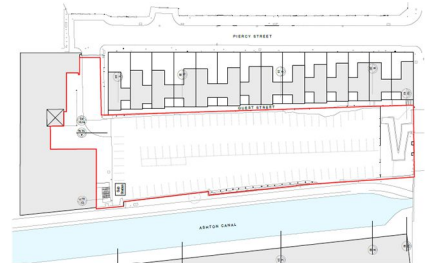


ENABLING WORKS VERIFICATION REPORT

For
STUBBS MEWS,



Prepared for
URBAN SPLASH CONSTRUCTION

Prepared By



LK Remediate
Eton Business Park
Eton Hill Road
Greater Manchester
M26 2ZS

Tel: 0161 763 7200
E: info@thelkgroup.com

DOCUMENT QUALITY ASSURANCE

Project Number:	LKR201005
LKR Project Name:	Stubbs Mews
LKR Document Title:	Enabling Works Verification Report
LKR Document Reference:	LKR201005VR
Revision:	0
Prepared By:	PD
Approved By:	DA

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1 Introduction

1.1 The Commission

LK Remediate Limited (LKR) were commissioned by Urban Splash Construction Ltd (the Client) to carry out site remediation and enabling works at the proposed Stubbs Mews, Piercy Street, New Islington, M4 6FN.

1.2 Site Description & Proposed Development

The site is approximately 2,500m² and centred on NGR 385590E 398460N. The site has been remediated to enable the development of residential housing at first floor level with ground level parking underneath. The site boundary, proposed layout and site investigation location plans are included in the Phase 2 site investigation & remediation strategy report (refer to Section 2).

1.3 Enabling Works Verification Report

The remediation strategy considered that no specific remediation was required with respect to the identified pollutant linkages and that an earthworks inspection/ watching brief for unexpected contamination was considered suitable. The scope of this verification report covers the 'pre-construction' enabling works phase.

The aim of this report is to demonstrate to the Local Authority (LA) that the site has been suitably remediated to the extent that construction works may commence and the site is suitable for use (subject to regulatory approval of the 'post- construction' remediation works).

2 Background

2.1 Previous Reports

The following reports have previously been issued and should be read in conjunction with this report:

- » Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: CL-602-LKC 18 1173-01[R1], dated July 2018).
- » Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy undertaken by LKC (Ref: CL-602-LKC 18 1173-02, dated December 2018).

2.2 Site Setting

The site history, site description and environmental setting are described in the desk study report, with pertinent information summarised below:

- » The site had been historically used for a foundry, chemical works, soap, oil and tallow works and sizing works from the earliest mapping in 1848. The surrounding area has been used for Mills, chemical works, engineering works and general works from the earliest mapping. The site was most recently used as a car park.
- » The site was identified as underlain by glacial till over Collyhurst Sandstone bedrock (Principal Aquifer). The nearest surface water is Ashton Canal, adjacent to the site.

The desk study report concludes that there is a low to moderate risk with respect to construction and future site users. The report recommended site investigation to assess potential pollutant linkages.

2.3 Ground Conditions

Geo-environmental site investigation was undertaken by LKC. Ground conditions encountered during the investigation are discussed within the site investigation report and summarised as follows:

- » Made ground was recorded from depths of 2.8-3.9mbgl and generally consisted of tarmacadam or concrete hardstanding underlain by gravelly clayey Sand with varying amounts of brick, concrete, ash, glass, metal and plastic.
- » Natural strata comprised soft to very stiff high strength variously gravelly, sandy Clay. Very dense Sand & Gravel was encountered at c.12m in one location. Superficial deposits were encountered to a maximum thickness of 14.9mbgl.
- » A slight hydrocarbon odour was noted in made ground in one location at 2.3-3.0mbgl. No odour was noted from underlying natural strata at 3.0mbgl.

Locally shallow groundwater was encountered in the site investigation which was considered perched within made ground and was at a lower elevation than the adjacent canal.

No elevated concentrations of contamination was encountered during the site investigation. Contaminated land risk was considered low and no specific remediation, other than earthworks watching brief, was recommended.

2.4 Additional Information

2.4.1 Soil Segregation Plan

To facilitate removal of surplus soils to an appropriate waste stream, a Soil Segregation Plan was produced which outlined sources of surplus material to be removed from site. The plan incorporated relevant findings of the site investigation report, soils descriptions, laboratory analysis, waste classification and management strategy.

The report was sent to waste hauliers for consideration prior to the start of material being removed from site. The objective was to ensure that surplus materials generated from site were adequately classified and managed to identify a suitable disposal route.

The waste segregation plan was implemented on site by the LKR remediation site manager.

2.4.2 Demolition Method Statement

A Demolition Method Statement (DMS) was completed prior to works on a small section of brick wall abutting the canal tow path. The DMS was supplied to the client to facilitate their required permitting scheme prior to works being undertaken. The DMS is not considered in this report.

2.4.3 H&S Risk Assessment & Method Statement

A CPP was produced to the satisfaction of the Client under CDM Regulations prior to the start of the enabling works. The CPP is not considered in this report.

3 Pre-Construction Phase Remediation & Enabling Works

3.1 Scope of Work

This verification report relates to 'pre-construction' remediation works.

The scope for the enabling and pre-construction remediation works are summarised below:

- » Breaking out and crushing hardstanding and relic foundations.
- » Earthworks including excavation of made ground to remove obstructions, cut/fill, re-engineering of soils.
- » Excavation, haulage, further assessment and management of potentially impacted materials.
- » Disposal of surplus or materials unsuitable for retention on site.
- » Maintain a watching brief for any previously unidentified or unexpected ground conditions or contamination.
- » Placement of made ground beneath site-generated and imported aggregate with trimming and compacting of surfaces to agreed levels and specifications.

Enabling works were undertaken under three mobilisations to site to fit within the client's programme of works as follows:

- » Mobilisation 1 – Temporary works design to include turnover/ grub out parallel to the canal and install temporary piling mat for new contiguous retaining wall.
- » Mobilisation 2 – Remove temporary piling mat and turnover/ grub out remaining area beneath building. Reduced level dig and placement of permanent piling mat.
- » Mobilisation 3 – Remove and dispose temporary supporting earth bund along Carruthers Street and reduce levels in remaining small area of site.

Photographs were taken throughout the enabling works, a selection is presented in Appendix A.

3.2 Supervision and Verification

The enabling and pre-construction remediation works were under full time supervision by a suitably qualified remediation site manager, with additional support and part time supervision by a geo-environmental engineer. The site personnel maintained a watching brief for any unusual ground conditions or visual or olfactory evidence of contamination during the enabling works.

Suitability for use, disposal or verification testing was undertaken by the LKR geo-environmental engineer as required.

3.3 Site Clearance & Waste Management

Waste material (including general site waste) was segregated into appropriate waste types and removed from site by registered waste carriers to suitably licenced facilities. Surplus soils/ aggregate were managed with recourse to the soil segregation plan and disposed to licensed facilities. Duty of Care records, including haulier and destination details can be supplied on request.

A small amount of asbestos cement was identified in a local area of the site. A specialist contractor was used to hand pick and dispose to a suitably licensed facility.

3.4 Watching Brief & Variations to the Remediation Strategy

A watching brief was maintained by a suitably qualified remediation site engineer during enabling works.

Small amounts of cemented asbestos were identified in one localised area of made ground. A specialist contractor was used to hand pick the ACM which was bagged and removed via suitable disposal route. No other unsuspected ground conditions were noted and no significant visual/ olfactory contamination was identified.

Some areas of soft made ground were encountered within the presence of perched groundwater, particularly during works undertaken adjacent to the canal as part of the initial mobilisation. Soft material was dosed with granulated lime (calcium oxide) at an approximate dose rate of 4-5% by weight.

3.5 Earthworks Segregation & Re-use

Excavations to remove relict obstructions were supervised by a remediation site manager and geo-environmental consultant. All areas of hardstanding, including buried floor slabs and walls, redundant drainage and historical foundations were broken out and excavated to stockpile.

Works adjacent to the canal (undertaken during Mobilisation 1) were done in a 'hit and miss' pattern to minimise risk to the canal tow path. Made ground was placed in layers (approximately 250mm thick) in accordance with the Client's design requirements, to reduced levels. Site generated aggregates were supplemented with imported 6F5 material to form the temporary piling mats along Carruthers Street and adjacent to the canal boundary as part of initial mobilisation works.

Mobilisation 2 was undertaken following completion of temporary works (contig pile retaining wall) and included scraping back of the temporary piling mat and grubbing out remaining accessible areas of the site. Aggregates were then used to form permanent piling mat beneath the footprint of the building and surplus material was disposed under duty of care.

Mobilisation 3 was following erection of steel works and retaining structures adjacent to Carruthers Street and comprised removal of temporary works supporting earth bund and grubbing out a remaining small area of site around electricity cable. Similarly, excess materials were disposed to suitable facilities under duty of care.

3.6 Control of Water

Localised areas of perched groundwater were encountered within relict substructures and at the interface between made ground and natural strata. During the enabling works, groundwater was controlled using pumps and grips in accordance with CIRIA Report 113¹.

¹ CIRIA (1986). "Control of Groundwater for Temporary Works" REP R113.

3.7 Assessment of Site Won Materials

3.7.1 Contamination

The site investigation deemed the soils on site as suitable for re-use within the proposed development. LKR undertook precautionary contamination testing on imported ('6F2 import') and site generated aggregates ('SWC01-03', 'CRV01', 'CRV03'). The watching brief did not encounter any ground conditions which were significantly different to those described in the site investigation.

Samples were scheduled for the following suites of testing:

- » Metals / metalloids, pH, water soluble sulphate, speciated PAHs, TPHCWG, BTEX, MTBE, SOM and asbestos screen (including identification and type, if present).

Results from chemical analysis are included in Appendix B. Results were all below human health assessment criteria for proposed end use criteria, indicating that site generated aggregates and imported aggregates is suitable for use.

Based on the testing undertaken as part of the site investigation, the findings of the watching brief, site soils and aggregates are considered suitable beneath hardstanding

3.7.2 Geotechnical

All imported aggregate was produced under WRAP protocols and information can be supplied on request. Grading certification was undertaken on site generated aggregate (CRV-01) included in Appendix C.

Plate Load Tests (PLTs) were undertaken on the surface of pile mats during Mobilisation 1 and 2. Fifteen tests were undertaken on installed mats by an independent UKAS accredited. Some tests indicated unsuitable settlement. These areas were excavated and re-compacted and re-tested to the satisfaction of the piling contractor and the client. All the testing certificates along with testing positions are included in Appendix C.

4 Conclusions

4.1 Pre-construction Remediation & Enabling Works

The proposed site enabling and pre-construction remediation works have been carried out in accordance with the Remediation Strategy for the site submitted to the Local Authority.

A watching brief was maintained throughout the enabling works by a suitably qualified remediation site manager and geo-environmental consultant. No unexpected ground conditions or significant visual or olfactory evidence of contamination was identified.

Surplus materials and general wastes were segregated based on material type and disposed via registered hauliers to an appropriate disposal facility under duty of care requirements. Material remaining on site was considered chemically suitable for the project. Geotechnical criteria of site generated and imported aggregates were tested and in-situ performance specifications have been confirmed as suitable based on information provided by the Client.

4.2 Build Phase Remediation & Verification

Build phase remediation works are not part of this report and should be undertaken in accordance with the agreed remediation strategy report. Although these are expected to be minimal due to the nature of the development, the scope of the build phase remedial works comprises:

- » Installation of the correct water pipe specification and confirmation of the use of first-generation trench backfill, as required.
- » Validation testing of imported subsoil, topsoil as required (note – none expected).

4.3 Recommendations for Construction Phase

4.3.1 Excavations & Control of Arisings

Groundworks should incorporate suitable material management. Excavations into made ground may yield arisings, whilst they may be considered to be suitable for use, may be deemed hazardous for disposal purposes. The groundworker should carefully segregate (and stockpile separately) aggregate, made ground, and clean natural soils, in order that an excessive volume of unsuitable material is not generated.

A geo-environmental consultant should be consulted and with their approval made ground arisings could be:

- » Redistributed beneath concrete, or areas of hardstanding, where they would be satisfactorily isolated from end users.
- » Exported from site to a suitably licensed landfill facility.

