



**SR3943-VR VALIDATION REPORT
MARCH 2022**

For land at

OWL LANE, CHIDSWELL, WAKEFIELD

Prepared for

BARRATT & DAVID WILSON HOMES, YORKSHIRE WEST





REPORT NUMBER:	SR3943-VR	REPORT STATUS:	FINAL
REPORT TYPE:	VALIDATION REPORT FOR REMEDIAL AND PREPARATORY WORKS		
REPORT DATE:	MARCH 2022		
SITE:	OWL LANE, CHIDSWELL, WAKEFIELD		
PREPARED FOR:	BARRETT & DAVID WILSON HOMES, YORKSHIRE WEST		
PREPARED BY:	SIRIUS REMEDIATION LTD 4245 PARK APPROACH THORPE PARK LEEDS LS15 8GB		

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VALIDATION REPORT FOR REMEDIAL AND PREPARATORY WORKS**on land off****OWL LANE, CHIDSWELL****(PHASE 1 – PLOTS 1 to 133 and 223 to 260)****Prepared for****BARRATT & DAVID WILSON HOMES, YORKSHIRE WEST****CONTENTS**

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1. INTRODUCTION

Background

1.1. Sirius Remediation Limited (Sirius) was commissioned by Barratt & David Wilson Homes, Yorkshire West to undertake remedial and preparatory works for their proposed residential developments on land at Chidswell, off Owl Lane, Dewsbury (Wakefield). The site location plan is provided as Drawing No. SR3786VR-01 within Appendix A.

The development comprises 246 No. low rise residential properties with associated gardens, infrastructure, highways, and areas of public open space (POS). The proposed site development plan is provided as Drawing No. SR3786VR-02 within Appendix A. The site is split into two development phases (Phase 1 and Phase 2) as shown on Drawing No. SR3786VR-03 within Appendix A.

The works outlined in this report validate the remedial and preparatory earthworks undertaken within the Phase 1 area (northern part of the site) although reference is occasionally made to Phase 2. Phase 1 includes the following Plots 1 to 133 and 223 to 260 and their associated infrastructure. It is understood that traditional shallow strip and/or trench fill foundations bearing onto natural strata are proposed for the site.

1.2. This verification report excludes the placement and validation of topsoil and/or subsoil or the verification of ground gas protective measures, which are understood to be undertaken by others as the development is built out.

Terms of Reference

The principal sources of information used to inform the remedial and preparatory works were as follows:

- Groundtech Consulting, 2018. Phase II Geo-Environmental Report. Dated 7 December 2018. Report Reference 17047/117.
- Groundtech Consulting, 2021. Supplementary Topsoil Appraisal. Dated February 2021. Report Reference GRO-17047-1952.

The documents listed above form the principal source of information for this project and should be read in conjunction with this validation report.

Objectives of the Remedial and Preparatory Works

The principal objectives of the remedial and preparatory works were:

- 1.3.
- To discharge the relevant planning conditions pertaining to contaminated land;
 - To minimise the risks to human health and the environment whilst undertaking the works;
 - To construct a development platform (to agreed levels and gradients) for subsequent construction of the proposed development and associated infrastructure;
 - To satisfy the Local Authority environmental health department and building warranty provider that the remediated site will provide a site ready and suitable for the proposed development; and
 - In the interests of sustainability, to promote the use of site-won materials where possible providing they are suitable for the proposed end-use.

Parties to the Works

- 1.4. The principal parties to the enabling and remedial earthworks include:

- **Barratt & David Wilson Homes Yorkshire West:** Client and Developer.
- **Sirius Remediation Ltd:** Design and build contractor for the remedial and preparatory works.
- **Kirklees Council:** Local Planning Authority and Highways Authority
- **NHBC:** Building Warranty Provider

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2. BACKGROUND INFORMATION

Introduction

The site is located in Chidswell, off Owl Lane, approximately 2km north-east of Dewsbury Town centre. The national grid reference for the approximate centre of the site is 426577, 422766.

2.1. Site Description and Features (Pre-Remediation)

The site is approximately 7.7 hectares in area and represents a rectangular parcel of land with an area protruding from the south-west corner. The eastern part of the site is approximately level before sloping down-gradient in a south-westerly direction. The north-eastern part of the site is approximately 15m higher in elevation than the western part of the site.

Historical Development

Historically the site has been used as an agricultural field. A building (Rhubarb Shed) was formerly located in the approximate centre of the site; however, this was demolished in the 1980s.

2.4. Recorded Geology

Made ground is shown to the east of the site associated with colliery spoils and an infilled railway cutting. No superficial deposits are indicated to underlie the site. The solid geology comprises of the Pennine Middle Coal Measures. The Top Haigh Coal seam and the Low Haigh Coal seam both outcrop on the site.

Proven Ground Conditions

The site geology is summarised in Table 2-1. There is a possibility that the Top Haigh Moor Coal seam may have been worked close to the surface.

Table 2-1: Site Geology

Depth (m bgl)	Geological Description	Location
0.23 to 0.55	Reworked TOPSOIL and occasional MADE GROUND.	Site wide
0.71 to 1.80	Residual firm to stiff CLAY with, locally, gravelly SAND.	North-east

0.35 to 1.80	Weak to very weak MUDSTONE, locally very weak SANDSTONE. [Pennine Lower Coal Measures]. Occasional coal seams present.	Site wide
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Hydrology and Hydrogeology

The bedrock in this area is classified by the Environment Agency as a Secondary 'A' Aquifer. These are generally aquifers formerly classed as minor aquifers. A tertiary river forms the southern corner boundary of the site before entering a culvert beneath Owl Lane.

Identified Contamination

No visual or olfactory evidence of contamination was observed during the intrusive works. Chemical analysis undertaken by Groundtech Consulting determined the following:

- **Metals** – Elevated concentrations of arsenic was widespread across the site in reworked soil.
- **Polycyclic Aromatic Hydrocarbons (PAHs)** – Elevated PAHs (benzo(a)pyrene) was identified within reworked topsoil in four locations.
- **Asbestos** – Low-level asbestos containing materials were encountered within reworked topsoil across the northern part of the site (Phase 1). Quantification testing generally identified <0.001% mass by volume asbestos and a maximum of 0.044%. Three areas of potential asbestos contaminated topsoil (Area A, B and C) were defined within the Phase 1 area.

Assessment determined that not all the reworked topsoil was suitable for retention at shallow depth within private gardens, but that it may be retained on-site with some placed below a clean cover layer and used within areas of public open space; or disposed off-site to an appropriately licensed waste facility.

Hazardous Ground Gases / Vapours

Groundtech Consulting determined that basic radon precautions are necessary for the site.

3. REMEDIATION AND PREPARATORY WORKS

General

The primary objective of the remediation works was to discharge the relevant planning conditions pertaining to contaminated land whilst mitigating the transient and long-term risks to receptors, including human health and the environment from contaminants within made ground and natural soils. In brief, this was achieved by the careful on-site management and segregation of site won soils. Remedial and preparatory earthworks were undertaken under a Materials Management Plan (MMP), prepared in accordance with the CL:AIRE Definition of Waste Code of Practice which was subject to a Qualified Person's declaration.

Scope of Works

3.2. The main elements of the remedial and preparatory works were as follows:

- Site clearance of surface materials and removal of existing vegetation from the development area to facilitate works.
- Chemical characterisation of stockpiled materials for off-site disposal.
- Topsoil stripping and testing to determine suitability for reuse, and either retained on site for future use depending on chemical and textural suitability or disposed of to a suitably licensed facility (more detail provided below).
- Undertake cut and fill earthworks in accordance with the Sirius Specification for Engineered Fills, to achieve the following remediation levels:
 - Plots 500mm below proposed finished floor levels.
 - Roads 630mm below proposed finished road levels.
 - Northern Open Spaces 600mm below finished ground levels.
- Laboratory and in-situ geotechnical and chemical testing throughout the works to demonstrate achievement of earthworks performance.
- Carrying out a watching brief during all the above to identify any previously unidentified sources of contamination.
- Preparation of a validation report, by a suitably qualified GE providing a record of the remedial and preparatory works undertaken, including the results of all testing to demonstrate the integrity of the works, and to confirm that works have been carried out in accordance with the approved implementation plan.

The works are to be undertaken in two phases to prevent cross contamination between low level ACM impacted reworked topsoil located in the northern part of the site and reworked topsoil not reported as containing ACMs in the southern part of the site.

The two phases are defined as follows:

- **Phase 1** – representing the northern part of the site.

Careful stripping and stockpiling of reworked topsoil in **Phase 1** ahead of relocation within POS below a minimum 600mm clean cover layer constructed over a geotextile separator. A clean cover layer is not required in areas outside of the specific POS.

- **Phase 2** – representing the southern part of the site.

Careful stripping and stockpiling of reworked topsoil in **Phase 2** ahead of off-site disposal or stockpiling for re-use as cover soils across POS.

In addition, the following works are required to be undertaken by others:

- Placement and validation of a “clean cover” capping layer of minimum thickness 600mm (including a minimum 150mm thickness of topsoil) in POS areas where residual asbestos impacted soil have been relocated at depth, using validated approved site-won and/or clean imported soils.

3.3.

Contract Programme

The remedial and preparatory earthworks began in September 2021 and were completed in January

3.4. 2022.

Health and Safety

The works were undertaken in accordance with a Health and Safety Plan compiled by Sirius in accordance with the current version of the Construction (Design and Management) Regulations. There were no notifiable incidents during the remedial and preparatory earthworks.

4. EARTHWORKS

General

Site works were undertaken in general accordance with the Department of Transport's Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works - Series 600, dated February 2016 (MCHW Series 600). Throughout the remedial and preparatory earthworks, a

- 4.1. watching brief was undertaken by the site management team, which included a suitably qualified GE.

Earthworks

Site remedial and preparatory works were undertaken using conventional earthmoving plant.

- 4.2. Remediated formation levels were achieved by 'cut and fill' earthworks using site-won engineered fill. In general the site was cut into natural strata however, <500 mm of fill was placed under Plots 236 and 243 and fill of up to 3 m was re-engineered into areas of removed coal or where restricted fills were placed at depth. A 'base of excavation' survey is presented as Drawing No. SR3786VR/04 within Appendix A.

A post-remediation 'as-built' survey is presented as Drawing No. SR3786VR/05 in Appendix A.

4.3. Material Classification

Geotechnical testing of representative samples of materials proposed for re-use within the earthworks were undertaken to allow classification in accordance with MCHW Series 600. Representative samples were taken by the GE and sent to Professional Soils Laboratory (PSL), a UKAS accredited soil testing laboratory. These were scheduled for a suite of testing generally including particle size distribution (PSD), moisture content, dry density / moisture content relationship (2.5kg compaction), particle density and Atterberg limits. The samples and testing results are summarised in Table 4-1. Copies of laboratory test certificates are presented in Appendix C to this report.

