

Logged	**Checked**
SM	JMC

PROJECT NO:	C4315	**CO-ORDS:**	394150E, 411993N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	04/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.05		▨	MADE GROUND: Grass over brown slightly sandy gravelly clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.30	D ES		0.85		▨	MADE GROUND: Grey and brown slightly sandy clayey gravel with medium to high cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to sub-angular of brick, mudstone, sandstone and rare clinker. Occasional plastic material.
	0.85	D ES		0.90		▤	Weak thickly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very closely spaced (up to 35mm), sub-horizontal to horizontal and striated.

End of Trial Pit at 0.90m

Remarks

1. No groundwater encountered.
2. Excavated within mound/historic stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP105**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394136E, 411994N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 04/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
				0.05		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sands is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and rare brick.	
	0.20	D ES				▨	MADE GROUND: Dark grey and brown slightly sandy clayey gravel with medium to high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular to sub-angular brick, mudstone, sandstone, occasional and rare clinker. Cobbles and boulders are angular to sub-angular of brick, mudstone and sandstone. Occasional fragments of metal approximately 1200mm x 100m and occasional plastic material.	
	1.00	D ES				▨		1.0
				1.40		▨	MADE GROUND: Dark grey slightly sandy clayey gravel. Sand is fine to coarse of ash. Gravel is angular to sub-angular fine to coarse of brick, mudstone, clinker and occasional metal fragments.	
	1.50	D ES				▨		
				2.00		▤	Weak to medium strong partially weathered extremely close to very close light and dark grey MUDSTONE (recovered as gravel with cobbles and boulders). Discontinuities thinly laminated to very thinly bedded, sub-horizontal to horizontal, striated, with dark brown orange staining.	2.0
	2.10	D		2.10			End of Trial Pit at 2.10m	
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound/historic stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

				No.	
				TP106	
				Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	394162E, 411954N	**Hole Type** TP	
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:15	
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM	**Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.15			Grass over dark brown slightly sandy gravelly CLAY (TOPSOIL) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and sandstone.
	0.80	D ES		1.30			Soft to firm mottled light grey and orange brown gravelly CLAY. Gravel is fine to coarse angular to sub-angular mudstone.
	1.50	B ES		1.60			Very weak to weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
							End of Trial Pit at 1.60m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope, bedrock was encountered 0.20m below to the base of the slope.
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394153E, 411940N	**No.** TP107 Sheet 1 of 1
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Hole Type** TP **Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.20		▨	Grass over dark brown slightly sandy gravelly CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and sandstone.
	0.25	D ES		0.30		⁘	Orange brown fine to medium SAND.
	0.40	B		0.50		☰	Very weak to weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
							End of Trial Pit at 0.50m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope, bedrock was encountered at ground level at the base of the slope.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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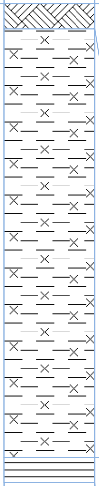
Trial Pit Log

No.	**TP108**	Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	394124E, 411915N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	04/11/19

Hole Type	**Scale**	**Logged**	**Checked**
TP	1:15	SM	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.05			Grass over dark brown slightly sandy gravelly CLAY (TOPSOIL) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.30	D ES					Soft to firm mottled grey and brown gravelly CLAY. Gravel is fine to coarse angular mudstone.
	0.80	D ES					
				0.90			Very weak to weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
				0.95			End of Trial Pit at 0.95m



1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope, bedrock was encountered 0.10.0m below the base of the slope.
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. Trial pit terminated due to mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP109**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS: 394131E, 411968N

LEVEL:

DATES: 04/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.05		▨	Grass over grey brown slightly sandy gravelly CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.10 1.00	D ES B		1.30		☰	Weak partially weathered thinly laminated to very thinly bedded grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown orange staining.
							End of Trial Pit at 1.30m

Remarks

1. No groundwater encountered.
2. Excavated within slope/elevated step in the quarry.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.
TP110
Sheet 1 of 1

Hole Type TP
Scale 1:15
Logged SM **Checked** JMC

PROJECT NO: C4315
CO-ORDS: 394114E, 411991N
PROJECT NAME: NEWHEY QUARRY
LEVEL:
CLIENT: D MORGAN
DATES: 04/11/19

Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.15		▨	MADE GROUND: Grass over grey slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to coarse. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.50 0.80 1.00	D ES B D ES		1.20		▨	MADE GROUND: Dark grey and brown slightly sandy very gravelly clay with medium to high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular to sub-angular of brick, mudstone, sandstone, rare clinker and glass. Cobbles and boulders are sub-angular to angular up to 520mm of brick, sandstone and mudstone.
				1.30		≡	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown orange staining.

End of Trial Pit at 1.30m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound/bund, bedrock encountered 0.15m below the base of the bund. 3. Trial pit stable.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP111**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394090E, 411986N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 04/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.15		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets with rootlets. Sand is fine to medium. Gravel is fine to medium sub-angular to angular brick, mudstone and sandstone.
	0.50	D ES		0.90		▨	MADE GROUND: Dark grey and brown sandy clayey gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse sub-angular to angular mudstone, brick, sandstone, rare clinker and metal. Cobbles and boulders are sub-angular to angular up to 950mm of sandstone, mudstone and occasional brick.
	0.80	B					
				1.00		☰	Very weak to weak thinly laminated to thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown orange staining.

End of Trial Pit at 1.00m

Remarks

1. No groundwater encountered.
2. Excavated within mound/bund, bedrock encountered 0.10.0m below the base of the bund.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394067E, 411990N	**No.** TP112 Sheet 1 of 1 **Hole Type** TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.05	D ES		0.10		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone, brick and sandstone.
	0.30	B D		0.40		▤	Very weak to weak thinly laminated to thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown orange staining.
							End of Trial Pit at 0.40m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound at the base of the cliff, within the tree line, approximately 8.00m from the base of the cliff.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.
TP113
Sheet 1 of 1

PROJECT NO: C4315
CO-ORDS: 394053E, 411967N
PROJECT NAME: NEWHEY QUARRY
LEVEL:
CLIENT: D MORGAN
DATES: 04/11/19

Hole Type TP
Scale 1:15
Logged SM
Checked JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	B D ES		0.30		☰	Very weak to weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
							End of Trial Pit at 0.30m

1.0
2.0
3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope/elevated step in quarry. 3. Trial pit stable.
3. Trial pit stable.
4. Trial pit terminated due to shallow mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394032E, 411979N	**No.**	**TP114**
					Sheet 1 of 1
				Hole Type	TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale**	1:15
CLIENT:	D MORGAN	**DATES:**	04/11/19	**Logged**	**Checked**
				SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**	
	Depth (m)	**Type**	**Results**					
				0.10		▨	Grass over dark brown slightly gravelly sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.	
	0.30	B D ES		0.40		☰	Very weak to weak thinly laminated to thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very closely spaced, sub-horizontal to horizontal, striated with brown orange staining.	
							End of Trial Pit at 0.40m	
								1.0
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound at the base of cliff face, within the tree line, approximately 10.0m from the base of the cliff. 3. Trial pit stable.
3. Trial pit stable.
4. Trial pit terminated due to shallow mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP115**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 394022E, 411954N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 04/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.50	B D ES		1.65		▩	MADE GROUND: Dark grey slightly sandy gravel with high cobble and boulder content. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 1400mm of mudstone and sandstone.
				1.80		☰	Weak thinly laminated to thinly bedded partially weathered light grey brown fine to medium grained SANDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are very close to closely spaced (up to 120mm), sub-horizontal to horizontal, smooth to striated.

End of Trial Pit at 1.80m

Remarks

1. No groundwater encountered.
2. Excavated within stockpile of quarried material, bedrock encountered at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to shallow sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394008E, 411945N	**No.**	**TP116**
					Sheet 1 of 1
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Hole Type**	TP
				Scale	1:15
CLIENT:	D MORGAN	**DATES:**	05/11/19	**Logged**	**Checked**
				SM	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.10			Grass over dark brown slightly gravelly sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
▼	0.20	D ES		0.35			Grey slightly clayey GRAVEL (scree) with high cobble and boulder content. Gravel is fine to coarse angular of mudstone and sandstone. Cobbles and boulders are angular up to 800mm of mudstone and sandstone.
				0.36			Medium strong grey MUDSTONE.
							End of Trial Pit at 0.35m

Remarks

1. Groundwater was encountered at 0.20m bgl, slow seepage.
2. Excavated within the tree line approximately 5.00m from the base of the cliff (scree material).
3. Trial pit stable.
4. Trial pit terminated due to shallow mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	TP117		
Sheet 1 of 1			
PROJECT NO:	C4315	**CO-ORDS:**	393995E, 411905N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19
Hole Type	TP		
Scale	1:15		
Logged	SM	**Checked**	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.05	D ES		0.05			MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
							MADE GROUND: Brownish grey slightly sandy very gravelly clay with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular of mudstone and sandstone. Cobbles and boulders are angular up to 620mm of mudstone and sandstone.
	0.60	D ES					
	1.00	D ES					
				1.30			Weak thinly laminated to thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with brown orange staining.
	1.40	D					
				1.45			End of Trial Pit at 1.45m

Remarks

1. Groundwater encountered at 0.25m bgl, slow seepage.
2. Excavated within the slope at the side of asphalt road.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
TP118
Sheet 1 of 1
Hole Type
TP
Scale
1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 393973E, 411869N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.05	D ES		0.05		▩	MADE GROUND: Grass over dark greyish brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone, sandstone and rare brick.
	0.40	D ES				▩	MADE GROUND: Brownish grey slightly sandy very gravelly clay with high cobble and medium boulder content. Sand is fine to coarse. Gravel is fine to coarse angular of mudstone, sandstone and rare brick. Cobbles and boulders are angular up to 450mm of mudstone and sandstone.
	1.20	D ES				▩	
				1.30		▤	Weak partially thinly laminated to thinly bedded weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
				1.45			End of Trial Pit at 1.45m

1.0

2.0

3.0

Remarks

1. No Groundwater encountered.
2. Excavated within the slope north of the asphalt road.
3. Trial pit stable.
4. Bedrock was encountered at the base of the slope and could be seen at the surface within the stream north of the trail pit.
5. Trial pit terminated due to mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP119**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS: 393961E, 411860N

LEVEL:

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.10		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.40	D ES		0.50		▩	MADE GROUND: Brownish grey slightly sandy clayey gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular of mudstone, sandstone and occasional brick. Cobbles and boulders are angular up to 320mm of brick, mudstone and sandstone.
				0.60		☰	Weak thinly laminated to thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, striated with brown staining.
							End of Trial Pit at 0.60m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound/historic stockpile covered in vegetation.
3. Trial pit stable.
4. Bedrock was encountered 0.10m bgl and could be seen at the surface within the stream north of the trail pit.
5. Trial pit terminated due to mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP120**	Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	393968E, 411886N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES				▨	MADE GROUND: Grass over slightly sandy clayey gravel with high cobble and boulder content. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of sandstone, mudstone and occasional brick. Cobbles and boulders are angular to sub-angular up to 760mm of sandstone, mudstone and brick.
	0.30	B D ES		0.35			
				0.45		☰	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.

End of Trial Pit at 0.45m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound in the tree line approximately 5.00m from the base of the cliff.
3. Trial pit stable.
4. Trial pit terminated due to light brown sandstone bedrock in the north of the trial pit and grey mudstone in the south of the trial pit.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP121**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394083E, 411959N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.05		▨	Grass over greyish brown slightly sandy gravelly CLAY (TOPSOIL) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.30	D ES				☰	Very weak thinly laminated to very thinly bedded distinctly weathered grey MUDSTONE, recovered as clayey gravel with cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal and smooth.
	0.80	D ES					
	1.00	B					
	1.20	D ES					
				1.45			
							End of Trial Pit at 1.45m

Remarks

1. No groundwater encountered.
2. Excavated within slope/elevated step in quarry.
3. Trial pit stable.
4. Trial pit terminated due to light grey brown sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

				No.	
				TP122	
				Sheet 1 of 2	
PROJECT NO:	C4315	**CO-ORDS:**	394044E, 411953N	**Hole Type** TP	
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:15	
CLIENT:	D MORGAN	**DATES:**	05/11/19	**Logged** SM	**Checked** JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**	
	Depth (m)	**Type**	**Results**					
						▨	MADE GROUND: Grey slightly sandy gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 1600mm of mudstone and sandstone.	
	0.40	D ES						
	0.80	D ES						
								1.0
	1.30	D ES						
	2.00	B						2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated from the top of a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No. **TP122**

Sheet 2 of 2

Hole Type TP

Scale 1:15

Logged SM **Checked** JMC

PROJECT NO: C4315

CO-ORDS: 394044E, 411953N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				3.30		▨	MADE GROUND: Grey slightly sandy gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 1600mm of mudstone and sandstone.
				3.35		☰	Medium strong grey MUDSTONE.

End of Trial Pit at 3.30m

4.0

5.0

6.0

Remarks

1. No groundwater encountered.
2. Excavated from the top of a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No. TP123

Sheet 1 of 1

Hole Type TP

Scale 1:15

Logged SM

Checked JMC

PROJECT NO: C4315

CO-ORDS: 394080E, 411937N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.10		▩	MADE GROUND: Grey sandy gravel (reworked). Sand is medium to coarse. Gravel is fine to medium sub-angular to angular of mudstone and sandstone.
	0.30	B D ES		0.35		▤	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to close, sub-horizontal to horizontal, smooth with dark brown orange staining.
							End of Trial Pit at 0.35m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope/elevated step in the quarry.
3. Trial pit stable.
4. Trial pit terminated due to light grey brown sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP124**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394089E, 411906N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.15		▨	Grass over brown slightly gravelly sandy CLAY (TOPSOIL) with rootlets. Sand is fine to medium. Gravel is angular fine to medium of sandstone and mudstone.	
				0.25		☰	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.	
							End of Trial Pit at 0.25m	
								1.0
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound within dense vegetation.
3. Trial pit stable.
4. Trial pit terminated due to light grey brown sandstone bedrock.
4. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP125**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394100E, 411915N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.20		▨	Grass over brown slightly gravelly sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is angular fine to medium of sandstone and mudstone.
	0.30	B		0.35		☰	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.

End of Trial Pit at 0.35m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound within dense vegetation.
3. Trial pit stable.
4. Trial pit terminated due to light grey brown sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP126**	Sheet 1 of 2	
PROJECT NO:	C4315	**CO-ORDS:**	394036E, 411921N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Hole Type	**Scale**	**Logged**	**Checked**
TP	1:15	SM	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
						▨	MADE GROUND: Grey slightly clayey slightly sandy gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 800mm of mudstone and sandstone.	
	0.50	D ES						
	1.00	D ES						1.0
	1.50	B D ES						
	2.00	D ES						2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No. TP126

Sheet 2 of 2

Hole Type TP

Scale 1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 394036E, 411921N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**	
	Depth (m)	**Type**	**Results**					
						▨	MADE GROUND: Grey slightly clayey slightly sandy gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 800mm of mudstone and sandstone.	
				3.40		☰	Medium strong grey MUDSTONE.	
				3.45			End of Trial Pit at 3.40m	
								4.0
								5.0
								6.0

Remarks

1. No groundwater encountered.
2. Excavated within a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP127**	Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	394051E, 411904N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19
Hole Type	TP	**Scale**	1:15
Logged	SM	**Checked**	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
				0.10		▨	MADE GROUND: Grass over brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is angular fine to medium of sandstone and mudstone.
	0.20	D ES				▨	MADE GROUND: Grey slightly clayey slightly sandy gravel with high cobble and boulder content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular of sandstone and mudstone. Cobbles and boulders are angular to sub-angular up to 1200mm of mudstone and sandstone.
	1.00	D ES				▨	
	1.50	B D ES				▨	
	1.80	D ES		1.80		≡	Medium strong grey MUDSTONE.
				1.85			End of Trial Pit at 1.80m

Remarks

1. No groundwater encountered.
2. Excavated within a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP128**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15

Logged	**Checked**
SM	JMC

PROJECT NO:	C4315	**CO-ORDS:**	394043E, 411874N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	B D ES		0.40		▩	MADE GROUND: Grass over grey slightly sandy clayey gravel with high cobble content. Sand is fine to medium. Gravel is fine to coarse angular of mudstone, sandstone and brick. Cobbles are sub-angular to angular up to 200mm of brick, sandstone and mudstone.
				0.45		⁙	Weak thinly to medium bedded, partially weathered light grey brown fine to medium grained SANDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are closely spaced, sub-horizontal to horizontal, rough to striated with orange brown staining.

End of Trial Pit at 0.45m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound within tree line.
3. Trial pit stable.
4. Trial pit terminated due to light grey brown sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP129**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO:	C4315	**CO-ORDS:**	394017E, 411874N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.30	D ES		1.20		▩	MADE GROUND: Grey slightly sandy clayey gravel with high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular of mudstone. Cobbles and boulders are sub-angular to angular up to 250mm of mudstone and sandstone.
	0.60	D ES					
	0.80	B					
				1.30		☰	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.
							End of Trial Pit at 1.30m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within a stockpile of quarried material. Bedrock was encountered at ground level, at the base of the stockpile.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
TP130
Sheet 1 of 1

Hole Type TP
Scale 1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 394016E, 411854N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.20		▨	Grass over dark brown slightly sandy gravelly CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is angular fine to coarse of sandstone and mudstone.	
	0.30	ES		0.90		▤	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel and cobbles. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.	
	0.60	D						
							End of Trial Pit at 0.90m	
								1.0
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated in the slope within tree line.
3. Trial pit stable.
4. Bedrock was encountered within the slope. The trail pit taken 0.10m below the base of the slope.
5. Trial pit terminated due to mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP131**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO:	C4315	**CO-ORDS:**	393950E, 411818N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.20		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to coarse. Gravel is fine to medium sub-angular to angular sandstone, mudstone, occasional brick, rare glass and plastic.	
						▨	MADE GROUND: Mottled dark brown and grey slightly sandy gravelly clay with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to medium sub-angular to angular sandstone, mudstone and occasional brick. Cobbles and boulders are sub-angular to angular up to 460mm of sandstone, mudstone and brick.	
	1.00	D ES				▨		1.0
						▨	*Road level at 1.50m.*	
	2.00	D				▨		2.0
				2.40			End of Trial Pit at 2.40m	
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within bund adjacent to the asphalt road, approximately 1.50m above ground level.
3. Trial pit stable.
4. Trial pit terminated at 0.90m below road level due to the presence of a potential service (pea gravel).
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
TP132
Sheet 1 of 1

PROJECT NO:	C4315	**CO-ORDS:**	393913E, 411797N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	05/11/19

Hole Type	**Scale**	**Logged**	**Checked**
TP	1:15	SM	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	D ES		0.25		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to coarse. Gravel is fine to medium sub-angular to angular sandstone, mudstone, occasional brick and rare glass and plastic.
	0.60	B D ES		1.10		▨	MADE GROUND: Mottled dark brown and grey slightly sandy clayey gravel with high cobble content. Gravel is fine to medium sub-angular to angular of sandstone, mudstone and occasional brick. Cobbles are sub-angular to angular up to 200mm of sandstone, mudstone and brick. *Road level at 0.50m.*
							End of Trial Pit at 1.10m

- 1.0
- 2.0
- 3.0

Remarks

1. No groundwater encountered.
2. Excavated within bund adjacent to the asphalt road, approximately 1.60m above ground level.
3. Trial pit stable.
4. Trial pit terminated at 0.60m below road level due to the presence of a potential service (pea gravel).
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

				No.	
				TP133	
				Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	393909E, 411772N	**Hole Type** TP	
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:15	
CLIENT:	D MORGAN	**DATES:**	05/11/19	**Logged** SM	**Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.25		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to medium sub-angular to angular of sandstone, mudstone and occasional brick.	
	0.80	D ES		2.20		▨	MADE GROUND: Dark brown slightly sandy clayey gravel with high cobble and low boulder content. Sand is fine to medium. Gravel is fine to medium sub-angular to angular sandstone, mudstone, occasional brick, plastic and rare glass. Cobbles and boulders are sub-angular to angular up to 520mm of sandstone, mudstone and brick. *Road level at 1.20m.*	1.0 2.0
							End of Trial Pit at 2.20m	3.0

Remarks

1. No groundwater encountered.
2. Excavated from the top of the bund adjacent to the asphalt road, approximately1.20m above ground level.
3. Trial pit stable.
4. Trial pit terminated at 1.00m bgl due to the presence of a potential service (pea gravel).
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	**TP134**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 393988E, 411799N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 05/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
				0.15		▨	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to medium sub-angular to angular of sandstone, mudstone, occasional brick and rare glass.
	0.40	D ES				▨	MADE GROUND: Dark brown slightly sandy very gravelly clay with high cobble and low boulder content. Sand is fine to medium. Gravel is fine to medium sub-angular to angular of sandstone, mudstone, occasional brick and rare glass and plastic. Cobbles and boulders are sub-angular to angular up to 280mm of sandstone, mudstone and brick.
	0.80	D ES					
							Ground level (carpark) at 1.70m.
				2.30			End of Trial Pit at 2.30m

Remarks

1. No groundwater encountered.
2. Excavated within the bund adjacent to the car park, approximately 1.80m above ground level.
3. Trial pit stable.
4. Trial pit terminated at 0.60m bgl due to the presence of a potential service (pea gravel).
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No. TP135

Sheet 1 of 1

Hole Type TP

Scale 1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 394200E, 412021N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 06/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.20	D ES		0.35		▨	MADE GROUND: Grass over red brown slightly sandy very clayey gravel with high cobble content. Sand is fine to medium. Gravel is fine to medium sub-angular to angular sandstone, mudstone, brick and rare clinker. Cobbles are sub-angular to angular up to 150mm of brick, sandstone and mudstone.
							End of Trial Pit at 0.35m

Remarks

1. No groundwater encountered.
2. Excavated within foot path (historic road).
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No. TP136
Sheet 1 of 1

Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315
CO-ORDS: 394216E, 412048N
PROJECT NAME: NEWHEY QUARRY
LEVEL:
CLIENT: D MORGAN
DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.50 0.60	D ES B		0.80		▨	MADE GROUND: Grass over red brown slightly sandy very clayey gravel with high cobble content. Sand is fine to medium. Gravel is fine to medium sub-angular to angular of brick and occasional sandstone and mudstone. Cobbles are sub-angular to angular up to 160mm of brick.
				0.90		☰	Very weak thinly laminated partially weathered grey fine to medium grained mudstone, recovered as clayey gravel. Discontinuities are extremely close, horizontal, smooth with orange brown staining.

End of Trial Pit at 0.90m

Remarks

1. No groundwater encountered.
2. Excavated within foot path (historic road).
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP137**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394238E, 412065N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.15		▨	Grass over dark brown slightly sandy gravelly CLAY (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and sandstone.	
	0.40	D ES		1.00		⨯	Soft to firm mottled light grey and brown very gravelly CLAY. Gravel is fine to coarse angular to sub-angular mudstone.	
				1.30		☰	Very weak to weak partially weathered extremely close to very close grey MUDSTONE (recovered as gravel with cobbles and boulders). Discontinuities thinly laminated to very thinly bedded, sub-horizontal to horizontal, striated with brown staining.	1.0
							End of Trial Pit at 1.30m	
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated in slope within tree line.
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. Trial pit terminated due to mudstone bedrock encountered at ground level.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.	TP138
	Sheet 1 of 1
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315
CO-ORDS: 394203E, 412083N
PROJECT NAME: NEWHEY QUARRY
LEVEL:
CLIENT: D MORGAN
DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	ES		0.15		▤	Grass over extremely weak thinly laminated distinctly weathered grey fine to medium grained MUDSTONE, recovered as slightly clayey gravel with cobbles. Discontinuities are extremely close, horizontal, smooth with orange brown staining.
							End of Trial Pit at 0.15m

1.0
2.0
3.0

Remarks

1. No groundwater encountered.
2. Excavated within tree line.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock encountered directly beneath vegetation.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394178E, 412077N	**No.** TP139 Sheet 1 of 1
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Hole Type** TP **Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	06/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.05	D ES		0.15		▤	Grass over extremely weak distinctly weathered extremely close grey fine to medium grained MUDSTONE (recovered as gravel with cobbles). Discontinuities thinly laminated, horizontal, smooth with orange brown staining.	
				0.25		▤	Very weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with dark brown orange staining.	
							End of Trial Pit at 0.25m	
								1.0
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated within dense vegetation.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock encountered directly beneath vegetation.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No. TP140

Sheet 1 of 1

Hole Type TP

Scale 1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

CO-ORDS: 394186E, 412094N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.05	D ES		0.20		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.
	0.30 0.60	D ES D ES		0.70		▩	MADE GROUND: Grey very clayey gravel with high cobble content. Gravel is fine to medium angular mudstone, sandstone and occasional brick. Cobbles are angular up to 150mm of mudstone, sandstone and occasional brick.
				0.80		☰	Weak partially thinly laminated to very thinly bedded weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth.

End of Trial Pit at 0.80m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound approximately 10.0m from the base of cliff.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock encountered directly beneath vegetation.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	TP141A		
Sheet 1 of 1			
PROJECT NO:	C4315	**CO-ORDS:**	394230E, 412109N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Hole Type	**Scale**	**Logged**	**Checked**
TP	1:15	SM	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.05	D ES		0.10		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.	
	0.50	D ES		1.00		▩	MADE GROUND: Grey very gravelly clay (reworked) with high cobble content. Gravel is fine to medium angular of mudstone, sandstone and occasional brick. Cobbles are angular up to 150mm of mudstone, sandstone and occasional brick.	
				1.20		☰	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities extremely close to very close, sub-horizontal to horizontal, smooth.	1.0
							End of Trial Pit at 1.20m	
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated in mound/elevated platform.
3. Trial pit stable.
4. South of trial pit excavation
5. Trial pit terminated due to mudstone bedrock encountered at ground level.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP141B**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO:	C4315	**CO-ORDS:**	394230E, 412109N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.05	D ES		0.10		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone.	
				0.20		▩	MADE GROUND: Grey very gravelly clay (reworked) with high cobble content. Gravel is fine to medium angular of mudstone, sandstone and occasional brick. Cobbles are angular up to 150mm of mudstone, sandstone and occasional brick.	
	0.50 1.00	D ES B		1.20		▤	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with brown staining.	1.0
							End of Trial Pit at 1.20m	
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated in mound/elevated platform.
3. Trial pit stable.
4. North of trial pit excavation
5. Trial pit terminated due to mudstone bedrock encountered at ground level.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP142**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 394259E, 412113N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.05	D ES		0.10		▩	MADE GROUND: Dark reddish brown and grey slightly sandy clay gravel with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular of brick, mudstone, sandstone and rare clinker. Cobbles are sub-angular up to 150mm of brick.
				0.15		⁘	Strong light grey SANDSTONE.

End of Trial Pit at 0.10m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within foot path (historic road).
3. Trial pit stable.
4. Trial pit terminated due to sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP143**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15

PROJECT NO:	C4315	**CO-ORDS:**	394259E, 412113N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Logged	**Checked**
SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**	
	Depth (m)	**Type**	**Results**					
	0.05	D ES		0.10		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and rare brick.	
				0.90		▩	MADE GROUND: Dark grey gravelly clay with medium cobble content. Gravel is fine to coarse angular to sub-angular of mudstone, sandstone and rare brick. Cobbles are sub-angular to angular up to 160mm of mudstone.	
	1.00	D ES		1.20		▤	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with red brown staining.	1.0
							End of Trial Pit at 1.20m	
								2.0
								3.0

Remarks

1. No groundwater encountered.
2. Excavated on top of an elevated platform within area of dense vegetation approximately 15.0m from the base of the cliff.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
TP144
Sheet 1 of 1
Hole Type
TP
Scale
1:15

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS: 394259E, 412113N

LEVEL:

DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.10	D ES		0.15		▩	MADE GROUND: Grass over dark brown slightly gravelly sandy clay (topsoil) with rootlets. Sand is fine to medium. Gravel is fine to coarse angular to sub-angular of mudstone and rare brick.	
	0.30	D ES		0.40		▩	MADE GROUND: Dark grey gravelly clay with medium cobble content. Gravel is fine to coarse angular to sub-angular of mudstone, sandstone, occasional brick, plastic and rare clinker. Cobbles are sub-angular to angular up to 60mm of sandstone, mudstone and brick.	
	1.00 1.50	B D ES		2.70		▩	MADE GROUND: Dark grey clayey gravel with medium cobble and boulder content. Gravel is fine to coarse angular to sub-angular of mudstone and sandstone. Cobbles and boulders are sub-angular to angular up to 280mm of sandstone and mudstone.	1.0 2.0
				2.80		▤	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth.	
							End of Trial Pit at 2.80m	3.0

Remarks

1. No groundwater encountered.
2. Excavated within a historic stockpile of quarried material.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.
TP145
Sheet 1 of 1
Hole Type
TP
Scale
1:15

Logged	**Checked**
SM	JMC

PROJECT NO:	C4315	**CO-ORDS:**	394237E, 412088N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.05	D ES					
	0.15	B D ES		0.20		▩	MADE GROUND: Grass over grey and reddish brown slightly sandy clayey gravel with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular of brick, mudstone and sandstone. Cobbles are sub-angular to angular up to 160mm of brick, mudstone and sandstone.
				0.25		▤	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with red brown straining.