Whilst off-site disposal is not generally considered in line with current government philosophy regarding sustainable development, it may be the most practical solution if redistribution and retention on site is not feasible. Any material exported from site should be appropriately characterised and a suitable disposal route determined under duty of care requirements. Material removed from site should be hauled by a registered waste carrier under appropriate duty of care procedures.

Excavations should remain stable in the short term but if left open for any significant period of time may require shoring, most notably in granular made ground. Trench boxes/ shoring should be installed as soon as possible to minimise risk of sidewall collapse.

4.3.2 Control of Water

Based on observations during the remedial works and site investigation there is potential that groundwater flows may be encountered in shallow excavations. A system of surface water infiltration management (into trenches and stockpiles) should be implemented to minimise its impact during excavations and backfilling activities. Stockpiles should be sealed and prevailing weather conditions should be considered when undertaken certain aspects of groundwork.

Shallow groundwater may need to be controlled in line with current guidance.

Vehicle movements should be monitored and appropriate mitigation employed to minimise plant traffic on exposed areas of soil during excavations.

4.3.3 Health & Safety

Workers involved in excavations for foundations, drainage, utilities etc. are likely to come into direct contact with the made ground.

Although not identified during the site investigation, made ground on site may contain low concentrations of asbestos containing materials. Although workers will only be exposed to made ground for a relatively short time, simple precautionary measures, i.e., good personal hygiene and basic personnel protective equipment should be utilised.

In addition to the above, the atmosphere in shored trenches in excess of 1.2m should be monitored for oxygen and hazardous gas (methane & carbon dioxide), prior to personnel entering such excavations. Monitoring should continue whilst personnel are working in deep excavations.

4.4 Residual Risk

LK Remediate has identified and assessed the following residual risks remaining following enabling and remediation works.

4.4.1 Unidentified contamination

LKR excavated and screened all made ground to natural strata and no significant contamination was identified. The residual risk is therefore considered low. The site investigation did identify concentrations of hydrocarbons, albeit in what appears a very localised area. As part of any standard H&S requirements, groundworkers should undertake risk assessment and employ suitable precautions for the potential presence of asbestos in soils.

Appendix A – Photographic Record



Examples of 'hit & miss' grubbing out to natural soils along site boundary adjacent to canal during Mobilisation 1.



Example of grubbing out along canal side.



Example of grubbing out along canal side showing relict in-ground structures.



Localised hand picking of ACM by specialist.



Forming temporary works piling mat for contig pile retaining wall during Mobilisation 1.



Forming temporary works piling mat for contig pile retaining wall during Mobilisation 1.



Site generated aggregates from relict structures used to form pile mats.



Example of site generated aggregates.



Forming site levels for permanent piling mat during Mobilisation 2.



Trimming and compacting surfaces. Disposal of surplus materials.



Digging out and re-engineering soft spots.



Removal of small area of concrete and retaining soil 'berm' during Mobilisation 3.

Appendix B – Chemical Analysis Results



Final Report

Report No.: 20-25166-1

Initial Date of Issue: 24-Sep-2020

Client LK Consult

Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS

Contact(s): Dave Anderson
Dene Marland
Richard Clarke

Project LKR 20 1005 Stubb's Mews

Quotation No.: **Date Received:** 21-Sep-2020

Order No.: LKR 20 1005 **Date Instructed:** 21-Sep-2020

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 25-Sep-2020

Date Approved: 24-Sep-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKR 20 1005 Stubb's Mews

Client: LK Consult	Chemtest Job No.:				20-25166	20-25166
Quotation No.:	Chemtest Sample ID.:				1067176	1067177
	Client Sample ID.:				CRV-02	CRV-03
	Sample Type:				SOIL	SOIL
	Date Sampled:				18-Sep-2020	18-Sep-2020
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	Fibres/Clumps
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	Chrysotile
ACM Detection Stage	U	2192		N/A	-	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001		<0.001
Total Asbestos	U	2192	%	0.001		<0.001
Moisture	N	2030	%	0.020	8.7	9.8
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached
pH	M	2010		4.0	10.5	10.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.68	0.70
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.96	1.0
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	16	15
Cadmium	M	2450	mg/kg	0.10	0.84	0.93
Chromium	M	2450	mg/kg	1.0	25	27
Copper	M	2450	mg/kg	0.50	53	58
Mercury	M	2450	mg/kg	0.10	0.33	0.36
Nickel	M	2450	mg/kg	0.50	25	27
Lead	M	2450	mg/kg	0.50	140	150
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	31	33
Zinc	M	2450	mg/kg	0.50	190	270
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.6	7.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	67	130
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	5.5	11
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	6.8	13
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	10	16
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	57	100
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	9.8	15
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	160	280
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0

Results - Soil

Project: LKR 20 1005 Stubb's Mews

Client: LK Consult	Chemtest Job No.:				20-25166	20-25166
Quotation No.:	Chemtest Sample ID.:				1067176	1067177
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	Sample Type:				SOIL	SOIL
	Date Sampled:				18-Sep-2020	18-Sep-2020
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	50	79
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	19	38
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	18	58
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	27	100
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	180	410
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	26	44
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	320	730
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	470	1000
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	1.1	0.98
Acenaphthylene	N	2800	mg/kg	0.10	0.17	0.21
Acenaphthene	M	2800	mg/kg	0.10	1.8	2.6
Fluorene	M	2800	mg/kg	0.10	1.8	1.8
Phenanthrene	M	2800	mg/kg	0.10	9.8	12
Anthracene	M	2800	mg/kg	0.10	2.5	3.1
Fluoranthene	M	2800	mg/kg	0.10	11	14
Pyrene	M	2800	mg/kg	0.10	9.1	13
Benzo[a]anthracene	M	2800	mg/kg	0.10	4.0	5.8
Chrysene	M	2800	mg/kg	0.10	4.1	5.6
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	4.4	6.5
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	1.5	2.2
Benzo[a]pyrene	M	2800	mg/kg	0.10	4.3	6.1
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	2.6	2.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.75
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	2.5	3.3
Total Of 16 PAH's	N	2800	mg/kg	2.0	60	80
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30

TPH Chromatogram on Soil Sample: 1067176

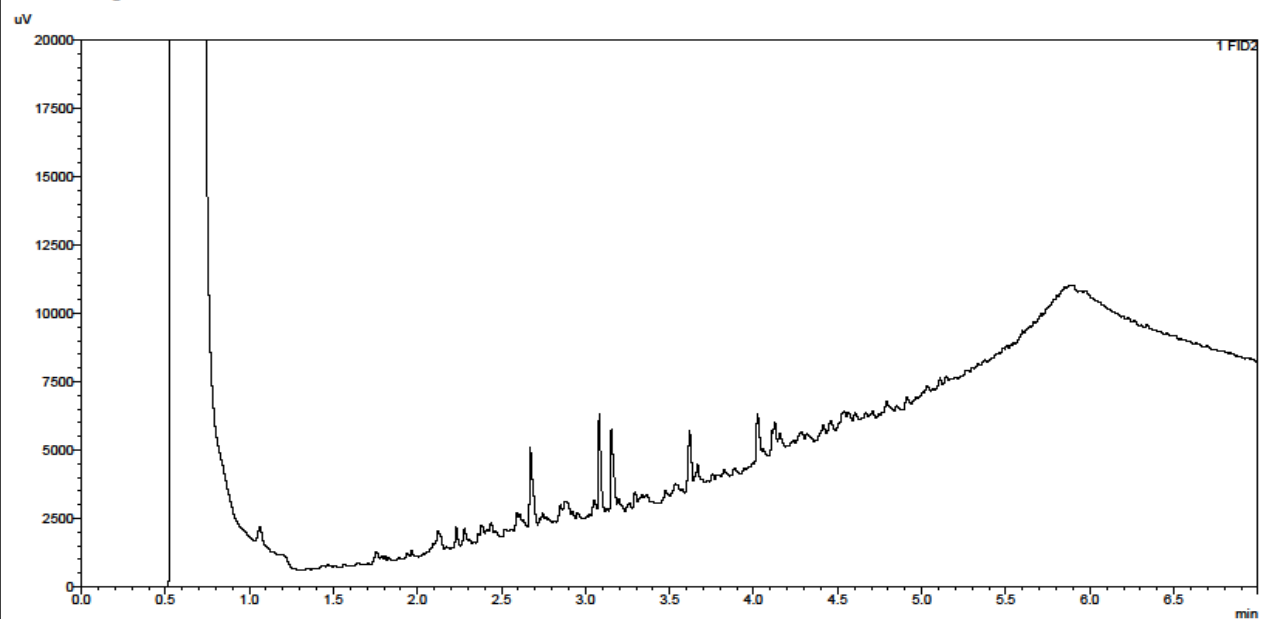
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Sample # : 107
Date Acquired : 21/09/2020 20:03:14
Date Processed : 22/09/2020



Chemtest

<Chromatogram>



TPH Chromatogram on Soil Sample: 1067177

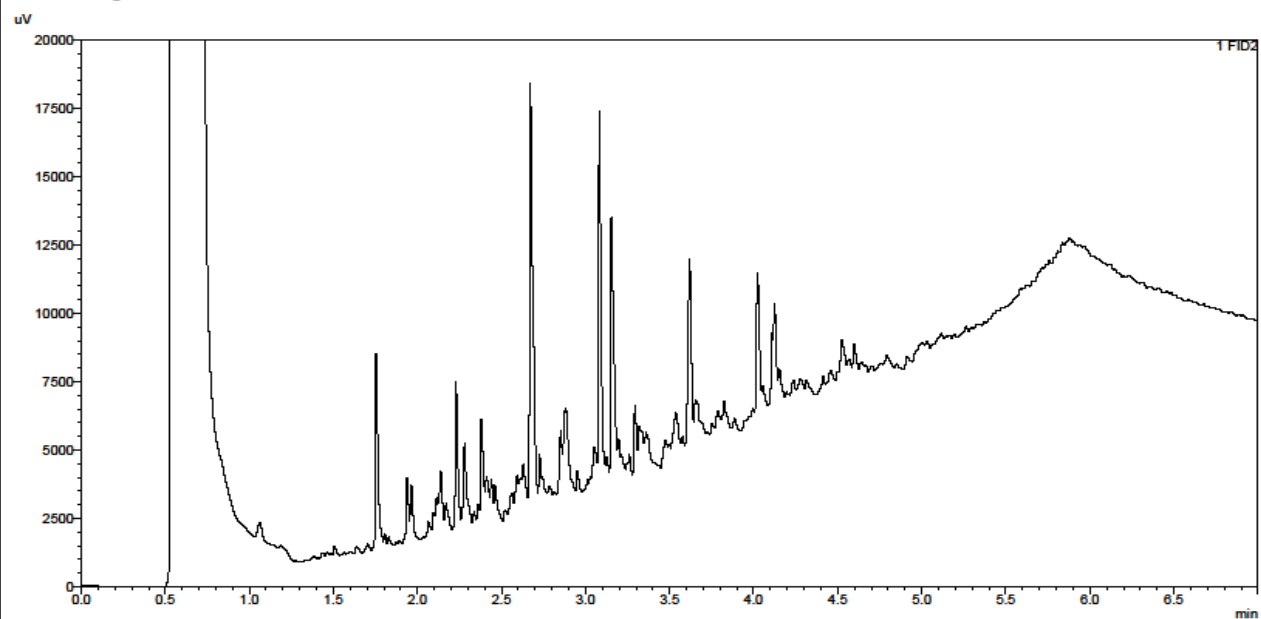
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Sample Name : 1067177 20-25166
Data Filename : 2020-09-21_21092020_1067177 20-25166_066.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 108
Date Acquired : 21/09/2020 20:16:01
Date Processed : 22/09/2020



Chemtest

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
20-25166	1067176	S			CRV-02		No	PAH
20-25166	1067177	S			CRV-03		No	PAH

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Final Report

Report No.: 21-04407-1
Initial Date of Issue: 20-Feb-2021
Client LK Consult
Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS
Contact(s): Dave Anderson
Dene Marland
Richard Clarke
Project LKR 20 1005 Stubb's Mews

Quotation No.:		Date Received:	15-Feb-2021
Order No.:	LKR 20 1005	Date Instructed:	15-Feb-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	Results Due:	19-Feb-2021
Date Approved:	20-Feb-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKR 20 1005 Stubb's Mews