Table 4-1: Summary of Geotechnical Classification Testing

Sample Ref.	Description	MCHW Series 600 Classification	PSL Report Ref.
GF1	Grey-brown CLAY	Class 2C	PSL21/7934
GF2	Grey-brown CLAY	Class 2C	PSL21/7934

GF3	Stiff, yellow-grey CLAY.	Class 2A	PSL21/9197
GF4	Stiff, yellow-grey CLAY.	Class 2A	PSL21/9197
GF5	Stiff, yellow-grey CLAY.	Class 2A	PSL21/9197
GF6	Very stiff, yellow-brown, gravelly CLAY.	Class 2C	PSL21/9616

Six samples of site-won cohesive fills (samples GF1 to GF6) returned gradings in general accordance with the requirements of MCHW Series 600. Three samples (samples GF1, 2 and 6) for Class 2C fill and three samples (GF3, 4 and 5) in general accordance with the requirements of MCHW Series 600 for Class 2A fill.

Compaction

- 4.4. Compaction was undertaken using a self-propelled vibratory roller with a mass per metre width of between 2,900kg and 3,600kg. Class 2A/2C fills were placed in controlled layers to a method compaction using Method 2 specification in accordance with the Series 600 MCHW i.e. four passes of the roller with 200mm thick layers. Engineered fill placed beneath access roads was proof rolled and tested to confirm California Bearing Ratio (CBR) value.

4.5. In-Situ Geotechnical Testing

In situ geotechnical testing comprising sand replacement density (SRDs) and plate bearing tests (PBTs) were carried out under subcontract by PSL as the engineering works progressed to confirm the quality of the earthworks. The locations of in situ testing positions are shown on Drawing No. SR3786/VR-06, within Appendix A. Copies of test certificates are presented within Appendix C.

Sand Replacement Density Testing

SRD testing was undertaken during the works, on areas where site won fill was used to raise the development level. In situ SRDs were carried out to determine the dry density and percentage air voids of compacted materials. Results of SRDs undertaken in engineered fill below plots and on highways were compared to geotechnical test results obtained from 2.5kg 'Proctor' compaction tests.

A total of 14 no. SRD tests were carried out on re-engineered Class 2A/2C fills at varying depths of placement throughout the earthworks. The results of this testing indicate that the fill engineered has been compacted effectively to achieve less than 5% air voids at all testing locations except for a

marginal failure in SRD14 (which achieved air voids of 5.2%). Copies of in situ test certificates are presented within Appendix C.

Plate Load Testing

A total of 20 no. PLTs were undertaken on remediated formation level on Class 2A/2C clays along the alignment of proposed highways at 50m centres at remediated formation level.

The results of PLTs undertaken are summarised within Table 4-2. Copies of laboratory test certificates are presented within Appendix C.

Table 4-2: Summary of Plate Bearing Tests

Number of Tests	20
Maximum CBR	18.5%
Minimum CBR	2.1%
Mean CBR	5.7%
Median CBR	4.7%

The variations in CBR values shown within Table 4.3 are considered to be due to localised variations in moisture content and the presence of stony material within Class 2A/2C fill. Based upon the results detailed within Table 4-2, including settlement results of <10mm and CBR values consistently above the target CBR of 2%, it is considered that compaction has been undertaken to an appropriate standard. It was determined by the pre-works site investigation that the engineered fill should be able to achieve a CBR of 2 to 3%; this was achieved at 15 of the 20 tested locations. Where CBRs were below 2% these locations were re-engineered and retested. Copies of laboratory test certificates are presented within Appendix C.

5. CONTAMINATION AND REMEDIATION

Asbestos Impacted Topsoil

Site investigation works identified three potential hotspots of asbestos impacted soils on the site:

- 1) a large area in the north-west (Area A);
- 5.1. 2) an area in the west (Area B); and
- 3) a small area to the east of Area B (Area C).

The aforementioned areas and the sampling locations used to determine the extent of asbestos impacted soils are shown on Drawing: SR3786/VR06 within Appendix A. These areas were isolated, excavated and relocated at depth within the POS. The relocation of this material is shown in Drawing: SR3786/VR07 in Appendix A.

Three series of sampling events (see STA, STB and STC in Table 5-1) were undertaken to determine the extent of asbestos impacted soils. In total 37 soil samples were obtained. Six samples determined asbestos content to be above the 0.001% acceptance level (peak 0.006%). Table 5-1 also provides details of the number of validation samples that were obtained to validate successful remediation of asbestos impacted soils (99 validation samples). Testing certificates are provided in Appendix D.

Table 5-1: Summary of Asbestos Testing

Sample Series ID	Description	No. of Samples	No. of positive Asbestos IDs
STA	Site investigation used to determine the extent of identified hotspots	15	5
STB	Site investigation used to determine the extent of identified hotspots	15	0
STC	Site investigation used to determine the extent of identified hotspots	7	1

Area B TSS	Validation that remaining soils in Area B (location of Hotspots) were clean and safe for reuse	20	0
ES -TSS	Validation that the remaining Phase 1 topsoil stockpile was safe for reuse	20	0
Area A	Consisting of Base Validation samples and side wall samples to validate the successful relocation of Asbestos containing soils from Area A	21	0
Area B	Consisting of Base Validation samples and side wall samples to validate the successful relocation of Asbestos containing soils from 1/3 of Area B	13	0
Area B a	Consisting of Base Validation samples and side wall samples to validate the successful relocation of Asbestos containing soils from 2/3 of Area B	21	0
Area C	Validation of a small extraction of localised asbestos containing soil to the east of Area B	4	0

5.2.

Heavy Metal and PAH Impacted Topsoil

Following the remediation of asbestos impacted soils, the remaining topsoil from the Phase 1 area was stripped and stockpiled. Chemical testing undertaken identified elevated heavy metals including arsenic, with some instances of elevated lead and copper. Elevated PAHs were also identified. These soils were removed from site. Chemical testing certificates (Chemtest, 21-36821-1 and 21-36190) are provided in Appendix D.

6. MINEWORKINGS AND COAL

Following the stripping of topsoil in the north-east of the Phase 1 area a suspected mine entry was identified. The suspected mine entry was rectangular in shape measuring approximately 2.5m x 1.5m and had been backfilled. The location of the suspected mine entry is shown on Drawing: SR3786/VR08 in Appendix A.

Preliminary investigations through open-hole borehole drilling was undertaken by Sirius Drilling Limited to confirm the depth of the suspected mine entry. The drilling identified soft made ground from surface to 27 m bgl. No drilling returns were obtained from 3 m to 27m bgl. The drillers logs are provided in Appendix E. Further works may be required in this area to mitigate risk associated with potential mining features.

Shallow coal, from the Top Haigh Moor Coal seam, can be found across the north-east of the site (Drawing: SR3876/VR09 within Appendix A). Approximately 200m³ of coal that outcropped or was at shallow depths in the gardens of the plots was removed to a depth of 1m below finished formation level. The coal was relocated to be placed under 600mm of clean cover in the POS. The excavations in the gardens were backfilled with site won Class 2C general fill.

7. SITE GENERATED SOILS AND GENERAL FILL

Topsoil

Under the Phase 1 works a small area of Phase 2 was stripped of soil and prepared to remediated formation level for use as a stockpiling area. Approximately 1,600m³ of topsoil was generated from this area and retained on site in stockpile. In addition, soils from the southern corner of the site (within 7.1. the area of the proposed attenuation tank in Phase 2) were stripped and removed from site.

A total of 20 No. samples of stockpiled topsoil (ES-TSS-01 to ET-TSS-20, i.e. at a frequency of one sample per 100m³, as detailed within the agreed Earthworks Specification), were subject to chemical laboratory testing by Chemtest Ltd, a UKAS and MCERTS accredited testing laboratory, under subcontract to Sirius. All samples were analysed for a suite of determinands, including: asbestos, heavy metals, speciated PAHs, pH, sulphate, total organic carbon and TPH CWG. Chemical testing confirmed contaminant concentrations similar to those assessed during the development of the remediation strategy and support the conclusion that topsoil from Phase 2 area is suitable to use as cover soils in POS areas on the development. Detailed Chemtest laboratory certificates 21-36821-1 included within Appendix D.

7.2. General Fill

Surplus subsoils generated from Phase 1 earthworks, have been stockpiled on prepared area within Phase 2, discussed above. This is shown on the As Built Survey (SR3876/VR05) in Appendix A. This Class 2C material consists of natural site won clay and some gravel of mudstone from Phase 1 and is for use on Phase 2 to achieve Phase 2 levels as part of future works. Part of the works included the installation of bunds and other surface water management measures, which should be maintained and adapted as for surface water management control.

8. CONSTRAINTS

The following site constraints exist:

- i. Earthworks were limited to the Phase 1 area with Phase 2 being identified for future work.
- ii. The presence of shallow coal below some plots and sections of highway means that there is the potential for foundations to intercept coal during foundation construction and drainage installation on site.
- iii. Restricted fill has been placed under a geotextile within an area of POS as shown Drawing: SR3786VR-08 within Appendix A.
- iv. The suspected mine entry will probably require some form of treatment to secure stabilisation e.g. drilling and grouting and/or capping. The Client and Groundtech have been informed and a decision on how to proceed is to be made.

9. CONCLUSIONS

This document confirms that the Phase 1 remedial and preparatory earthworks have been carried out on land off Chidswell Lane, Chidswell in accordance with the agreed Sirius Earthworks Strategy. The development comprises of 246 No. low rise residential properties with associated gardens, infrastructure, highways, and areas of public open space.

Chemical testing was undertaken to confirm that asbestos impacted soils on site had been successfully identified and removed from site.

Geotechnical testing was undertaken throughout the earthworks which confirmed that the remedial earthworks had been undertaken to a satisfactory standard.