End of Trial Pit at 0.25m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within foot path (historic road).
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP146**
	Sheet 1 of 1
Hole Type	TP
Scale	1:15

PROJECT NO:	C4315	**CO-ORDS:**	394304E, 412128N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Logged	**Checked**
SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.10	D ES		0.20			Grass over slightly gravelly sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular of mudstone and sandstone.
	0.30	D ES		1.30			Soft to firm light brown slightly sandy very gravelly CLAY. Gravel is fine to coarse angular of mudstone.
	0.80	D					
	1.00	B					
	1.40	D ES		1.50			Very soft black slightly sandy silty CLAY. Sand is fine to medium. Slight organic odour.
				1.60			Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with orange brown straining.

End of Trial Pit at 1.60m

Remarks

1. No groundwater encountered.
2. Excavated within slope.
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. Trial pit terminated due to mudstone bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394281E, 412121N	**No.** TP147 Sheet 1 of 1
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Hole Type** TP **Scale** 1:15
CLIENT:	D MORGAN	**DATES:**	06/11/19	**Logged** SM **Checked** JMC

Water Strikes	Sample and In Situ Testing: Depth (m)	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Depth (m)	Level (m OD)	Legend	Stratum Description
	0.20	D ES		0.25		▨	Grass over slightly gravelly sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium. Gravel is fine to coarse angular mudstone and sandstone.
	0.50	ES					
	1.00	D ES					
	1.80	ES		1.80		⁘	Dark brown very clayey GRAVEL with high cobble and boulder content. Gravel is fine to coarse angular of mudstone and sandstone. Cobbles and boulders are angular up to 630mm of sandstone and mudstone.
				2.00		▤	Weak thinly laminated to very thinly bedded partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with orange brown straining.

End of Trial Pit at 2.00m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within slope.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	TP148	Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	394274E, 412135N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	06/11/19

Hole Type	**Scale**	**Logged**	**Checked**
TP	1:15	SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.10	D ES				▨	MADE GROUND: Grass over slightly sandy clayey gravel with rootlets. Sand is fine to medium. Gravel is fine to coarse angular mudstone and sandstone.
				0.20		▨	MADE GROUND: Dark grey very clayey gravel with high cobble and boulder content. Gravel is fine to coarse angular of mudstone and sandstone. Cobbles and boulders are angular up to 840mm of sandstone and mudstone.
	0.50	D ES				▨	
	1.00	D ES				▨	
	1.20	B				▨	
				1.30		☰	Weak partially weathered extremely close to very close grey MUDSTONE (recovered as gravel with cobbles and boulders). Discontinuities thinly laminated to very thinly bedded, sub-horizontal to horizontal, smooth with orange brown straining.
				1.40			End of Trial Pit at 1.40m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound/historic stockpile of quarried material.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP149**
Sheet 1 of 1	
Hole Type	TP
Scale	1:15
Logged	SM
Checked	JMC

PROJECT NO: C4315

PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS:

LEVEL:

DATES: 06/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.20		▨	MADE GROUND: Grass over slightly sandy clayey gravel with rootlets. Sand is fine to medium. Gravel is fine to coarse angular mudstone and sandstone.
				1.80		▨	MADE GROUND: Dark grey very clayey gravel (reworked) with high cobble and boulder content. Gravel is fine to coarse angular of mudstone and sandstone. Cobbles and boulders are angular up to 720mm of sandstone and mudstone.
				1.85		⋯	Weak thinly laminated to thinly bedded partially weathered light grey brown fine to medium grained SANDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are very close to closely spaced (up to 80mm), sub-horizontal to horizontal, rough to smooth with orange brown staining.

End of Trial Pit at 1.85m

1.0

2.0

3.0

Remarks

1. No groundwater encountered.
2. Excavated within mound/historic stockpile of quarried material.
3. Trial pit stable.
4. Trial pit terminated due to sandstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

PROJECT NO:	C4315	**CO-ORDS:**	394221E, 412099N	**No.**	**TP150**
				Sheet 1 of 1	
				Hole Type	TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale**	1:20
CLIENT:	D MORGAN	**DATES:**	06/11/19	**Logged**	**Checked**
				SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
				0.10		☰	Grass over very weak very thinly to thinly laminated, partially weathered grey MUDSTONE, recovered as gravel with cobbles and boulders. Discontinuities are extremely close to very close, sub-horizontal to horizontal, smooth with orange brown straining.
							End of Trial Pit at 0.10m

1.0

2.0

3.0

4.0

Remarks

1. No groundwater encountered.
2. Excavated within the tree line.
3. Trial pit stable.
4. Trial pit terminated due to mudstone bedrock.
5. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	**TP151**
Sheet 1 of 1	
Hole Type	TP
Scale	1:20

Logged	**Checked**
SM	JMC

PROJECT NO: C4315

PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS: 393855E, 411924N

LEVEL:

DATES: 07/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.15		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.80	D ES		2.80		▤	Stiff orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.
	1.50	D ES HSV					
	1.80	HSV					
				2.90		⁙	Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).

End of Trial Pit at 2.90m

Remarks

1. No groundwater encountered.
2. Trial pit stable.
3. Unable to obtain HSV values due to granularity of the clay.3. Terminated due to bedrock.
4. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

No.	TP152
	Sheet 1 of 1
Hole Type	TP
Scale	1:20
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS: 393915E, 411968N

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 07/11/19

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.10			Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.20	D ES		0.40			Firm orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.
				0.50			Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).
							End of Trial Pit at 0.50m
	1.20	HSV					

1.0

2.0

3.0

4.0

Remarks

1. No groundwater encountered.
2. Trial pit stable.
3. Terminated due to bedrock.
4. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Trial Pit Log

				No.
				TP153
				Sheet 1 of 1
PROJECT NO:	C4315	**CO-ORDS:**	393867E, 412015N	**Hole Type** TP
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale** 1:20
CLIENT:	D MORGAN	**DATES:**	07/11/19	**Logged** SM / **Checked** JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	D ES		0.15			Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.50	D ES					Stiff orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.
	1.20	D ES					
	1.50	B		2.70			
				2.80			Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).

End of Trial Pit at 2.80m

Remarks

1. No groundwater encountered.
3. Trial pit stable.
4. Unable to obtain HSV values due to granularity of the clay.
5. Terminated due to bedrock.
6. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Borehole Log

Window Sampler No.	**WS101**	Sheet 1 of 1	
PROJECT NO:	C4315	**CO-ORDS:**	393941E, 412056N
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	21/11/19

Hole Type	**Scale**	**Logged**	**Checked**
WS	1:30	SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.05	ES		0.10		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.80	B D ES				▨	Firm orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.
	1.20	SPT	N≥50 (2,7/50 for 60mm)	1.20 1.45		⁘	Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).

End of Trial Pit at 1.45m

1.0
2.0
3.0
4.0
5.0
6.0

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock.
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Borehole Log

Window Sampler No.	**WS102**	Sheet 1 of 1	
PROJECT NO: C4315	**CO-ORDS:** 394023E, 412093N	**Hole Type**	WS
PROJECT NAME: NEWHEY QUARRY	**LEVEL:**	**Scale**	1:30
CLIENT: D MORGAN	**DATES:** 21/11/19	**Logged** SM	**Checked** JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.20	ES		0.25		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.50	B D ES		1.15		▦	Firm orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.
	1.20	SPT	N=27 (2,6/5,5,6,11)			⁘	Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).
	1.65 1.70	SPT D	N≥50 (25 for 60mm/50 for 105mm)	1.75			
							End of Trial Pit at 1.75m

1.0
2.0
3.0
4.0
5.0
6.0

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock.
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Borehole Log

Window Sampler No.	
WS103	
Sheet 1 of 1	
Hole Type	WS
Scale	1:30
Logged	**Checked**
SM	JMC

PROJECT NO: C4315

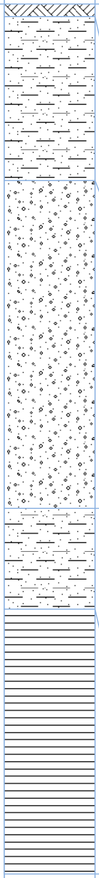
PROJECT NAME: NEWHEY QUARRY

CLIENT: D MORGAN

CO-ORDS: 394079E, 412126N

LEVEL:

DATES: 21/11/19



Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Stratum Description	
	Depth (m)	Type	Results				
				0.05		Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.	
	0.60	D ES		0.70		Firm dark orange brown gravelly sandy CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.	
						Orange brown slightly clayey slightly sandy GRAVEL with medium to high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular of mudstone and sandstone. Cobbles are angular to sub-rounded up to 50mm of sandstone and mudstone.	1.0
	1.20-1.50	B					
	1.20	SPT	N=10 (3,6/4,3,2,1)				
	1.50	D ES					
	2.00	SPT	N=30 (6,9/10,10,5,5)	2.00		Firm dark orange brown sandy gravelly CLAY with high cobble content. Sand is fine to medium. Gravel is fine to coarse sub-angular to angular mudstone and sandstone. Cobbles are angular to sub-rounded up to 80mm of sandstone and mudstone.	2.0
	2.20	D ES					
				2.40		Very weak very thinly laminated distinctly weathered black and dark grey MUDSTONE, recovered as gravel. Discontinuities are extremely close, sub-horizontal to horizontal and smooth.	
	2.80	D					
	3.00	SPT	N≥50 (12,10/50 for 185mm)				3.0
				3.45		End of Trial Pit at 3.45m	
							4.0
							5.0
							6.0

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock.
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

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Borehole Log

Window Sampler No.	**WS104**
	Sheet 1 of 1
Hole Type	WS
Scale	1:30

PROJECT NO:	C4315	**CO-ORDS:**	
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**	
CLIENT:	D MORGAN	**DATES:**	21/11/19

Logged	**Checked**
SM	JMC

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.05	ES		0.12		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
				2.15		▨	Stiff to very stiff mottled grey and brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand to fine to medium. Gravel is fine to medium angular of sandstone and mudstone. Cobbles are angular to sub-rounded up to 40mm of sandstone and mudstone.
	1.00	D ES					
	1.00-1.50	B					
	1.20	SPT	N=18 (2,3/4,6,4,4)				
	2.00	SPT	N≥50 (1,6/50 for 230mm)				
				2.40		⁙	No Recovery - Assumed to be either mudstone or sandstone bedrock.
							End of Trial Pit at 2.40m

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock. 3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Borehole Log

Window Sampler No.
WS105
Sheet 1 of 1

PROJECT NO:	C4315
PROJECT NAME:	NEWHEY QUARRY
CLIENT:	D MORGAN
CO-ORDS:	
LEVEL:	
DATES:	21/11/19
Hole Type	WS
Scale	1:30
Logged	SM
Checked	JMC

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.06		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.40	D				⊠	Firm mottled grey and brown slightly sandy slightly gravelly silty CLAY. Sand is fine to medium. Gravel is fine to medium angular of sandstone and mudstone.
		ES					
	0.50-1.00	B					
	1.20	SPT	N=28 (4,4/5,5,7,11)				
	1.40	D ES					
	1.80	SPT	N≥50 (10,15/50 for 200mm)				
				2.00			End of Trial Pit at 2.00m

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock.
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Borehole Log

Window Sampler No.

WS106

Sheet 1 of 1

PROJECT NO:	C4315	**CO-ORDS:**		**Hole Type**	WS
PROJECT NAME:	NEWHEY QUARRY	**LEVEL:**		**Scale**	1:30
CLIENT:	D MORGAN	**DATES:**	21/11/19	**Logged** / **Checked**	SM / JMC

Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
	0.20	ES		0.35		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.60	D ES		0.70		▤	Stiffness reddish brown slightly sandy very gravely CLAY with high cobble content. Sand to fine to medium. Gravel is fine to coarse angular of sandstone and mudstone. Cobbles are angular to sub-rounded up to 160mm of sandstone and mudstone.
	0.80-1.20 1.20	B SPT	 N≥50 (10,14/50 for 260mm)	1.50		∴	Weak partially weathered light greyish brown fine to medium grained SANDSTONE (recovered as gravel and cobbles). Discontinuities are closely spaced, thinly laminated to thinly bedded, sub-horizontal to horizontal, rough with orange brown staining.
							End of Trial Pit at 1.50m

1.0
2.0
3.0
4.0
5.0
6.0

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock.
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Borehole Log

Window Sampler No.	**WS107**
Sheet 1 of 1	
Hole Type	WS
Scale	1:30
Logged	SM
Checked	JMC

PROJECT NO: C4315

CO-ORDS:

PROJECT NAME: NEWHEY QUARRY

LEVEL:

CLIENT: D MORGAN

DATES: 21/11/19

Water Strikes	**Sample and In Situ Testing**			**Depth (m)**	**Level (m OD)**	**Legend**	**Stratum Description**
	Depth (m)	**Type**	**Results**				
	0.10	ES		0.20		▨	Dark brown sandy CLAY with rootlets (TOPSOIL). Sand is fine to medium.
	0.50	D ES					
	1.10	SPT	N≥50 (25 for 90mm/50 for 200mm)	1.30		▨	Mottled orange and grey slightly sandy very gravelly CLAY with medium cobble content. Sand is fine to medium. Gravel is fine to coarse angular sandstone. Cobbles are angular to sub-rounded up to 60mm of sandstone.
				1.40		⁘	Weak partially weathered light brownish grey fine to medium grained SANDSTONE with orange brown staining (recovered as gravel).
							End of Trial Pit at 1.40m

1.0
2.0
3.0
4.0
5.0
6.0

Remarks

1. No groundwater encountered.
2. Terminated due to bedrock. .
3. Backfilled with arisings.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

APPENDIX C

Chemical Testing Results

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Combined Report Nos : 19-71549 & 19-72297

Project / Site name:	Newhey	**Samples received on:**	12/11/2019
Your job number:	C4315	**Samples instructed on:**	12/11/2019
Your order number:	C4315-440-SM	**Analysis completed by:**	20/11/2019
Report Issue Number:	1	**Report issued on:**	26/11/2019
Samples Analysed:	28 soil samples		

Signed: [redacted]

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360409	1360410	1360411	1360412	1360413
Sample Reference				TP102	TP102	TP104	TP105	TP105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.15	0.30	0.30	1.00	1.50
Date Sampled				04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Moisture Content	%	N/A	NONE	19	13	14	12	-
Total mass of sample received	kg	0.001	NONE	0.48	1.3	1.1	1.0	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.9	-	6.5	6.7	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36	-	30	280	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	-	0.015	0.14	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.2	-	15.1	141	-
Organic Matter	%	0.1	MCERTS	2.9	-	1.5	2.5	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.7	-	9.0	48	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	-	< 0.2	< 0.2	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	-	< 1.2	< 1.2	-
Chromium (III)	mg/kg	1	NONE	35	-	35	30	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35	-	35	30	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	-	33	95	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	46	-	23	16	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43	-	42	49	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	98	-	96	95	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360409	1360410	1360411	1360412	1360413
Sample Reference				TP102	TP102	TP104	TP105	TP105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.15	0.30	0.30	1.00	1.50
Date Sampled				04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	2.9	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	22	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	33	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	-	82	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	140	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	< 10	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007	-	-	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360414	1360415	1360416	1360417	1360418
Sample Reference				TP110	TP111	TP118	TP119	TP122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.50	0.40	0.40	0.40
Date Sampled				04/11/2019	04/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	-	< 0.1
Moisture Content	%	N/A	NONE	13	12	13	-	4.4
Total mass of sample received	kg	0.001	NONE	1.1	1.1	1.1	-	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.9	6.7	6.9	-	7.2
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	34	20	20	-	31
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.010	0.010	-	0.015
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16.9	10.0	10.2	-	15.3
Organic Matter	%	0.1	MCERTS	2.2	2.1	1.8	-	0.5
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	-	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.6	9.9	8.9	-	7.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	-	< 1.2
Chromium (III)	mg/kg	1	NONE	29	34	32	-	35
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	34	32	-	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	35	30	25	-	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	25	20	-	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	43	39	-	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	89	94	87	-	92

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360414	1360415	1360416	1360417	1360418
Sample Reference				TP110	TP111	TP118	TP119	TP122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.50	0.40	0.40	0.40
Date Sampled				04/11/2019	04/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360419	1360420	1360421	1360422	1360423
Sample Reference				TP122	TP126	TP127	TP128	TP129
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.00	1.00	0.20	0.60
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-	< 0.1	< 0.1	< 0.1	62
Moisture Content	%	N/A	NONE	-	5.4	8.6	12	4.4
Total mass of sample received	kg	0.001	NONE	-	1.2	1.2	1.2	1.2

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	7.3	7.3	6.8	7.6
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	37	16	12	10
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.018	0.0082	0.0058	0.0051
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	18.3	8.2	5.8	5.1
Organic Matter	%	0.1	MCERTS	-	0.6	0.8	1.7	0.7

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	< 0.80	< 0.80	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	7.4	7.6	8.8	5.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	-	34	34	31	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	34	34	31	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	29	24	28	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	11	22	21	9.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	34	40	39	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	85	95	81	72

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360419	1360420	1360421	1360422	1360423
Sample Reference				TP122	TP126	TP127	TP128	TP129
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.00	1.00	0.20	0.60
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360424	1360425	1360426	1360427	1360428
Sample Reference				TP131	TP132	TP133	TP134	TP134
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	0.80	0.40	0.80
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	9.3	11	12	11
Total mass of sample received	kg	0.001	NONE	1.0	1.3	1.2	1.1	1.2

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	7.5	-	-	8.1
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	15	-	-	73
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.0077	-	-	0.036
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	7.7	-	-	36.4
Organic Matter	%	0.1	MCERTS	-	1.0	-	-	1.2

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	-	< 0.05	-	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	-	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	7.5	-	-	12
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	< 1.2	-	-	< 1.2
Chromium (III)	mg/kg	1	NONE	-	34	-	-	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	34	-	-	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	27	-	-	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	21	-	-	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	47	-	-	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	97	-	-	91

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360424	1360425	1360426	1360427	1360428
Sample Reference				TP131	TP132	TP133	TP134	TP134
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	0.80	0.40	0.80
Date Sampled				05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	5.8	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	5.1	< 2.0	-	21	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	15	< 8.0	-	34	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	37	< 8.0	-	95	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	58	< 10	-	160	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	< 0.007	-	< 0.007

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360429	1360430	1360431	1360432	1360433
Sample Reference				TP135	TP136	TP142	TP144	TP145
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.05	0.30	0.15
Date Sampled				05/11/2019	06/11/2019	06/11/2019	06/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	-	9.9	9.9	32
Total mass of sample received	kg	0.001	NONE	1.1	-	1.2	1.1	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.5	-	7.3	7.2	6.7
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	-	26	77	91
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	-	0.013	0.039	0.046
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.0	-	13.2	38.7	45.7
Organic Matter	%	0.1	MCERTS	0.8	-	1.0	0.7	8.3
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.44
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.06
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.32
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.29
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	< 0.80	1.11
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	-	6.1	8.7	6.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	-	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	25	-	26	36	30
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	-	26	36	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	-	20	28	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	-	13	19	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	-	28	47	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	53	-	72	91	120

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360429	1360430	1360431	1360432	1360433
Sample Reference				TP135	TP136	TP142	TP144	TP145
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.05	0.30	0.15
Date Sampled				05/11/2019	06/11/2019	06/11/2019	06/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360434	1360435	1364462		
Sample Reference				TP148	TP151	TP104		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50	0.10	0.85		
Date Sampled				06/11/2019	07/11/2009	04/11/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	-		
Moisture Content	%	N/A	NONE	8.0	16	-		
Total mass of sample received	kg	0.001	NONE	1.2	1.2	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.3	5.6	-		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	39	29	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.019	0.014	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	19.3	14.3	-		
Organic Matter	%	0.1	MCERTS	1.2	3.6	-		
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	< 0.05	< 0.05	-		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.9	18	-		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	-		
Chromium (III)	mg/kg	1	NONE	31	19	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	20	-		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	16	-		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	60	-		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	41	18	-		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	94	59	-		

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1360434	1360435	1364462		
Sample Reference				TP148	TP151	TP104		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50	0.10	0.85		
Date Sampled				06/11/2019	07/11/2009	04/11/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-		
Toluene	µg/kg	1	MCERTS	-	-	-		
Ethylbenzene	µg/kg	1	MCERTS	-	-	-		
p & m-xylene	µg/kg	1	MCERTS	-	-	-		
o-xylene	µg/kg	1	MCERTS	-	-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-		
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-		
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-		
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-		

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey

* 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 *
1360409	TP102	None Supplied	0.15	Brown clay with gravel and vegetation.
1360410	TP102	None Supplied	0.30	Brown clay with gravel and vegetation.
1360411	TP104	None Supplied	0.30	Brown clay with gravel and vegetation.
1360412	TP105	None Supplied	1.00	Brown clay with gravel and vegetation.
1360413	TP105	None Supplied	1.50	-
1360414	TP110	None Supplied	1.00	Brown clay with gravel and vegetation.
1360415	TP111	None Supplied	0.50	Brown clay with gravel and vegetation.
1360416	TP118	None Supplied	0.40	Brown clay with gravel and vegetation.
1360417	TP119	None Supplied	0.40	-
1360418	TP122	None Supplied	0.40	Brown clay with gravel and vegetation.
1360419	TP122	None Supplied	1.30	-
1360420	TP126	None Supplied	1.00	Brown clay with gravel and vegetation.
1360421	TP127	None Supplied	1.00	Brown clay with gravel and vegetation.
1360422	TP128	None Supplied	0.20	Grey clay with gravel and vegetation.
1360423	TP129	None Supplied	0.60	Grey clay with gravel and stones.
1360424	TP131	None Supplied	1.00	Grey clay with gravel and vegetation.
1360425	TP132	None Supplied	0.60	Grey clay with gravel and vegetation.
1360426	TP133	None Supplied	0.80	Brown clay and loam with gravel and vegetation.
1360427	TP134	None Supplied	0.40	Brown clay and loam with gravel and vegetation.
1360428	TP134	None Supplied	0.80	Brown clay and loam with gravel and vegetation.
1360429	TP135	None Supplied	0.20	Brown sandy clay with gravel and brick.
1360430	TP136	None Supplied	0.50	-
1360431	TP142	None Supplied	0.05	Brown clay with gravel and brick.
1360432	TP144	None Supplied	0.30	Brown clay with gravel.
1360433	TP145	None Supplied	0.15	Brown clay with gravel and vegetation.
1360434	TP148	None Supplied	0.50	Brown clay with gravel and vegetation.
1360435	TP151	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
1364462	TP104	None Supplied	0.85	-

Combined Report Nos : 19-71549 & 19-72297

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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 disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP118		S	19-71549	1360416	b	Speciated EPA-16 PAHs in soil	L064-PL	b
TP151		S	19-71549	1360435	c	Hexavalent chromium in soil (Lower Level)	L080-PL	c
TP151		S	19-71549	1360435	c	Cr (III) in soil	L080-PL	c
TP151		S	19-71549	1360435	c	Organic matter (Automated) in soil	L009-PL	c
TP151		S	19-71549	1360435	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TP151		S	19-71549	1360435	c	pH in soil (automated)	L099-PL	c

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

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-73910

Replaces Analytical Report Number : 19-73910, issue no. 1

Project / Site name:	Newhey	**Samples received on:**	26/11/2019
Your job number:	C4315	**Samples instructed on:**	26/11/2019
Your order number:	C4315-479-SM	**Analysis completed by:**	02/12/2019
Report Issue Number:	2	**Report issued on:**	12/12/2019
Samples Analysed:	6 soil samples		

Signed: [redacted]

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Moisture Content	%	N/A	NONE	23	12	12	21	-
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	-

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	4.3	5.1	4.8	5.8	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	74	63	59	120	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.037	0.032	0.030	0.059	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	36.9	31.6	29.7	59.1	-
Organic Matter	%	0.1	MCERTS	3.4	2.1	1.0	2.0	-

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	6.8	7.1	7.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	-
Chromium (III)	mg/kg	1	NONE	27	23	29	30	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	23	30	30	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	15	25	18	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	19	14	20	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	15	27	18	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	70	69	68	-

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-				
Moisture Content	%	N/A	NONE	-				
Total mass of sample received	kg	0.001	NONE	-				

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-				
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-				
Organic Matter	%	0.1	MCERTS	-				

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-				
Acenaphthylene	mg/kg	0.05	MCERTS	-				
Acenaphthene	mg/kg	0.05	MCERTS	-				
Fluorene	mg/kg	0.05	MCERTS	-				
Phenanthrene	mg/kg	0.05	MCERTS	-				
Anthracene	mg/kg	0.05	MCERTS	-				
Fluoranthene	mg/kg	0.05	MCERTS	-				
Pyrene	mg/kg	0.05	MCERTS	-				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-				
Chrysene	mg/kg	0.05	MCERTS	-				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-				
Chromium (III)	mg/kg	1	NONE	-				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-				

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-				
Toluene	µg/kg	1	MCERTS	-				
Ethylbenzene	µg/kg	1	MCERTS	-				
p & m-xylene	µg/kg	1	MCERTS	-				
o-xylene	µg/kg	1	MCERTS	-				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-				

Analytical Report Number : 19-73910

Project / Site name: Newhey

* 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 *
1372677	WS105	None Supplied	0.40	Brown loam and clay with gravel and vegetation.
1372678	WS101	None Supplied	0.80	Brown loam with gravel and vegetation.
1372679	WS103	None Supplied	0.60	Brown loam with gravel and vegetation.
1372680	WS107	None Supplied	0.50	Brown loam with gravel and vegetation.
1372681	TP141	None Supplied	0.50	-
1372682	TP120	None Supplied	0.30	-

Analytical Report Number : 19-73910

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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 disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-73425

Project / Site name:	Newhey	**Samples received on:**	12/11/2019
Your job number:	C4315	**Samples instructed on:**	22/11/2019
Your order number:	C4315-440-SM	**Analysis completed by:**	29/11/2019
Report Issue Number:	1	**Report issued on:**	29/11/2019
Samples Analysed:	1 soil sample		

Signed: [redacted]

Agnieszka Czerwińska

Technical Reviewer (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

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

Analytical Report Number: 19-73425

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1370162				
Sample Reference				TP144				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				06/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				

Analytical Report Number : 19-73425

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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 disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

4041

Environmental Science

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-71091

Project / Site name:	Newhey	**Samples received on:**	08/11/2019
Your job number:	C4315	**Samples instructed on:**	08/11/2019
Your order number:	SM-C4315-435	**Analysis completed by:**	15/11/2019
Report Issue Number:	1	**Report issued on:**	15/11/2019
Samples Analysed:	4 water samples		

[redacted]

Signed:

Marzena Babik
Quality Manager

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 19-71091

Project / Site name: Newhey

Your Order No: SM-C4315-435

Lab Sample Number				1357901	1357902	1357904		
Sample Reference				West Pond	South Pond	Path Stream		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				06/11/2019	06/11/2019	06/11/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7	6.5	7.0		
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	110	40	94		
Sulphate as SO_4	mg/l	0.045	ISO 17025	17.0	4.23	11.8		
Total Sulphur	µg/l	15	NONE	5700	1400	3900		
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0		
Chloride	mg/l	0.15	ISO 17025	4.5	2.8	5.8		
Ammonium as NH_4	µg/l	15	ISO 17025	31	42	27		
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	2.31	3.57	4.47		
Nitrate as N	mg/l	0.01	ISO 17025	0.16	0.23	0.26		
Nitrate as NO_3	mg/l	0.05	ISO 17025	0.69	1.01	1.17		
Nitrite as N	µg/l	1	ISO 17025	9.5	22	26		
Nitrite as NO_2	µg/l	5	ISO 17025	31	71	84		
Hardness - Total	mgCaCO3/l	1	ISO 17025	44.8	13.2	37.4		