Client: LK Consult	Chemtest Job No.:				21-04407
Quotation No.:	Chemtest Sample ID.:				1141441
	Client Sample ID.:				6F2 import
	Sample Type:				SOIL
	Date Sampled:				11-Feb-2021
	Asbestos Lab:				DURHAM
Determinand	Accred.	SOP	Units	LOD	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-
Moisture	N	2030	%	0.020	7.1
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Sand
Chromatogram (TPH)	N			N/A	See Attached
pH	M	2010		4.0	11.9
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.49
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.46
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	12
Cadmium	M	2450	mg/kg	0.10	0.31
Chromium	M	2450	mg/kg	1.0	15
Copper	M	2450	mg/kg	0.50	43
Mercury	M	2450	mg/kg	0.10	0.17
Nickel	M	2450	mg/kg	0.50	16
Lead	M	2450	mg/kg	0.50	74
Selenium	M	2450	mg/kg	0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	20
Zinc	M	2450	mg/kg	0.50	74
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.2
Diesel Present	N	2670		N/A	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[C] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[C] < 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[C] < 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[C] < 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[C] < 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[C] 9.5
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[C] 58
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[C] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[C] 68
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[C] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[C] < 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[C] < 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[C] 4.1

Results - Soil

Project: LKR 20 1005 Stubb's Mews

Client: LK Consult	Chemtest Job No.:		21-04407		
Quotation No.:	Chemtest Sample ID.:		1141441		
	Client Sample ID.:		6F2 import		
	Sample Type:		SOIL		
	Date Sampled:		11-Feb-2021		
	Asbestos Lab:		DURHAM		
Determinand	Accred.	SOP	Units	LOD	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[C] 24
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[C] 32
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[C] 240
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[C] 35
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[C] 340
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[C] 410
Benzene	M	2760	µg/kg	1.0	[C] < 1.0
Toluene	M	2760	µg/kg	1.0	[C] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0	[C] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0	[C] < 1.0
o-Xylene	M	2760	µg/kg	1.0	[C] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[C] < 1.0
Naphthalene	M	2800	mg/kg	0.10	21
Acenaphthylene	N	2800	mg/kg	0.10	4.5
Acenaphthene	M	2800	mg/kg	0.10	5.3
Fluorene	M	2800	mg/kg	0.10	11
Phenanthrene	M	2800	mg/kg	0.10	49
Anthracene	M	2800	mg/kg	0.10	10
Fluoranthene	M	2800	mg/kg	0.10	34
Pyrene	M	2800	mg/kg	0.10	34
Benzo[a]anthracene	M	2800	mg/kg	0.10	16
Chrysene	M	2800	mg/kg	0.10	16
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	15
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	5.3
Benzo[a]pyrene	M	2800	mg/kg	0.10	15
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	6.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	1.6
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	7.7
Total Of 16 PAH's	N	2800	mg/kg	2.0	250
Total Phenols	M	2920	mg/kg	0.30	< 0.30

TPH Chromatogram on Soil Sample: 1141441

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-04407	1141441	S			6F2 import		No	N/A

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1141441		6F2 import		11-Feb-2021	C	Plastic Bag

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

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U/S	Unsuitable Sample
N/E	not evaluated
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>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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customerservices@chemtest.com



2183



Final Report

Report No.: 20-15800-1
Initial Date of Issue: 29-Jun-2020
Client LK Consult
Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS
Contact(s): Peter Dunn
Project LKR 201005 Stubbs Mews
Quotation No.:
Order No.: LKR 201005
No. of Samples: 3
Turnaround (Wkdays): 5
Date Approved: 29-Jun-2020

Date Received: 23-Jun-2020

Date Instructed: 23-Jun-2020

Results Due: 29-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Project: LKR 201005 Stubbs Mews

Client: LK Consult	Chemtest Job No.:				20-15800	20-15800	20-15800
Quotation No.:	Chemtest Sample ID.:				1020809	1020810	1020811
	Client Sample ID.:				SWC01	SWC02	SWC03
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				22-Jun-2020	22-Jun-2020	22-Jun-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	5.0	5.9	5.3
Soil Colour	N	2040		N/A	Grey	Grey	Grey
Other Material	N	2040		N/A	Stones	Stones	Stones and brick
Soil Texture	N	2040		N/A	Gravel	Gravel	Gravel
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	11.3	11.7	11.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.61	0.63	0.58
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	0.13	0.22	0.15
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	11	13	7.7
Cadmium	M	2450	mg/kg	0.10	0.22	0.36	0.21
Chromium	M	2450	mg/kg	1.0	13	13	10
Copper	M	2450	mg/kg	0.50	14	14	6.4
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	16	15	10
Lead	M	2450	mg/kg	0.50	30	27	11
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	25	29	20
Zinc	M	2450	mg/kg	0.50	32	43	25
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	0.64	1.4	0.48
Fuel Type	N	2670		N/A	N/A	PAH	N/A
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	160	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	160	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0

Project: LKR 201005 Stubbs Mews

Client: LK Consult	Chemtest Job No.:				20-15800	20-15800	20-15800
Quotation No.:	Chemtest Sample ID.:				1020809	1020810	1020811
	Client Sample ID.:				SWC01	SWC02	SWC03
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				22-Jun-2020	22-Jun-2020	22-Jun-2020
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	5.8	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	370	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	380	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	540	< 10
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.93	0.88	0.86
Anthracene	M	2800	mg/kg	0.10	0.37	0.19	0.24
Fluoranthene	M	2800	mg/kg	0.10	2.4	2.0	1.8
Pyrene	M	2800	mg/kg	0.10	2.2	1.5	1.7
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.1	0.91	0.73
Chrysene	M	2800	mg/kg	0.10	1.0	0.86	0.66
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	1.5	1.3	1.0
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.52	0.19	0.41
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.3	0.99	0.82
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.2	0.75	0.80
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	0.66	0.69
Total Of 16 PAH's	N	2800	mg/kg	2.0	12	10	9.8
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

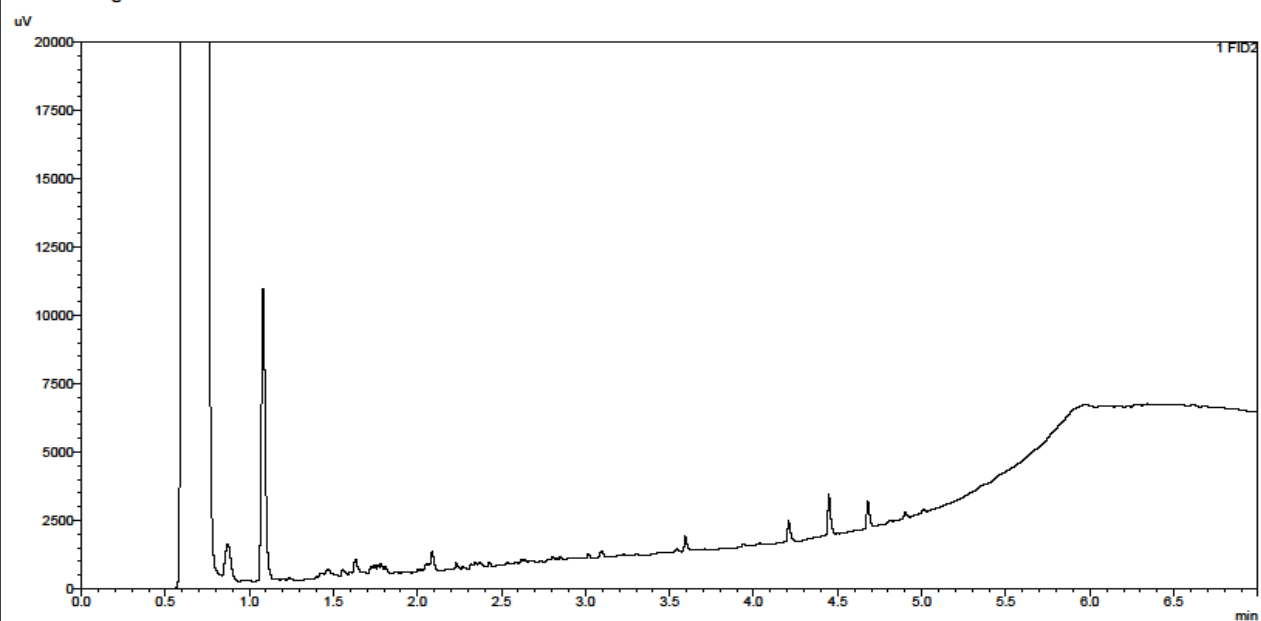
TPH Chromatogram on Soil Sample: 1020809

<Sample Information>

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Data Filename : 24 June 2020_24062020_1020809 20-15800_122.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 136
Date Acquired : 25/06/2020 04:12:30
Date Processed : 25/06/2020



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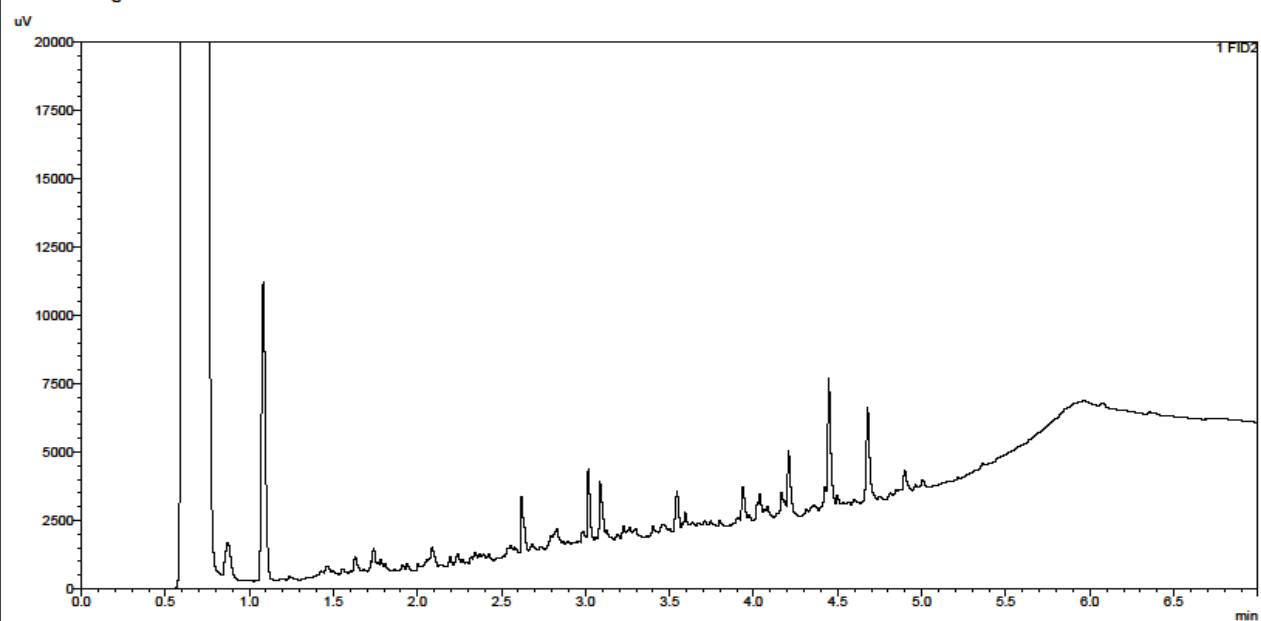
TPH Chromatogram on Soil Sample: 1020810

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Sample Name : 1020810 20-15800
Data Filename : 24 June 2020_24062020_1020810 20-15800_124.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 137
Date Acquired : 25/06/2020 04:25:23
Date Processed : 25/06/2020