10. FURTHER WORKS REQUIRED

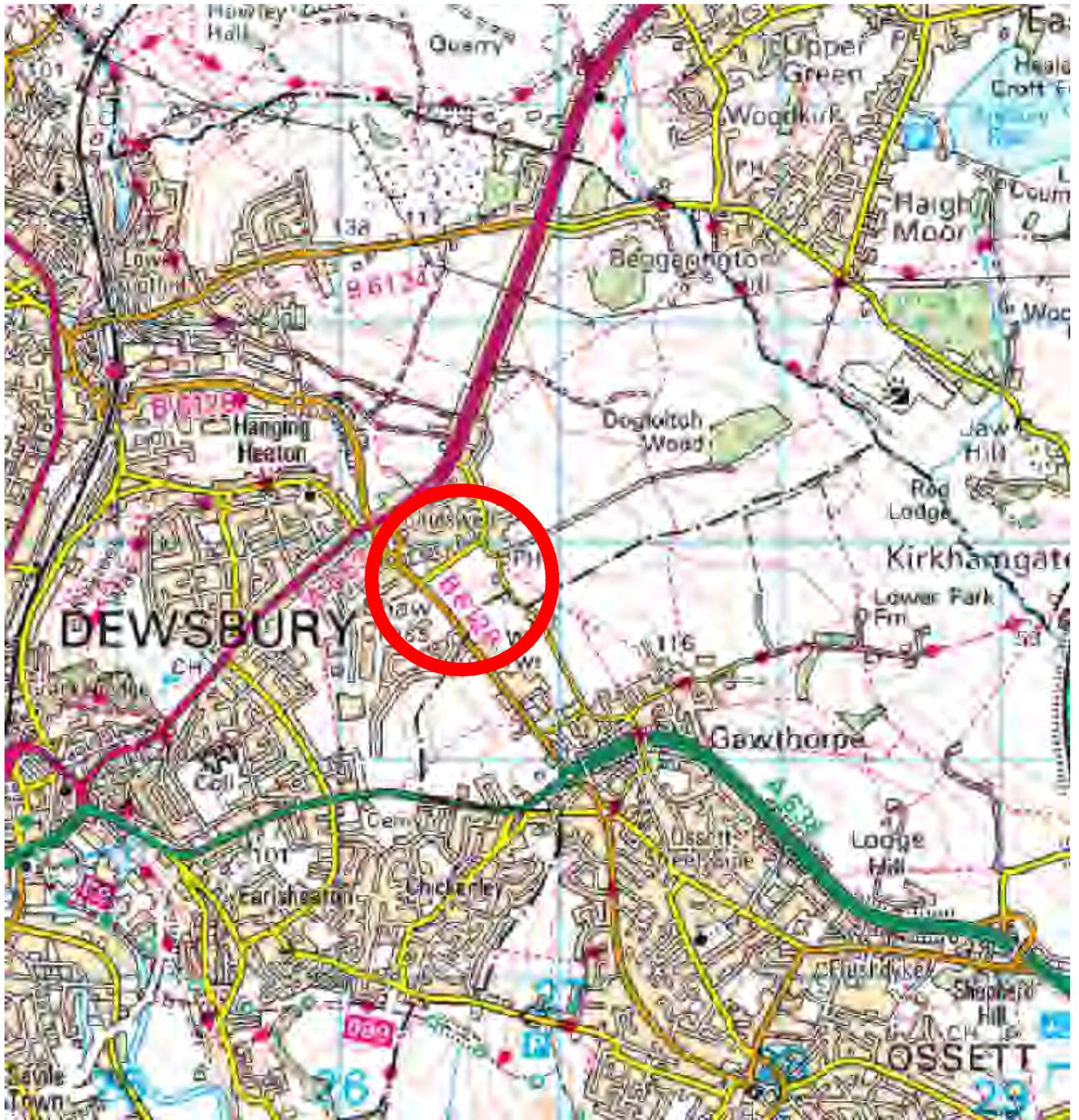
Additional works to be undertaken by others include:

- The commencement of earthworks in the Phase 2 area.
- Maintenance of surface water management strategies to prevent flooding and to integrate clean wastewater outflows from the site until sufficient drainage is implemented on the site.
- Subject to feedback and advice from Groundtech Consulting and Sirius Drilling, further works may be required on the potential mine entry located in the north-east of part Phase 1. This work should be undertaken by a suitably qualified contractor and engineer and a certificate or validating report attained to confirm the completion of the works.
- Basic radon precautions are required for the site to be installed by others.

Additional reports will be required to be produced by a suitably qualified GE as gardens/landscaped areas are completed and validation of the final placement, thickness and quality of the clean cover layer is undertaken to satisfy the Local Planning Authority and NHBC. It is considered that a programme of laboratory testing will be required to confirm the chemical suitability of imported topsoil.



APPENDIX A
DRAWINGS



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NOTES

 Site Location

REVISION		CLIENT Barratt & David Wilson Homes Yorkshire West	DRAWING NO.	REVISION NO.	
0	For Information		SR3786/VR/01	0	
A	>>				
B	>>				
C	>>				
D	>>	SITE Owl Lane, Chidswell	DRAWN BY MF	APPROVED BY JH	
SIRIUS GEOTECHNICAL LTD 4245 Park Approach, Thorp Park, Leeds LS15 8GB www.thesiriusgroup.com TEL: 0113 264 9960 FAX: 0113 264 9962		DRAWING TITLE Site Location Plan	DATE January 2022	SCALE 1:25,000	A4





NOTES

REVISION	BY	DATE
0	For Information	MF 31/01/22
A	>>	>> >>
B	>>	>> >>
C	>>	>> >>
D	>>	>> >>

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 FAX: 0113 264 9962

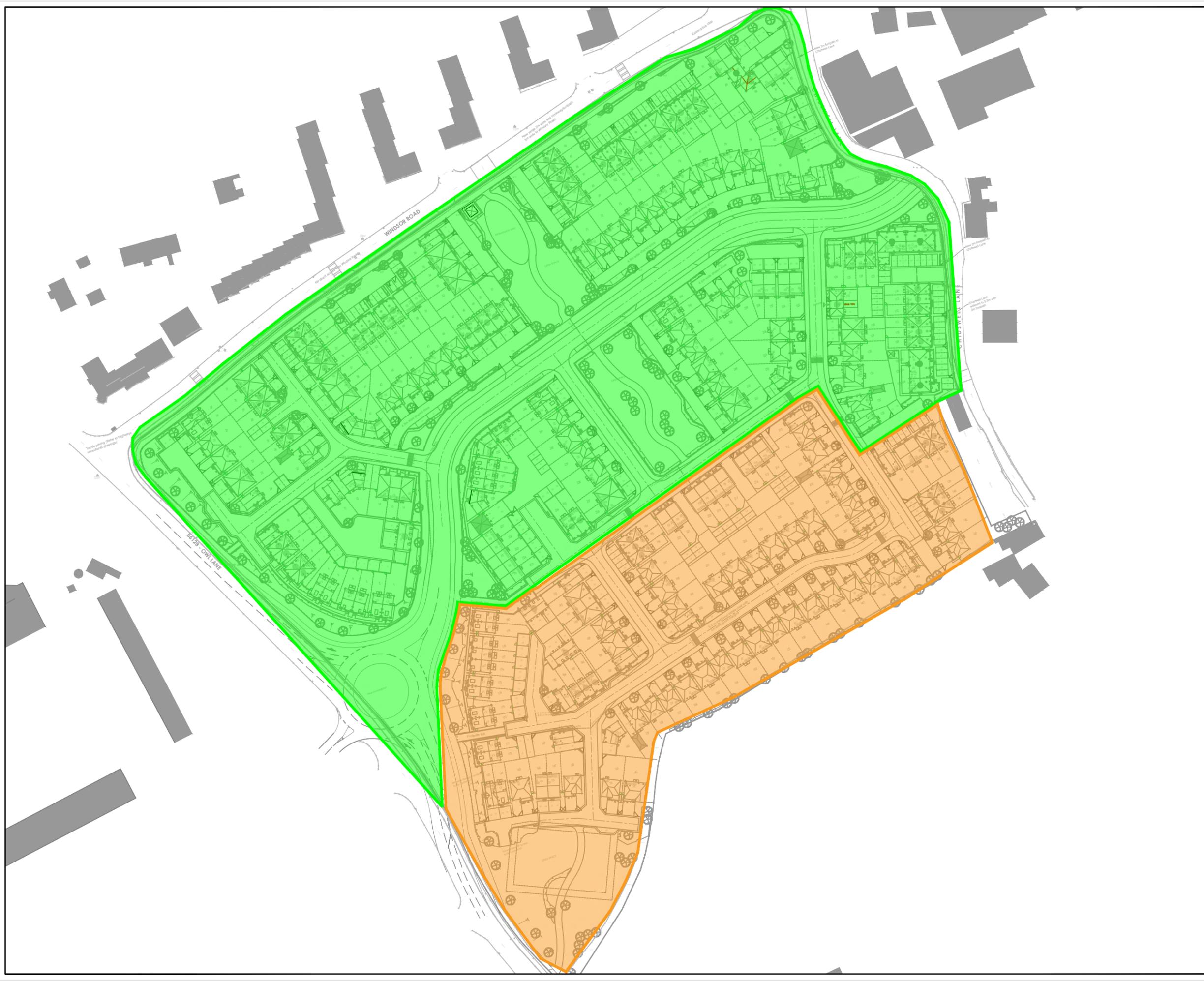


CLIENT
 Barratt & David Wilson
 Homes Yorkshire West

SITE
 Owl Lane,
 Chidswell

DRAWING TITLE
 Site Layout Plan

DRAWING NO. SR3786/vr/02	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE January 2022	SCALE 1:1,500
	PAPER SIZE A3



NOTES

- Phase 1
- Phase 2

REVISION	BY	DATE
0	For Information	MF 28/02/22
A	>>	>> >>
B	>>	>> >>
C	>>	>> >>
D	>>	>> >>

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CLIENT

**Barratt & David Wilson
Homes Yorkshire West**

SITE

**Owl Lane,
Chidswell**

DRAWING TITLE

**Remediation Works
Phasing Plan**

DRAWING NO. SR3786/VR/03	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE February 2022	SCALE 1:1,500
	PAPER SIZE A3



NOTES

- Restricted fill placed at depth between 1.4m and 0.6m, then covered by 600mm clean capping.
- Phase 1 Boundary
- Phase 2 Boundary

REVISION		BY	DATE
0	For Information	MF	31/01/22
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

**Barratt & David Wilson
 Homes Yorkshire West**

SITE

**Owl Lane,
 Chidswell**

DRAWING TITLE

Base of Excavation

DRAWING NO. SR3786/VR/04	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE January 2022	SCALE 1:1,500
	PAPER SIZE A3



NOTES

- Area handed over to M+J construction, prior to works completion.
- Sub-soil stockpile location
- Phase 1
- Phase 2