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.35	0.54	0.17		
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10	< 10		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02		
Calcium (dissolved)	mg/l	0.012	ISO 17025	5.4	2.2	5.2		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	< 1.0	2.6	< 1.0		
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.9	2.6	0.3		
Copper (dissolved)	µg/l	0.5	ISO 17025	5.7	9.0	7.0		
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	0.9	0.4		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.6	1.8	5.9		
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05		
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.8	1.4	1.0		
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	< 0.6		
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.7	7.9	4.1		

Analytical Report Number: 19-71091

Project / Site name: Newhey

Your Order No: SM-C4315-435

Lab Sample Number				1357901	1357902	1357904		
Sample Reference				West Pond	South Pond	Path Stream		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				06/11/2019	06/11/2019	06/11/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical Report Number : 19-71091

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	**Analytical Method Description**	**Analytical Method Reference**	**Method number**	**Wet / Dry Analysis**	**Accreditation Status**
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry).Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025

UKAS TESTING 4041

Analytical Environmental Science

Analytical Report Number : 19-71091

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Total Sulphur in water	Determination of total sulphur in water by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample Deviation Report

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
East Pond		W	19-71091	1357903	c			
Path Stream		W	19-71091	1357904	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Path Stream		W	19-71091	1357904	c	Ammonium as NH4 in water	L082-PL	c
Path Stream		W	19-71091	1357904	c	Electrical conductivity at 20oC of water	L031-PL	c
Path Stream		W	19-71091	1357904	c	pH at 20oC in water (automated)	L099-PL	c
South Pond		W	19-71091	1357902	c	Ammoniacal Nitrogen as N in water	L082-PL	c
South Pond		W	19-71091	1357902	c	Ammonium as NH4 in water	L082-PL	c
South Pond		W	19-71091	1357902	c	Electrical conductivity at 20oC of water	L031-PL	c
South Pond		W	19-71091	1357902	c	pH at 20oC in water (automated)	L099-PL	c
West Pond		W	19-71091	1357901	c	Ammoniacal Nitrogen as N in water	L082-PL	c
West Pond		W	19-71091	1357901	c	Ammonium as NH4 in water	L082-PL	c
West Pond		W	19-71091	1357901	c	Electrical conductivity at 20oC of water	L031-PL	c
West Pond		W	19-71091	1357901	c	pH at 20oC in water (automated)	L099-PL	c

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

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-73837

Project / Site name:	Newhey	**Samples received on:**	25/11/2019
Your job number:	C4315	**Samples instructed on:**	25/11/2019
Your order number:	SM-C4315	**Analysis completed by:**	02/12/2019
Report Issue Number:	1	**Report issued on:**	02/12/2019
Samples Analysed:	1 water sample		

Signed: [redacted]

Katarzyna Lewicka
Head of Reporting Section

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 19-73837

Project / Site name: Newhey

Your Order No: SM-C4315

Lab Sample Number				1372353				
Sample Reference				North Pond				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				21/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2				
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	62				
Sulphate as SO_4	mg/l	0.045	ISO 17025	7.50				
Total Sulphur	µg/l	15	NONE	2500				
Sulphide	µg/l	5	NONE	< 5.0				
Chloride	mg/l	0.15	ISO 17025	7.5				
Ammonium as NH_4	µg/l	15	ISO 17025	340				
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	8.77				
Nitrate as N	mg/l	0.01	ISO 17025	0.41				
Nitrate as NO_3	mg/l	0.05	ISO 17025	1.81				
Nitrite as N	µg/l	1	ISO 17025	25				
Nitrite as NO_2	µg/l	5	ISO 17025	83				
Hardness - Total	mgCaCO3/l	1	ISO 17025	14.2				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16				

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.60				
Boron (dissolved)	µg/l	10	ISO 17025	< 10				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03				
Calcium (dissolved)	mg/l	0.012	ISO 17025	4.2				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (III)	µg/l	1	NONE	4.1				
Chromium (dissolved)	µg/l	0.2	ISO 17025	4.1				
Copper (dissolved)	µg/l	0.5	ISO 17025	9.5				
Lead (dissolved)	µg/l	0.2	ISO 17025	13				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.90				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.8				
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6				
Zinc (dissolved)	µg/l	0.5	ISO 17025	16				

Analytical Report Number: 19-73837

Project / Site name: Newhey

Your Order No: SM-C4315

Lab Sample Number				1372353				
Sample Reference				North Pond				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				21/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical Report Number : 19-73837

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	**Analytical Method Description**	**Analytical Method Reference**	**Method number**	**Wet / Dry Analysis**	**Accreditation Status**
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry).Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025

Analytical Report Number : 19-73837

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Total Sulphur in water	Determination of total sulphur in water by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
North Pond		W	19-73837	1372353	c	Ammoniacal Nitrogen as N in water	L082-PL	c
North Pond		W	19-73837	1372353	c	Ammonium as NH4 in water	L082-PL	c
North Pond		W	19-73837	1372353	c	Electrical conductivity at 20oC of water	L031-PL	c
North Pond		W	19-73837	1372353	c	pH at 20oC in water (automated)	L099-PL	c

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

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-71552

Project / Site name:	Newhey	**Samples received on:**	12/11/2019
Your job number:	C4315	**Samples instructed on:**	12/11/2019
Your order number:	C4315-440-SM	**Analysis completed by:**	21/11/2019
Report Issue Number:	1	**Report issued on:**	21/11/2019
Samples Analysed:	6 10:1 WAC samples		

Signed: [redacted]

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client: **BSL**		
Location	**Newhey**						
Lab Reference (Sample Number)	1360475 / 1360476				**Landfill Waste Acceptance Criteria** **Limits**		
Sampling Date	04/11/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP105						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	4.7				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	2.6				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0253			0.212	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0019			0.016	0.5	10	70
Copper *	0.0009			0.0078	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0007			0.0059	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0031			0.026	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0063			0.053	4	50	200
Chloride *	1.1			9.3	800	4000	25000
Fluoride	0.67			5.6	10	150	500
Sulphate *	14			120	1000	20000	50000
TDS*	27			230	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.87			57.4	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	86						
Moisture (%)	14						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

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

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client:	**BSL**	
Location	**Newhey**						
Lab Reference (Sample Number)	1360477 / 1360478				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	05/11/2009				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP118						
Depth (m)	1.20						
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	3.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	6.6				--	>6	--
Acid Neutralisation Capacity (mol / kg)	-1.9				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0186			0.154	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0010			0.0084	0.5	10	70
Copper *	< 0.0007			< 0.0070	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0011			0.0087	0.4	10	40
Lead *	0.0014			0.012	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0044			0.036	4	50	200
Chloride *	1.1			8.9	800	4000	25000
Fluoride	0.43			3.6	10	150	500
Sulphate *	2.9			24	1000	20000	50000
TDS*	14			120	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.86			56.8	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.5						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client: BSL		
Location	**Newhey**						
Lab Reference (Sample Number)	1360479 / 1360480				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	05/11/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP129						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	2.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	6.9				--	>6	--
Acid Neutralisation Capacity (mol / kg)	-0.75				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0191			0.178	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0005			0.0047	0.5	10	70
Copper *	< 0.0007			< 0.0070	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0006			0.0057	0.5	10	30
Nickel *	0.0005			0.0044	0.4	10	40
Lead *	0.0058			0.054	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0027			0.025	4	50	200
Chloride *	1.1			10	800	4000	25000
Fluoride	0.071			0.66	10	150	500
Sulphate *	1.2			11	1000	20000	50000
TDS*	18			170	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.98			55.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	93						
Moisture (%)	6.6						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation					** = MCERTS accrediited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client: BSL		
Location	**Newhey**						
Lab Reference (Sample Number)	1360481 / 1360482				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	05/11/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP133						
Depth (m)	0.80						
Solid Waste Analysis							
TOC (%)**	1.2				3%	5%	6%
Loss on Ignition (%) **	4.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.89				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0017			0.0148	0.5	2	25
Barium *	0.0129			0.110	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0073	0.5	10	70
Copper *	0.0051			0.043	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0015			0.0124	0.5	10	30
Nickel *	0.0010			0.0084	0.4	10	40
Lead *	0.0045			0.038	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.010			0.085	4	50	200
Chloride *	2.0			17	800	4000	25000
Fluoride	0.31			2.7	10	150	500
Sulphate *	1.3			11	1000	20000	50000
TDS*	13			110	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.25			61.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	89						
Moisture (%)	11						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client:	**BSL**	
Location	**Newhey**						
Lab Reference (Sample Number)	1360483 / 1360484				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	06/11/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP136						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	1.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.0000				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg			
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0341			0.306	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	< 0.0004			< 0.0040	0.5	10	70
Copper *	0.0023			0.021	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0041			0.0369	0.5	10	30
Nickel *	0.0007			0.0065	0.4	10	40
Lead *	0.0038			0.034	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0065			0.058	4	50	200
Chloride *	0.88			7.9	800	4000	25000
Fluoride	0.70			6.3	10	150	500
Sulphate *	4.1			37	1000	20000	50000
TDS*	47			430	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.85			52.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	90						
Moisture (%)	10						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation					** = MCERTS accrediited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Waste Acceptance Criteria Analytical Results

Report No:	**19-71552**						
					Client: **BSL**		
Location	**Newhey**						
Lab Reference (Sample Number)	1360485 / 1360486				**Landfill Waste Acceptance Criteria** **Limits**		
Sampling Date	06/11/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP144						
Depth (m)	1.50						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	4.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.2				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.56				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0241			0.215	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0010			0.0089	0.5	10	70
Copper *	0.0020			0.018	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0014			0.013	0.4	10	40
Lead *	0.0020			0.018	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.014			0.13	4	50	200
Chloride *	1.7			15	800	4000	25000
Fluoride	0.23			2.0	10	150	500
Sulphate *	8.7			77	1000	20000	50000
TDS*	22			190	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.53			58.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	89						
Moisture (%)	11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation					** = MCERTS accrediited		

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Analytical Report Number : 19-71552

Project / Site name: Newhey

* 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 *
1360475	TP105	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
1360477	TP118	None Supplied	1.20	Brown loam and clay with gravel and vegetation.
1360479	TP129	None Supplied	0.30	Brown clay and sand with gravel and vegetation.
1360481	TP133	None Supplied	0.80	Brown clay and loam with gravel and vegetation.
1360483	TP136	None Supplied	0.50	Brown sandy clay with gravel and brick.
1360485	TP144	None Supplied	1.50	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 19-71552

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

Analytical Report Number : 19-71552

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample Deviation Report

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP118		S	19-71552	1360477	c	Acid neutralisation capacity of soil	L046-PL	c
TP118		S	19-71552	1360477	c	BTEX in soil (Monoaromatics)	L073B-PL	c
TP118		S	19-71552	1360477	c	Loss on ignition of soil @ 450oC	L047-PL	c
TP118		S	19-71552	1360477	c	Mineral Oil (Soil) C10 - C40	L076-PL	c
TP118		S	19-71552	1360477	c	Organic matter (Automated) in soil	L009-PL	c
TP118		S	19-71552	1360477	c	PCB's By GC-MS in soil	L027-PL	c
TP118		S	19-71552	1360477	c	Speciated WAC-17 PAHs in soil	L064-PL	c
TP118		S	19-71552	1360477	c	Total BTEX in soil (Poland)	L073-PL	c
TP118		S	19-71552	1360477	c	Total organic carbon (Automated) in soil	L009-PL	c
TP118		S	19-71552	1360477	c	pH in soil	L005-PL	c

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

APPENDIX D

Geotechnical testing Results

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TEST CERTIFICATE

Liquid and Plastic Limits

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

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

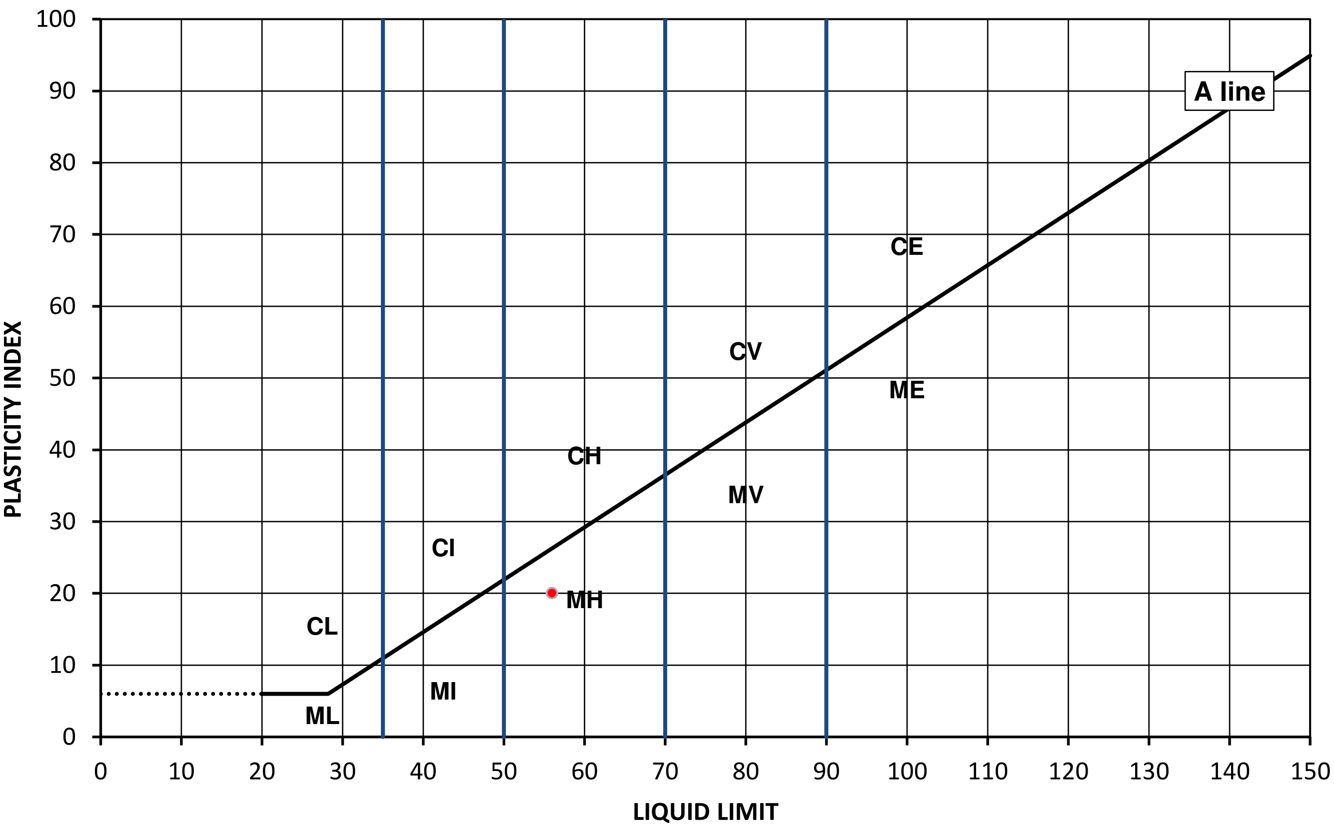
Test Results:

Laboratory Reference: 1377013
Hole No.: WS101
Sample Reference: Not Given
Soil Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	56	36	20	47



Legend, based on BS 5930:2015 Code of practice for site investigations

			Plasticity	Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

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TEST CERTIFICATE

Liquid and Plastic Limits

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

Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

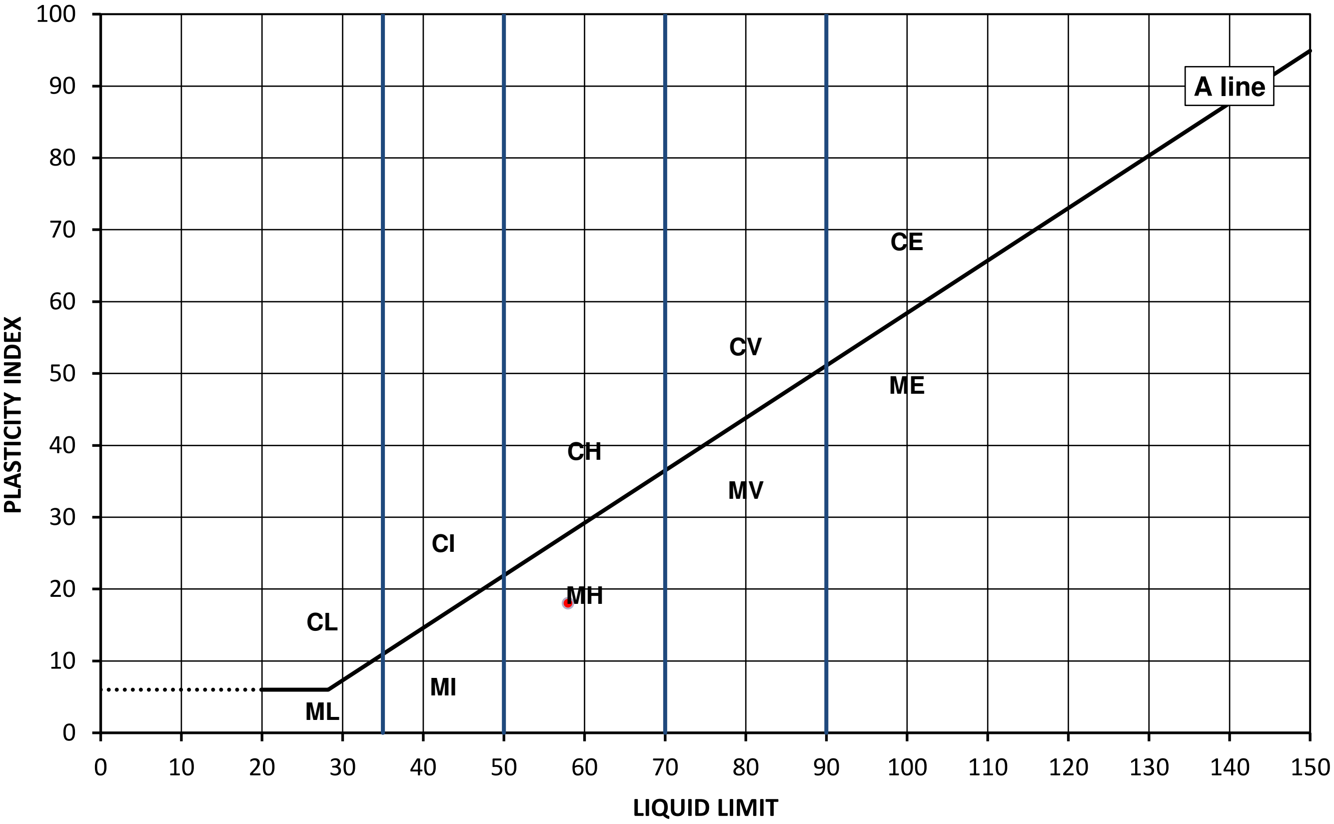
Test Results:

Laboratory Reference: 1377014
Hole No.: WS103
Sample Reference: Not Given
Soil Description: Brown very gravelly slightly sandy CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	58	40	18	35



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
[redacted]
PL Geotechnical Laboratory Manager
Date Reported: 12/12/2019

Signed: Darren Berrill
[redacted]
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd **GF 232.5**

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

"Any assessment of compliance with specifications based the analytical results in a report take in to account 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."

4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

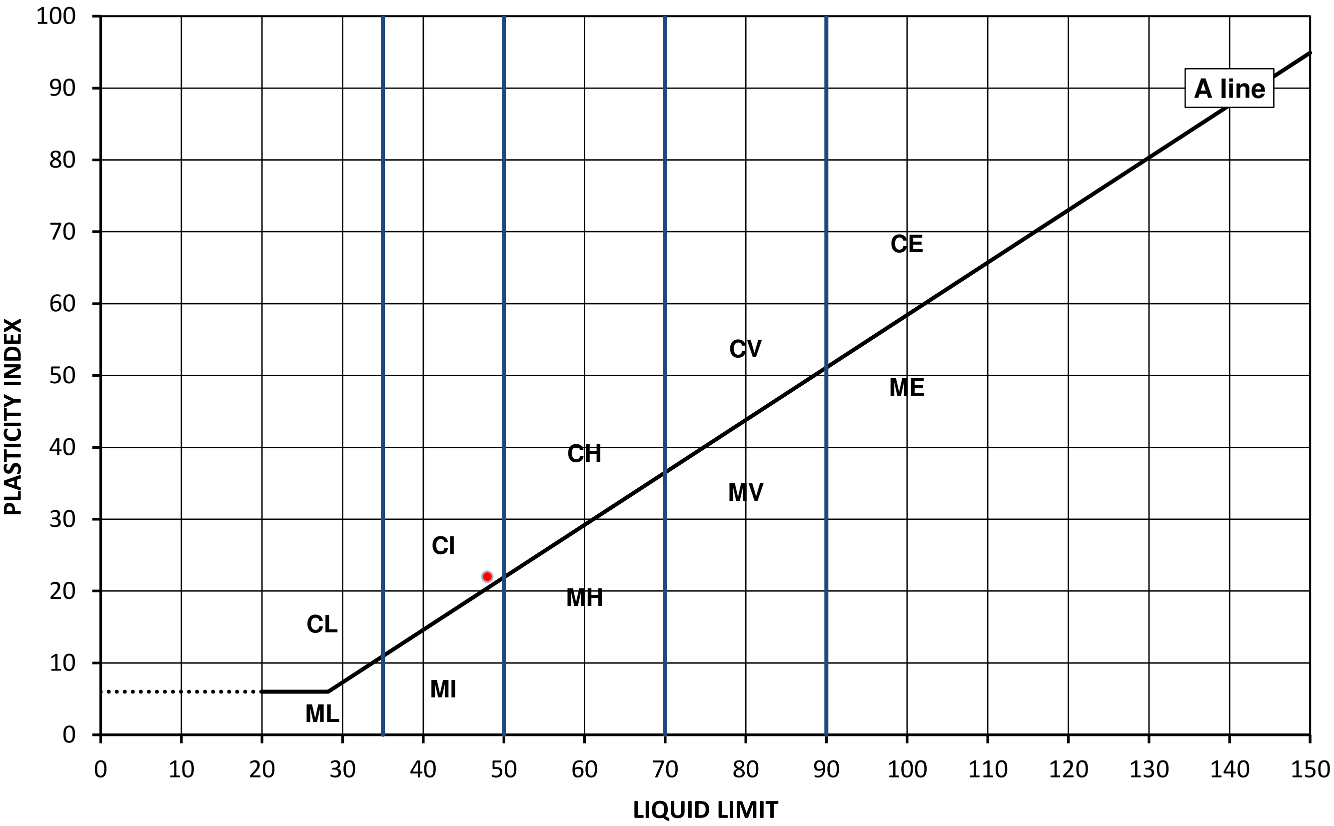
Test Results:

Laboratory Reference: 1377015
Hole No.: WS105
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12*	48	26	22	78



Legend, based on BS 5930:2015 Code of practice for site investigations

				Liquid Limit
		Plasticity		
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90

Organic O append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: *Sample is dry

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

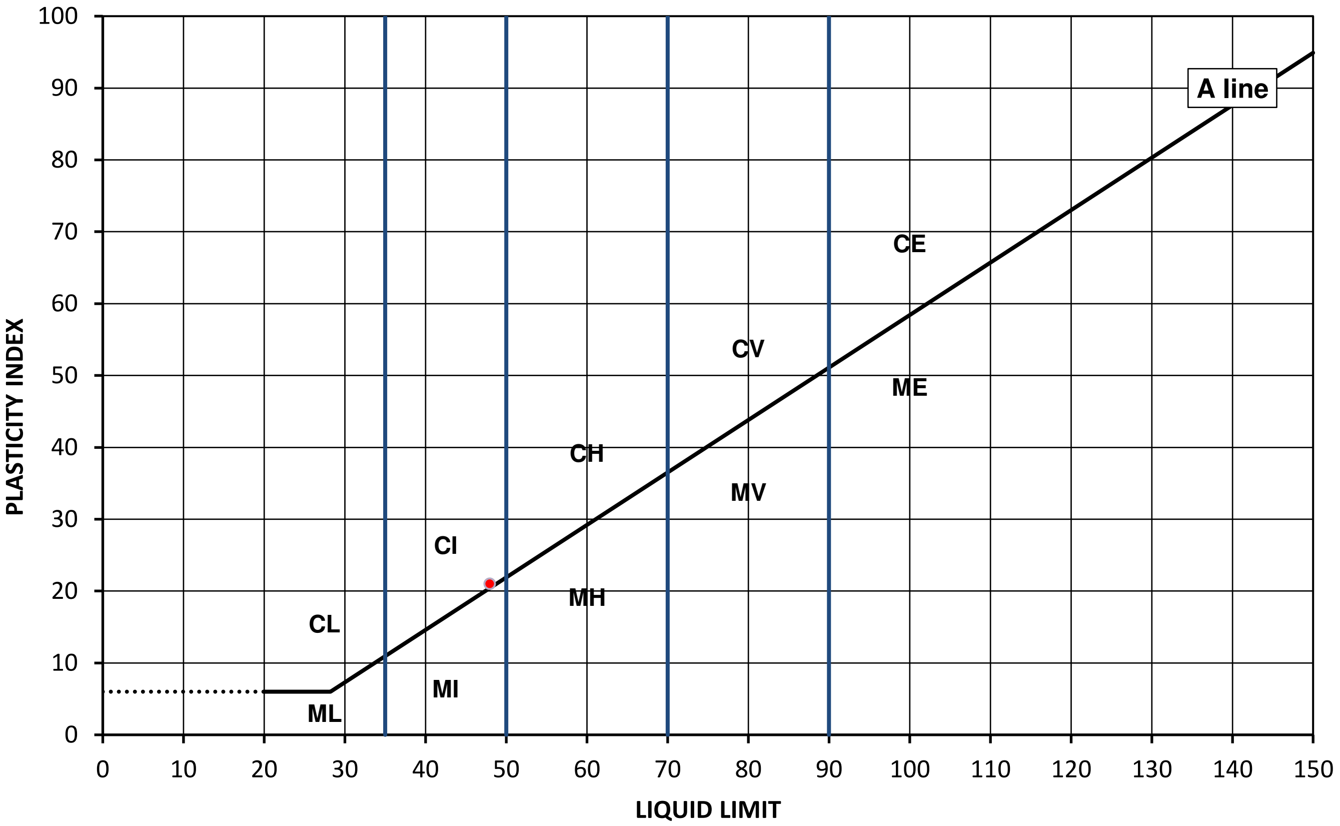
Test Results:

Laboratory Reference: 1377016
Hole No.: WS107
Sample Reference: Not Given
Soil Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14*	48	27	21	35



Legend, based on BS 5930:2015 Code of practice for site investigations

			Plasticity	Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: *Sample is dry

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

UKAS TESTING
4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Analytical i2 Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

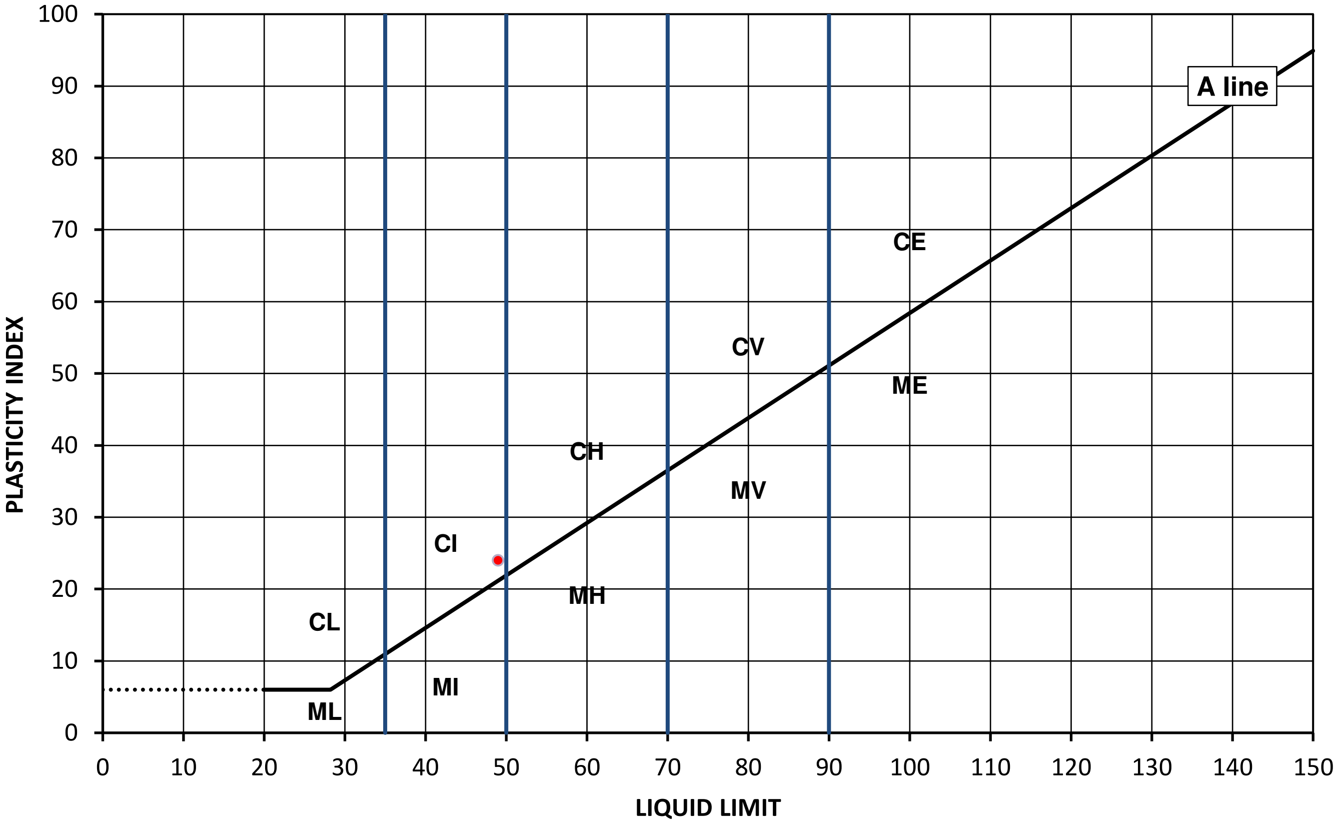
Test Results:

Laboratory Reference: 1377017
Hole No.: TP106
Sample Reference: Not Given
Soil Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	49	25	24	56



Legend, based on BS 5930:2015 Code of practice for site investigations

			Plasticity	Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

UKAS TESTING
4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Analytical i2 Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

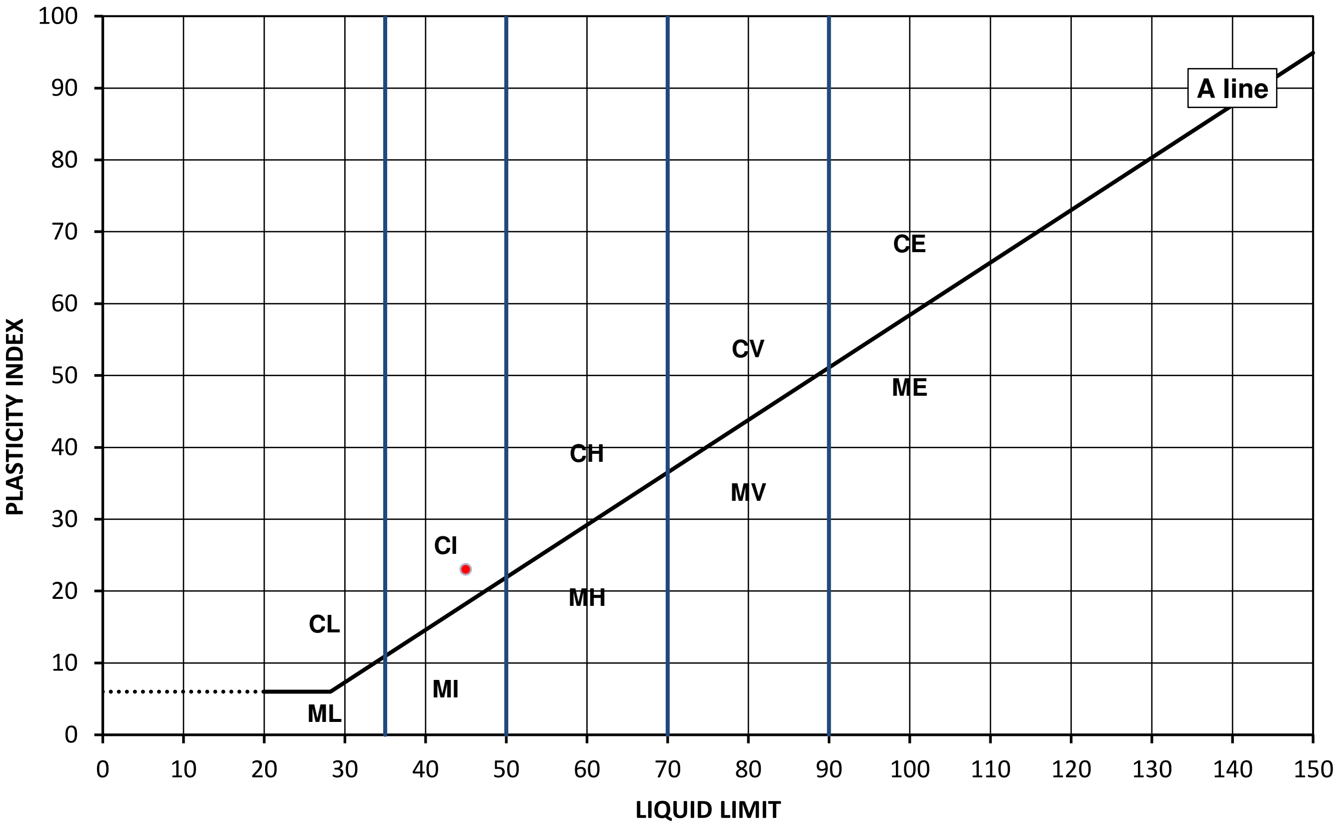
Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74735
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	05/12/2019
Site Name:	Newhey	Sampled By:	SM
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1377018	Depth Top [m]:	0.60
Hole No.:	TP117	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Grey slightly gravelly slightly sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	45	22	23	70



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

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TEST CERTIFICATE

Liquid and Plastic Limits

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

Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

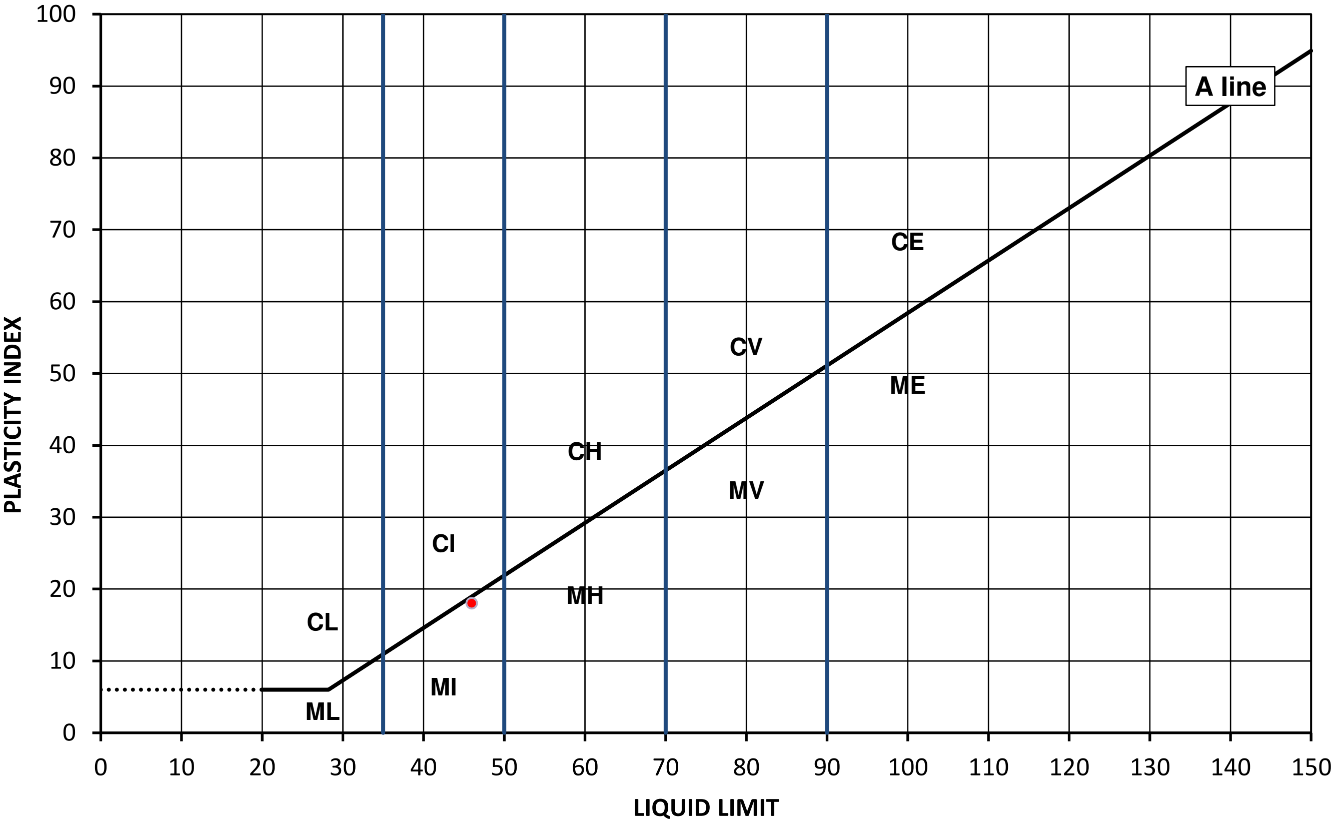
Test Results:

Laboratory Reference: 1377019
Hole No.: TP108
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly sandy CLAY with rootlets

Sample Preparation: Tested after washing to remove >425um

Depth Top [m]: 0.30
Depth Base [m]: Not Given
Sample Type: D

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
24	46	28	18	85



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

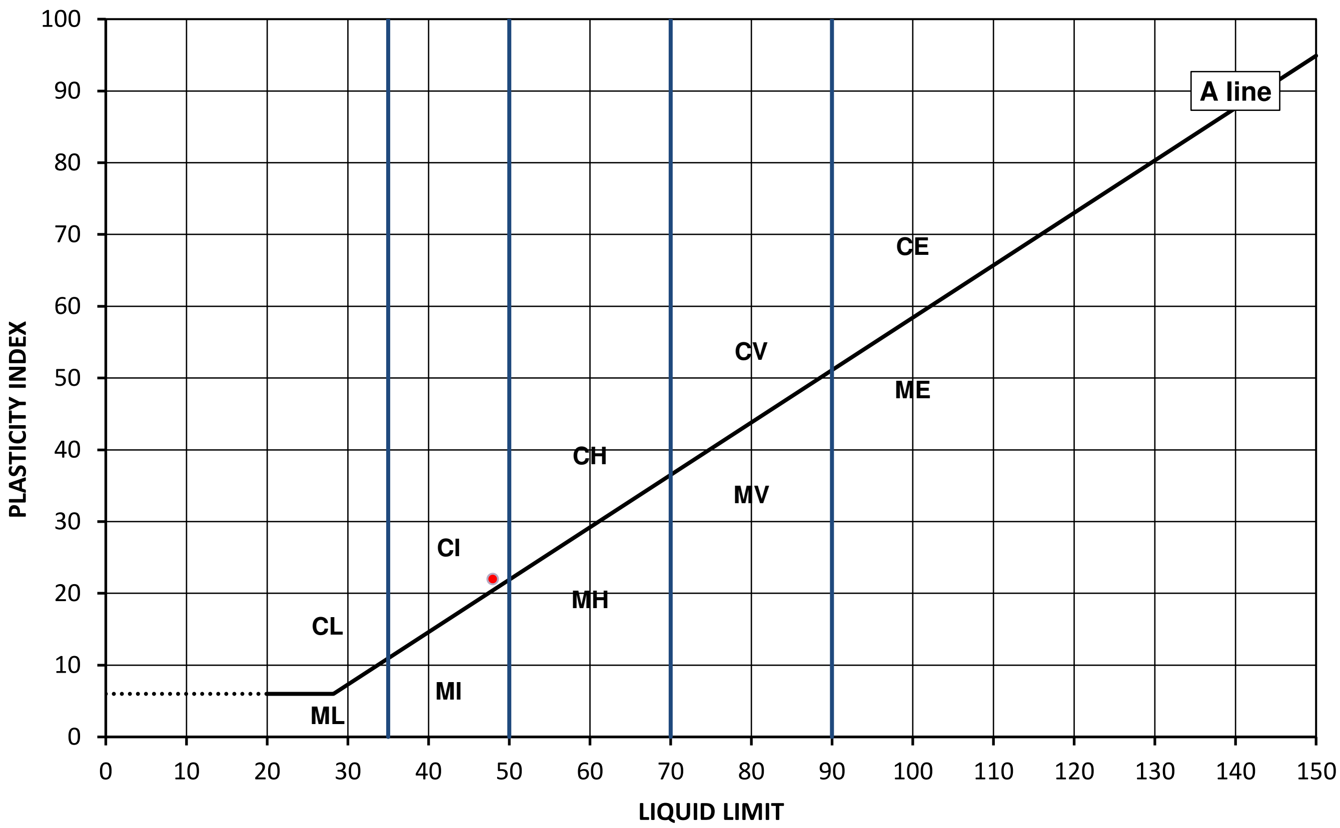
Test Results:

Laboratory Reference: 1377020
Hole No.: TP110
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	48	26	22	66



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
Organic		O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

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UKAS TESTING 4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Analytical i2 Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74735
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: SM

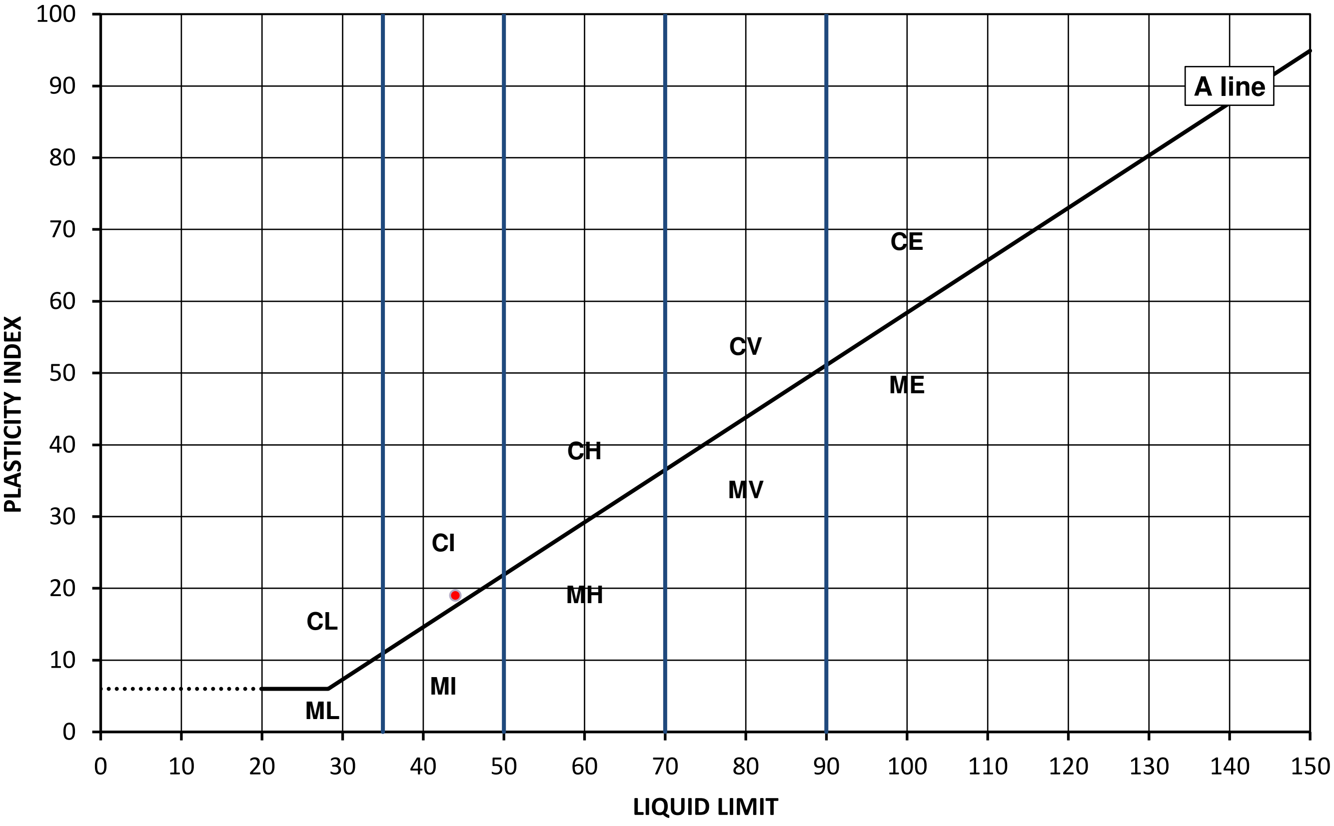
Test Results:

Laboratory Reference: 1377021
Hole No.: TP137
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY with rootlets

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	44	25	19	79



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

UKAS TESTING
4041

TEST CERTIFICATE

Liquid and Plastic Limits

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

Analytical i2 Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

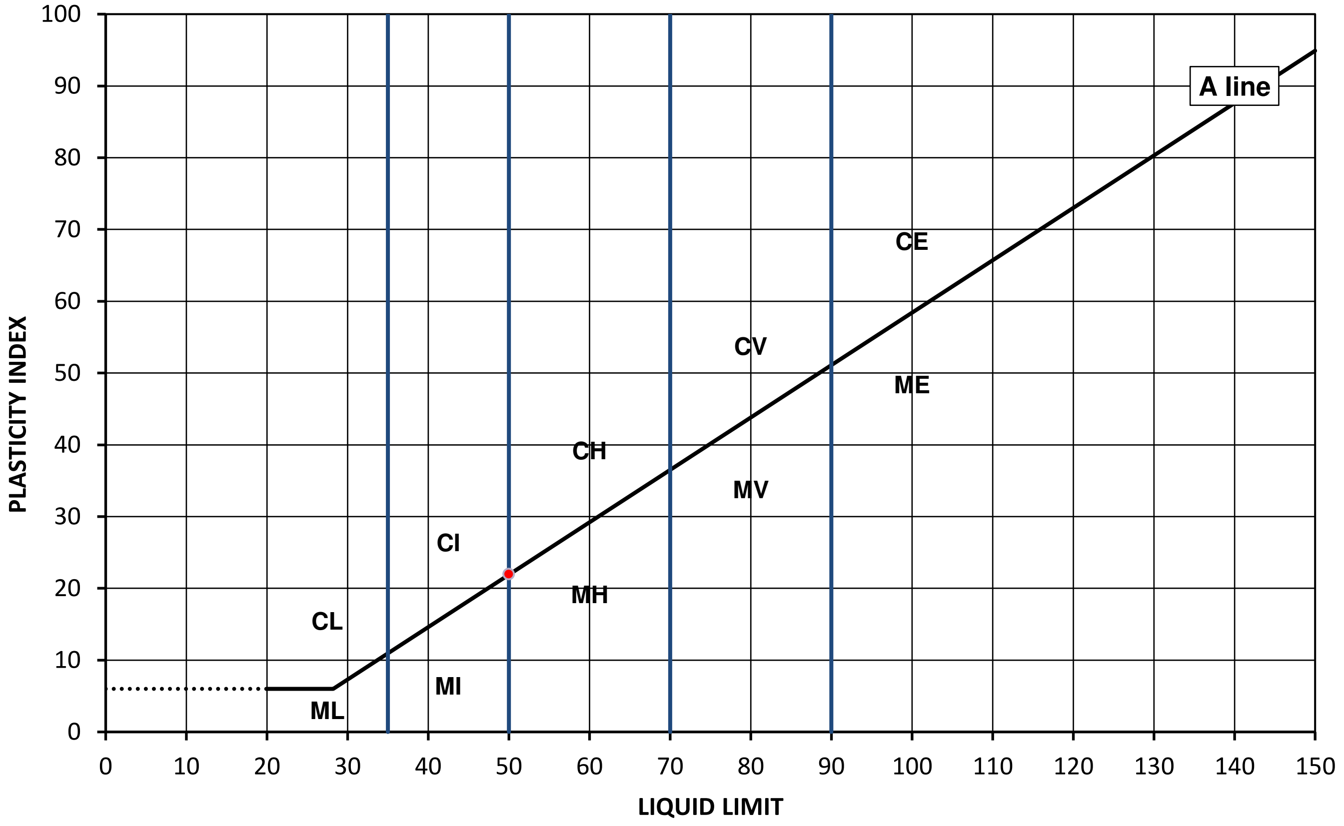
Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74735
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	05/12/2019
Site Name:	Newhey	Sampled By:	SM
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1377022	Depth Top [m]:	0.80
Hole No.:	TP146	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly slightly sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	50	28	22	82



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

UKAS TESTING
4041

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

Environmental Science

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74735

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 05/12/2019

Sampled By: SM

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type			%	%	% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	dry Mg/m3	PD Mg/m3	%		
1377017	TP106	Not Given	0.80	Not Given	D	Brown gravelly slightly sandy CLAY	Atterberg 1 Point	18		56	49	25	24						
1377019	TP108	Not Given	0.30	Not Given	D	Brown slightly gravelly slightly sandy CLAY with rootlets	Atterberg 1 Point	24		85	46	28	18						
1377020	TP110	Not Given	0.50	Not Given	D	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	22		66	48	26	22						
1377018	TP117	Not Given	0.60	Not Given	D	Grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	18		70	45	22	23						
1377021	TP137	Not Given	0.40	Not Given	D	Brown slightly gravelly sandy CLAY with rootlets	Atterberg 1 Point	13		79	44	25	19						
1377022	TP146	Not Given	0.80	Not Given	D	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	22		82	50	28	22						
1377013	WS101	Not Given	0.80	Not Given	D	Brown gravelly slightly sandy CLAY	Atterberg 1 Point	21		47	56	36	20						
1377014	WS103	Not Given	0.60	Not Given	D	Brown very gravelly slightly sandy CLAY	Atterberg 1 Point	20		35	58	40	18						
1377015	WS105	Not Given	1.00	Not Given	D	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	12*		78	48	26	22						
1377016	WS107	Not Given	0.50	Not Given	D	Brown gravelly slightly sandy CLAY	Atterberg 1 Point	14*		35	48	27	21						

Note: # Non accredited; NP - Non plastic

Comments: *Sample is dry

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

[redacted]

Date Reported: 12/12/2019

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

for and on behalf of i2 Analytical Ltd **GF 234.7**

4041

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

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

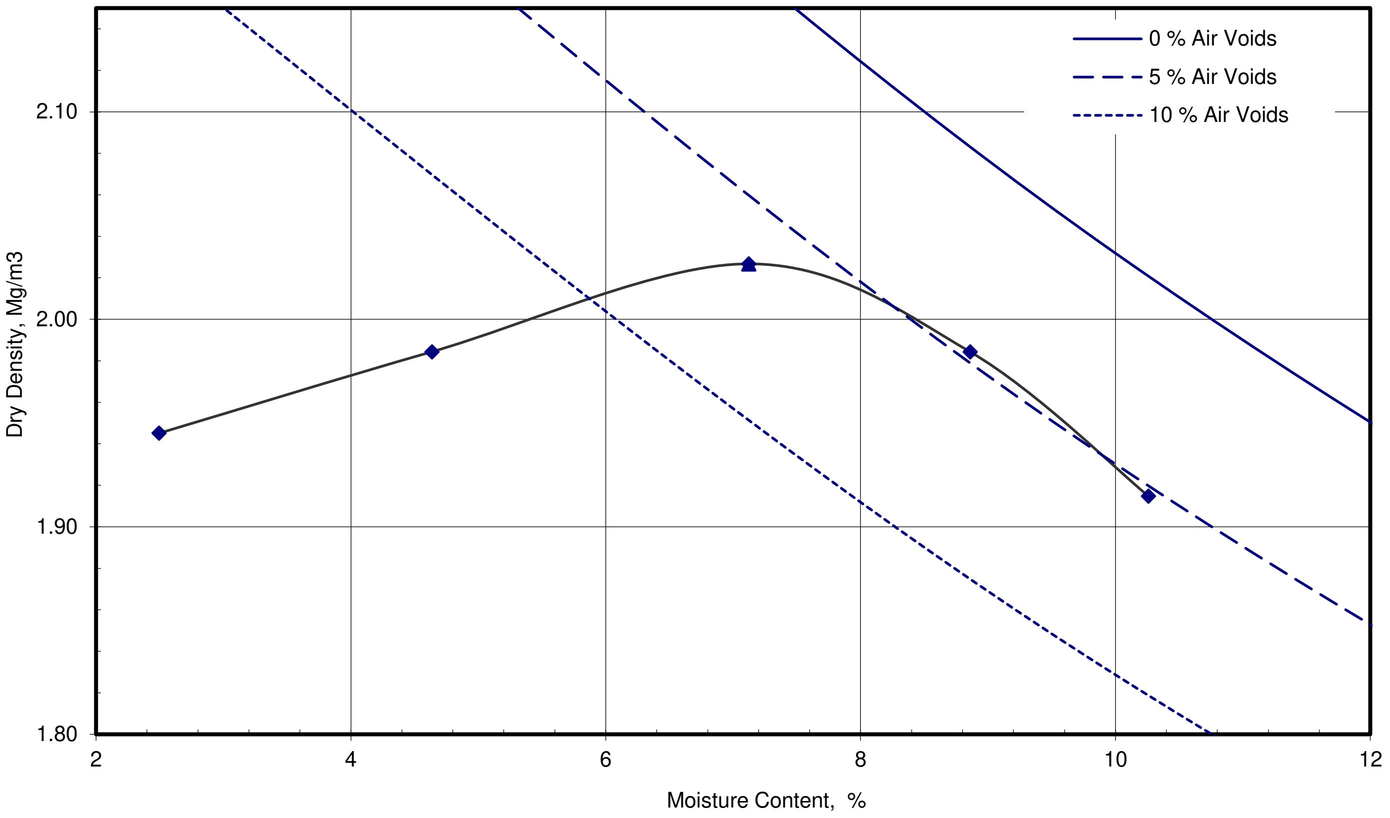
Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74429
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 05/12/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1375317
Hole No.: TP115
Sample Reference: Not Given
Sample Description: Dark brown slightly sandy SHALES

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	39
Material Retained on 20.0 mm Sieve	%	86
Particle Density - Assumed	Mg/m³	2.55
As received Moisture Content	%	4.2
Maximum Dry Density	Mg/m³	**2.03**

Optimum Moisture Content	%	**7.1**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

4041

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

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

Analytical i2 Environmental Science

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 05/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375319

Hole No.: TP122

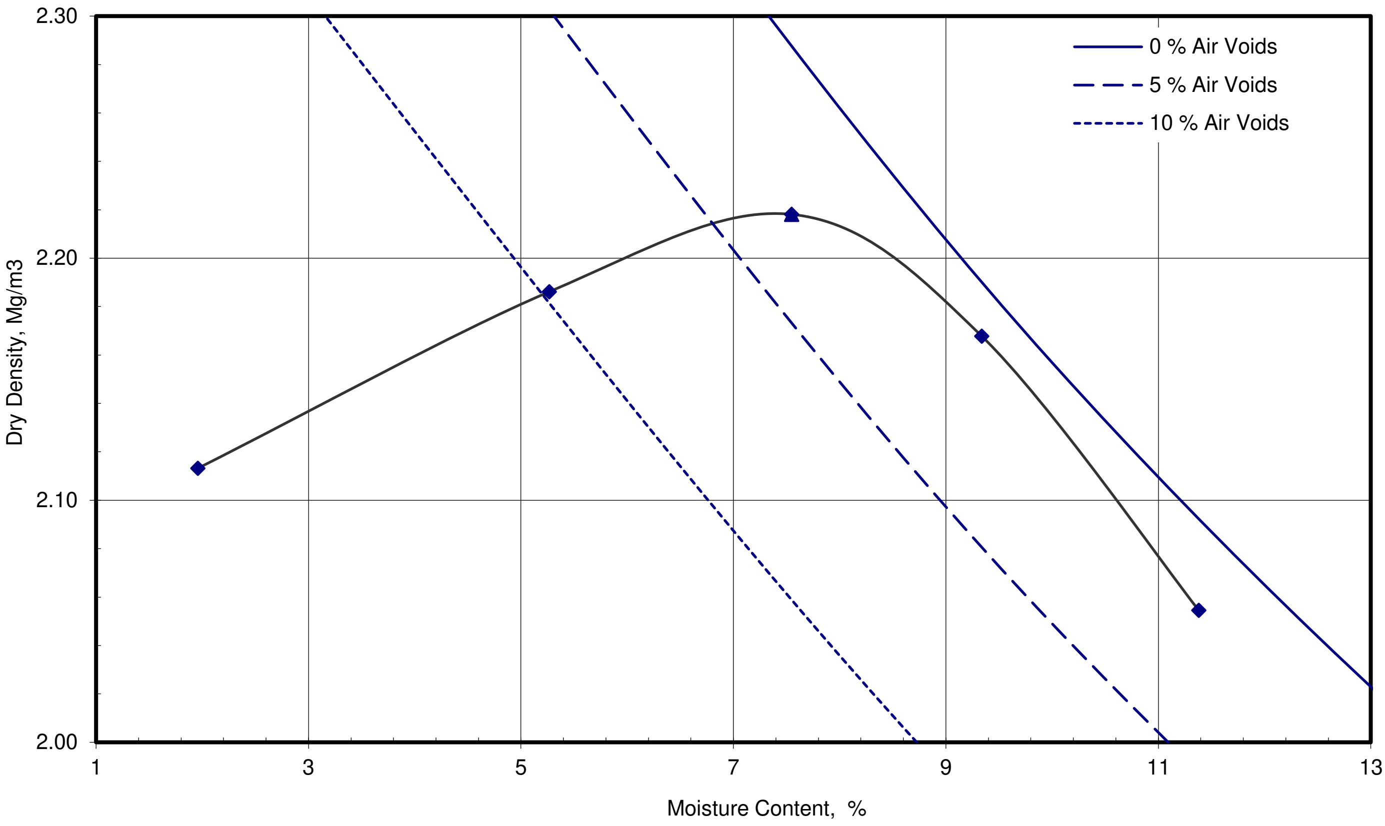
Sample Reference: Not Given

Sample Description: Grey slightly sandy SHALES

Depth Top [m]: 2.00

Depth Base [m]: Not Given

Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	29
Material Retained on 20.0 mm Sieve	%	65
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	6.6
Maximum Dry Density	Mg/m³	**2.22**