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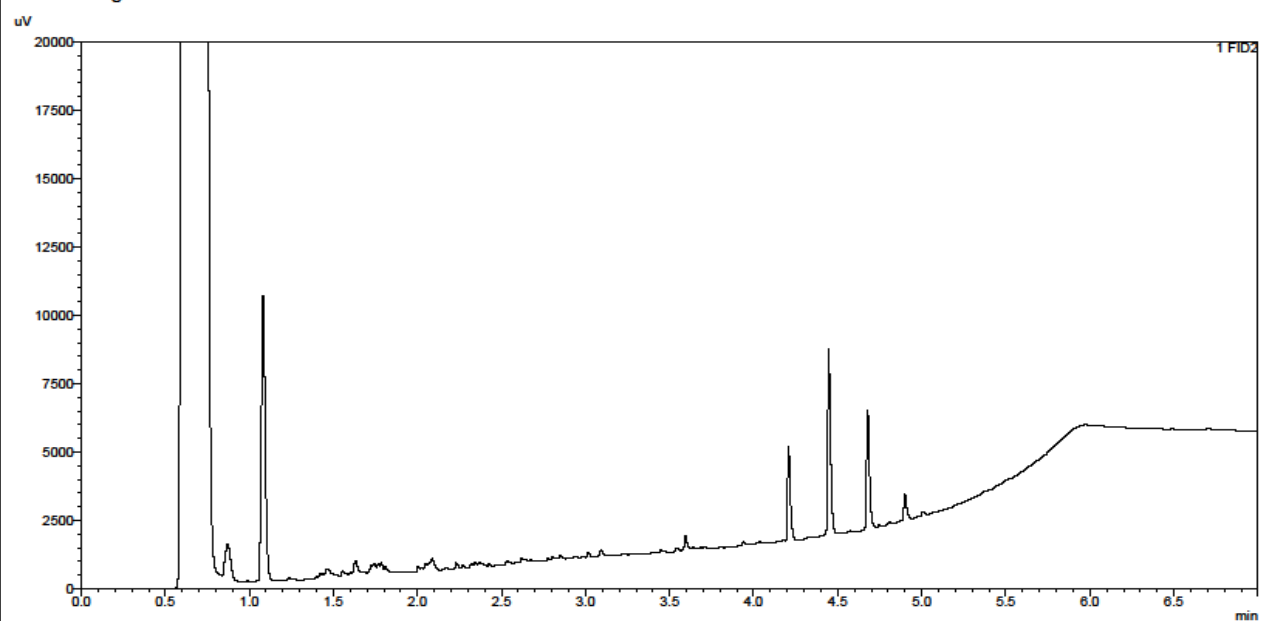
TPH Chromatogram on Soil Sample: 1020811

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Sample Name : 1020811 20-15800
Data Filename : 24 June 2020_24062020_1020811 20-15800_126.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 138
Date Acquired : 25/06/2020 04:38:08
Date Processed : 25/06/2020



<Chromatogram>



SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix C – Geotechnical Testing Results



TEST REPORT

Client LK Remediate Ltd

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract LKR 20 1005 –
Stubbs Mews, Manchester

Job Number MRN 3817/22
Date of Issue 08 October 2020
Page 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

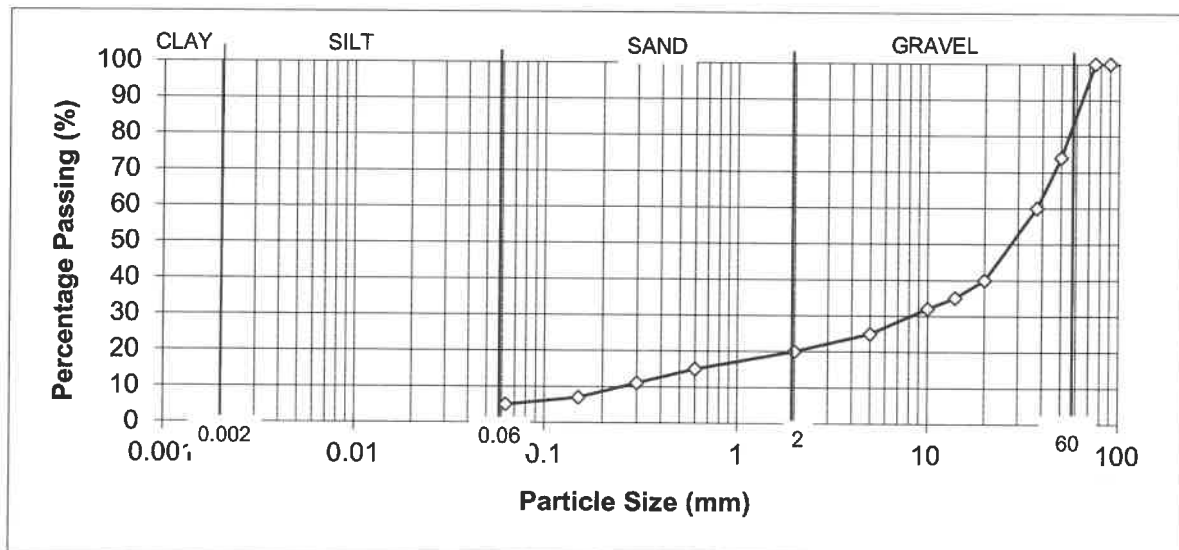
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Remediate Ltd
SITE	LKR 20 1005 - Stubbs Mews, Manchester
JOB NUMBER	MRN 3817/22

SAMPLE LABEL	CRV-01	DATE SAMPLED	Not advised
LAB SAMPLE No	92654	DATE RECEIVED	24-Sep-20
DATE TESTED	25-Sep-20	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	As client and site above

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	10	32	15-60
90	100	80-100	5	25	10-45
75	100	65-100	2	20	
50	74		0.6	15	0-25
37.5	60	45-100	0.3	11	
20	40		0.15	7	
14	35		0.063	5	0-12



REMARKS

Sample complies with the grading requirements for a 6F2 material (SHW 2016)

As received moisture content = 6.8%

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

08-Oct-20

TEST REPORT

Client LK Remediate

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract Stubbs Mews, off Piercy Street,
Manchester M4 7HY

Job Number MRN 3817/20
Date of Issue 16 September 2020
Page 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
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- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.

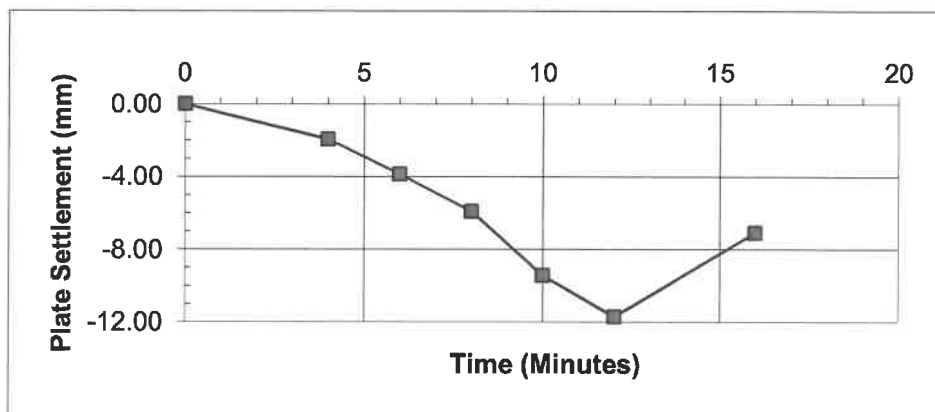
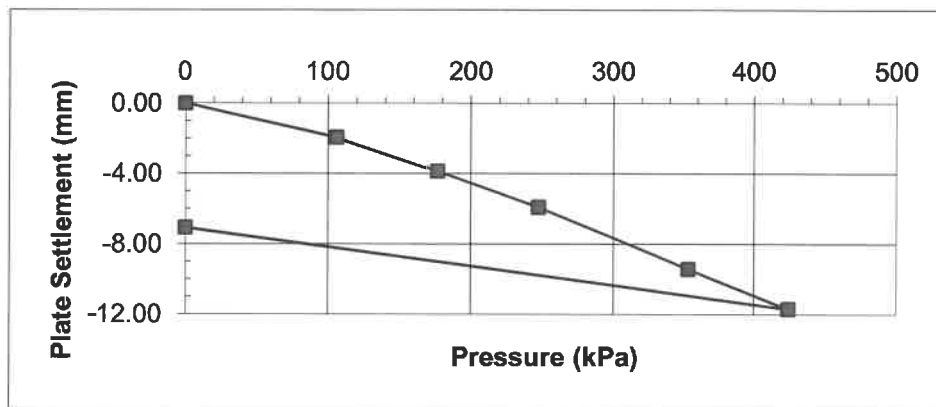
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ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	1	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4714	4773	4861	4783	0.00	0.00	0.0
4552	4527	4687	4589	-1.94	30.00	106.1
4370	4303	4513	4395	-3.87	50.00	176.8
4183	4081	4310	4191	-5.91	70.00	247.6
3842	3694	3981	3839	-9.44	100.00	353.7
3621	3422	3791	3611	-11.71	120.00	424.4
4079	3990	4154	4074	-7.08	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

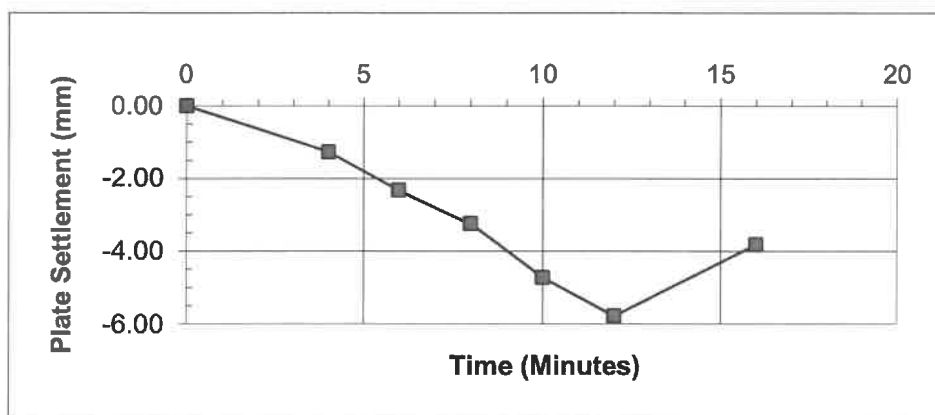
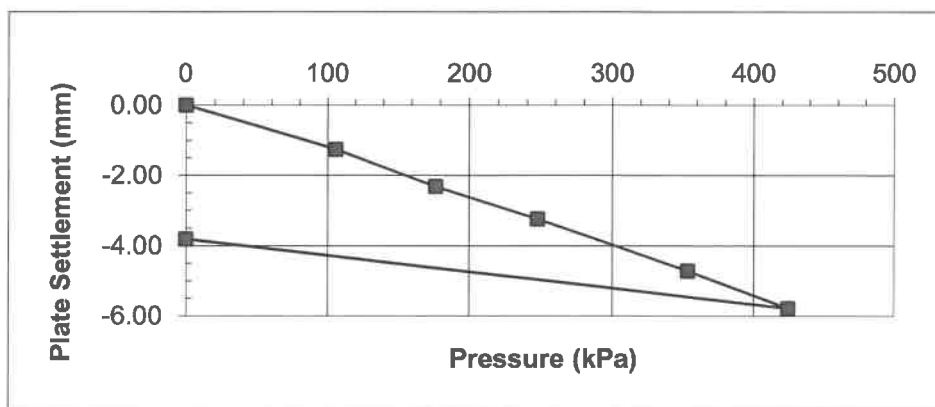
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TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	2	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4612	4747	4845	4735	0.00	0.00	0.0
4489	4614	4721	4608	-1.27	30.00	106.1
4375	4514	4620	4503	-2.32	50.00	176.8
4273	4430	4530	4411	-3.24	70.00	247.6
4108	4285	4395	4263	-4.72	100.00	353.7
3988	4184	4296	4156	-5.79	120.00	424.4
4211	4374	4476	4354	-3.81	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