REVISION	BY	DATE
0	MF	31/01/22
A	>>	>>
B	>>	>>
C	>>	>>
D	>>	>>

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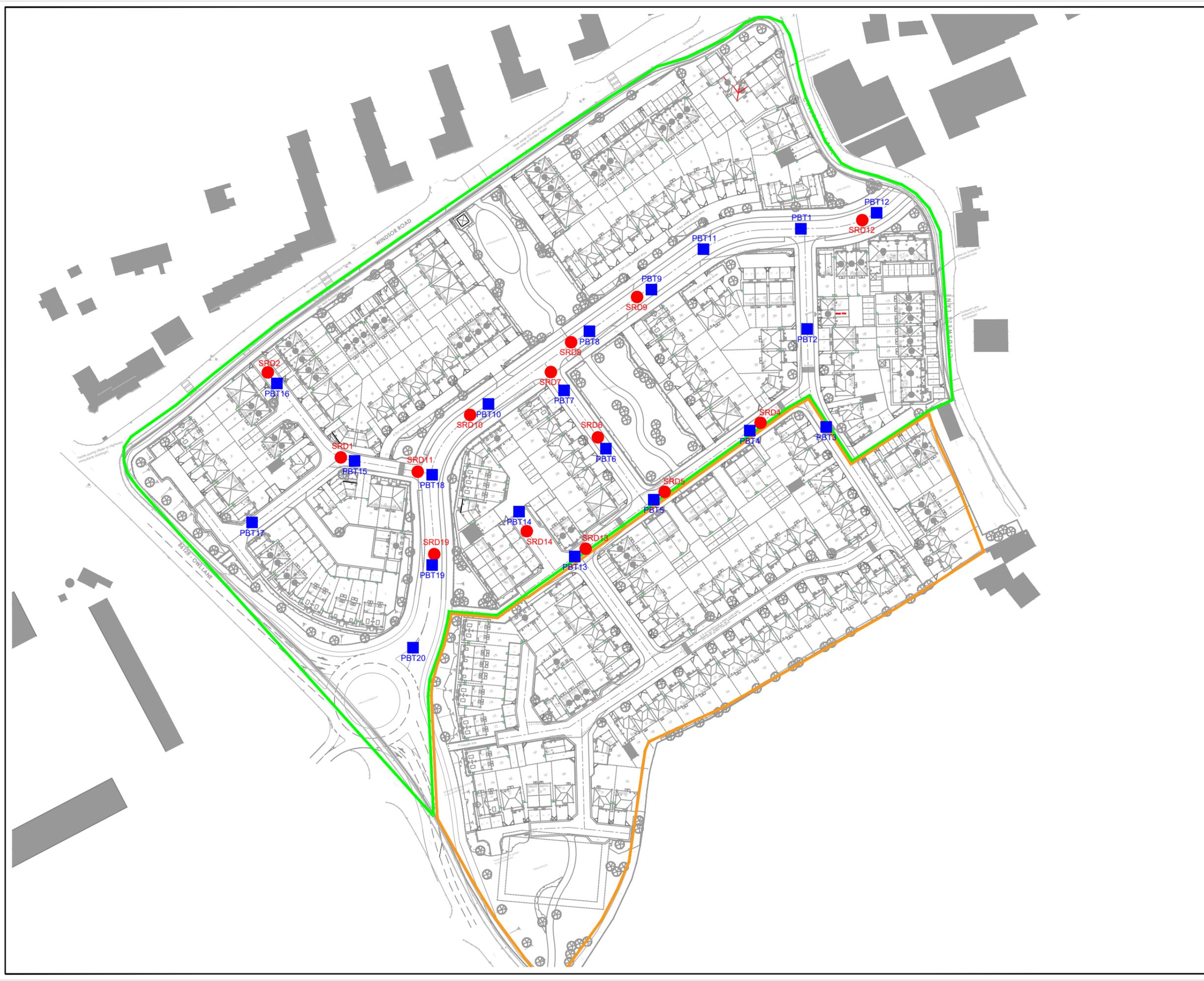
**Barratt & David
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 Yorkshire West**

SITE
**Owl Lane,
 Chidswell**

DRAWING TITLE
As Built Survey

DRAWING NO. SR3786/VR/05	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH

DATE February 2022	SCALE 1:1000	PAPER SIZE A2
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NOTES

- Plate Bearing Test
- Sand Replacement Density
- Phase 1
- Phase 2

REVISION		BY	DATE
0	For Information	MF	31/01/22
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS
 REMEDIATION LTD
 4245 Park Approach,
 Thorpe Park,
 Leeds
 LS15 8GB
www.thesiriusgroup.com
 TEL: 0113 264 9980
 FAX: 0113 264 9962

CLIENT

**Barratt & David Wilson
Homes Yorkshire West**

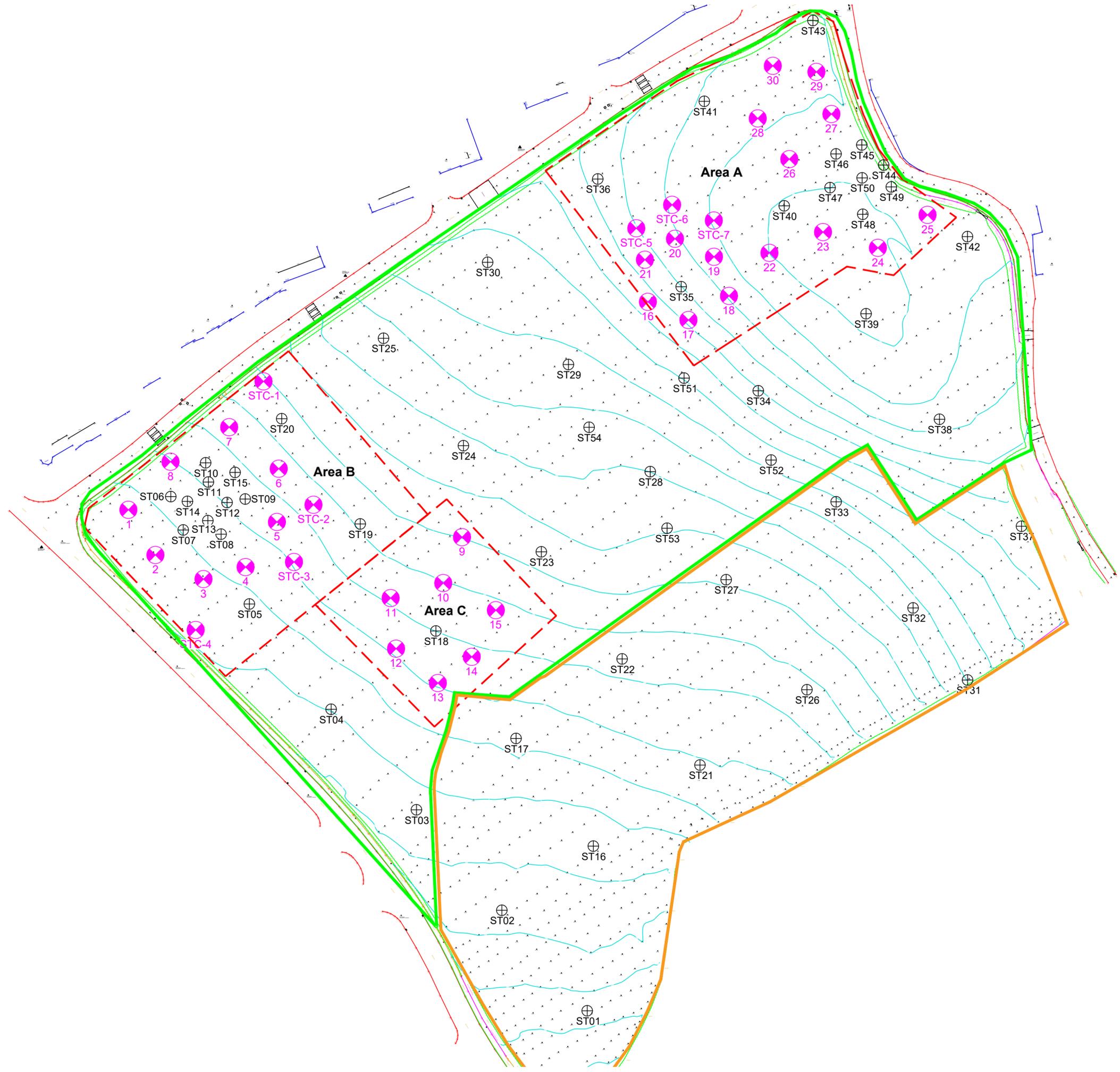
SITE

**Owl Lane,
Chidswell**

DRAWING TITLE

**Geotechnical Test
Locations**

DRAWING NO. SR3786/VR/06	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE February 2022	SCALE 1:1,500
PAPER SIZE A3	



- NOTES**
- Asbestos Sampling Locations
 - Groundtech Sampling Locations
 - Phase 1
 - Phase 2

REVISION	BY	DATE
0	For Information	SM 22/07/21
A	>>	>>
B	>>	>>
C	>>	>>
D	>>	>>

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 TEL: 0113 264 9960
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Barratt Homes

SITE
**Chidswell Lane,
Chidswell**

DRAWING TITLE
**Asbestos Areas and
Sampling Locations**

DRAWING NO. SR3786/VR/07	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE February 2022	SCALE 1:1,000
	PAPER SIZE A2



- NOTES**
- Low Haigh Moor Coal
 - Top Haigh Moor Coal
- In gardens, where coal is encountered, 1000mm of clean cover is required.
- Areas Allocated for Relocation
 - Areas of Near Surface Coal Removed (Arrows Show Where Coal was Relocated to)
 - Area of Asbestos Containing Soils (Arrows Show Relocation)
 - Phase 1
 - Phase 2

REVISION	BY	DATE
0	For Information	MF 07/02/22
A	>>	>>
B	>>	>>
C	>>	>>
D	>>	>>

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**Barratt & David Wilson
 Homes Yorkshire West**

SITE

**Owl Lane,
 Chidswell**

DRAWING TITLE

**Asbestos, Heavy Metal and
 Coal/Soil Relocation**

DRAWING NO. SR3786/VR/08	REVISION NO. 0	
DRAWN BY MF	APPROVED BY JH	
DATE February 2022	SCALE 1:1000	PAPER SIZE A2



NOTES

- Low Haigh Moor Coal
- Top Haigh Moor Coal
- Possible Mine Entry

In gardens, where coal is encountered, 1000mm of clean cover is required.

- Phase 1
- Phase 2

REVISION	BY	DATE
0	For Information	MF 07/02/22
A	>>	>>
B	>>	>>
C	>>	>>
D	>>	>>

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 FAX: 0113 264 9962



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**Barratt & David Wilson
 Homes Yorkshire West**

SITE

**Owl Lane,
 Chidswell**

DRAWING TITLE

**Locations of Coal Seams and
 Potential Mine Entry**

DRAWING NO. SR3786/VR/09	REVISION NO. 0
DRAWN BY MF	APPROVED BY JH
DATE February 2022	SCALE 1:1000
	PAPER SIZE A2



APPENDIX B

SITE PHOTOGRAPHIC RECORD



Photograph 01: Isolating contaminated topsoil areas where asbestos hotspots where identified (11.08.21).



Photograph 02: As above (11.08.21).



Photograph 03: Began stripping clean areas of topsoil not affected by asbestos (11.08.21).



Photograph 04: As above (11.08.21).



Photograph 05: Stripped soil up to the boundary dividing clean an asbestos containing soils (11.08.21).



Photograph 06: Rolling and sealing of stripped areas (11.08.2021).



Photograph 07: Removal of clean topsoil from the north-eastern site entrance (19.08.21).



Photograph 08: Stripped central area of site and stockpile of the topsoil (19.08.21).



Photograph 09: Cutting of main spine road to level for use as site access to vehicles (19.08.21).



Photograph 10: Completion of site stripping of phase 1 clean soils (25.08.2021).



Photograph 11: Identification of shallow coal, any coal removed was stockpiled for placement as restricted fill under POS (21.09.21).



Photograph 12: Excavation of restricted fill area from POS west of the identified asbestos soils (21.09.21).



Photograph 13: As above (21.09.2021).



Photograph 14: Air monitoring in place to ensure no asbestos fibers were airborne (23.09.21).



Photograph 15: Wetting asbestos containing soils prior to removal to prevent fibres becoming airborne (23.09.2021).



Photograph 16: Using a water bowser to emit a mist of water over the relocation pit while asbestos containing soils are being placed at depth (23.09.21).



Photograph 17: Removal of asbestos containing topsoil (23.09.21).



Photograph 18: Filling of restricted fill in POS with asbestos containing soils (27.09.21).