Optimum Moisture Content	%	**7.5**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

4041

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

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

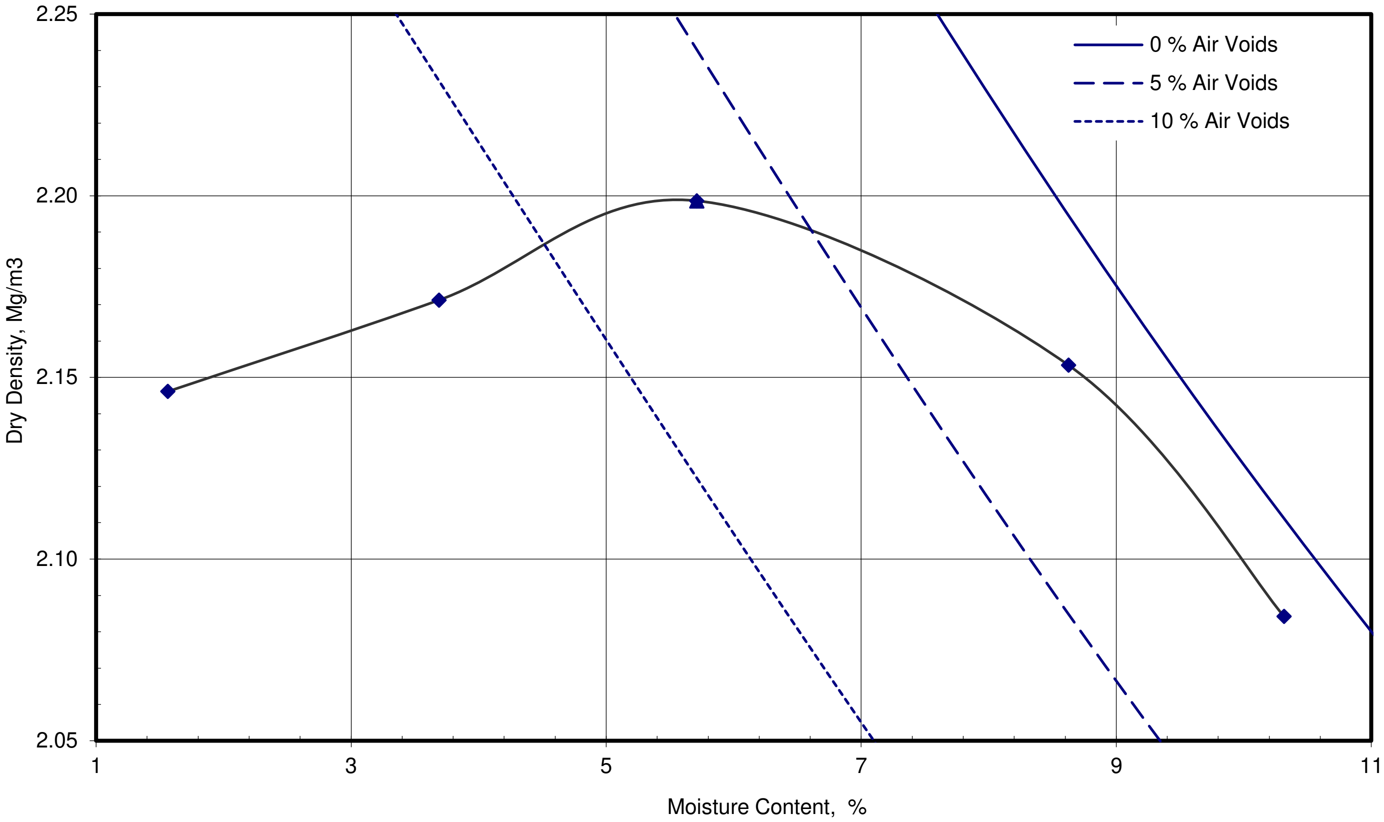
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	05/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375321
Hole No.:	TP127
Sample Reference:	Not Given
Sample Description:	Dark brown slightly sandy SHALES

Depth Top [m]:	1.20
Depth Base [m]:	Not Given
Sample Type:	B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	53
Material Retained on 20.0 mm Sieve	%	92
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	3.9
Maximum Dry Density	Mg/m³	**2.20**

Optimum Moisture Content	%	**5.7**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

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TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

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

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 05/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375326

Hole No.: TP146

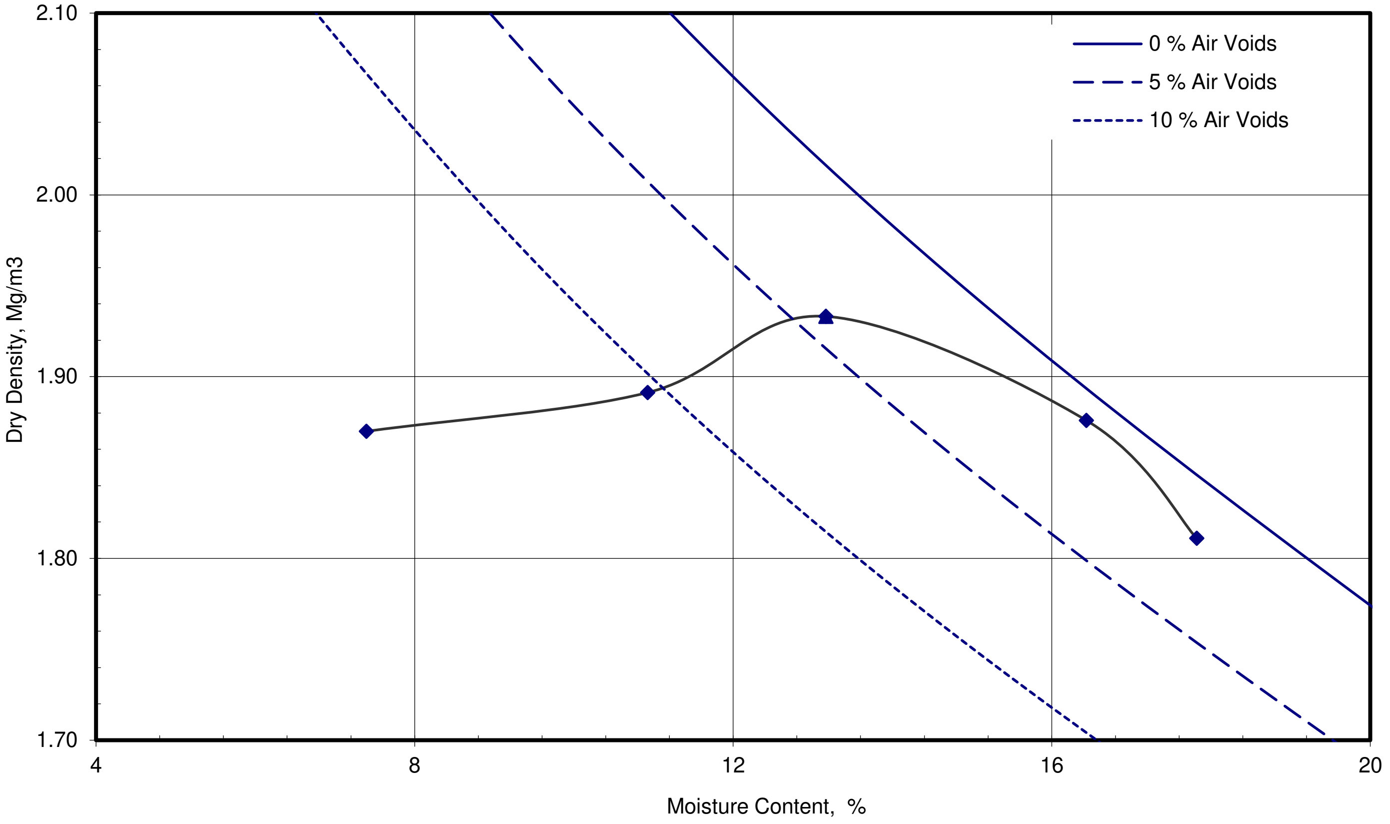
Sample Reference: Not Given

Sample Description: Brown sandy very gravelly CLAY

Depth Top [m]: 1.00

Depth Base [m]: Not Given

Sample Type: B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	12
Material Retained on 20.0 mm Sieve	%	22
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	14
Maximum Dry Density	Mg/m³	**1.93**

Optimum Moisture Content	%	**13**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

[redacted]

Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

for and on behalf of i2 Analytical Ltd GF 110.15

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TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

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

Analytical i2 Environmental Science

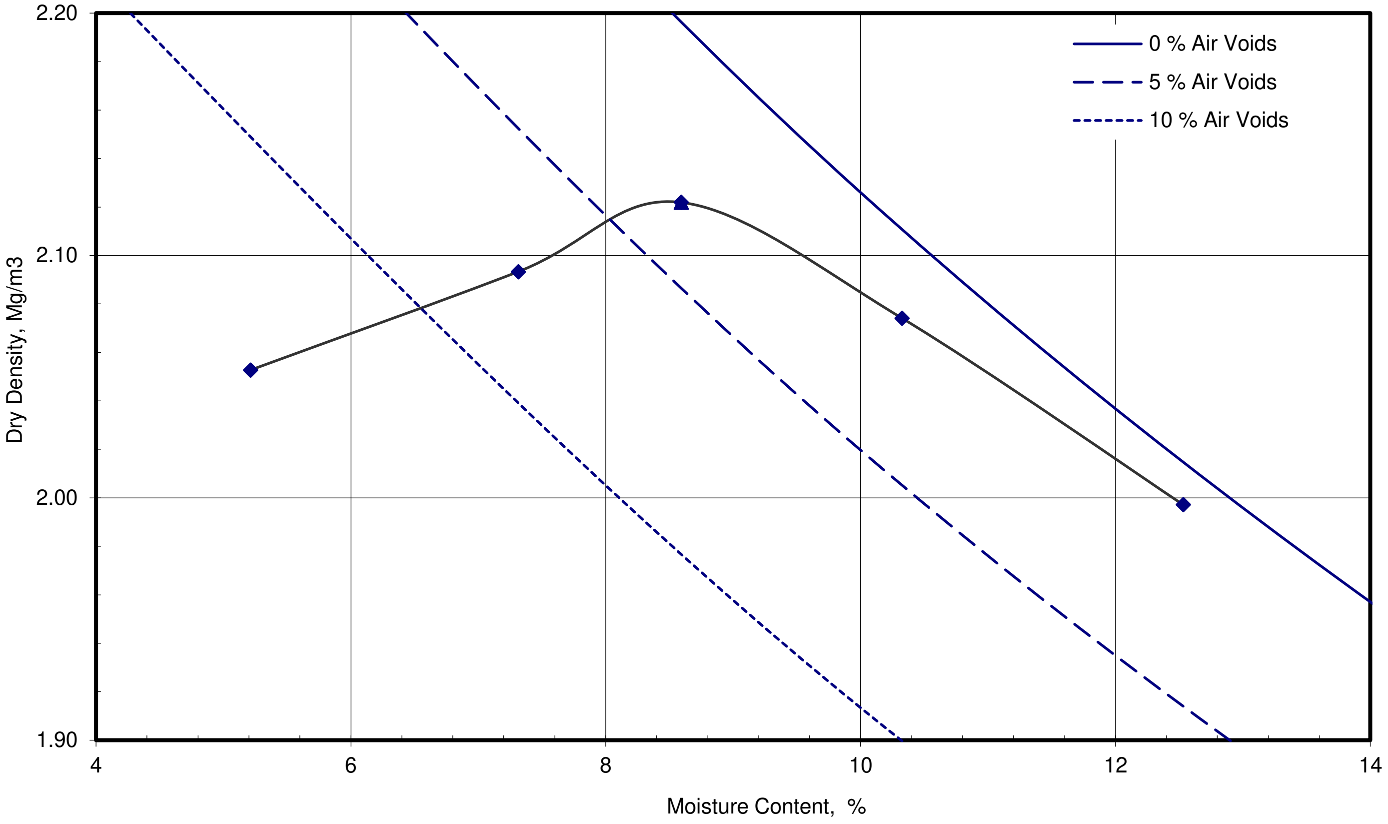
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	05/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375327
Hole No.:	TP144
Sample Reference:	Not Given
Sample Description:	Brown sandy GRAVEL

Depth Top [m]:	1.00
Depth Base [m]:	Not Given
Sample Type:	B



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	47
Material Retained on 20.0 mm Sieve	%	63
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	4.7
Maximum Dry Density	Mg/m³	**2.12**

Optimum Moisture Content	%	**8.6**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

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TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

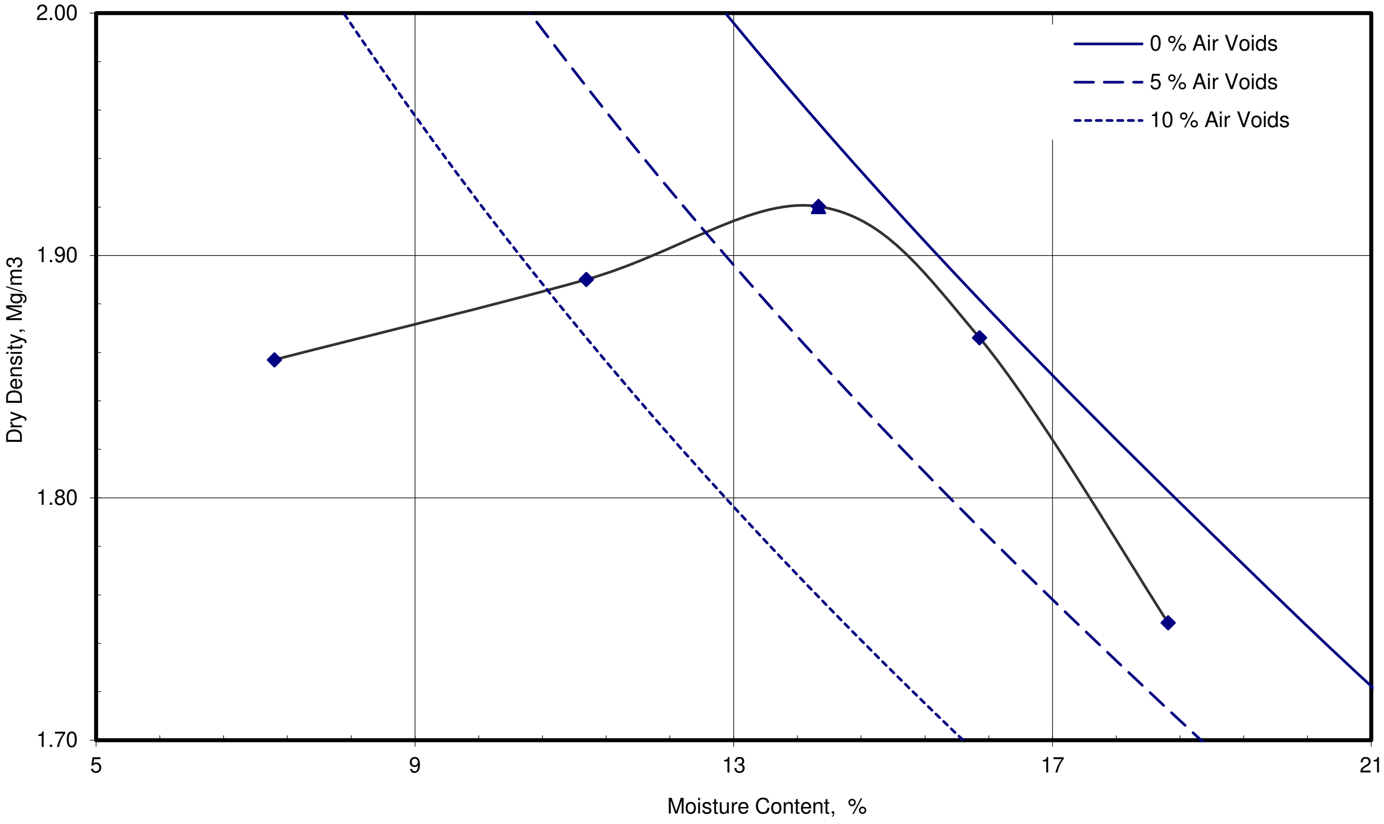
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	05/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375328	Depth Top [m]:	0.80
Hole No.:	WS101	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly sandy very clayey GRAVEL with cobbles		



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	30
Material Retained on 20.0 mm Sieve	%	50
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	10
Maximum Dry Density	Mg/m³	**1.92**

Optimum Moisture Content	%	**14**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

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TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Heavy Compaction

Tested in Accordance with:
BS 1377-4: 1990

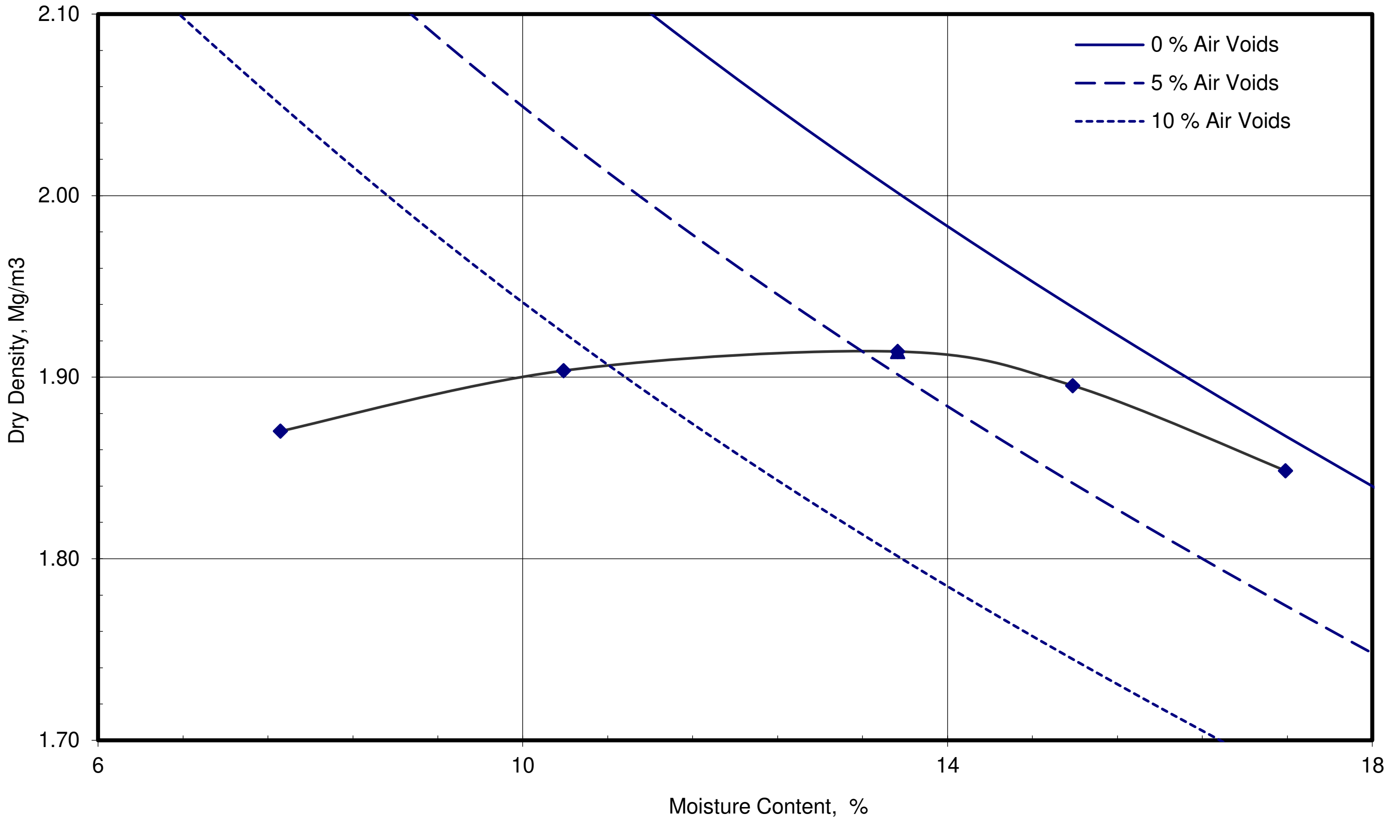
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	05/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375329	Depth Top [m]:	1.00
Hole No.:	WS104	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very gravelly SAND		



Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	1
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	8.6
Maximum Dry Density	Mg/m³	**1.91**

Optimum Moisture Content	%	**14**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks: Zone X - test carried out as per client request

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 110.15

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

"Any assessment of compliance with specifications based the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Analytical i2 Environmental Science

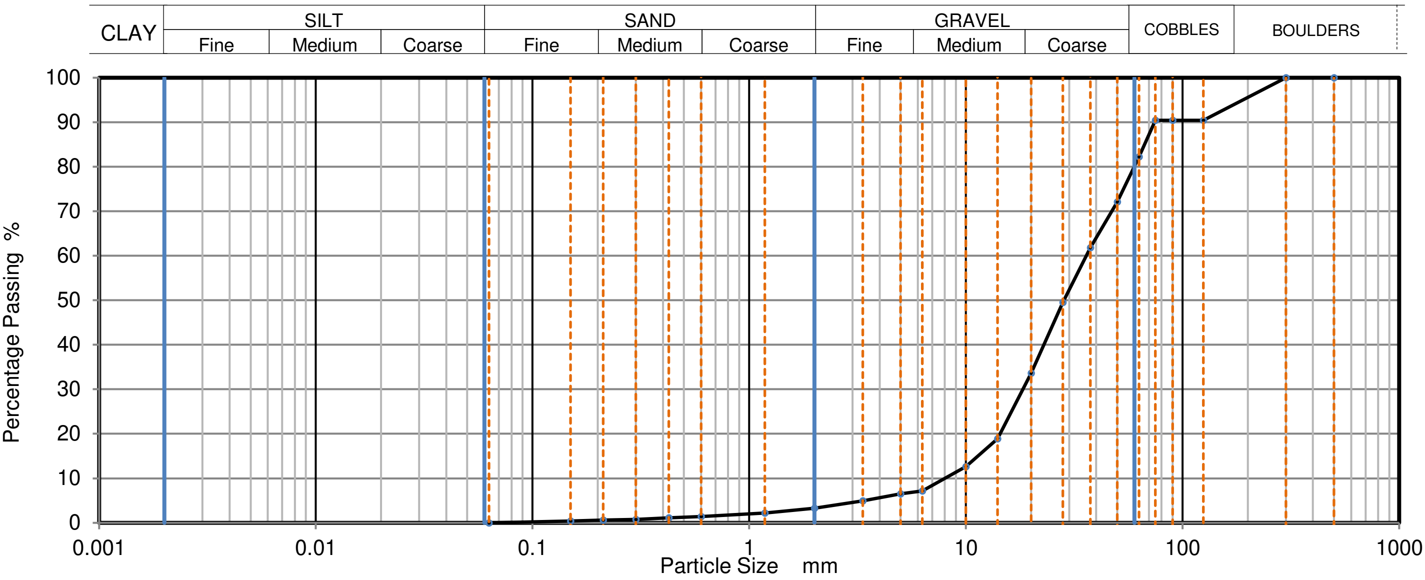
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	03/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375315
Hole No.:	TP102
Sample Reference:	Not Given
Sample Description:	Dark brown slightly sandy SHALES with cobbles

Depth Top [m]:	0.30
Depth Base [m]:	Not Given
Sample Type:	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	90		
90	90		
75	90		
63	82		
50	72		
37.5	62		
28	50		
20	34		
14	19		
10	13		
6.3	7		
5	7		
3.35	5		
2	3		
1.18	2		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	0		
0.063	0		

Sample Proportions	% dry mass
Very coarse	17.80
Gravel	78.90
Sand	3.10
Fines <0.063mm	0.20

Grading Analysis		
D100	mm	300
D60	mm	35.9
D30	mm	18.3
D10	mm	7.99
Uniformity Coefficient		4.5
Curvature Coefficient		1.2

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 07/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375316

Hole No.: TP111

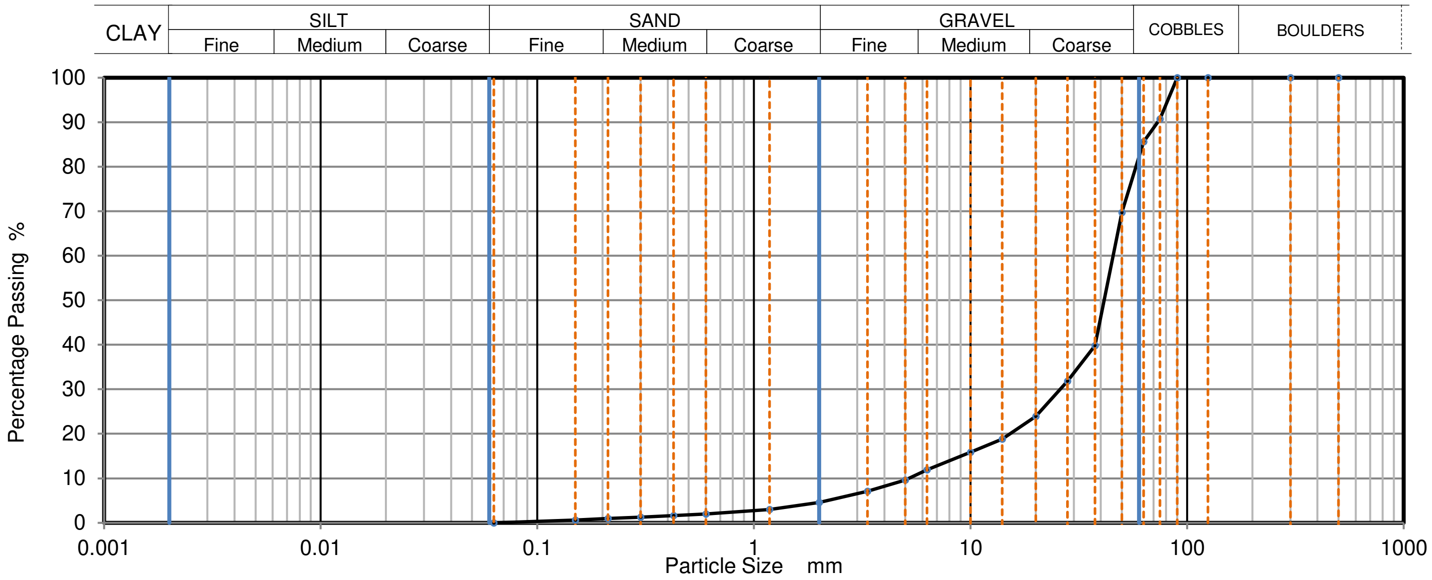
Sample Reference: Not Given

Sample Description: Dark brown slightly clayey SHALES

Depth Top [m]: 0.80

Depth Base [m]: Not Given

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	91		
63	86		
50	70		
37.5	40		
28	32		
20	24		
14	19		
10	16		
6.3	12		
5	10		
3.35	7		
2	5		
1.18	3		
0.6	2		
0.425	2		
0.3	1		
0.212	1		
0.15	1		
0.063	0		

Sample Proportions	% dry mass
Very coarse	14.40
Gravel	81.00
Sand	4.40
Fines <0.063mm	0.20