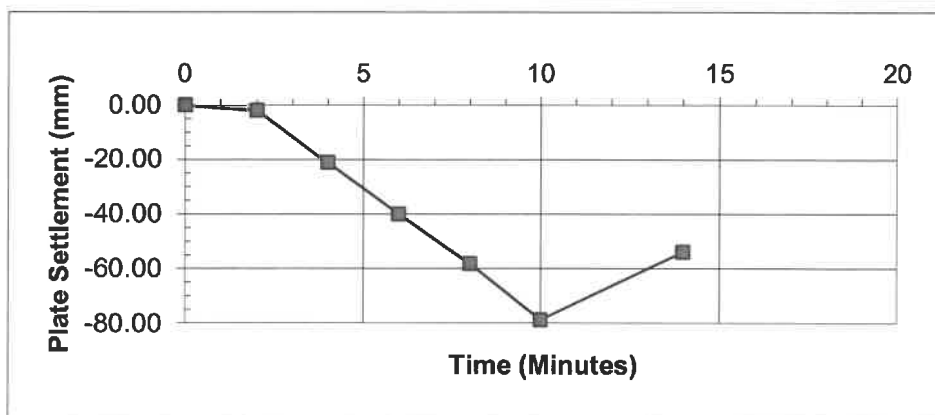
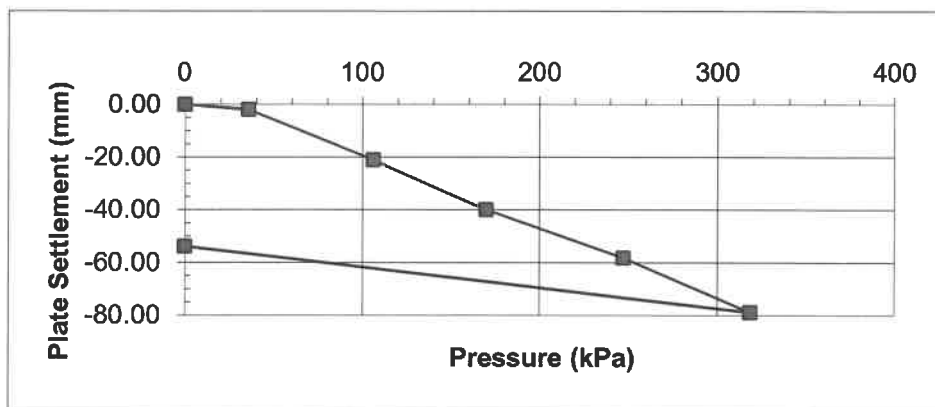
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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	3	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
8875	9031	8846	8917	0.00	0.00	0.0
8681	8836	8642	8720	-1.98	10.00	35.4
6756	6916	6759	6810	-21.07	30.00	106.1
4855	4977	4923	4918	-39.99	48.00	169.8
3061	3000	3221	3094	-58.23	70.00	247.6
994	809	1285	1029	-78.88	90.00	318.3
3327	3663	3605	3532	-53.86	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

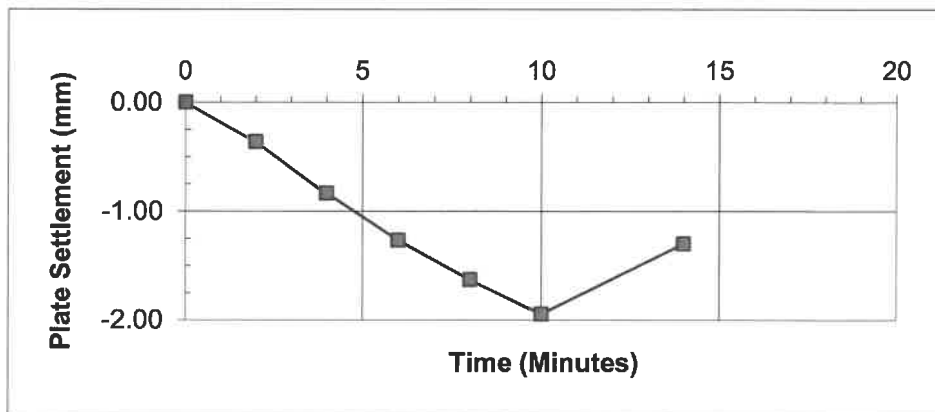
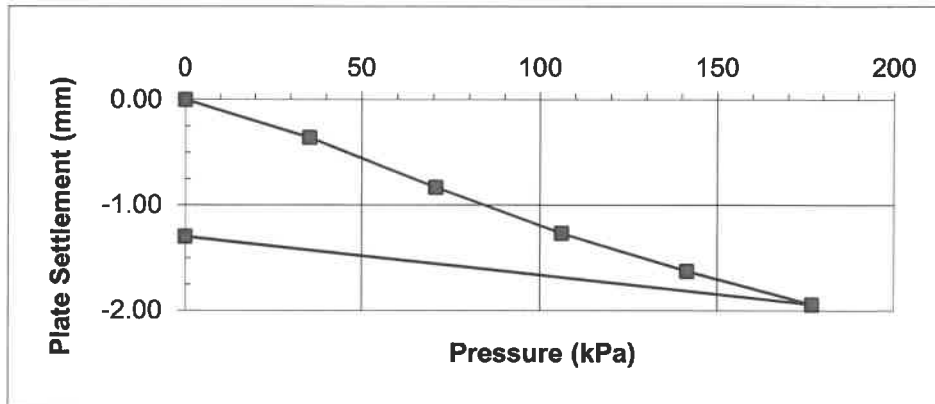
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TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	4	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4826	4844	4841	4837	0.00	0.00	0.0
4806	4801	4796	4801	-0.36	10.00	35.4
4763	4752	4746	4754	-0.83	20.00	70.7
4734	4690	4707	4710	-1.27	30.00	106.1
4706	4635	4682	4674	-1.63	40.00	141.5
4676	4589	4663	4643	-1.94	50.00	176.8
4725	4662	4735	4707	-1.30	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

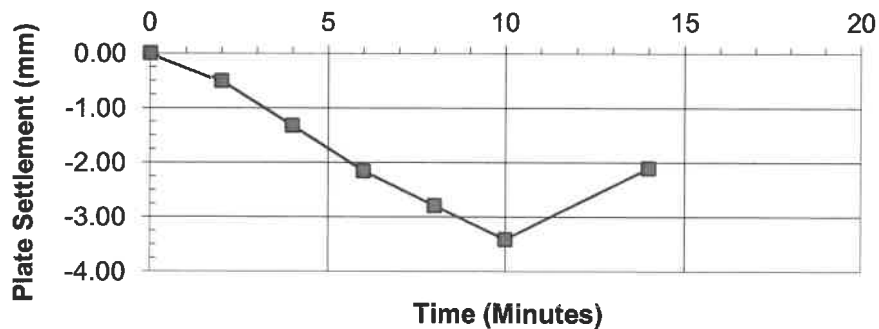
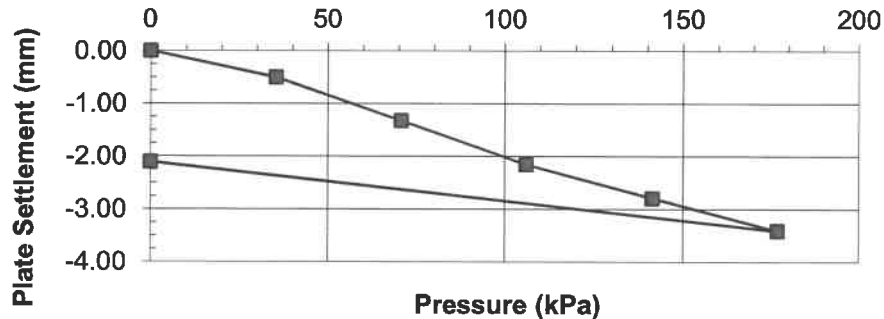
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ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	5	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4775	4841	4773	4796	0.00	0.00	0.0
4726	4788	4723	4746	-0.51	10.00	35.4
4637	4711	4644	4664	-1.32	20.00	70.7
4551	4636	4555	4581	-2.16	30.00	106.1
4465	4591	4495	4517	-2.79	40.00	141.5
4364	4563	4438	4455	-3.41	50.00	176.8
4510	4731	4516	4586	-2.11	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

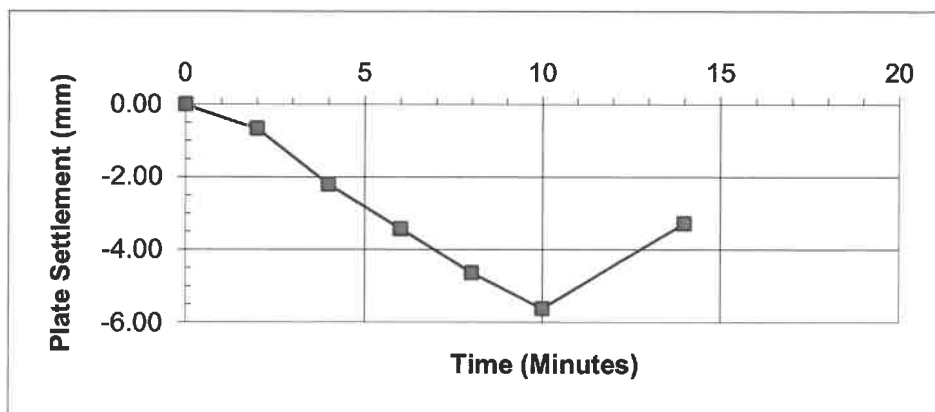
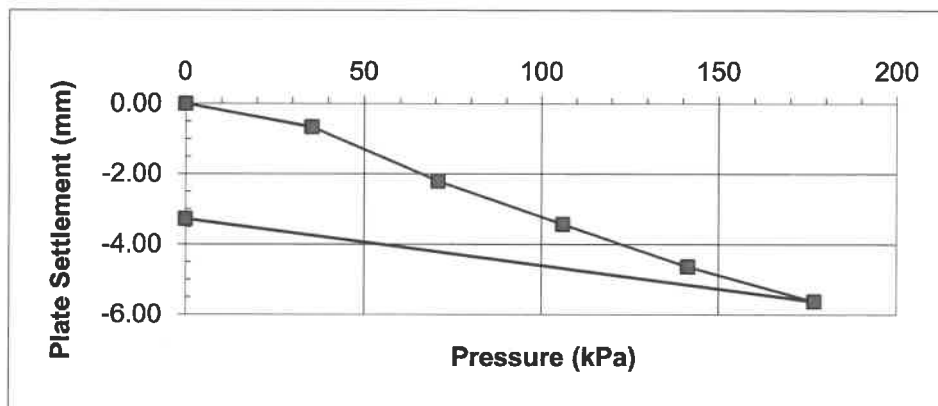
MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1

CLIENT	LK Remediate		
SITE	Stubs Mews, off Piercy Street, Manchester M4 7HY		
JOB NUMBER	MRN 3817/20		
TEST LOCATION	6	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	15-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4560	4723	4686	4656	0.00	0.00	0.0
4489	4663	4618	4590	-0.66	10.00	35.4
4329	4499	4480	4436	-2.20	20.00	70.7
4210	4337	4394	4314	-3.43	30.00	106.1
4094	4171	4313	4193	-4.64	40.00	141.5
4000	4020	4261	4094	-5.63	50.00	176.8
4226	4323	4437	4329	-3.28	0.00	0.0



REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 16-Sep-20

TEST REPORT

Client LK Remediate

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract Stubbs Mews, off Piercy Street,
Manchester M4 7HY

Job Number MRN 3817/21
Date of Issue 22 September 2020
Page 1 of 6

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
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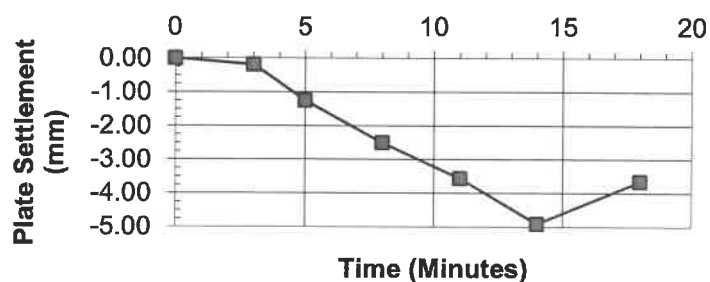
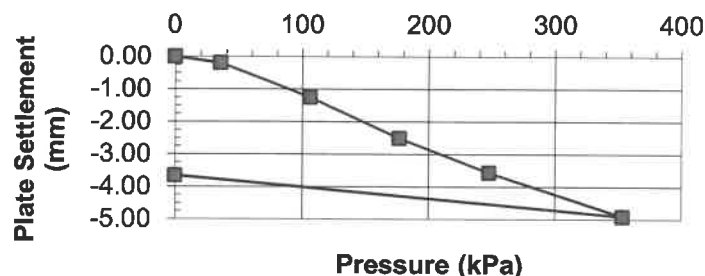
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/21		
TEST LOCATION	201	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	19-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Crush	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3833	4305	2465	3534	0.00	0.00	0.0
3818	4287	2441	3515	-0.19	10.00	35.4
3741	4181	2305	3409	-1.25	30.00	106.1
3638	4048	2165	3284	-2.51	50.00	176.8
3551	3921	2061	3178	-3.57	70.00	247.6
3458	3761	1910	3043	-4.91	100.00	353.7
3592	3883	2031	3169	-3.66	0.00	0.0