Photograph 19: Running material down the site to be placed in the restricted fill areas (27.09.21).



Photograph 20: Supplementary perimeter air monitoring undertaken around asbestos contaminated areas while earthworks where undertaken (01.10.21)



Photograph 21: As above (01.10.2021).



Photograph 22: Asbestos contaminated topsoil being dampened ready for extracted (01.10.2021).



Photograph 23: Moving excavated clean subsoil away from restricted fill areas (01.10.2021).



Picture 24: Digging of second restricted fill area on POS area for ACMs and any coal from gardens (04.10.2021).



Photograph 25: Burial of excavated coal in the bottom of the smaller area of the restricted fill area (05.10.2021).



Photograph 26: Removing of remaining ACM from the Northern area of the site to be placed in the restricted fill area under POS (05.10.2021).



Photograph 27: Sealing of first part of the second restricted area filled with ACMs (22.11.2021).



Photograph 28: Sealing of all areas across site (22.11.2021).



Photograph 29: Laying down a marker layer on top of the placed ACM and Coal in the POS's (23.11.2021).



Photograph 30: Identification of a possible mine entry in the NW of the site (25.11.2021).



Photograph 31: Heavy snow across the site (29.11.2021).



Photograph 32: As above (29.11.2021)



Photograph 33: Thawed snow restricting earthworks to the NE of the Site where ground consists of more granular material (30.11.2021).



Photograph 34: Excavated and cut subsoil stockpile on the phase 2 area (01.12.2021).



Photograph 35: Cutting in road in the NE of the site through the stone (01.12.2021).



Photograph 36: Cutting plot and retaining wall levels in the SW of the site (03.12.2021).



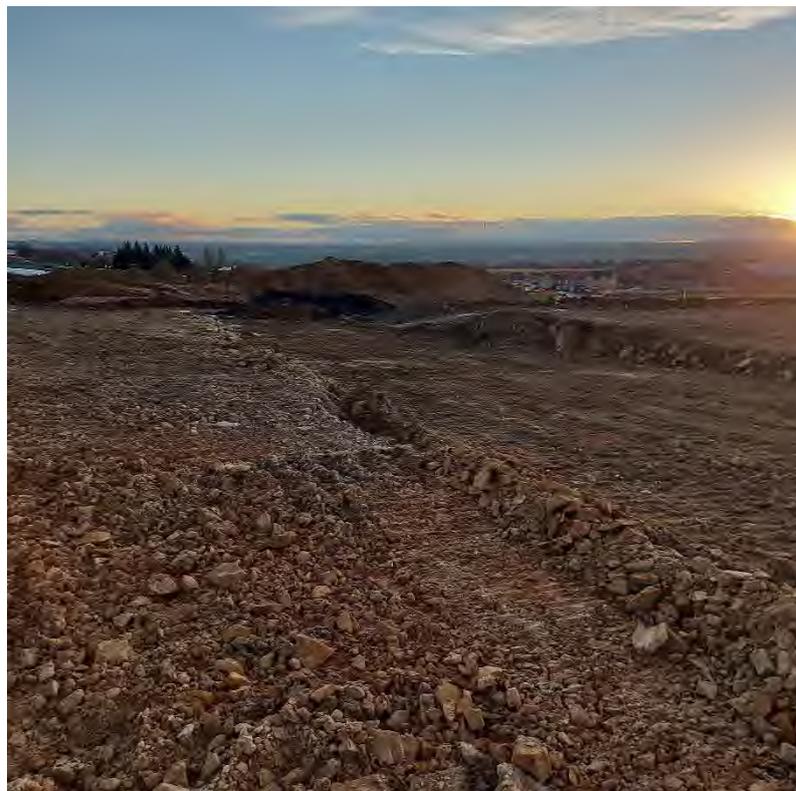
Photograph 37: Testing of the NW roads (06.12.2021).



Photograph 38: Removal of topsoil from the SW site entrance (13.12.2021).



Photograph 39: Location of shallow coal below gardens in the NE of the site (15.12.2021).



Photograph 40: Cut northern roads (15.12.2021).



Photograph 41: Removing of remaining surplus subsoil from the NE of the site (15.12.2021).



Photograph 42: Testing of roads on site (20.12.2021).



Figure 43: Preparation by Sirius Drilling to exploratory drill the potential mine entrance (21.12.2021).

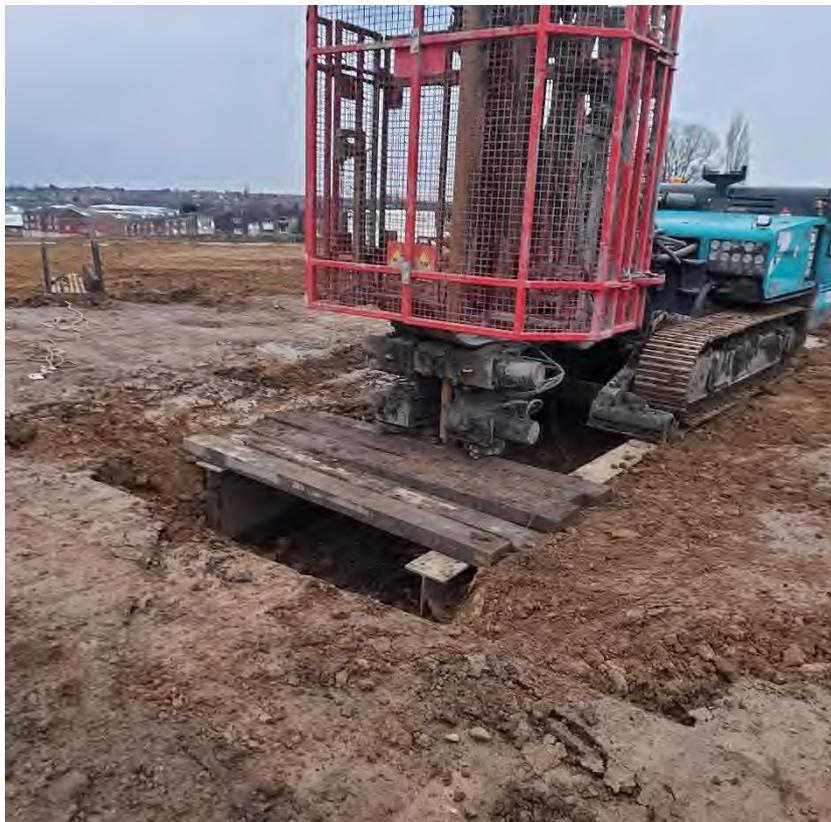


Figure 44: Drilling of the potential mine entrance (21.12.2021).



Photograph 45: Sealing of large stockpile.



Photograph 47: Water management bunds holding water on site (05.01.2022).



Photograph 48: Removal of final garden coal and surplus sub soil (05.01.2022).



Photograph 49: Final sealing of the completed northern part of the site (06.01.2022).



Photograph 50: Testing of remaining roads across site (11.01.2022).



APPENDIX C

LABORATORY GEOTECHNICAL TESTING RESULTS



LABORATORY REPORT



4043

Contract Number: PSL21/7934

Report Date: 03 November 2021
Client's Reference: SR3786-1
Client Name: Sirius Leeds
4245 Park Approach
Century Way
Thorpe Park
Leeds
LS15 8GB

For the attention of: Jack Holdsworth/Stephen Gleadhall

Contract Title: Owl Lane, Chidswell
Date Received: 6/10/2021
Date Commenced: 6/10/2021
Date Completed: 3/11/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

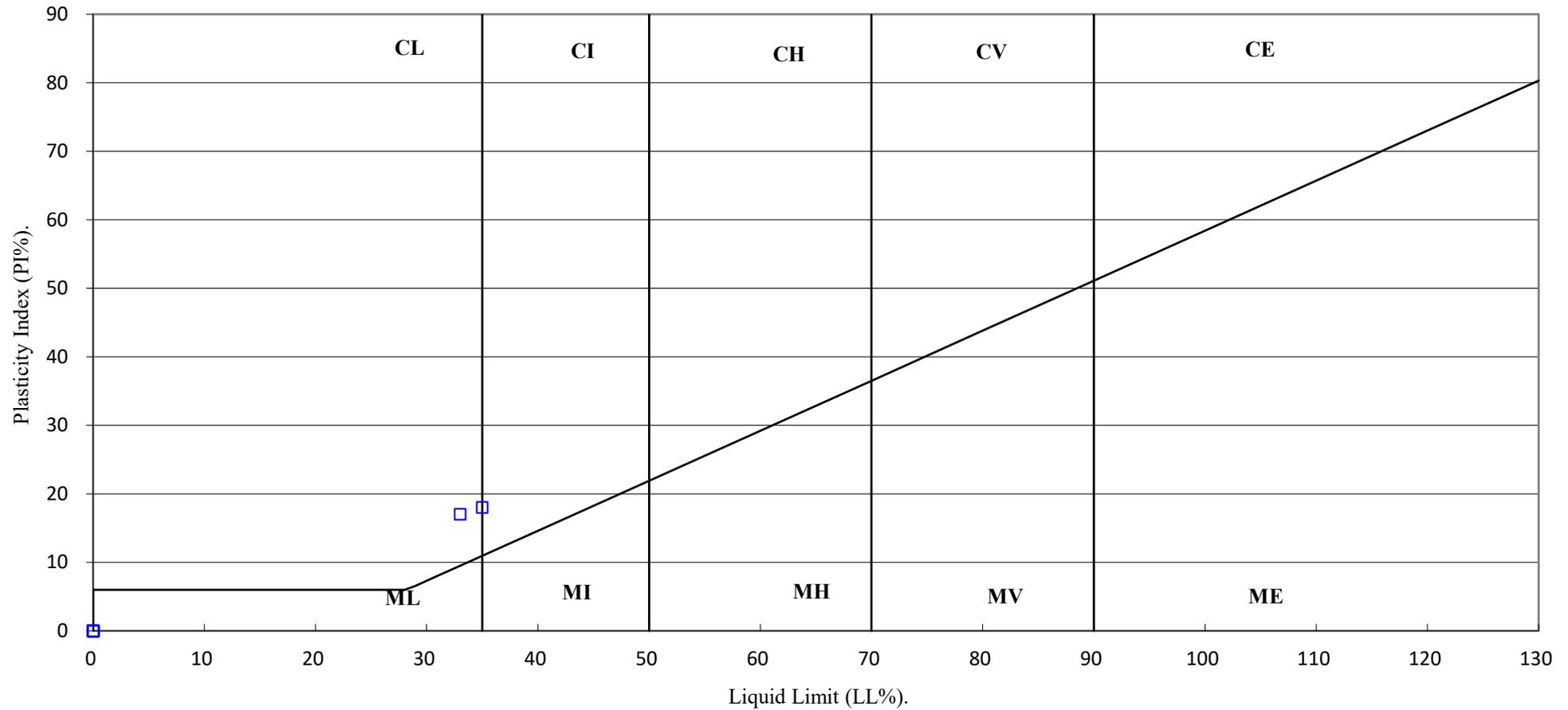
S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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awatkins@prosoils.co.uk