Grading Analysis		
D100	mm	90
D60	mm	45.5
D30	mm	25.9
D10	mm	5.19
Uniformity Coefficient		8.8
Curvature Coefficient		2.8

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

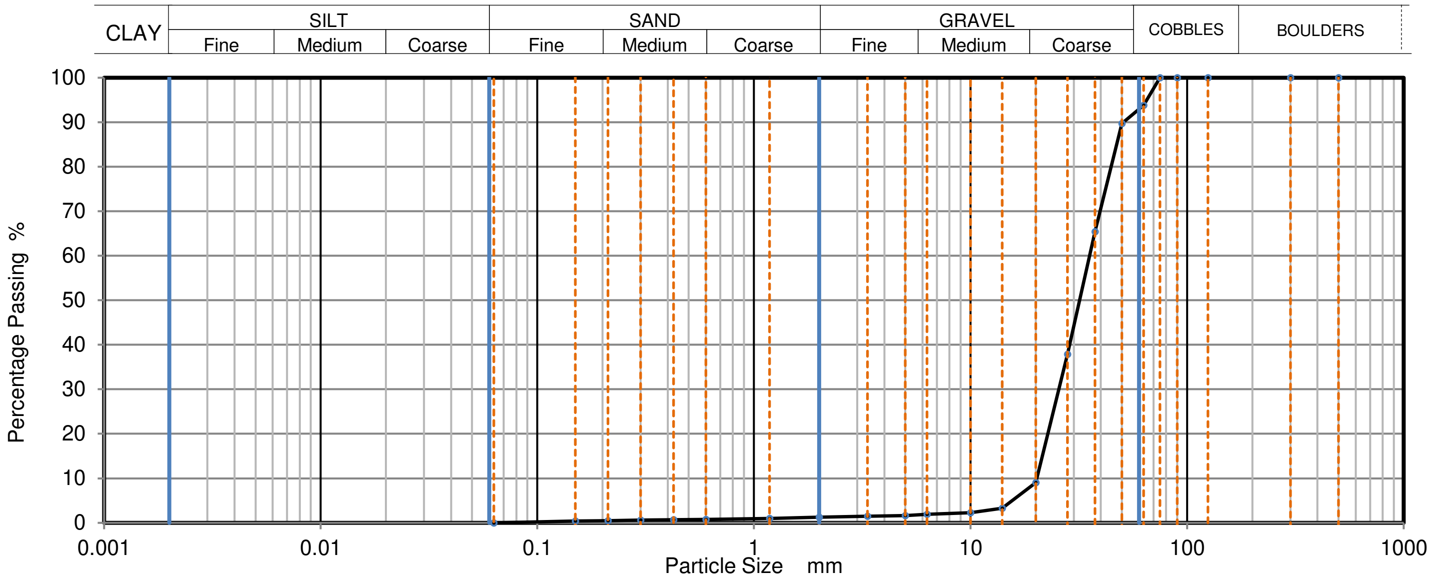
Tested in Accordance with: BS 1377-2: 1990

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

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	07/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375317	Depth Top [m]:	0.50
Hole No.:	TP115	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown slightly sandy SHALES		



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	94
50	90
37.5	65
28	38
20	9
14	3
10	2
6.3	2
5	2
3.35	2
2	1
1.18	1
0.6	1
0.425	1
0.3	1
0.212	1
0.15	0
0.063	0

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	6.20
Gravel	92.50
Sand	1.20
Fines <0.063mm	0.10

Grading Analysis		
D100	mm	75
D60	mm	35.4
D30	mm	25.5
D10	mm	20.2
Uniformity Coefficient		1.7
Curvature Coefficient		0.91

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
[redacted]
PL Geotechnical Laboratory Manager
Date Reported: 10/12/2019

Signed: Darren Berrill
[redacted]
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS
Analytical i2 Environmental Science

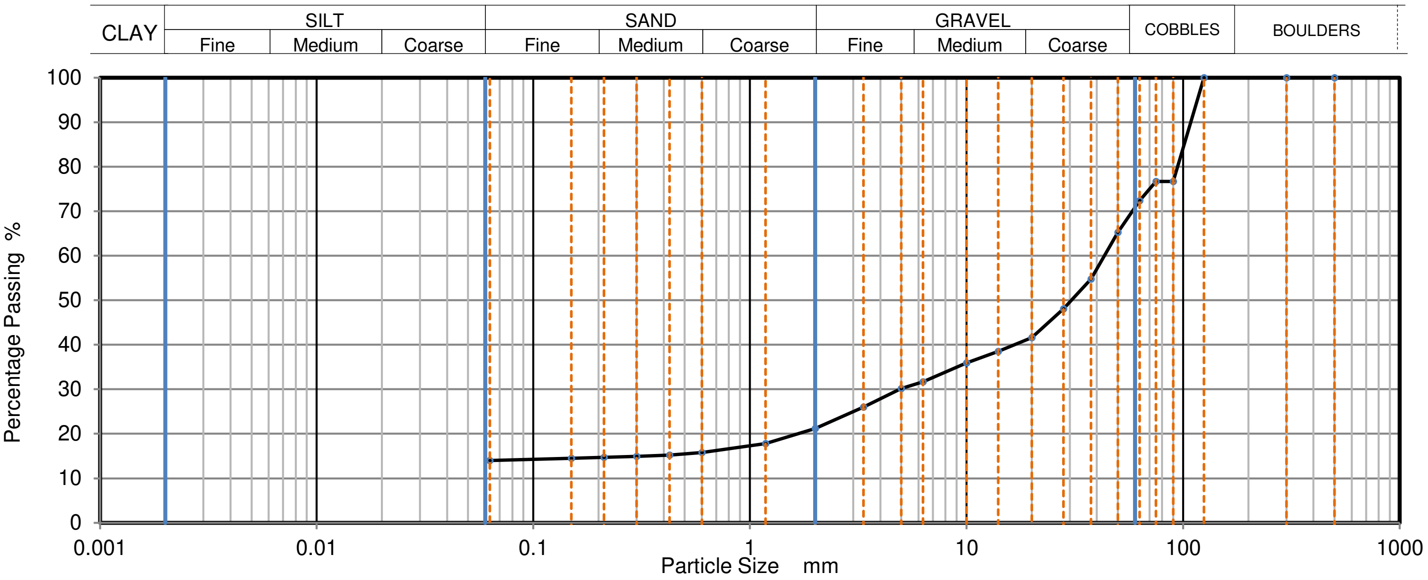
Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74429
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 03/12/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1375318
Hole No.: TP120
Sample Reference: Not Given
Sample Description: Dark brown slightly sandy clayey GRAVEL with fragments of bricks

Depth Top [m]: 0.30
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	77		
75	77		
63	72		
50	65		
37.5	55		
28	48		
20	42		
14	39		
10	36		
6.3	32		
5	30		
3.35	26		
2	21		
1.18	18		
0.6	16		
0.425	15		
0.3	15		
0.212	15		
0.15	15		
0.063	14		

Sample Proportions	% dry mass
Very coarse	27.60
Gravel	51.20
Sand	7.00
Fines <0.063mm	14.10

Grading Analysis		
D100	mm	125
D60	mm	43.2
D30	mm	4.91
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Environmental Science

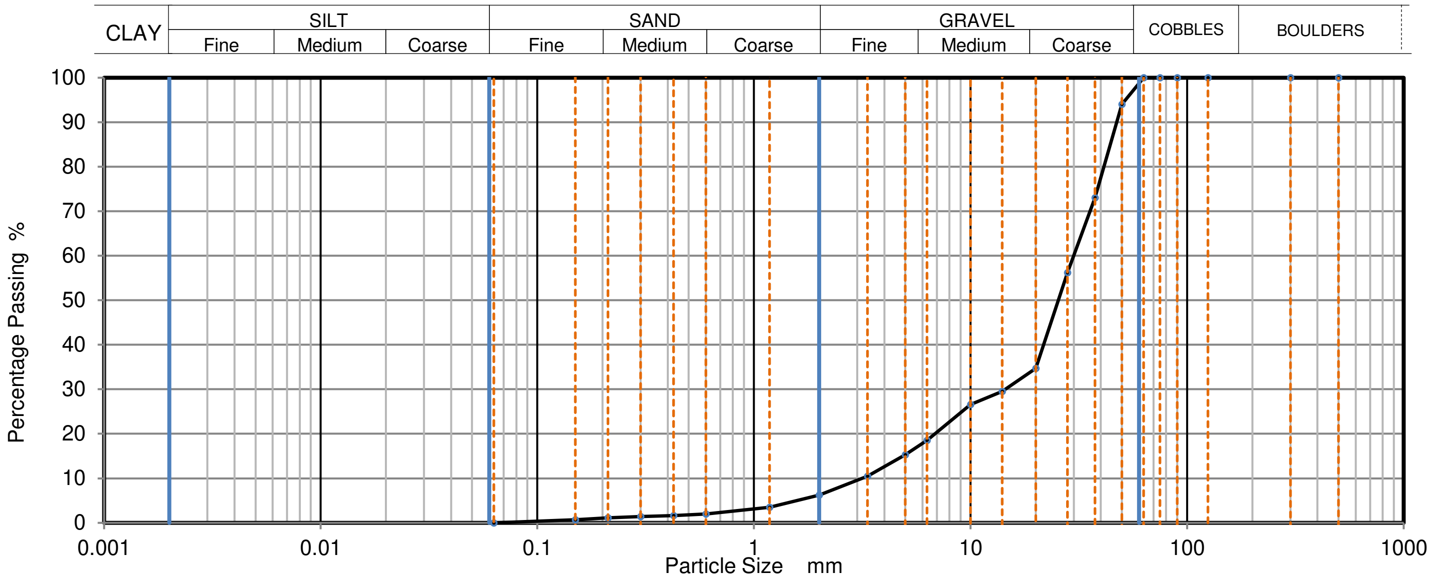
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	07/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375319
Hole No.:	TP122
Sample Reference:	Not Given
Sample Description:	Grey slightly sandy SHALES

Depth Top [m]:	2.00
Depth Base [m]:	Not Given
Sample Type:	B



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	100
50	94
37.5	73
28	56
20	35
14	30
10	27
6.3	19
5	15
3.35	11
2	6
1.18	4
0.6	2
0.425	2
0.3	1
0.212	1
0.15	1
0.063	0

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	93.80
Sand	6.00
Fines <0.063mm	0.20

Grading Analysis		
D100	mm	63
D60	mm	29.9
D30	mm	14.5
D10	mm	3.14
Uniformity Coefficient		9.5
Curvature Coefficient		2.2

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

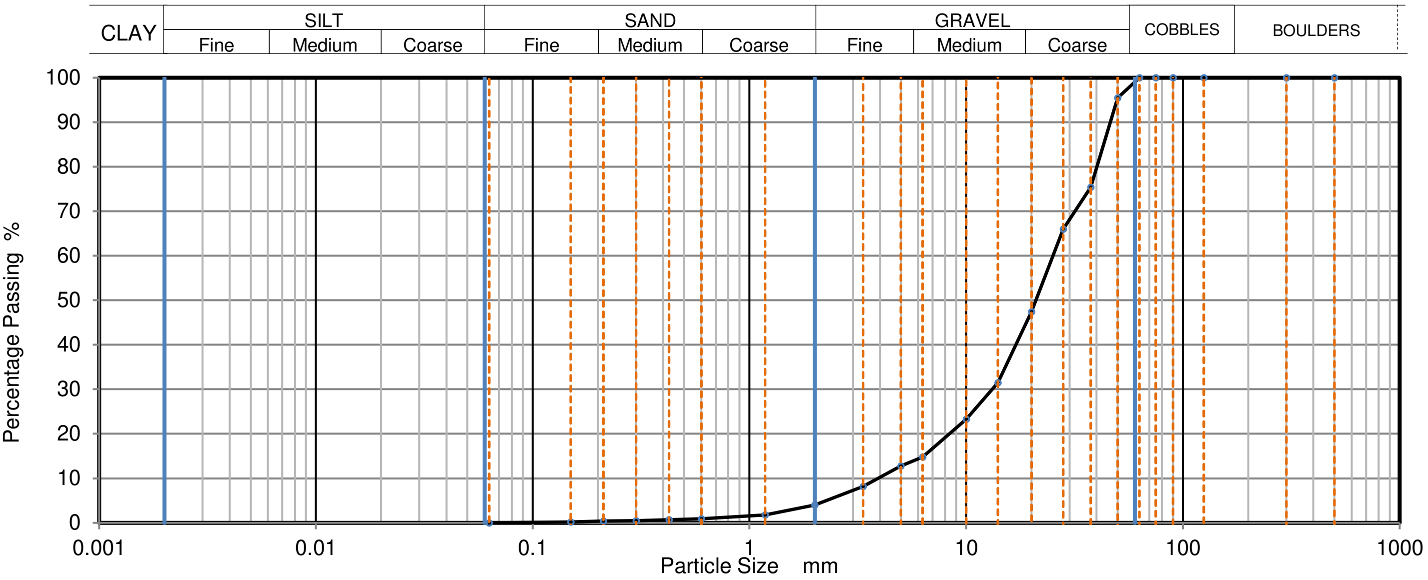
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	03/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375320	Depth Top [m]:	0.30
Hole No.:	TP123	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown slightly sandy SHALES		



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	100
50	96
37.5	75
28	66
20	47
14	32
10	23
6.3	15
5	13
3.35	8
2	4
1.18	2
0.6	1
0.425	1
0.3	1
0.212	0
0.15	0
0.063	0

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	96.00
Sand	4.00
Fines <0.063mm	0.10

Grading Analysis		
D100	mm	63
D60	mm	25.1
D30	mm	13.1
D10	mm	3.92
Uniformity Coefficient		6.4
Curvature Coefficient		1.8

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

4041

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Environmental Science

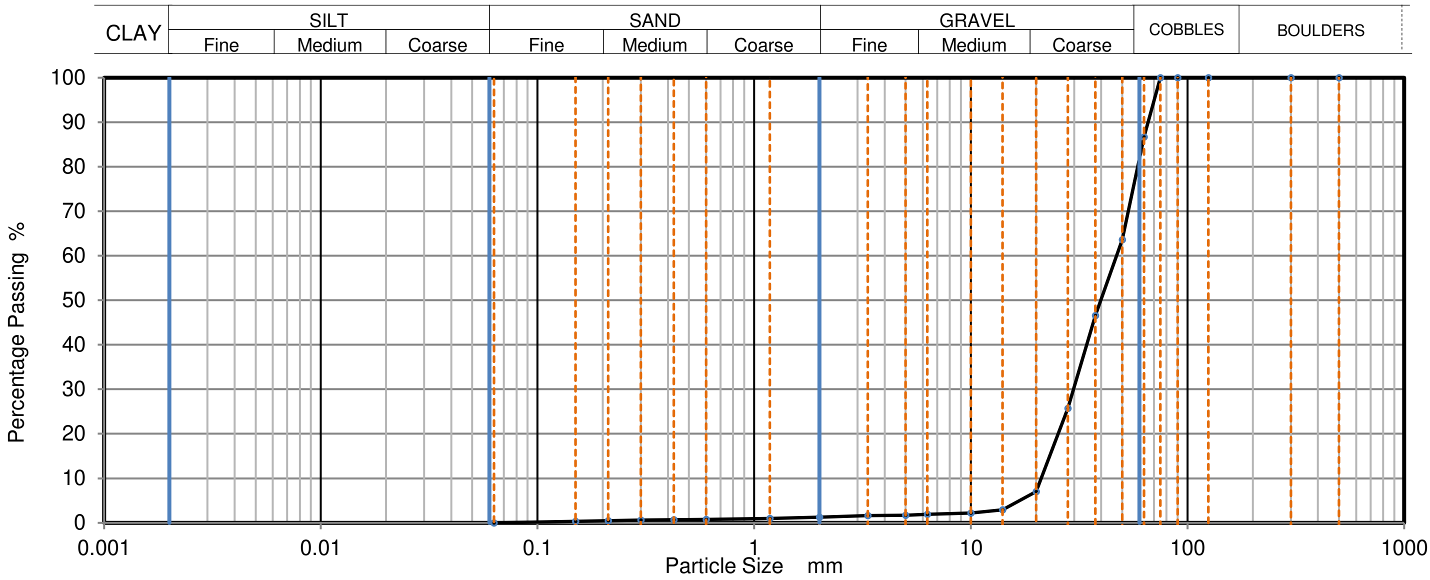
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	07/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375321
Hole No.:	TP127
Sample Reference:	Not Given
Sample Description:	Dark brown slightly sandy SHALES

Depth Top [m]:	1.20
Depth Base [m]:	Not Given
Sample Type:	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	87		
50	64		
37.5	47		
28	26		
20	7		
14	3		
10	2		
6.3	2		
5	2		
3.35	2		
2	1		
1.18	1		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	0		
0.063	0		

Sample Proportions	% dry mass
Very coarse	13.30
Gravel	85.40
Sand	1.20
Fines <0.063mm	0.10

Grading Analysis		
D100	mm	75
D60	mm	47
D30	mm	29.7
D10	mm	21.1
Uniformity Coefficient		2.2
Curvature Coefficient		0.89

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

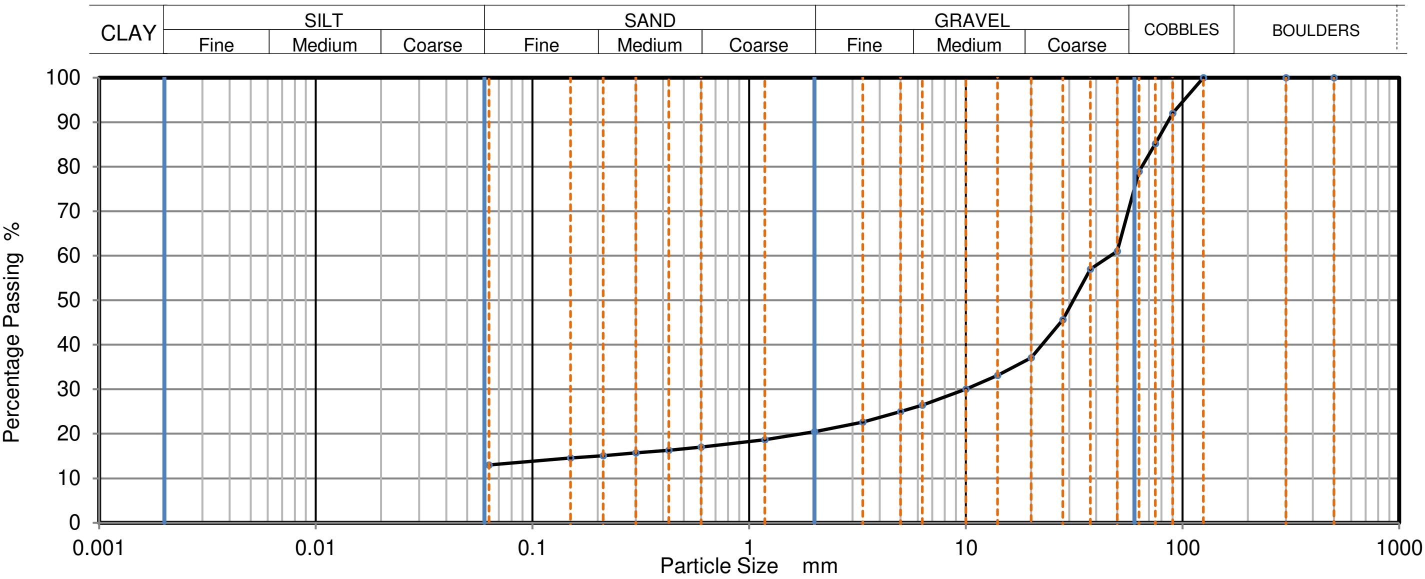
Tested in Accordance with: BS 1377-2: 1990

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

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	03/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375322	Depth Top [m]:	0.20
Hole No.:	TP128	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown slightly sandy clayey GRAVEL with cobbles		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	92		
75	85		
63	79		
50	61		
37.5	57		
28	46		
20	37		
14	33		
10	30		
6.3	26		
5	25		
3.35	23		
2	21		
1.18	19		
0.6	17		
0.425	16		
0.3	16		
0.212	15		
0.15	15		
0.063	14		

Sample Proportions	% dry mass
Very coarse	21.10
Gravel	58.40
Sand	7.00
Fines <0.063mm	13.60

Grading Analysis		
D100	mm	125
D60	mm	46.6
D30	mm	10
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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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 are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

"Any assessment of compliance with specifications based the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Environmental Science

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 07/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375323

Hole No.: TP129

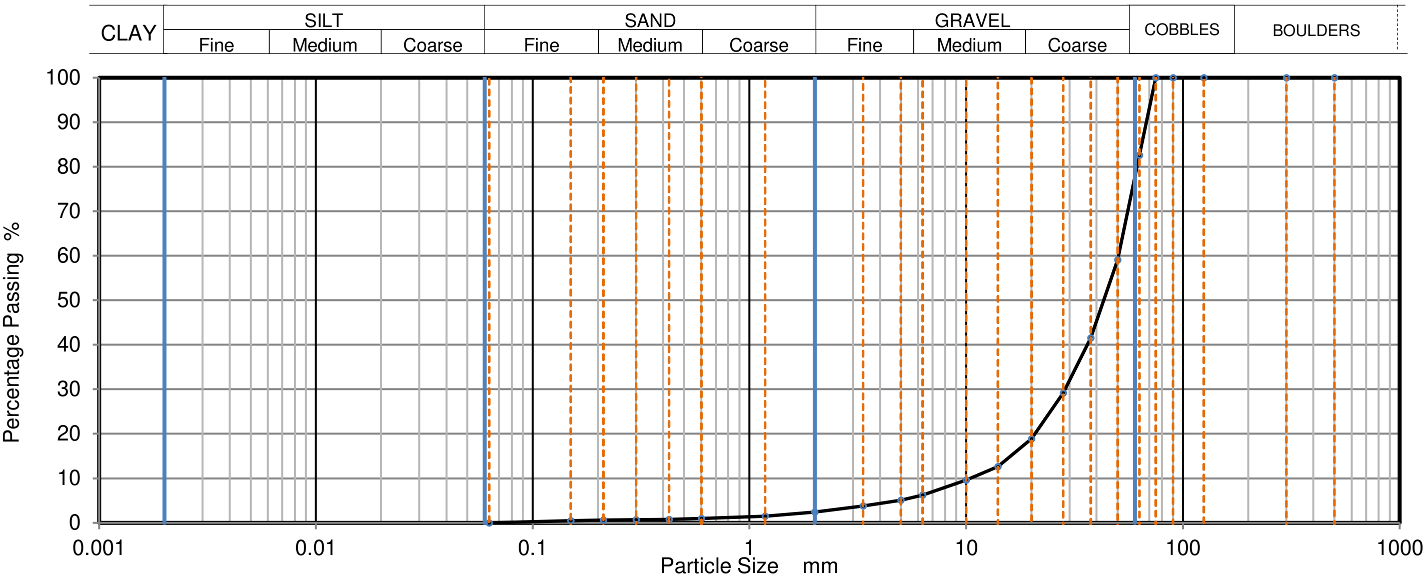
Sample Reference: Not Given

Sample Description: Grey slightly sandy GRAVEL with cobbles

Depth Top [m]: 0.80

Depth Base [m]: Not Given

Sample Type: B



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	83
50	59
37.5	42
28	29
20	19
14	13
10	10
6.3	6
5	5
3.35	4
2	2
1.18	2
0.6	1
0.425	1
0.3	1
0.212	1
0.15	1
0.063	0

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	17.40
Gravel	80.20
Sand	2.30
Fines <0.063mm	0.10

Grading Analysis	
D100 mm	75
D60 mm	50.4
D30 mm	28.5
D10 mm	10.4
Uniformity Coefficient	4.8
Curvature Coefficient	1.5

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

[redacted]

Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

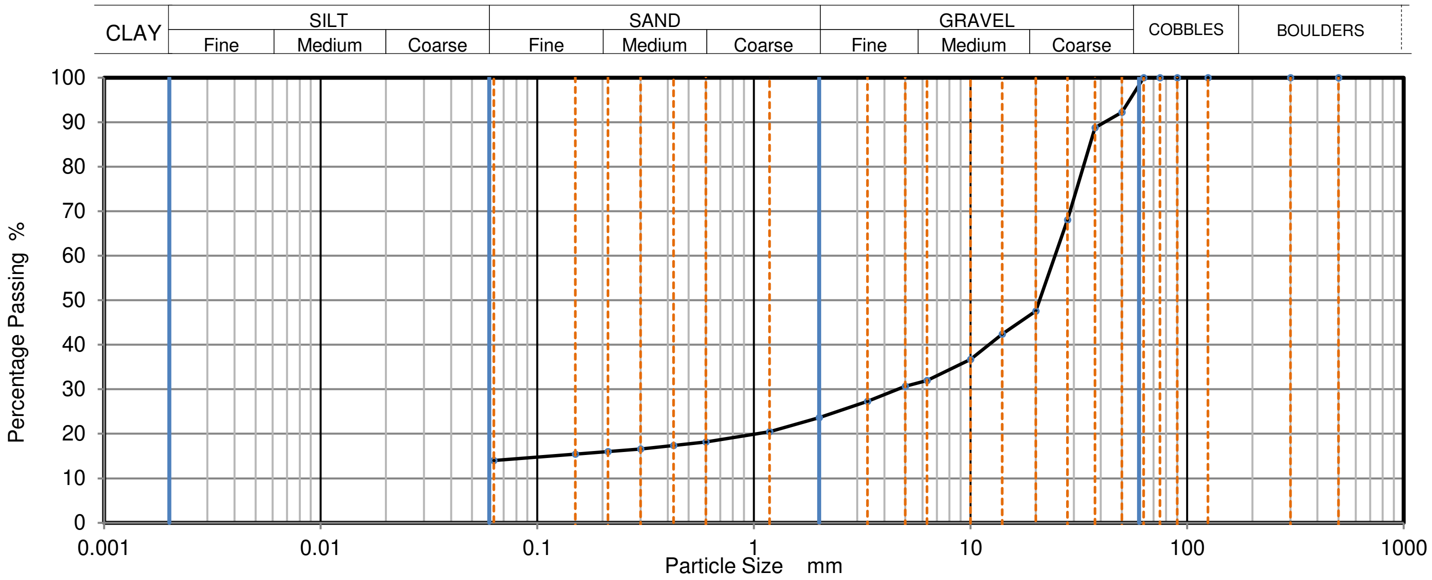
Tested in Accordance with: BS 1377-2: 1990

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

Client:	Brownfield Solutions Ltd	Client Reference:	C4315
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP	Job Number:	19-74429
		Date Sampled:	Not Given
		Date Received:	25/11/2019
Contact:	Samantha Murray	Date Tested:	03/12/2019
Site Name:	Newhey	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1375324	Depth Top [m]:	0.60
Hole No.:	TP132	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown slightly sandy clayey GRAVEL		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	89		
28	68		
20	48		
14	42		
10	37		
6.3	32		
5	31		
3.35	27		
2	24		
1.18	21		
0.6	18		
0.425	17		
0.3	17		
0.212	16		
0.15	15		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	76.40
Sand	9.10
Fines <0.063mm	14.50

Grading Analysis		
D100	mm	63
D60	mm	24.5
D30	mm	4.61
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Environmental Science