Pressure at 1.25 mm deflexion =	106 kPa
Modulus of subgrade reaction (k) =	85 MPa/m
Equivalent 762 mm plate reaction =	68 MPa/m
Equivalent CBR =	14.5 %

REMARKS

SIGNED

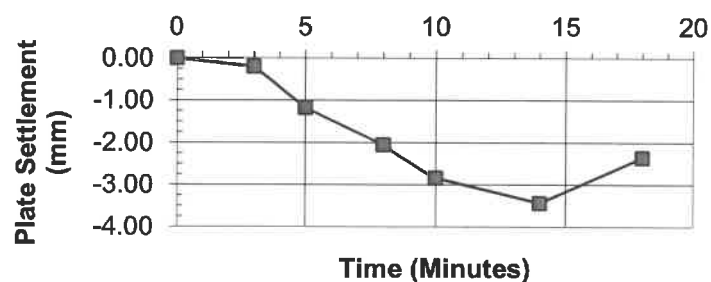
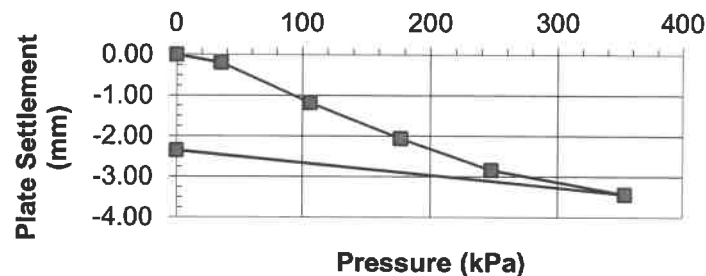
NAME S.J. Hutchings
(Director)

DATE 22-Sep-20

TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/21		
TEST LOCATION	202	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	19-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Crush	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4287	4195	3854	4112	0.00	0.00	0.0
4268	4171	3838	4092	-0.20	10.00	35.4
4168	4101	3712	3994	-1.18	30.00	106.1
4085	4021	3612	3906	-2.06	50.00	176.8
3995	3945	3543	3828	-2.84	70.00	247.6
3921	3881	3503	3768	-3.44	100.00	353.7
4019	3995	3615	3876	-2.36	0.00	0.0



Pressure at 1.25 mm deflexion =	112 kPa
Modulus of subgrade reaction (k) =	89 MPa/m
Equivalent 762 mm plate reaction =	72 MPa/m
Equivalent CBR =	15.9 %

REMARKS

SIGNED

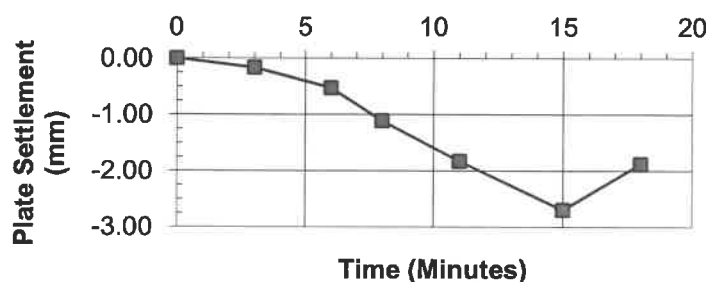
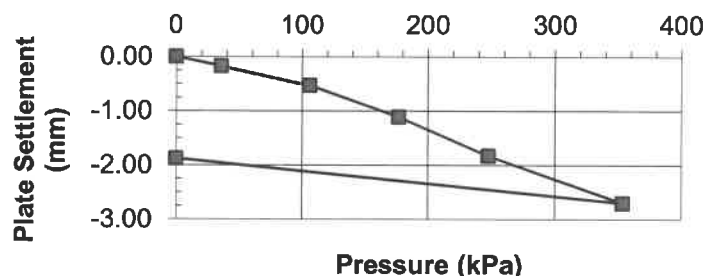
NAME S.J. Hutchings
(Director)

DATE 22-Sep-20

TEST CERTIFICATE
PLATE INCREMENTAL LOAD TEST
BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/21		
TEST LOCATION	203	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	19-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Crush	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3593	3243	3842	3559	0.00	0.00	0.0
3581	3229	3818	3543	-0.17	10.00	35.4
3538	3193	3789	3507	-0.53	30.00	106.1
3459	3138	3748	3448	-1.11	50.00	176.8
3381	3065	3683	3376	-1.83	70.00	247.6
3265	2993	3610	3289	-2.70	100.00	353.7
3371	3115	3628	3371	-1.88	0.00	0.0



Pressure at 1.25 mm deflexion =	191 kPa
Modulus of subgrade reaction (k) =	152 MPa/m
Equivalent 762 mm plate reaction =	123 MPa/m
Equivalent CBR =	40.1 %

REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 22-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



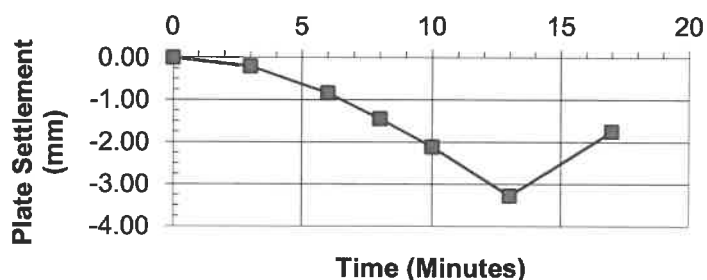
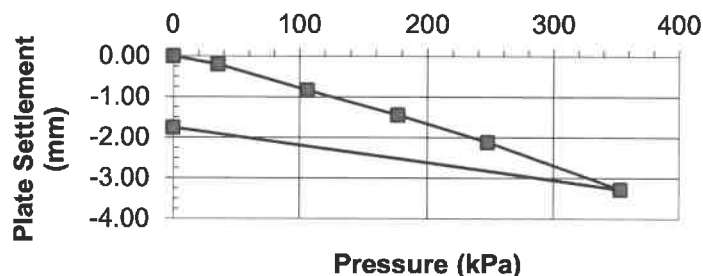
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/21		
TEST LOCATION	204	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	19-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Crush	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
4003	3515	4323	3947	0.00	0.00	0.0
3986	3491	4303	3927	-0.20	10.00	35.4
3921	3431	4238	3863	-0.84	30.00	106.1
3838	3387	4180	3802	-1.45	50.00	176.8
3783	3310	4112	3735	-2.12	70.00	247.6
3651	3203	4003	3619	-3.28	100.00	353.7
3805	3365	4145	3772	-1.75	0.00	0.0



Pressure at 1.25 mm deflexion = 154 kPa
Modulus of subgrade reaction (k) = 123 MPa/m
Equivalent 762 mm plate reaction = 99 MPa/m
Equivalent CBR = 27.6 %

REMARKS

SIGNED

NAME S.J. Hutchings
(Director)

DATE 22-Sep-20



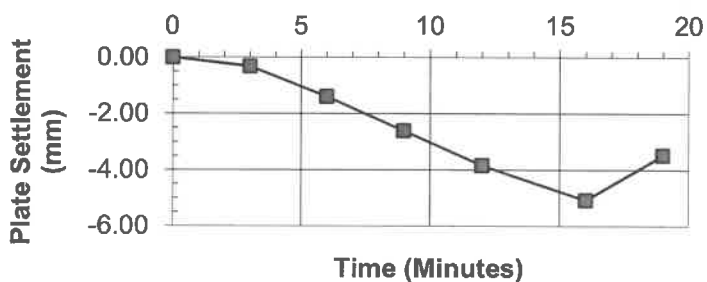
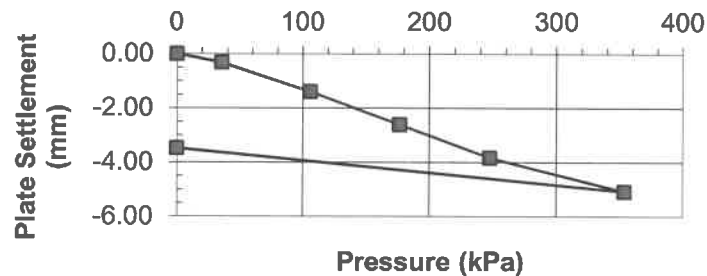
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/21		
TEST LOCATION	205	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	19-Sep-20	PLATE SIZE (mm)	600 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Crush	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3192	4485	3512	3730	0.00	0.00	0.0
3168	4457	3468	3698	-0.32	10.00	35.4
3065	4341	3365	3590	-1.39	30.00	106.1
2938	4228	3241	3469	-2.61	50.00	176.8
2815	4110	3112	3346	-3.84	70.00	247.6
2689	3983	2993	3222	-5.08	100.00	353.7
2865	4118	3162	3382	-3.48	0.00	0.0



Pressure at 1.25 mm deflexion =	97 kPa
Modulus of subgrade reaction (k) =	77 MPa/m
Equivalent 762 mm plate reaction =	62 MPa/m
Equivalent CBR =	12.4 %

REMARKS

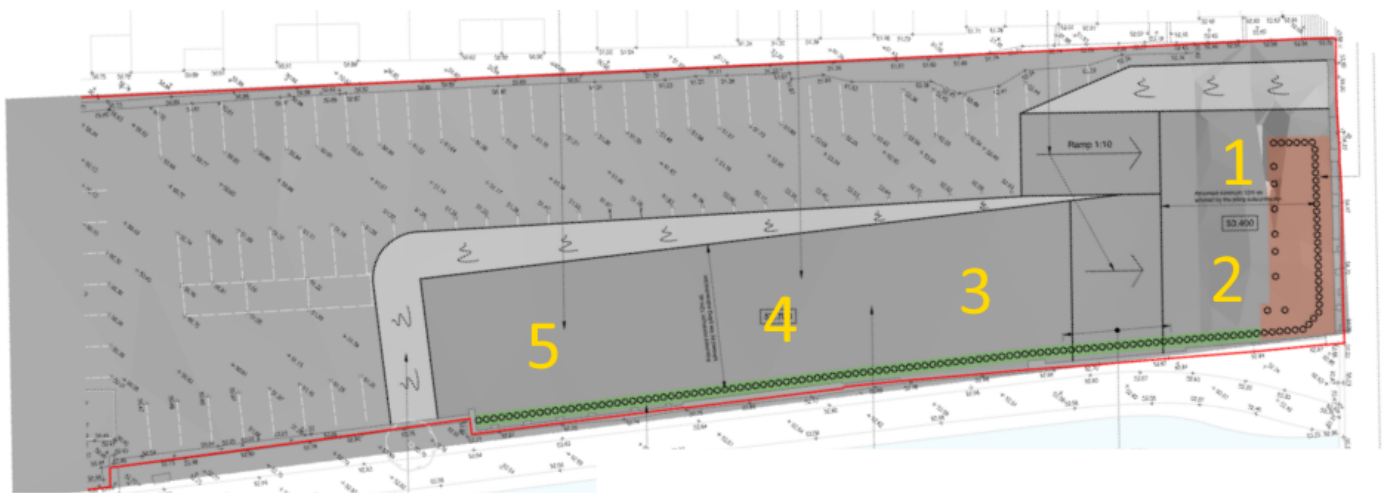
SIGNED

NAME S.J. Hutchings
(Director)