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL
Professional Soils Laboratory

Owl Lane, Chidswell

Contract No:

PSL21/7934

Client Ref:

SR3786

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

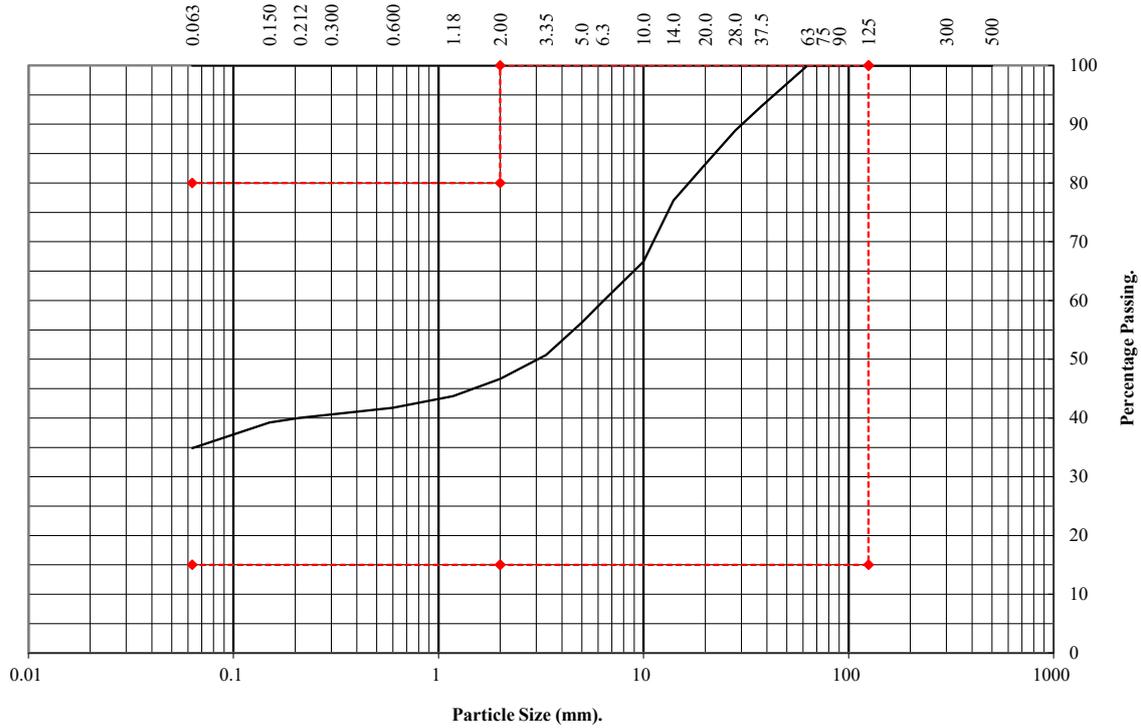
Classification for Acceptable Earthworks Materials

Sample Number: GF1

GF1

Classification Type: 2C

2C



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	100		
63	100		
37.5	93		
28	89		
20	83		
14	77		
10	67		
6.3	60		
5	56		
3.35	51		
2	47	15	80
1.18	44		
0.6	42		
0.3	41		
0.212	40		
0.15	39		
0.063	35	15	80

Remarks:
SHW Series 600 Table 6/2 :
Class 2C



Owl Lane, Chidswell

Contract No.:

PSL21/7934

Client Ref:

SR3786

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

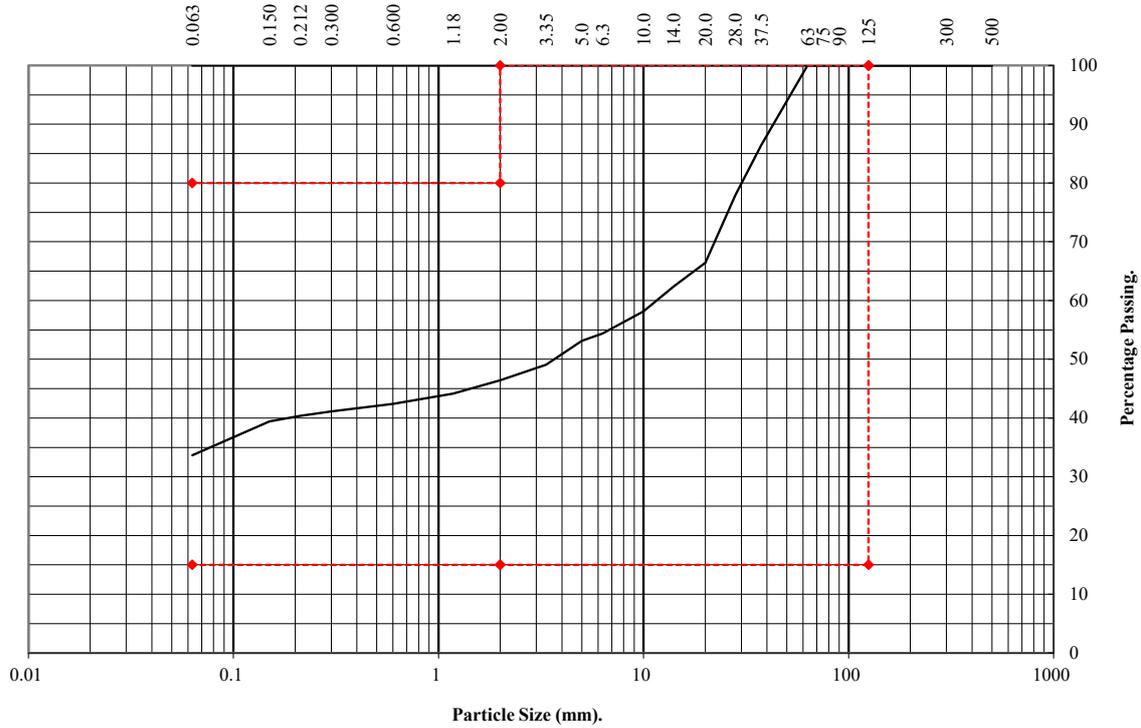
Classification for Acceptable Earthworks Materials

Sample Number: GF2

GF2

Classification Type: 2C

2C



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	100		
63	100		
37.5	86		
28	78		
20	66		
14	62		
10	58		
6.3	54		
5	53		
3.35	49		
2	46	15	80
1.18	44		
0.6	42		
0.3	41		
0.212	40		
0.15	39		
0.063	34	15	80

Remarks:
SHW Series 600 Table 6/2 :
Class 2C



Owl Lane, Chidswell

Contract No.:

PSL21/7934

Client Ref:

SR3786

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.4 : 1990

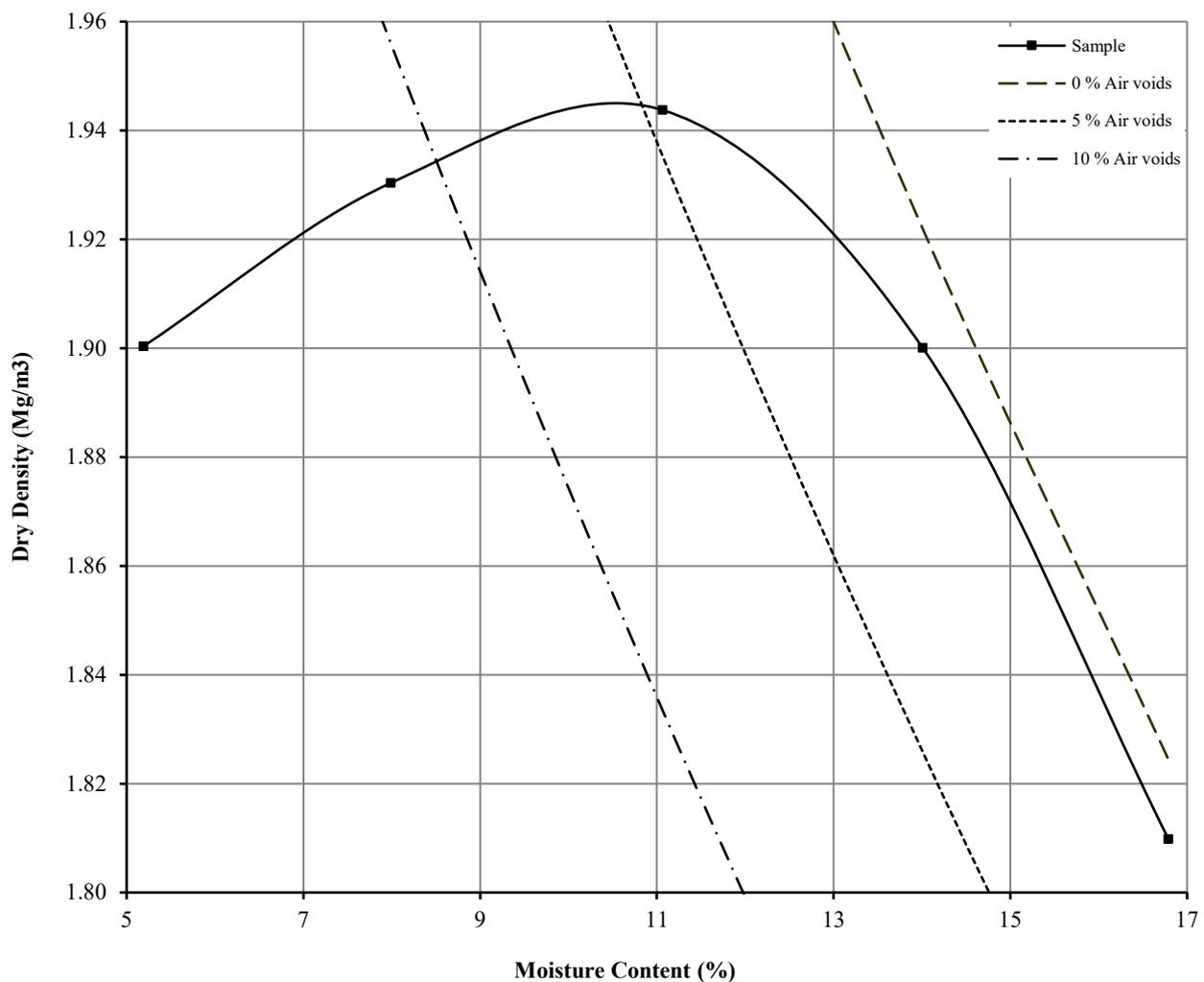
Hole Number: GF1

Top Depth (m) :

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	11	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.63	Measured	Material Retained on 37.5 mm Test Sieve (%):	7
Maximum Dry Density (Mg/m ³):	1.94		Material Retained on 20.0 mm Test Sieve (%):	10
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				



Owl Lane, Chidswell

Contract
PSL21/7934
Client Ref
SR3786



LABORATORY REPORT



4043

Contract Number: PSL21/9197

Report Date: 10 December 2021
Client's Reference: SR3786-2
Client Name: Sirius Leeds
4245 Park Approach
Century Way
Thorpe Park
Leeds
LS15 8GB