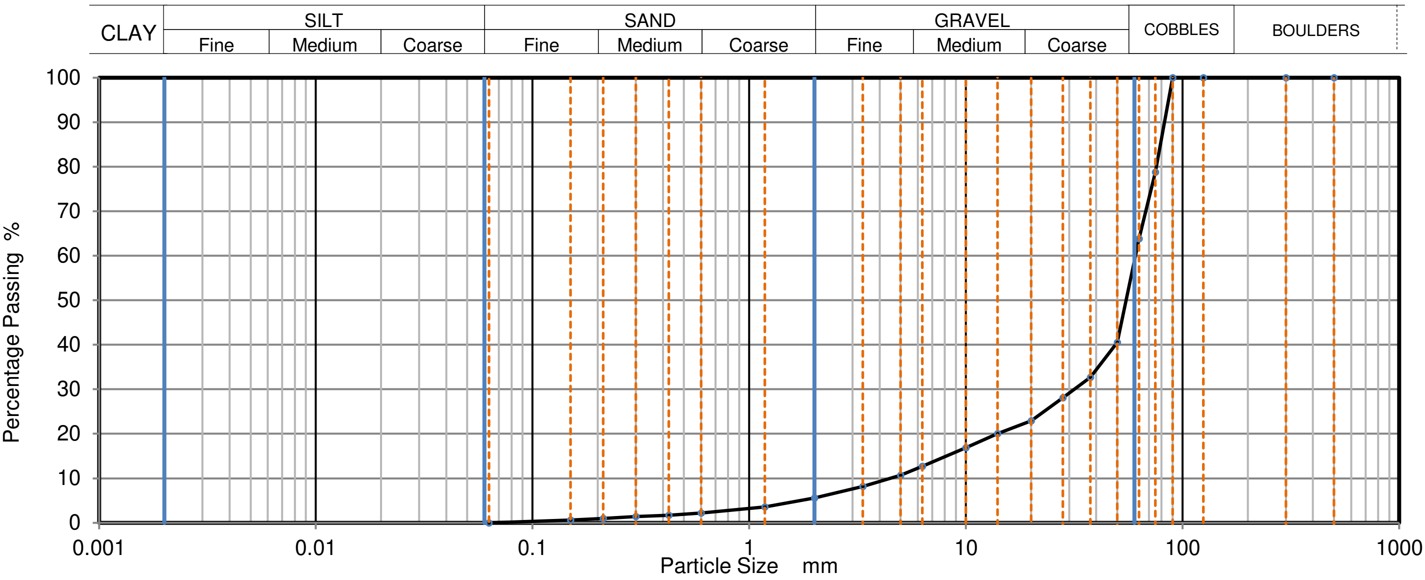
Client:	Brownfield Solutions Ltd
Client Address:	William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP
Contact:	Samantha Murray
Site Name:	Newhey
Site Address:	Not Given

Client Reference:	C4315
Job Number:	19-74429
Date Sampled:	Not Given
Date Received:	25/11/2019
Date Tested:	07/12/2019
Sampled By:	Not Given

Test Results:

Laboratory Reference:	1375325
Hole No.:	TP136
Sample Reference:	Not Given
Sample Description:	Orangish brown slightly sandy BRICKS

Depth Top [m]:	0.60
Depth Base [m]:	Not Given
Sample Type:	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	79		
63	64		
50	41		
37.5	33		
28	28		
20	23		
14	20		
10	17		
6.3	13		
5	11		
3.35	8		
2	6		
1.18	4		
0.6	2		
0.425	2		
0.3	1		
0.212	1		
0.15	1		
0.063	0		

Sample Proportions	% dry mass
Very coarse	36.20
Gravel	58.10
Sand	5.50
Fines <0.063mm	0.20

Grading Analysis		
D100	mm	90
D60	mm	60.7
D30	mm	31.7
D10	mm	4.48
Uniformity Coefficient		14
Curvature Coefficient		3.7

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

UKAS TESTING 4041

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Client: Brownfield Solutions Ltd

Client Address:
William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

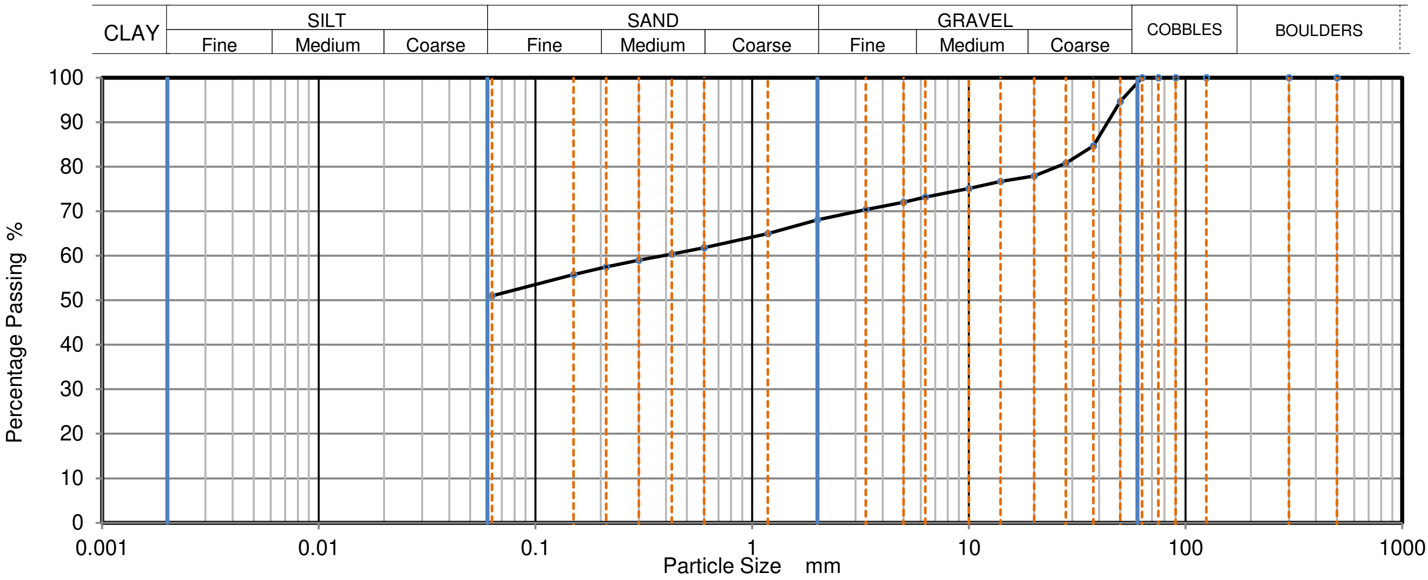
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74429
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 07/12/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1375326
Hole No.: TP146
Sample Reference: Not Given
Sample Description: Brown sandy very gravelly CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Sieving

Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	100
50	95
37.5	85
28	81
20	78
14	77
10	75
6.3	73
5	72
3.35	70
2	68
1.18	65
0.6	62
0.425	60
0.3	59
0.212	58
0.15	56
0.063	52

Sedimentation

Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	31.90
Sand	16.60
Fines <0.063mm	51.50

Grading Analysis		
D100	mm	63
D60	mm	0.387
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 07/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375327

Hole No.: TP144

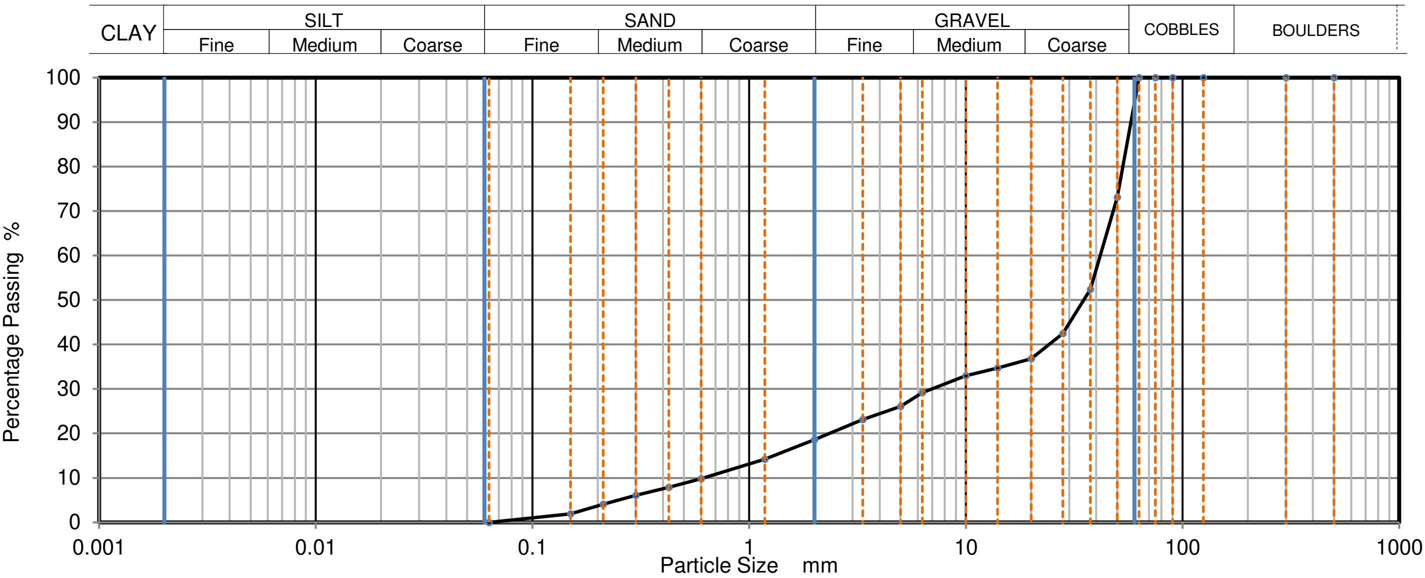
Sample Reference: Not Given

Sample Description: Brown sandy GRAVEL

Depth Top [m]: 1.00

Depth Base [m]: Not Given

Sample Type: B



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	100
63	100
50	73
37.5	52
28	43
20	37
14	35
10	33
6.3	29
5	26
3.35	23
2	19
1.18	14
0.6	10
0.425	8
0.3	6
0.212	4
0.15	2
0.063	1

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	81.40
Sand	18.10
Fines <0.063mm	0.50

Grading Analysis		
D100	mm	63
D60	mm	41.7
D30	mm	6.96
D10	mm	0.62
Uniformity Coefficient		67
Curvature Coefficient		1.9

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

[redacted]

Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

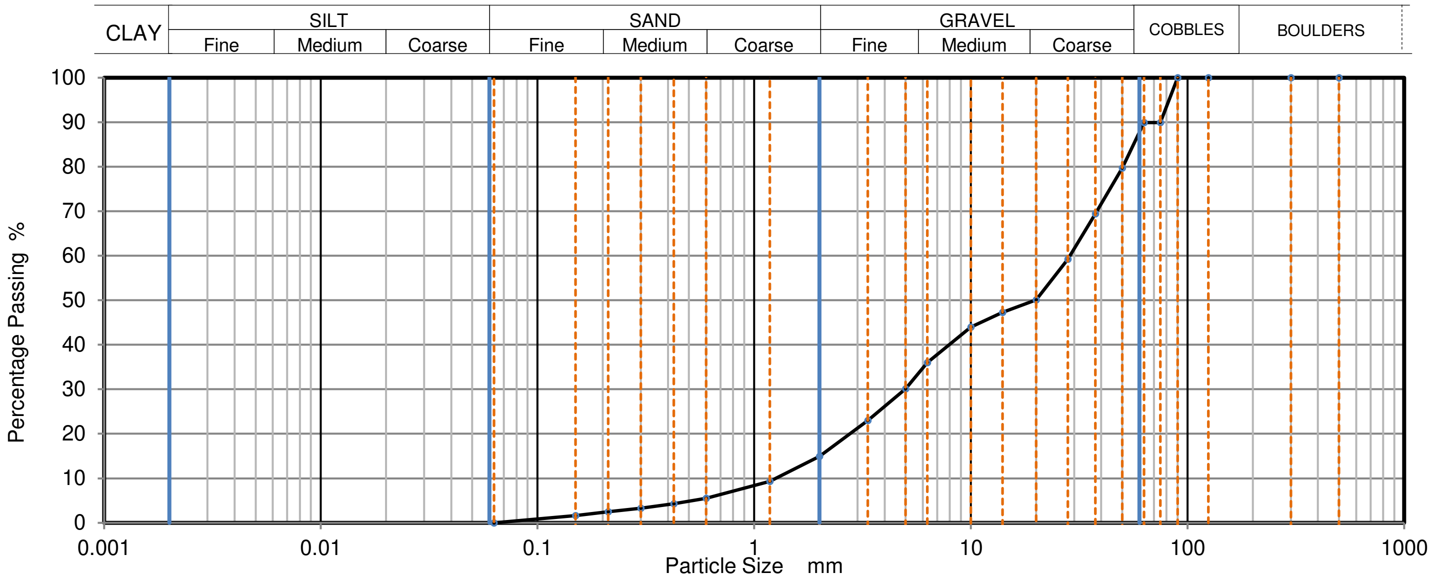
Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74429
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 07/12/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1375328
Hole No.: WS101
Sample Reference: Not Given
Sample Description: Brown slightly sandy very clayey GRAVEL with cobbles

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	100
75	90
63	90
50	80
37.5	69
28	59
20	50
14	47
10	44
6.3	36
5	30
3.35	23
2	15
1.18	9
0.6	6
0.425	4
0.3	3
0.212	3
0.15	2
0.063	1

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	10.10
Gravel	75.00
Sand	14.30
Fines <0.063mm	0.60

Grading Analysis		
D100	mm	90
D60	mm	28.6
D30	mm	4.99
D10	mm	1.26
Uniformity Coefficient		23
Curvature Coefficient		0.69

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

Environmental Science

Client: Brownfield Solutions Ltd

Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP

Contact: Samantha Murray

Site Name: Newhey

Site Address: Not Given

Client Reference: C4315

Job Number: 19-74429

Date Sampled: Not Given

Date Received: 25/11/2019

Date Tested: 07/12/2019

Sampled By: Not Given

Test Results:

Laboratory Reference: 1375329

Hole No.: WS104

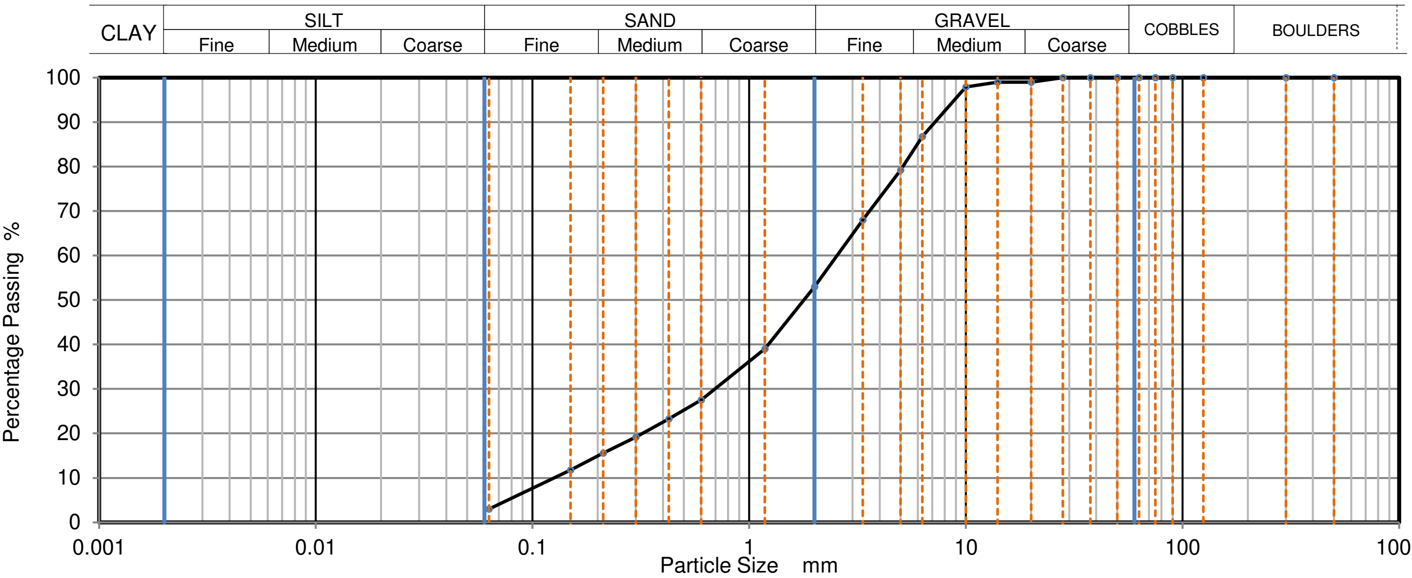
Sample Reference: Not Given

Sample Description: Brown slightly clayey very gravelly SAND

Depth Top [m]: 1.00

Depth Base [m]: 1.50

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	99		
10	98		
6.3	87		
5	79		
3.35	68		
2	53		
1.18	39		
0.6	28		
0.425	23		
0.3	19		
0.212	16		
0.15	12		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	47.00
Sand	49.40
Fines <0.063mm	3.60

Grading Analysis		
D100	mm	28
D60	mm	2.55
D30	mm	0.694
D10	mm	0.124
Uniformity Coefficient		21
Curvature Coefficient		1.5

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.3

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

[redacted]

Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

for and on behalf of i2 Analytical Ltd GF 100.13

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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

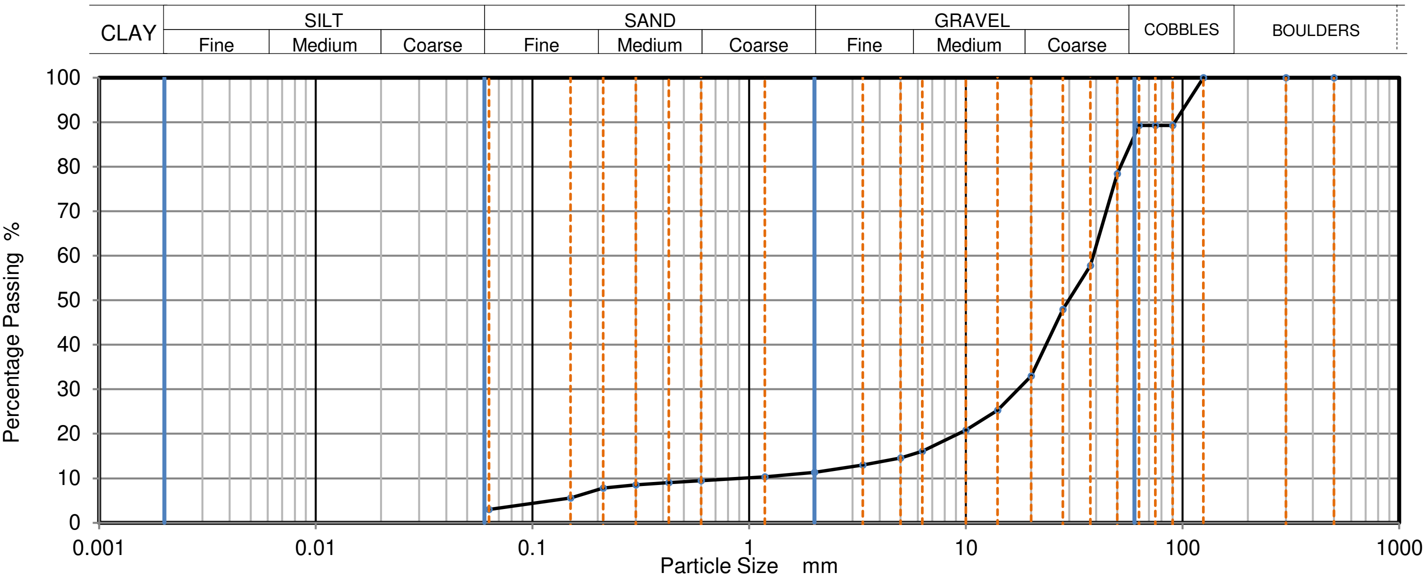
Client: Brownfield Solutions Ltd
Client Address: William Smith House, 173 - 183 Witton Street,
Northwich, Cheshire,
CW9 5LP
Contact: Samantha Murray
Site Name: Newhey
Site Address: Not Given

Client Reference: C4315
Job Number: 19-74429
Date Sampled: Not Given
Date Received: 25/11/2019
Date Tested: 03/12/2019
Sampled By: Not Given

Test Results:

Laboratory Reference: 1375330
Hole No.: WS103
Sample Reference: Not Given
Sample Description: Orangish brown slightly clayey slightly sandy GRAVEL with cobbles

Depth Top [m]: 1.50
Depth Base [m]: 2.00
Sample Type: B



Sieving	
Particle Size mm	% Passing
500	100
300	100
125	100
90	89
75	89
63	89
50	78
37.5	58
28	48
20	33
14	25
10	21
6.3	16
5	15
3.35	13
2	11
1.18	10
0.6	10
0.425	9
0.3	9
0.212	8
0.15	6
0.063	3

Sedimentation	
Particle Size mm	% Passing

Sample Proportions	% dry mass
Very coarse	10.70
Gravel	78.00
Sand	8.00
Fines <0.063mm	3.40

Grading Analysis		
D100	mm	125
D60	mm	38.7
D30	mm	17.4
D10	mm	0.923
Uniformity Coefficient		42
Curvature Coefficient		8.5

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 10/12/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd GF 100.13

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 20-82831

Project / Site name:	Newhey	**Samples received on:**	23/01/2020
Your job number:	C4315	**Samples instructed on:**	23/01/2020
Your order number:		**Analysis completed by:**	28/01/2020
Report Issue Number:	1	**Report issued on:**	28/01/2020
Samples Analysed:	2 soil samples		

Signed: [redacted]

Karolina Marek
Technical Reviewer (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

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

Analytical Report Number: 20-82831

Project / Site name: Newhey

Lab Sample Number				1421023	1421024			
Sample Reference				TP150	TP106			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.05	1.50			
Date Sampled				Deviating	Deviating			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	7.3	4.2			
Total mass of sample received	kg	0.001	NONE	0.78	0.60			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	6.8			
Total Sulphate as SO$_4$	%	0.005	MCERTS	0.043	0.069			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.035	0.25			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	34.6	251			
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.2	1.7			
Total Sulphur	%	0.005	MCERTS	0.063	0.031			
Ammonium as NH$_4$	mg/kg	0.5	MCERTS	< 0.5	< 0.5			
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05			
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0			

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	30	58			
Magnesium (leachate equivalent)	mg/l	2.5	NONE	15	29			

Analytical Report Number : 20-82831

Project / Site name: Newhey

* 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 *
1421023	TP150	None Supplied	0.05	Brown clay with gravel.
1421024	TP106	None Supplied	1.50	Brown loam and clay with gravel.

Analytical Report Number : 20-82831

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	L082-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
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	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
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
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-72297

Replaces Analytical Report Number : 19-72297, issue no. 1

Project / Site name:	Newhey	**Samples received on:**	15/11/2019
Your job number:	C4315	**Samples instructed on:**	15/11/2019
Your order number:	C4315-440-SM	**Analysis completed by:**	31/12/2019
Report Issue Number:	2	**Report issued on:**	31/12/2019
Samples Analysed:	1 soil sample		

Signed: [redacted]

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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Analytical Report Number: 19-72297

Project / Site name: Newhey
Your Order No: C4315-440-SM

Lab Sample Number				1364462				
Sample Reference				TP104				
Sample Number				None Supplied				
Depth (m)				0.85				
Date Sampled				04/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	19				
Total mass of sample received	kg	0.001	NONE	0.57				

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.0				
Total Sulphate as SO$_4$	%	0.005	MCERTS	0.044				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.7				
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.6				
Total Sulphur	%	0.005	MCERTS	0.026				
Ammonium as NH$_4$	mg/kg	0.5	MCERTS	< 0.5				
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05				
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0				

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	10				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.1				

Analytical Report Number : 19-72297

Project / Site name: Newhey

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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 *
1364462	TP104	None Supplied	0.85	Grey clay with gravel and vegetation.

Analytical Report Number : 19-72297

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
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	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Samantha Murray
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: s.murray@brownfield-solutions.co.uk

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

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

Analytical Report Number : 19-73910

Replaces Analytical Report Number : 19-73910, issue no. 2

Project / Site name:	Newhey	**Samples received on:**	26/11/2019
Your job number:	C4315	**Samples instructed on:**	26/11/2019
Your order number:	C4315-479-SM	**Analysis completed by:**	31/12/2019
Report Issue Number:	3	**Report issued on:**	31/12/2019
Samples Analysed:	6 soil samples		

Signed: [redacted]

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	23	12	12	21	7.6
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	0.76
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	4.3	5.1	4.8	5.8	7.7
Total Sulphate as SO_4	%	0.005	MCERTS	0.079	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	74	63	59	120	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.037	0.032	0.030	0.059	0.017
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	36.9	31.6	29.7	59.1	-
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	14	-	-	-	-
Total Sulphur	%	0.005	MCERTS	0.061	-	-	-	-
Ammonium as NH_4	mg/kg	0.5	MCERTS	< 0.5	-	-	-	-
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	-	-	-	-
Organic Matter	%	0.1	MCERTS	3.4	2.1	1.0	2.0	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-	-	-	-

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	6.8	7.1	7.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	-
Chromium (III)	mg/kg	1	NONE	27	23	29	30	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	23	30	30	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	15	25	18	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	19	14	20	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	15	27	18	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	70	69	68	-
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	-	-	-	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	-	-	-	-

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372677	1372678	1372679	1372680	1372681
Sample Reference				WS105	WS101	WS103	WS107	TP141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.60	0.50	0.50
Date Sampled				21/11/2019	21/11/2019	21/11/2019	21/11/2019	06/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-				
Moisture Content	%	N/A	NONE	-				
Total mass of sample received	kg	0.001	NONE	-				

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-				
Total Sulphate as SO_4	%	0.005	MCERTS	-				
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-				
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-				
Total Sulphur	%	0.005	MCERTS	-				
Ammonium as NH_4	mg/kg	0.5	MCERTS	-				
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-				
Organic Matter	%	0.1	MCERTS	-				
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-				

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-				
Acenaphthylene	mg/kg	0.05	MCERTS	-				
Acenaphthene	mg/kg	0.05	MCERTS	-				
Fluorene	mg/kg	0.05	MCERTS	-				
Phenanthrene	mg/kg	0.05	MCERTS	-				
Anthracene	mg/kg	0.05	MCERTS	-				
Fluoranthene	mg/kg	0.05	MCERTS	-				
Pyrene	mg/kg	0.05	MCERTS	-				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-				
Chrysene	mg/kg	0.05	MCERTS	-				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-				
Chromium (III)	mg/kg	1	NONE	-				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-				
Magnesium (water soluble)	mg/kg	5	NONE	-				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-				

Analytical Report Number: 19-73910

Project / Site name: Newhey
Your Order No: C4315-479-SM

Lab Sample Number				1372682				
Sample Reference				TP120				
Sample Number				None Supplied				
Depth (m)				0.30				
Date Sampled				05/11/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-				
Toluene	µg/kg	1	MCERTS	-				
Ethylbenzene	µg/kg	1	MCERTS	-				
p & m-xylene	µg/kg	1	MCERTS	-				
o-xylene	µg/kg	1	MCERTS	-				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-				

Analytical Report Number : 19-73910

Project / Site name: Newhey

* 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 *
1372677	WS105	None Supplied	0.40	Brown loam and clay with gravel and vegetation.
1372678	WS101	None Supplied	0.80	Brown loam with gravel and vegetation.
1372679	WS103	None Supplied	0.60	Brown loam with gravel and vegetation.
1372680	WS107	None Supplied	0.50	Brown loam with gravel and vegetation.
1372681	TP141	None Supplied	0.50	Grey clay with gravel and vegetation.
1372682	TP120	None Supplied	0.30	-

Analytical Report Number : 19-73910

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
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	L038-PL	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.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

Analytical Report Number : 19-73910

Project / Site name: Newhey

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

APPENDIX E

Waste Assessment Report

Waste Classification Report

L2JQN-4HY9T-5CQT4

Job name

Newhey Quarry, Rochdale

Description/Comments

Project

C4315

Site

Newhey Quarry, Rochdale

Related Documents

#	Name	Description
None		

Waste Stream Template

BSL Suite

Classified by

Name:
Nicola Swallow
Date:
18 Dec 2019 16:29 GMT
Telephone:
01606 334 844

Company:
Brownfield Solutions Ltd
William Smith House
173 – 183 Witton Street
Northwich
CW9 5LP

Report

Created by: Nicola Swallow
Created date: 18 Dec 2019 16:29 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS105	0.40	Non Hazardous		3
2	WS101	0.80	Non Hazardous		5
3	WS103	0.60	Non Hazardous		7
4	WS107	0.50	Non Hazardous		9
5	TP141	0.50	Non Hazardous		11
6	TP120	0.30	Non Hazardous		12
7	TP102	0.15	Non Hazardous		13
8	TP102[2]	0.30	Non Hazardous		15
9	TP104	0.30	Non Hazardous		16
10	TP105	1.00	Non Hazardous		18
11	TP105[2]	1.50	Non Hazardous		21
12	TP110	1.00	Non Hazardous		22

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
13	TP111	0.50	Non Hazardous		24
14	TP118	0.40	Non Hazardous		26
15	TP119	0.40	Non Hazardous		28
16	TP122	0.40	Non Hazardous		29
17	TP122[2]	1.30	Non Hazardous		31
18	TP126	1.00	Non Hazardous		32
19	TP127	1.00	Non Hazardous		34
20	TP128	0.20	Non Hazardous		36
21	TP129	0.60	Non Hazardous		38
22	TP131	1.00	Non Hazardous		40
23	TP132	0.60	Non Hazardous		42
24	TP133	0.80	Non Hazardous		44
25	TP134	0.40	Non Hazardous		45
26	TP134[2]	0.80	Non Hazardous		47
27	TP135	0.20	Non Hazardous		49
28	TP136	0.50	Non Hazardous		51
29	TP142	0.05	Non Hazardous		52
30	TP144	0.30	Non Hazardous		54
31	TP145	0.15	Non Hazardous		56
32	TP148	0.50	Non Hazardous		58
33	TP151	0.10	Non Hazardous		60
34	TP104[2]	0.85	Non Hazardous		62