DATE 22-Sep-20

Stubbs Mews Plate Test Locations

28/05/2020





Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS4122-1

Report Date: 28/05/2020

Client: LK Group

Address: Unit 29, Eton Business Park

Eton Hill Road, Radcliffe

Greater Manchester

M26 2ZS

Site: Stubbs Mews, Piercy Street, Manchester, M4 7HY

Test Details

Test Location: 1

Date of Test: 28/05/2020

Description: Sandy Crushed Brick and Stone

Reaction Load: 23 Tonne Excavator

Material Class: Piling Mat

Weather: Dry

Layer: Ground Level

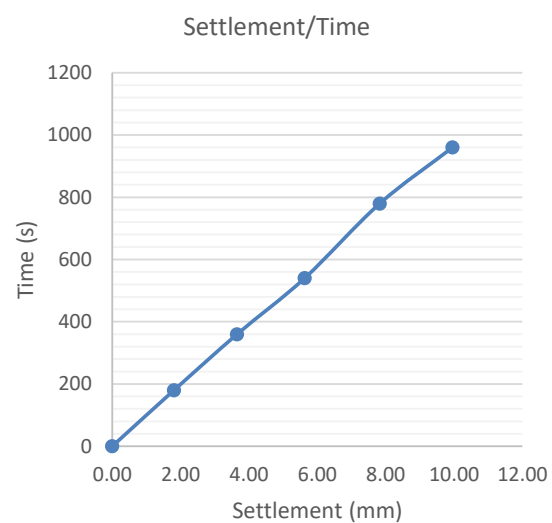
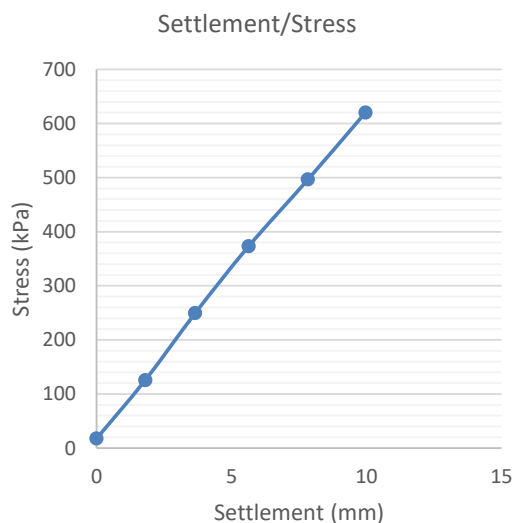
Plate Diameter (mm): 454

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	18
180	1.81	126
360	3.65	249
540	5.63	373
780	7.83	496
960	9.96	620

Maximum Applied Stress (kPa):	620
Maximum Settlement (mm):	9.96



For and on behalf of Hixtra Ltd

Kevin Shorthouse

Authorised signatory



Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

HU-SOI-01B Issue 4



Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS4122-2

Report Date: 28/05/2020

Client: LK Group

Address: Unit 29, Eton Business Park
Eton Hill Road, Radcliffe
Greater Manchester
M26 2ZS

Site: Stubbs Mews, Piercy Street, Manchester, M4 7HY

Test Details

Test Location: 2

Date of Test: 28/05/2020

Description: Sandy Crushed Brick and Stone

Reaction Load: 23 Tonne Excavator

Material Class: Piling Mat

Weather: Dry

Layer: Ground Level

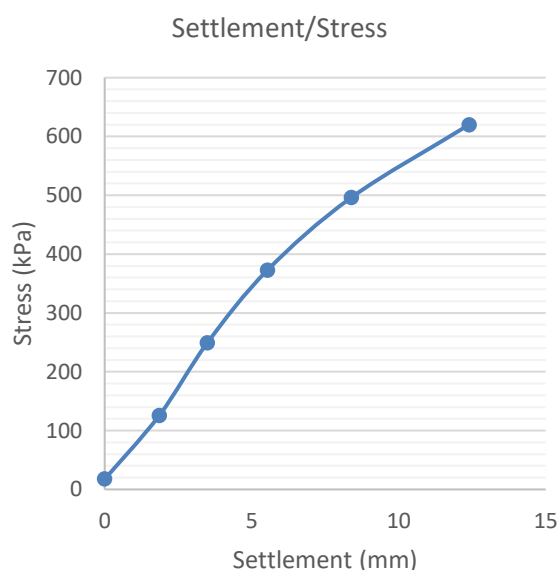
Plate Diameter (mm): 454

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	18
180	1.86	126
360	3.49	249
660	5.54	373
960	8.39	496
1140	12.39	620

Maximum Applied Stress (kPa):	620
Maximum Settlement (mm):	12.39



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS4122-3

Report Date: 28/05/2020

Client: LK Group

Address: Unit 29, Eton Business Park
Eton Hill Road, Radcliffe
Greater Manchester
M26 2ZS

Site: Stubbs Mews, Piercy Street, Manchester, M4 7HY

Test Details

Test Location: 3

Date of Test: 28/05/2020

Description: Sandy Crushed Brick and Stone

Reaction Load: 23 Tonne Excavator

Material Class: Piling Mat

Weather: Dry

Layer: Ground Level

Plate Diameter (mm): 454

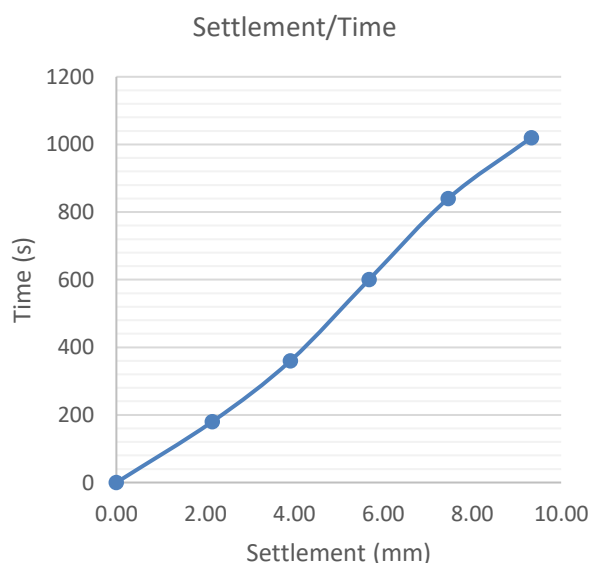
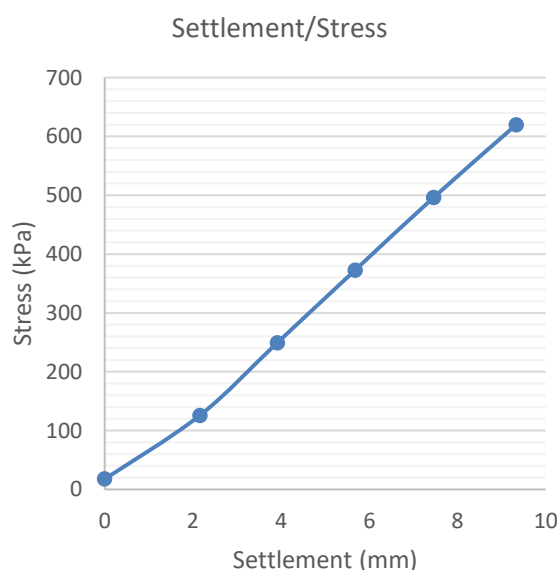
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	18
180	2.16	126
360	3.91	249
600	5.68	373
840	7.46	496
1020	9.33	620

Maximum Applied Stress (kPa): 620

Maximum Settlement (mm): 9.33



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

HU-SOI-01B Issue 4



Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS4122-4

Report Date: 28/05/2020

Client: LK Group

Address: Unit 29, Eton Business Park
Eton Hill Road, Radcliffe
Greater Manchester
M26 2ZS

Site: Stubbs Mews, Piercy Street, Manchester, M4 7HY

Test Details

Test Location: 4

Date of Test: 28/05/2020

Description: Sandy Crushed Brick and Stone

Reaction Load: 23 Tonne Excavator

Material Class: Piling Mat

Weather: Dry

Layer: Ground Level

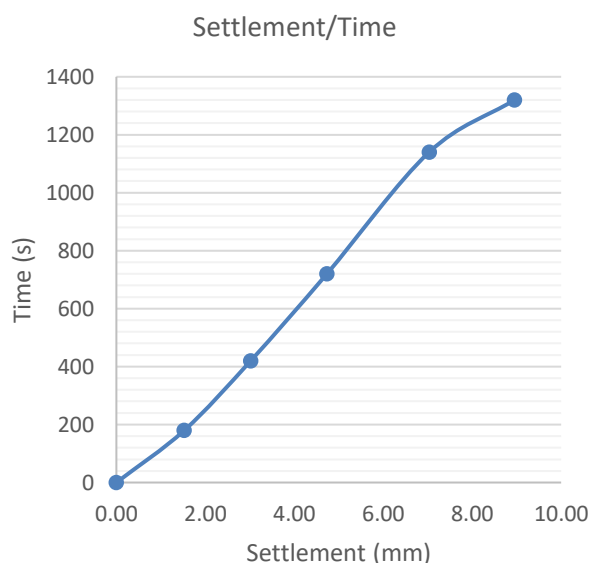
Plate Diameter (mm): 454

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	18
180	1.53	126
420	3.02	249
720	4.73	373
1140	7.03	496
1320	8.95	620

Maximum Applied Stress (kPa):	620
Maximum Settlement (mm):	8.95



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS4122-5

Report Date: 28/05/2020

Client: LK Group

Address: Unit 29, Eton Business Park
Eton Hill Road, Radcliffe
Greater Manchester
M26 2ZS

Site: Stubbs Mews, Piercy Street, Manchester, M4 7HY

Test Details

Test Location: 5

Date of Test: 28/05/2020

Description: Sandy Crushed Brick and Stone

Reaction Load: 23 Tonne Excavator

Material Class: Piling Mat

Weather: Dry

Layer: Ground Level

Plate Diameter (mm): 454

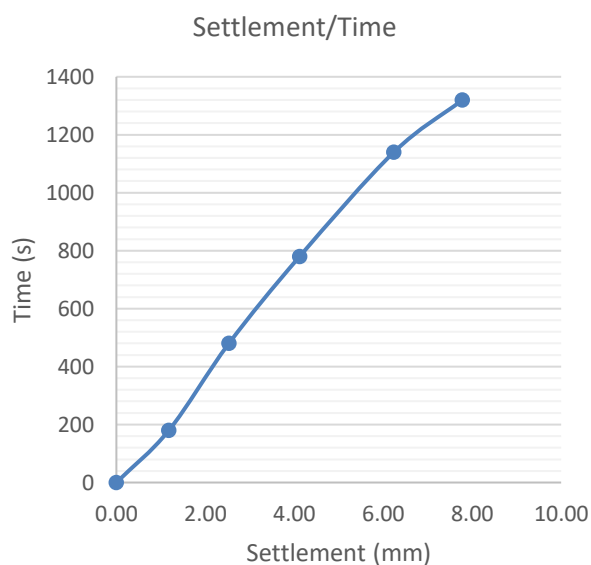
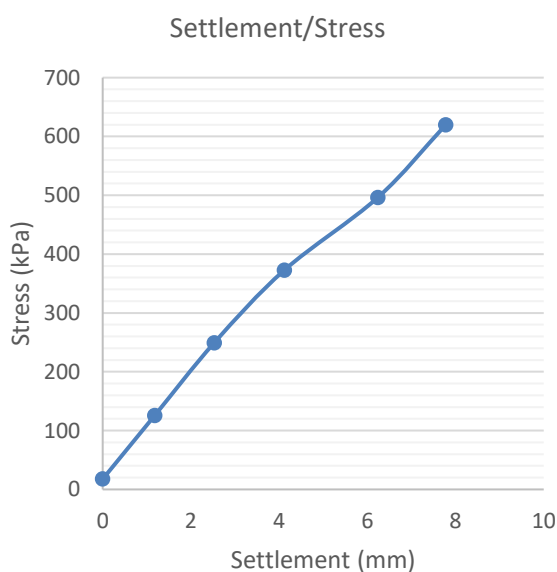
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	18
180	1.18	126
480	2.53	249
780	4.12	373
1140	6.24	496
1320	7.78	620

Maximum Applied Stress (kPa): 620

Maximum Settlement (mm): 7.78



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



TEST REPORT

Client LK Remediate

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract Piercy Street, New Islington, Beswick,
Manchester M4 7EJ

Job Number MRN 3817/19
Date of Issue 09 September 2020
Page 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.



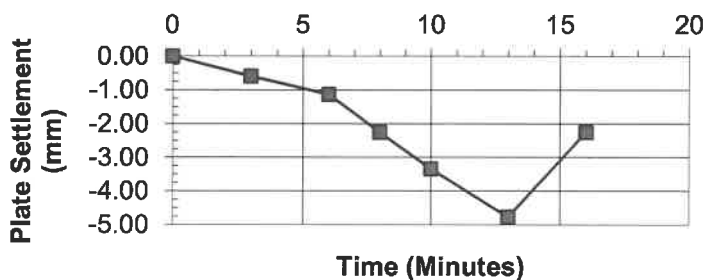
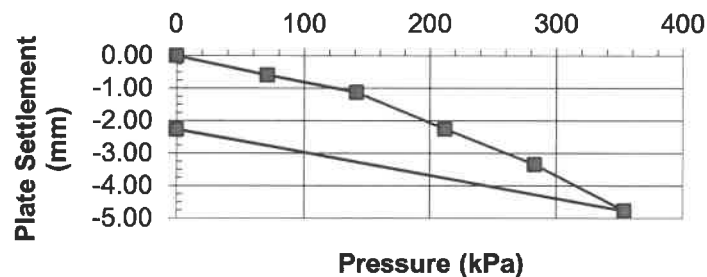
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	1	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3598	4515	3821	3978	0.00	0.00	0.0
3545	4458	3751	3918	-0.60	5.00	70.7
3487	4403	3705	3865	-1.13	10.00	141.5
3365	4291	3601	3752	-2.26	15.00	212.2
3251	4187	3492	3643	-3.35	20.00	282.9
3110	4048	3345	3501	-4.77	25.00	353.7
3365	4298	3592	3752	-2.26	0.00	0.0



Pressure at 1.25 mm deflexion =	149 kPa
Modulus of subgrade reaction (k) =	119 MPa/m
Equivalent 762 mm plate reaction =	53 MPa/m
Equivalent CBR =	9.3 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



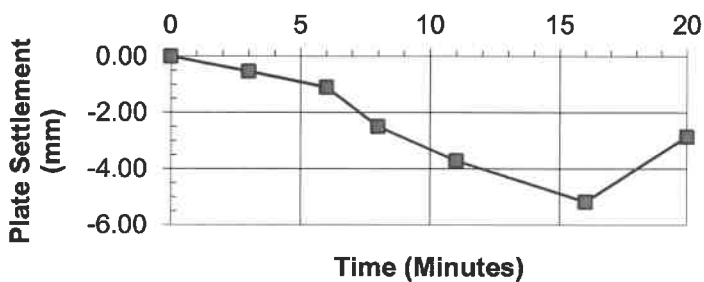
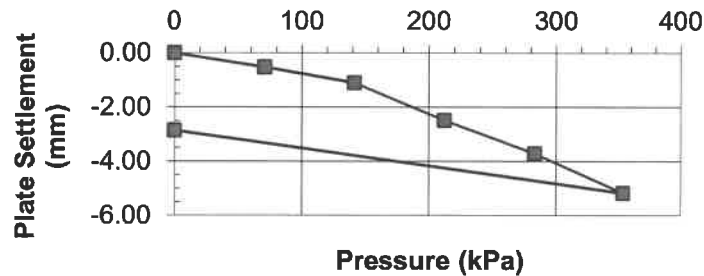
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	2	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3561	2461	4445	3489	0.00	0.00	0.0
3508	2405	4395	3436	-0.53	5.00	70.7
3438	2358	4341	3379	-1.10	10.00	141.5
3295	2208	4215	3239	-2.50	15.00	212.2
3210	2071	4071	3117	-3.72	20.00	282.9
3043	1912	3958	2971	-5.18	25.00	353.7
3271	2145	4192	3203	-2.86	0.00	0.0



Pressure at 1.25 mm deflexion =	149 kPa
Modulus of subgrade reaction (k) =	119 MPa/m
Equivalent 762 mm plate reaction =	53 MPa/m
Equivalent CBR =	9.3 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



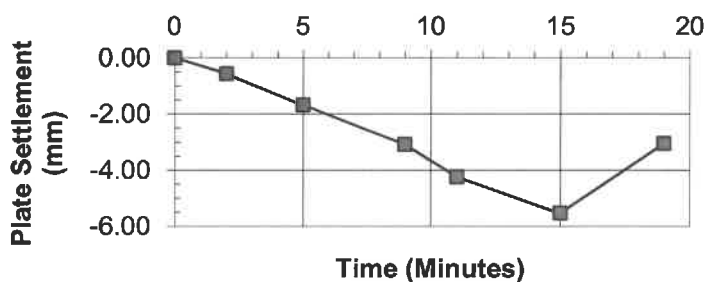
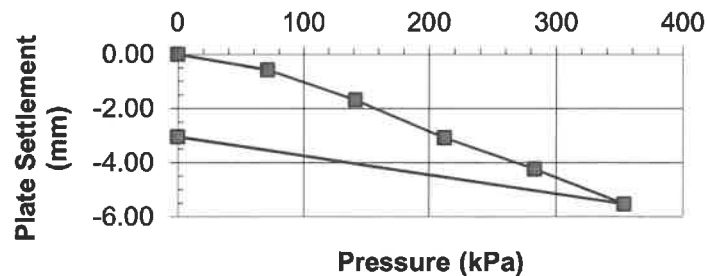
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	3	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3118	2308	4318	3248	0.00	0.00	0.0
3051	2258	4263	3191	-0.57	5.00	70.7
2938	2152	4150	3080	-1.68	10.00	141.5
2815	2011	3992	2939	-3.09	15.00	212.2
2703	1903	3865	2824	-4.24	20.00	282.9
2571	1783	3731	2695	-5.53	25.00	353.7
2818	2018	3993	2943	-3.05	0.00	0.0



Pressure at 1.25 mm deflexion =	114 kPa
Modulus of subgrade reaction (k) =	91 MPa/m
Equivalent 762 mm plate reaction =	40 MPa/m
Equivalent CBR =	5.8 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



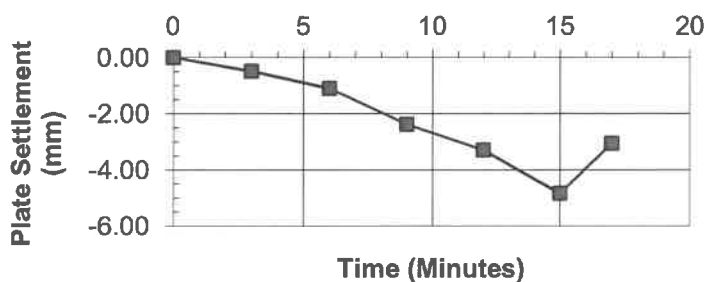
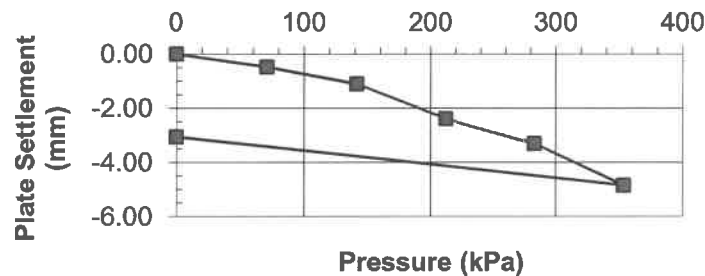
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	4	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
3535	4261	2518	3438	0.00	0.00	0.0
3487	4211	2471	3390	-0.48	5.00	70.7
3418	4141	2425	3328	-1.10	10.00	141.5
3298	4002	2298	3199	-2.39	15.00	212.2
3203	3910	2210	3108	-3.30	20.00	282.9
3058	3751	2051	2953	-4.85	25.00	353.7
3248	3921	2228	3132	-3.06	0.00	0.0



Pressure at 1.25 mm deflexion =	150 kPa
Modulus of subgrade reaction (k) =	120 MPa/m
Equivalent 762 mm plate reaction =	53 MPa/m
Equivalent CBR =	9.4 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



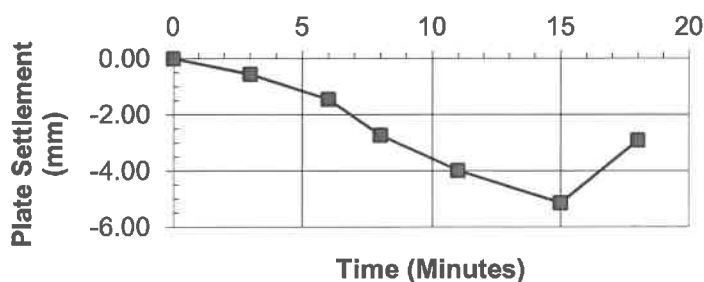
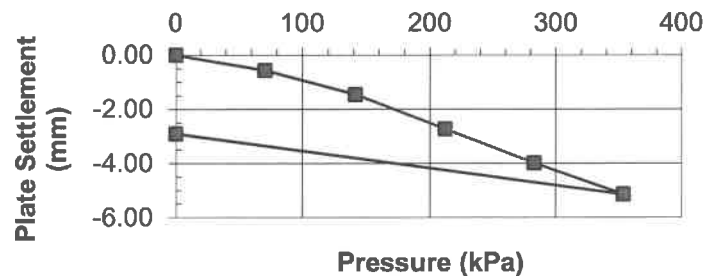
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	5	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
2562	3161	3054	2926	0.00	0.00	0.0
2501	3105	3003	2870	-0.56	5.00	70.7
2428	3018	2895	2780	-1.45	10.00	141.5
2301	2891	2765	2652	-2.73	15.00	212.2
2215	2743	2621	2526	-3.99	20.00	282.9
2108	2615	2510	2411	-5.15	25.00	353.7
2325	2841	2738	2635	-2.91	0.00	0.0



Pressure at 1.25 mm deflexion =	126 kPa
Modulus of subgrade reaction (k) =	100 MPa/m
Equivalent 762 mm plate reaction =	44 MPa/m
Equivalent CBR =	6.9 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



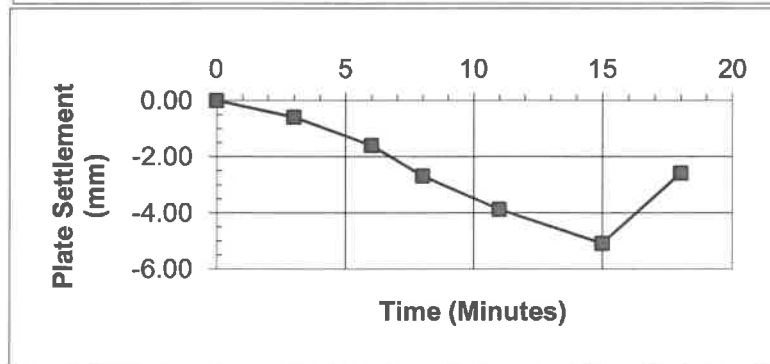
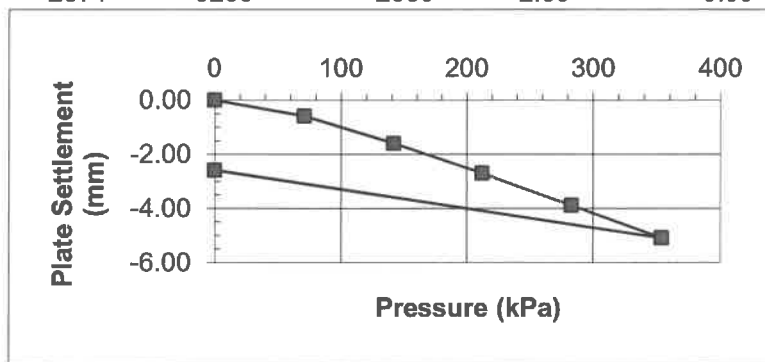
TEST CERTIFICATE

PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

CLIENT	LK Remediate		
SITE	Piercy Street, New Islington, Beswick, Manchester M4 7EJ		
JOB NUMBER	MRN 3817/19		
TEST LOCATION	6	LOADING DEVICE	20 Tonne Enerpac Jack
TEST DATE	08-Sep-20	PLATE SIZE (mm)	300 diameter
TEST DEPTH	Surface	REACTION LOAD USED	Site Plant
MATERIAL UNDER TEST	Subbase, Type-1	MOISTURE CONTENT	Not Required

Dial Gauge 1 (mmx100)	Dial Gauge 2 (mmx100)	Dial Gauge 3 (mmx100)	Mean Gauge (mmx100)	Mean Deflection (mm)	Load (kN)	Pressure (kPa)
2278	2641	3508	2809	0.00	0.00	0.0
2220	2580	3451	2750	-0.59	5.00	70.7
2098	2508	3341	2649	-1.60	10.00	141.5
2015	2389	3215	2540	-2.69	15.00	212.2
1912	2261	3089	2421	-3.88	20.00	282.9
1789	2128	2983	2300	-5.09	25.00	353.7
2015	2371	3265	2550	-2.59	0.00	0.0



Pressure at 1.25 mm deflexion =	117 kPa
Modulus of subgrade reaction (k) =	94 MPa/m
Equivalent 762 mm plate reaction =	41 MPa/m
Equivalent CBR =	6.1 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 09-Sep-20

Based across the UK with
offices in Manchester,
London, Liverpool and Glasgow.

Manchester (Head Office)

Unit 29,
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

London

Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



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