Classification of sample: WS105

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

Sample details

Sample Name:		LoW Code:	
WS105		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.40 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
23% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 23% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				4.3	pH		4.3	pH	4.3 pH		
				PH									
2		arsenic { arsenic trioxide }				8.2	mg/kg	1.32	8.337	mg/kg	0.000834 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				27	mg/kg	1.462	30.386	mg/kg	0.00304 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	19.073	mg/kg	0.00191 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	32	mg/kg	1.56	38.434	mg/kg	0.00246 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				16	mg/kg	1.579	19.459	mg/kg	0.00195 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
11		zinc { zinc chromate }				51	mg/kg	2.774	108.941	mg/kg	0.0109 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2							
28		benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
29		toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
30	●	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
31		xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0221 %		

Key

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

Classification of sample: WS101

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

Sample details

Sample Name:		LoW Code:	
WS101		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.80 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				5.1	pH		5.1	pH	5.1 pH		
				PH									
2		arsenic { arsenic trioxide }				6.8	mg/kg	1.32	7.901	mg/kg	0.00079 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				23	mg/kg	1.462	29.582	mg/kg	0.00296 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	14.862	mg/kg	0.00149 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	19	mg/kg	1.56	26.08	mg/kg	0.00167 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				15	mg/kg	1.579	20.849	mg/kg	0.00208 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
11		zinc { zinc chromate }				70	mg/kg	2.774	170.887	mg/kg	0.0171 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene									
			201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
15	●	fluorene									
			201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene									
			201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
17	●	anthracene									
			204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene									
			205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
19	●	pyrene									
			204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene									
		601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
21		chrysene									
		601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene									
		601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene									
		601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene									
		601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene									
			205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene									
		601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene									
			205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
								Total:	0.0267 %		

Key

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

Classification of sample: WS103

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

Sample details

Sample Name:		LoW Code:	
WS103		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.60 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH											
				PH		4.8	pH		4.8	pH	4.8 pH		
2		arsenic { arsenic trioxide }											
		033-003-00-0	215-481-4	1327-53-3		7.1	mg/kg	1.32	8.249	mg/kg	0.000825 %	✓	
3		cadmium { cadmium sulfide }											
		048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }											
		024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }											
			215-160-9	1308-38-9		29	mg/kg	1.462	37.299	mg/kg	0.00373 %	✓	
6		copper { dicopper oxide; copper (I) oxide }											
		029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	24.77	mg/kg	0.00248 %	✓	
7		lead { lead chromate }											
		082-004-00-2	231-846-0	7758-97-6	1	14	mg/kg	1.56	19.217	mg/kg	0.00123 %	✓	
8		mercury { mercury dichloride }											
		080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }											
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		27	mg/kg	1.579	37.529	mg/kg	0.00375 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }											
		034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }											
		024-007-00-3				69	mg/kg	2.774	168.446	mg/kg	0.0168 %	✓	
12		naphthalene											
		601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene											
			205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene											
			201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
15	●	fluorene											
			201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene											
			201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
17	●	anthracene											
			204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene											
			205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19	●	pyrene											
			204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene											
		601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		chrysene											
		601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene											
		601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene											
		601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene											
		601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene											
			205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene											
		601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene											
			205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
										Total:	0.0295 %		

Key

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

Classification of sample: WS107

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

Sample details

Sample Name:		LoW Code:	
WS107		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m			
Moisture content:			
21% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 21% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH		PH		5.8	pH		5.8	pH	5.8 pH		
2		arsenic { arsenic trioxide } 033-003-00-0	215-481-4	1327-53-3		7.5	mg/kg	1.32	7.823	mg/kg	0.000782 %	✓	
3		cadmium { cadmium sulfide } 048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }	215-160-9	1308-38-9		30	mg/kg	1.462	34.639	mg/kg	0.00346 %	✓	
6		copper { dicopper oxide; copper (I) oxide } 029-002-00-X	215-270-7	1317-39-1		18	mg/kg	1.126	16.01	mg/kg	0.0016 %	✓	
7		lead { lead chromate } 082-004-00-2	231-846-0	7758-97-6	1	20	mg/kg	1.56	24.645	mg/kg	0.00158 %	✓	
8		mercury { mercury dichloride } 080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide } 028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		18	mg/kg	1.579	22.46	mg/kg	0.00225 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } 034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate } 024-007-00-3				68	mg/kg	2.774	149.027	mg/kg	0.0149 %	✓	
12		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2							
								Total:	0.0252 %		

Key

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

Classification of sample: TP141

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

Sample details

Sample Name:		LoW Code:	
TP141		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.50 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP120

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

Sample details

Sample Name:		LoW Code:	
TP120		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.30 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP102

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

Sample details

Sample Name:		LoW Code:	
TP102		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.15 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
19% (wet weight correction)			

Hazard properties

None identified

Determinands

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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH		PH		6.9	pH		6.9	pH	6.9 pH		
2		arsenic { arsenic trioxide } 033-003-00-0	215-481-4	1327-53-3		7.7	mg/kg	1.32	8.235	mg/kg	0.000823 %	✓	
3		cadmium { cadmium sulfide } 048-010-00-4	215-147-8	1306-23-6	1	0.2	mg/kg	1.285	0.208	mg/kg	0.0000162 %	✓	
4		chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
5		chromium in chromium(III) compounds { ● chromium(III) oxide }	215-160-9	1308-38-9		35	mg/kg	1.462	41.435	mg/kg	0.00414 %	✓	
6		copper { dicopper oxide; copper (I) oxide } 029-002-00-X	215-270-7	1317-39-1		28	mg/kg	1.126	25.535	mg/kg	0.00255 %	✓	
7		lead { lead chromate } 082-004-00-2	231-846-0	7758-97-6	1	46	mg/kg	1.56	58.119	mg/kg	0.00373 %	✓	
8		mercury { mercury dichloride } 080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
9		nickel { nickel dihydroxide } 028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		43	mg/kg	1.579	55.014	mg/kg	0.0055 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } 034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11		zinc { zinc chromate } 024-007-00-3				98	mg/kg	2.774	220.212	mg/kg	0.022 %	✓	
12		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	●	acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2									
28	●	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
				TPH									
29		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
30		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
31	●	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
32		xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
										Total:	0.0408 %		

Key

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

Classification of sample: TP102[2]

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

Sample details

Sample Name:		LoW Code:	
TP102[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.30 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
13% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP104

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

Sample details

Sample Name:
TP104
Sample Depth:
0.30 m
Moisture content:
14%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		6.5	pH		6.5	pH	6.5 pH		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9	mg/kg	1.32	10.219	mg/kg	0.00102 %	✓	
3		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		35	mg/kg	1.462	43.993	mg/kg	0.0044 %	✓	
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33	mg/kg	1.126	31.953	mg/kg	0.0032 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	23	mg/kg	1.56	30.853	mg/kg	0.00198 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		42	mg/kg	1.579	57.052	mg/kg	0.00571 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3				96	mg/kg	2.774	229.034	mg/kg	0.0229 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene									
			201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
15	●	fluorene									
			201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene									
			201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
17	●	anthracene									
			204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene									
			205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
19	●	pyrene									
			204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene									
		601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
21		chrysene									
		601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene									
		601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene									
		601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene									
		601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene									
			205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene									
		601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene									
			205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
								Total:	0.0398 %		

Key

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

Classification of sample: TP105

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

Sample details

Sample Name:		LoW Code:	
TP105		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.00 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				6.7	pH		6.7	pH	6.7 pH		
				PH									
2		arsenic { arsenic trioxide }				48	mg/kg	1.32	55.771	mg/kg	0.00558 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				30	mg/kg	1.462	38.585	mg/kg	0.00386 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				95	mg/kg	1.126	94.124	mg/kg	0.00941 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	16	mg/kg	1.56	21.962	mg/kg	0.00141 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				49	mg/kg	1.579	68.108	mg/kg	0.00681 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
11		zinc { zinc chromate }				95	mg/kg	2.774	231.919	mg/kg	0.0232 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene 	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
15	●	fluorene 	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	●	phenanthrene 	201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	●	anthracene 	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
18	●	fluoranthene 	205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	●	pyrene 	204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
21		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
24		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	●	indeno[123-cd]pyrene 	205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
26		dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	●	benzo[ghi]perylene 	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	●	TPH (C6 to C40) petroleum group 		TPH		140 mg/kg		123.2 mg/kg	0.0123 %	✓	
29		benzene 601-020-00-8	200-753-7	71-43-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
30		toluene 601-021-00-3	203-625-9	108-88-3		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
31	●	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
32		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
								Total:	0.0636 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because With regards to petroleum hydrocarbons, based upon carbon banding of the TPH, the findings of the investigation and the way the petroleum hydrocarbons are distributed within the soil, it is likely that the potential for the soil being hazardous on account of HP3i can be all but discounted. However, this can be confirmed only by subjecting the material flash-point testing. It would be reasonable to assume that the result would indicate that the soil would be non-hazardous as a result of the TPH content, the absence of free draining liquid and the relatively low concentrations of short-chain hydrocarbons reported.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0123%)

Classification of sample: TP105[2]

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

Sample details

Sample Name:		LoW Code:	
TP105[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.50 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP110

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

Sample details

Sample Name:		LoW Code:	
TP110		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.00 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
13% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
1	pH			PH		6.9	pH		6.9	pH	6.9 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.6	mg/kg	1.32	9.879	mg/kg	0.000988 %	✓	
3	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		29	mg/kg	1.462	36.875	mg/kg	0.00369 %	✓	
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		35	mg/kg	1.126	34.283	mg/kg	0.00343 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17	mg/kg	1.56	23.07	mg/kg	0.00148 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
9	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		31	mg/kg	1.579	42.599	mg/kg	0.00426 %	✓	
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11	zinc { zinc chromate }	024-007-00-3				89	mg/kg	2.774	214.802	mg/kg	0.0215 %	✓	
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2							
28		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0.0359 %		

Key

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

Classification of sample: TP111

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

Sample details

Sample Name:		LoW Code:	
TP111		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.50 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		pH				6.7	pH		6.7	pH	6.7 pH		
				PH									
2		arsenic { arsenic trioxide }				9.9	mg/kg	1.32	11.503	mg/kg	0.00115 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { chromium(III) oxide }				34	mg/kg	1.462	43.73	mg/kg	0.00437 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				30	mg/kg	1.126	29.723	mg/kg	0.00297 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	25	mg/kg	1.56	34.316	mg/kg	0.0022 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				43	mg/kg	1.579	59.768	mg/kg	0.00598 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
11		zinc { zinc chromate }				94	mg/kg	2.774	229.477	mg/kg	0.0229 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2									
28		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0402 %		

Key

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

Classification of sample: TP118

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

Sample details

Sample Name:		LoW Code:	
TP118		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.40 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
13% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				6.9	pH		6.9	pH	6.9 pH		
				PH									
2		arsenic { arsenic trioxide }				8.9	mg/kg	1.32	10.223	mg/kg	0.00102 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				32	mg/kg	1.462	40.69	mg/kg	0.00407 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				25	mg/kg	1.126	24.488	mg/kg	0.00245 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	20	mg/kg	1.56	27.141	mg/kg	0.00174 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				39	mg/kg	1.579	53.592	mg/kg	0.00536 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
11		zinc { zinc chromate }				87	mg/kg	2.774	209.975	mg/kg	0.021 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0363 %		

Key

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

Classification of sample: TP119

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

Sample details

Sample Name:		LoW Code:	
TP119		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.40 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP122

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

Sample details

Sample Name:		LoW Code:	
TP122		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.40 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
4.4% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 4.4% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		7.2	pH		7.2	pH	7.2 pH		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.9	mg/kg	1.32	9.972	mg/kg	0.000997 %	✓	
3		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		35	mg/kg	1.462	48.904	mg/kg	0.00489 %	✓	
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26	mg/kg	1.126	27.985	mg/kg	0.0028 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12	mg/kg	1.56	17.894	mg/kg	0.00115 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		38	mg/kg	1.579	57.38	mg/kg	0.00574 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3				92	mg/kg	2.774	243.992	mg/kg	0.0244 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
15	●	fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
17	●	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19	●	pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
											Total:	0.0406 %		

Key

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

Classification of sample: TP122[2]

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

Sample details

Sample Name:	LoW Code:	
TP122[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
1.30 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand CLP index number	 EC Number	 CAS Number	CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP126

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

Sample details

Sample Name:		LoW Code:	
TP126		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.00 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
5.4% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 5.4% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
2		arsenic { arsenic trioxide }				7.4	mg/kg	1.32	9.243	mg/kg	0.000924 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				34	mg/kg	1.462	47.009	mg/kg	0.0047 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				29	mg/kg	1.126	30.888	mg/kg	0.00309 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	11	mg/kg	1.56	16.231	mg/kg	0.00104 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				34	mg/kg	1.579	50.803	mg/kg	0.00508 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
11		zinc { zinc chromate }				85	mg/kg	2.774	223.069	mg/kg	0.0223 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
15	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
17	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
19	●	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
21		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
									Total:	0.0378 %		

Key

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

Classification of sample: TP127

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

Sample details

Sample Name:
TP127
Sample Depth:
1.00 m
Moisture content:
8.6%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 8.6% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
1	●	pH			PH		7.3	pH		7.3	pH	7.3 pH		
2	⚛	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.6	mg/kg	1.32	9.172	mg/kg	0.000917 %	✓	
3	⚛	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
4	⚛	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
5	⚛	chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		34	mg/kg	1.462	45.419	mg/kg	0.00454 %	✓	
6	⚛	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24	mg/kg	1.126	24.697	mg/kg	0.00247 %	✓	
7	⚛	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	22	mg/kg	1.56	31.365	mg/kg	0.00201 %	✓	
8	⚛	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
9	⚛	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		40	mg/kg	1.579	57.747	mg/kg	0.00577 %	✓	
10	⚛	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11	⚛	zinc { zinc chromate }	024-007-00-3				95	mg/kg	2.774	240.879	mg/kg	0.0241 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0404 %		

Key

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

Classification of sample: TP128

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

Sample details

Sample Name:		LoW Code:	
TP128		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.20 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
1	●	pH			PH		6.8	pH		6.8	pH	6.8 pH		
2	⚛	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.8	mg/kg	1.32	10.225	mg/kg	0.00102 %	✓	
3	⚛	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
4	⚛	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
5	⚛	chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		31	mg/kg	1.462	39.871	mg/kg	0.00399 %	✓	
6	⚛	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28	mg/kg	1.126	27.742	mg/kg	0.00277 %	✓	
7	⚛	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	21	mg/kg	1.56	28.825	mg/kg	0.00185 %	✓	
8	⚛	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
9	⚛	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		39	mg/kg	1.579	54.208	mg/kg	0.00542 %	✓	
10	⚛	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11	⚛	zinc { zinc chromate }	024-007-00-3				81	mg/kg	2.774	197.741	mg/kg	0.0198 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2							
28		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0.0355 %		

Key

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

Classification of sample: TP129

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

Sample details

Sample Name:	**TP129**	LoW Code:	
Sample Depth:	**0.60 m**	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	**4.4%** (wet weight correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 4.4% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		7.6	pH		7.6	pH	7.6 pH		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.2	mg/kg	1.32	6.564	mg/kg	0.000656 %	✓	
3		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		29	mg/kg	1.462	40.52	mg/kg	0.00405 %	✓	
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18	mg/kg	1.126	19.374	mg/kg	0.00194 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	9.8	mg/kg	1.56	14.614	mg/kg	0.000937 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		32	mg/kg	1.579	48.32	mg/kg	0.00483 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3				72	mg/kg	2.774	190.95	mg/kg	0.0191 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
15	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	●	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
18	●	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	●	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
21		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
									Total:	0.0321 %		

Key

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

Classification of sample: TP131

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

Sample details

Sample Name:		LoW Code:	
TP131		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
1.00 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
11% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
1	●	TPH (C6 to C40) petroleum group			TPH		58 mg/kg		51.62 mg/kg	0.00516 %	✓	
2		benzene	601-020-00-8	200-753-7	71-43-2		<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
4	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
6		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
									Total:	0.00556 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because With regards to petroleum hydrocarbons, based upon carbon banding of the TPH, the findings of the investigation and the way the petroleum hydrocarbons are distributed within the soil, it is likely that the potential for the soil being hazardous on account of HP3i can be all but discounted. However, this can be confirmed only by subjecting the material flash-point testing. It would be reasonable to assume that the result would indicate that the soil would be non-hazardous as a result of the TPH content, the absence of free draining liquid and the relatively low concentrations of short-chain hydrocarbons reported.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00516%)

Classification of sample: TP132

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

Sample details

Sample Name:		LoW Code:	
TP132		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.60 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
9.3% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 9.3% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				7.5	pH		7.5	pH	7.5 pH		
				PH									
2	⚛	arsenic { arsenic trioxide }				7.5	mg/kg	1.32	8.982	mg/kg	0.000898 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3	⚛	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
		048-010-00-4	215-147-8	1306-23-6									
4	⚛	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
		024-001-00-0	215-607-8	1333-82-0									
5	⚛	chromium in chromium(III) compounds { ● chromium(III) oxide }				34	mg/kg	1.462	45.071	mg/kg	0.00451 %	✓	
			215-160-9	1308-38-9									
6	⚛	copper { dicopper oxide; copper (I) oxide }				27	mg/kg	1.126	27.572	mg/kg	0.00276 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7	⚛	lead { lead chromate }			1	21	mg/kg	1.56	29.71	mg/kg	0.0019 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8	⚛	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
9	⚛	nickel { nickel dihydroxide }				47	mg/kg	1.579	67.332	mg/kg	0.00673 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	⚛	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		**<LOD**
		034-002-00-8											
11	⚛	zinc { zinc chromate }				97	mg/kg	2.774	244.067	mg/kg	0.0244 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28	●	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
29		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
30		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
31	●	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
32		xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
33		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0432 %		

Key

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

Classification of sample: TP133

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

Sample details

Sample Name: **TP133**	LoW Code:		
Sample Depth: **0.80 m**	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)	
Moisture content: **11%** (wet weight correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

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

Key

🟨 User supplied data

Classification of sample: TP134

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

Sample details

Sample Name:		LoW Code:	
TP134		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.40 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
12% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1	●	TPH (C6 to C40) petroleum group				160 mg/kg		140.8 mg/kg	0.0141 %	✓	
				TPH							
2		benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
3		toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4	●	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
5		xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0.0145 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because With regards to petroleum hydrocarbons, based upon carbon banding of the TPH, the findings of the investigation and the way the petroleum hydrocarbons are distributed within the soil, it is likely that the potential for the soil being hazardous on account of HP3i can be all but discounted. However, this can be confirmed only by subjecting the material flash-point testing. It would be reasonable to assume that the result would indicate that the soil would be non-hazardous as a result of the TPH content, the absence of free draining liquid and the relatively low concentrations of short-chain hydrocarbons reported.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0141%)

Classification of sample: TP134[2]

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

Sample details

Sample Name:		LoW Code:	
TP134[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.80 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
11% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
2		arsenic { arsenic trioxide }				12	mg/kg	1.32	14.101	mg/kg	0.00141 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				29	mg/kg	1.462	37.723	mg/kg	0.00377 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	26.053	mg/kg	0.00261 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	23	mg/kg	1.56	31.929	mg/kg	0.00205 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				38	mg/kg	1.579	53.419	mg/kg	0.00534 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
11		zinc { zinc chromate }				91	mg/kg	2.774	224.678	mg/kg	0.0225 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2							
								Total:	0.0383 %		

Key

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

Classification of sample: TP135

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

Sample details

Sample Name:		LoW Code:	
TP135		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.20 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
13% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
1	●	pH			PH		7.5	pH		7.5	pH	7.5 pH		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.8	mg/kg	1.32	7.811	mg/kg	0.000781 %	✓	
3		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		25	mg/kg	1.462	31.789	mg/kg	0.00318 %	✓	
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17	mg/kg	1.126	16.652	mg/kg	0.00167 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	18	mg/kg	1.56	24.427	mg/kg	0.00157 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		23	mg/kg	1.579	31.606	mg/kg	0.00316 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3				53	mg/kg	2.774	127.916	mg/kg	0.0128 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
15	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
17	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
19	●	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
21		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
28		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
									Total:	0.0238 %		

Key

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

Classification of sample: TP136

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

Sample details

Sample Name:		LoW Code:	
TP136		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.50 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		**ND**
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP142

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

Sample details

Sample Name:		LoW Code:	
TP142		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.05 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
9.9% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 9.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
2		arsenic { arsenic trioxide }				6.1	mg/kg	1.32	7.257	mg/kg	0.000726 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
		048-010-00-4	215-147-8	1306-23-6									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
5		chromium in chromium(III) compounds { ● chromium(III) oxide }				26	mg/kg	1.462	34.238	mg/kg	0.00342 %	✓	
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	20.289	mg/kg	0.00203 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	13	mg/kg	1.56	18.27	mg/kg	0.00117 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel dihydroxide }				28	mg/kg	1.579	39.848	mg/kg	0.00398 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
11		zinc { zinc chromate }				72	mg/kg	2.774	179.964	mg/kg	0.018 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
15	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
16	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8									
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7									
18	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0									
19	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2									
28		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.03 %		

Key

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

Classification of sample: TP144

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

Sample details

Sample Name:
TP144
Sample Depth:
0.30 m
Moisture content:
9.9%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH		PH		7.2	pH		7.2	pH	7.2 pH		
2		arsenic { arsenic trioxide }											
		033-003-00-0	215-481-4	1327-53-3		8.7	mg/kg	1.32	10.35	mg/kg	0.00103 %	✓	
3		cadmium { cadmium sulfide }											
		048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
4		chromium in chromium(VI) compounds { chromium(VI) oxide }											
		024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
5		chromium in chromium(III) compounds { ● chromium(III) oxide }											
			215-160-9	1308-38-9		36	mg/kg	1.462	47.407	mg/kg	0.00474 %	✓	
6		copper { dicopper oxide; copper (I) oxide }											
		029-002-00-X	215-270-7	1317-39-1		28	mg/kg	1.126	28.404	mg/kg	0.00284 %	✓	
7		lead { lead chromate }											
		082-004-00-2	231-846-0	7758-97-6	1	19	mg/kg	1.56	26.702	mg/kg	0.00171 %	✓	
8		mercury { mercury dichloride }											
		080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
9		nickel { nickel dihydroxide }											
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		47	mg/kg	1.579	66.887	mg/kg	0.00669 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }											
		034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		**<LOD**
11		zinc { zinc chromate }											
		024-007-00-3				91	mg/kg	2.774	227.455	mg/kg	0.0227 %	✓	
12		naphthalene											
		601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
13	●	acenaphthylene											
			205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
15	●	fluorene	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene	201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
17	●	anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene	205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19	●	pyrene	204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
28		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<			<		<		**ND**
										Total:	0.0404 %		

Key

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

Classification of sample: TP145

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

Sample details

Sample Name:		LoW Code:	
TP145		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.15 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
32% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 32% Wet Weight Moisture Correction applied (MC)

#		Determinand				CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
			CLP index number	EC Number	CAS Number									
1	●	pH			PH		6.7	pH		6.7	pH	6.7 pH		
2	⚛	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.7	mg/kg	1.32	6.015	mg/kg	0.000602 %	✓	
3	⚛	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.3	mg/kg	1.285	0.262	mg/kg	0.0000204 %	✓	
4	⚛	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<**LOD**
5	⚛	chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		30	mg/kg	1.462	29.816	mg/kg	0.00298 %	✓	
6	⚛	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	19.14	mg/kg	0.00191 %	✓	
7	⚛	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	33	mg/kg	1.56	35.002	mg/kg	0.00224 %	✓	
8	⚛	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
9	⚛	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		39	mg/kg	1.579	41.888	mg/kg	0.00419 %	✓	
10	⚛	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
11	⚛	zinc { zinc chromate }	024-007-00-3				120	mg/kg	2.774	226.37	mg/kg	0.0226 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
15	●	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	●	phenanthrene	201-581-5	85-01-8		0.44 mg/kg		0.299 mg/kg	0.0000299 %	✓	
17	●	anthracene	204-371-1	120-12-7		0.06 mg/kg		0.0408 mg/kg	0.00000408 %	✓	
18	●	fluoranthene	205-912-4	206-44-0		0.32 mg/kg		0.218 mg/kg	0.0000218 %	✓	
19	●	pyrene	204-927-3	129-00-0		0.29 mg/kg		0.197 mg/kg	0.0000197 %	✓	
20		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
21		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
23		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
24		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
26		dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	●	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<		<	<		ND
								Total:	0.0352 %		

Key

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

Classification of sample: TP148

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

Sample details

Sample Name:		LoW Code:	
TP148		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.50 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
8% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 8% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		7.3	pH		7.3	pH	7.3 pH		
2		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.9	mg/kg	1.32	7.167	mg/kg	0.000717 %	✓	
3		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
5		chromium in chromium(III) compounds { ● chromium(III) oxide }		215-160-9	1308-38-9		31	mg/kg	1.462	41.684	mg/kg	0.00417 %	✓	
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26	mg/kg	1.126	26.931	mg/kg	0.00269 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19	mg/kg	1.56	27.266	mg/kg	0.00175 %	✓	
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
9		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		41	mg/kg	1.579	59.579	mg/kg	0.00596 %	✓	
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
11		zinc { zinc chromate }	024-007-00-3				94	mg/kg	2.774	239.908	mg/kg	0.024 %	✓	
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
14	●	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							
15	●	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7							
16	●	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-581-5	85-01-8							
17	●	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-371-1	120-12-7							
18	●	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-912-4	206-44-0							
19	●	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			204-927-3	129-00-0							
20		benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-033-00-9	200-280-6	56-55-3							
21		chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9							
22		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-036-00-5	205-916-6	207-08-9							
24		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
25	●	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5							
26		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
27	●	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			205-883-8	191-24-2							
28		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0.0399 %		

Key

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

Classification of sample: TP151

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

Sample details

Sample Name:		LoW Code:	
TP151		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.10 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:			
16% (wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**		Conv. Factor	Compound conc.		**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1	●	pH				5.6	pH		5.6	pH	5.6 pH		
				PH									
2	⚛	arsenic { arsenic trioxide }				18	mg/kg	1.32	19.963	mg/kg	0.002 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
3	⚛	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
4	⚛	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5	⚛	chromium in chromium(III) compounds { ● chromium(III) oxide }				19	mg/kg	1.462	23.326	mg/kg	0.00233 %	✓	
			215-160-9	1308-38-9									
6	⚛	copper { dicopper oxide; copper (I) oxide }				16	mg/kg	1.126	15.132	mg/kg	0.00151 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
7	⚛	lead { lead chromate }			1	60	mg/kg	1.56	78.615	mg/kg	0.00504 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
8	⚛	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
9	⚛	nickel { nickel dihydroxide }				18	mg/kg	1.579	23.882	mg/kg	0.00239 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	⚛	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
11	⚛	zinc { zinc chromate }				59	mg/kg	2.774	137.487	mg/kg	0.0137 %	✓	
		024-007-00-3											
12		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene 	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
15	●	fluorene 	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16	●	phenanthrene 	201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
17	●	anthracene 	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
18	●	fluoranthene 	205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19	●	pyrene 	204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25	●	indeno[123-cd]pyrene 	205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
26		dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27	●	benzo[ghi]perylene 	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
										Total:	0.0276 %		

Key

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

Classification of sample: TP104[2]

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

Sample details

Sample Name:		LoW Code:	
TP104[2]		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:			
0.85 m		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	**User entered data**	Conv. Factor	Compound conc.	**Classification value**	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		asbestos				<		<	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							
								Total:	0%		

Key

🟨	User supplied data
▨	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Appendix A: Classifier defined and non CLP determinands

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

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

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

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

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

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead chromate}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on hazard statements

zinc {zinc chromate}

Worst case species based on hazard statements

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2019.344.4102.8212 (10 Dec 2019)
HazWasteOnline Database: 2019.344.4102.8212 (10 Dec 2019)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

North West

William Smith House
173 – 183 Witton Street
Northwich
Cheshire
CW9 5LP

Tel: 01606 334 844

Midlands

Unit 5, Alfred Court
Saxon Business Park
Stoke Prior
Bromsgrove
Worcestershire
B60 4AD

Tel: 01215 729014

www.brownfield-solutions.com