For the attention of: Jack Holdsworth/Stephen Gleadhall

Contract Title: Owl Lane, Chidswell
Date Received: 23/11/2021
Date Commenced: 23/11/2021
Date Completed: 10/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

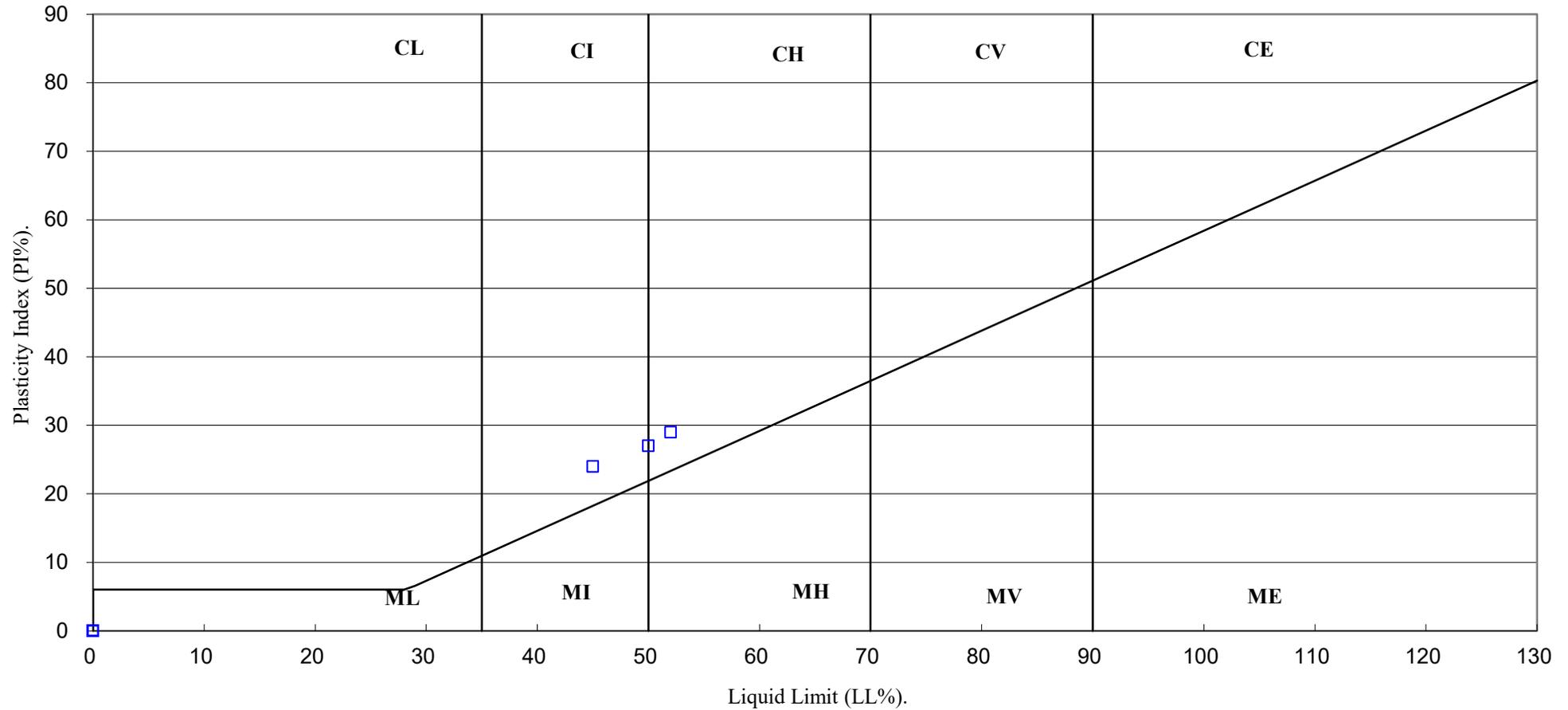
S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL
Professional Soils Laboratory

Owl Lane, Chidswell

Contract No:

PSL21/9197

Client Ref:

SR3786

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

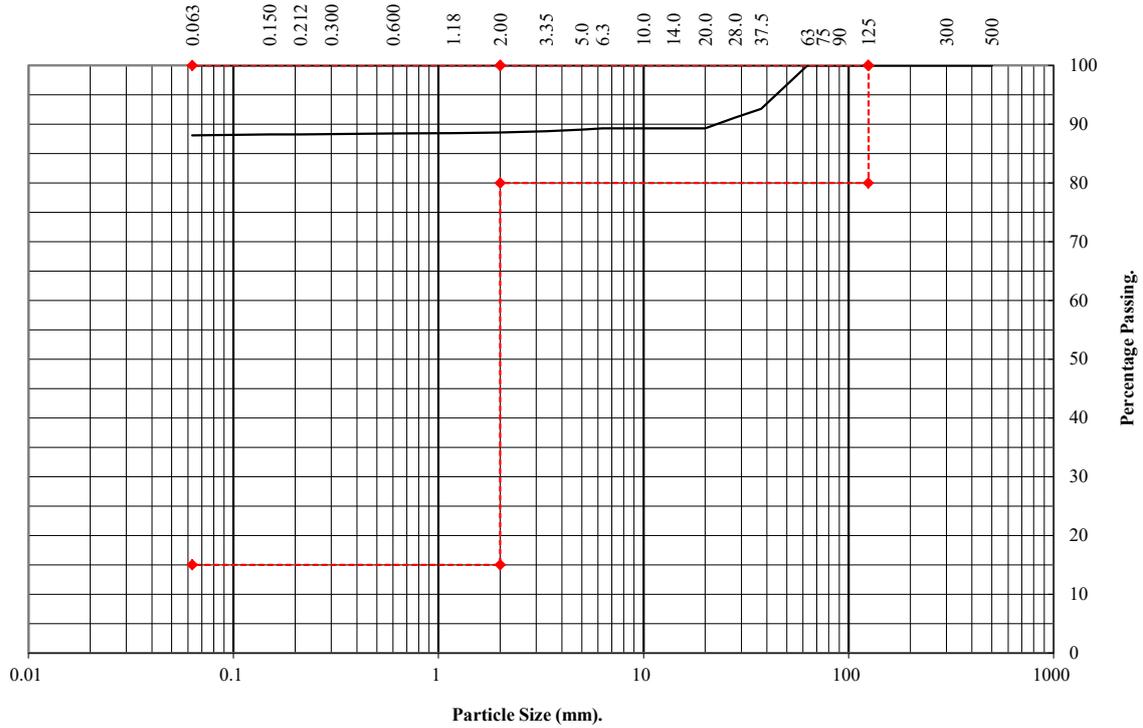
Classification for Acceptable Earthworks Materials

Sample Number:

GF3

Classification Type:

2A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	100		
63	100		
37.5	93		
28	91		
20	89		
14	89		
10	89		
6.3	89		
5	89		
3.35	89		
2	89	80	100
1.18	89		
0.6	88		
0.3	88		
0.212	88		
0.15	88		
0.063	88	15	100

Remarks:
SHW Series 600 Table 6/2 :
Class 2A



Owl Lane, Chidswell

Contract No.:

PSL21/9197

Client Ref:

SR3786

4043

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

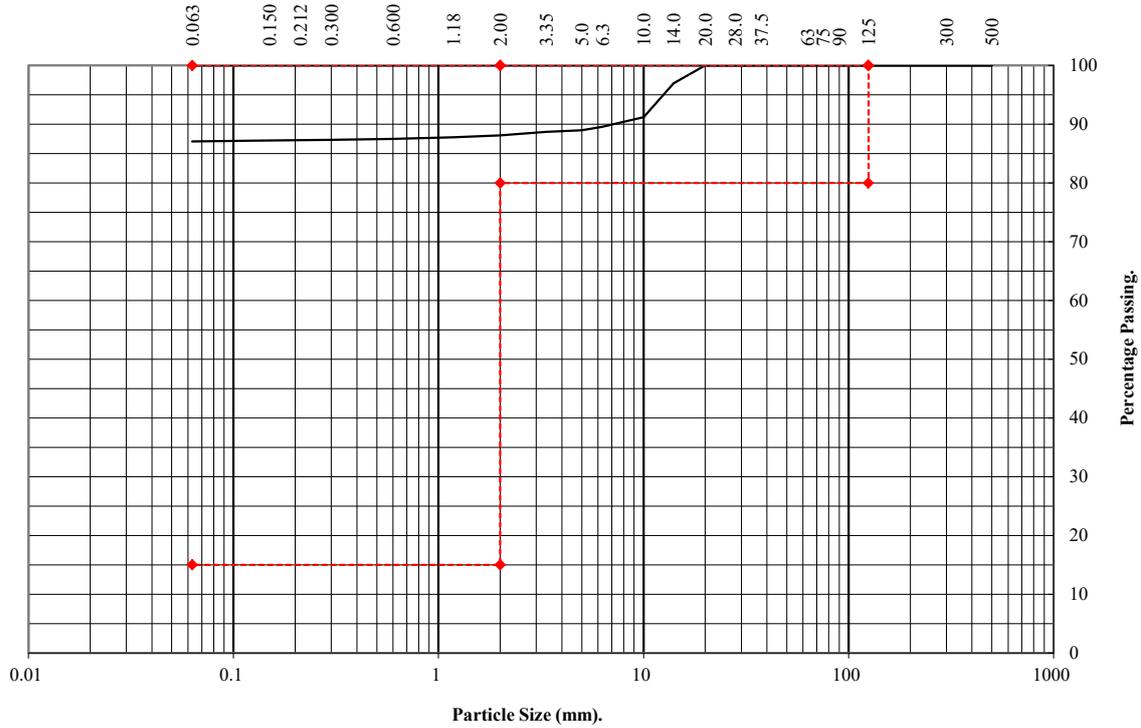
Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: GF4

Classification Type: 2A

Classification Type: 2A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	100		
63	100		
37.5	100		
28	100		
20	100		
14	97		
10	91		
6.3	90		
5	89		
3.35	89		
2	88	80	100
1.18	88		
0.6	88		
0.3	87		
0.212	87		
0.15	87		
0.063	87	15	100

Remarks:
SHW Series 600 Table 6/2 :
Class 2A



Owl Lane, Chidswell

Contract No.:

PSL21/9197

Client Ref:

SR3786

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

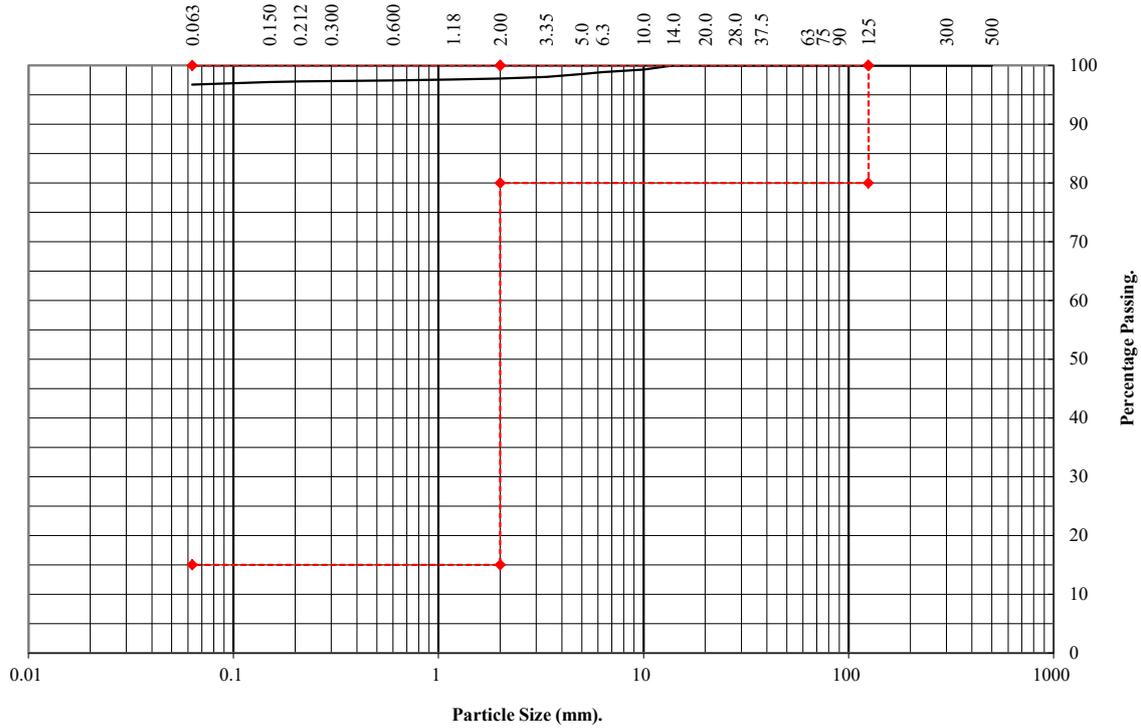
Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: GF5

Classification Type: 2A

Classification Type: 2A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	100		
63	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	99		
3.35	98		
2	98	80	100
1.18	98		
0.6	97		
0.3	97		
0.212	97		
0.15	97		
0.063	97	15	100

Remarks:
SHW Series 600 Table 6/2 :
Class 2A



Owl Lane, Chidswell

Contract No.:

PSL21/9197

Client Ref:

SR3786

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.4 : 1990

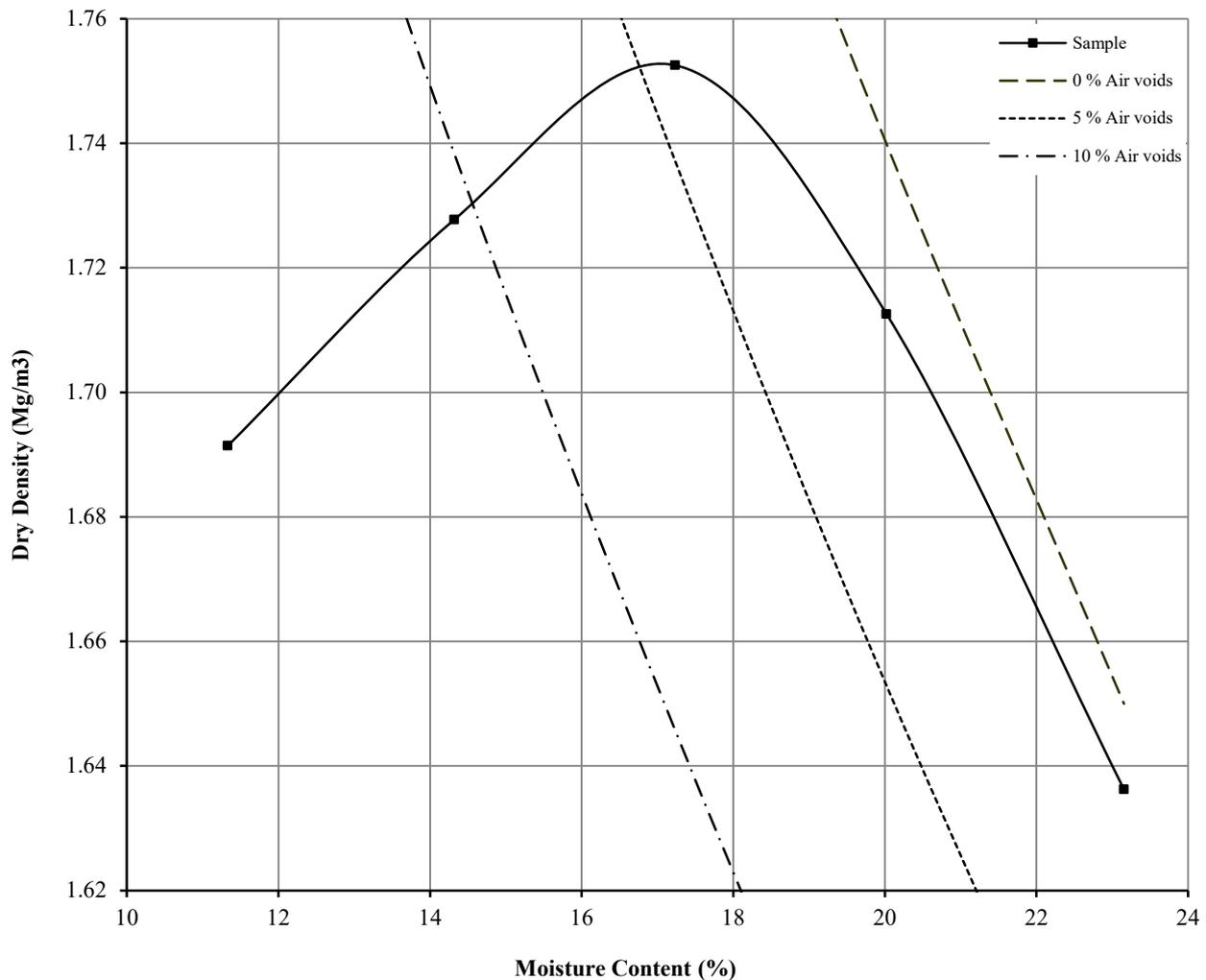
Hole Number: **GF3**

Top Depth (m) :

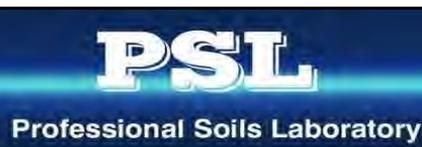
Sample Number:

Base Depth (m) :

Sample Type: **1XB**



Initial Moisture Content:	17	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Assumed	Material Retained on 37.5 mm Test Sieve (%):	7
Maximum Dry Density (Mg/m ³):	1.75		Material Retained on 20.0 mm Test Sieve (%):	4
Optimum Moisture Content (%):	17			
Remarks See summary of soil descriptions				



Owl Lane, Chidswell

Contract
PSL21/9197
Client Ref
SR3786



LABORATORY REPORT



4043

Contract Number: PSL21/9616

Report Date: 06 January 2022
Client's Reference: SR3786-2
Client Name: Sirius Leeds
4245 Park Approach
Century Way
Thorpe Park
Leeds
LS15 8GB

For the attention of: Jack Holdsworth/Stephen Gleadhall

Contract Title: Owl Lane, Chidswell
Date Received: 8/12/2021
Date Commenced: 8/12/2021
Date Completed: 6/1/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

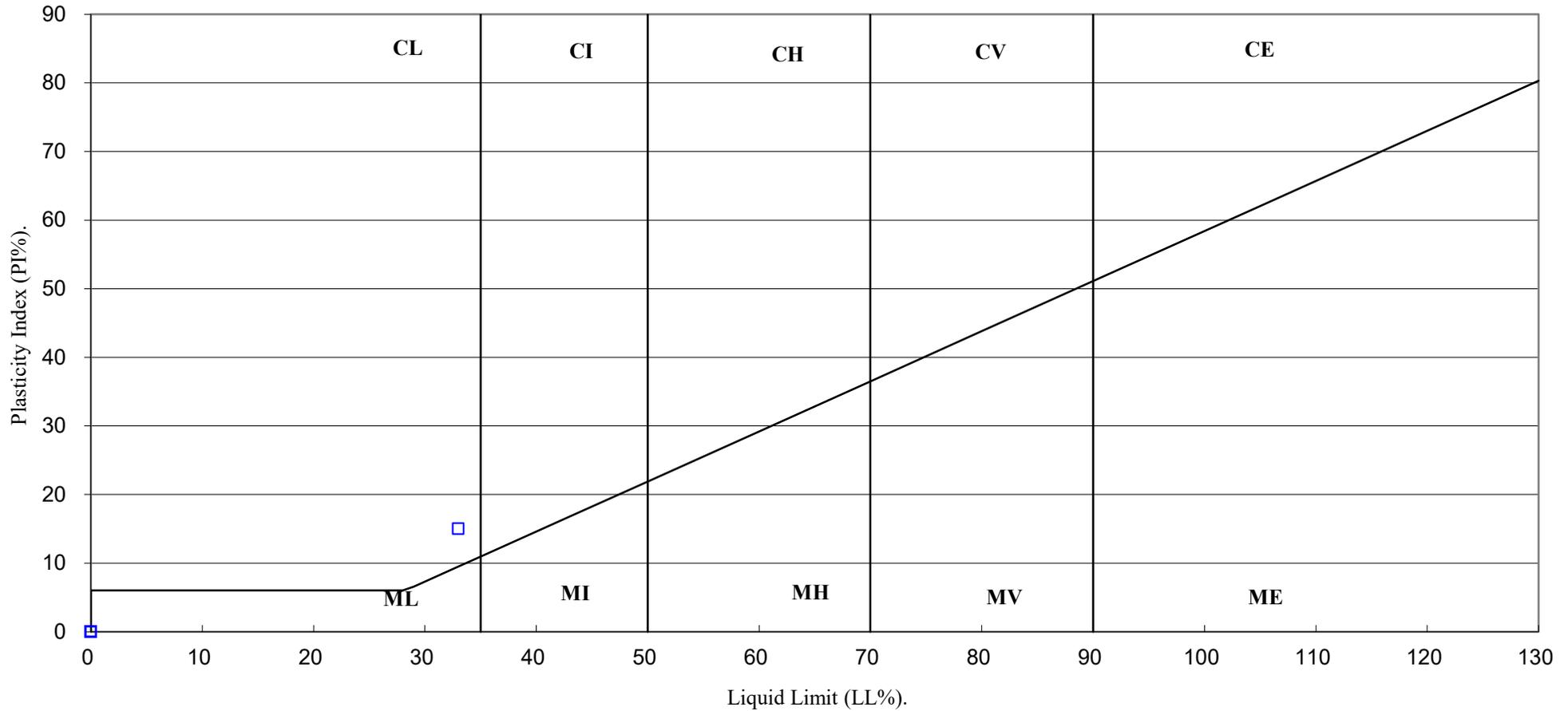
T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR

Page 1 of



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL
Professional Soils Laboratory

Owl Lane, Chidswell

Contract No:

PSL21/9616

Client Ref:

SR3786

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

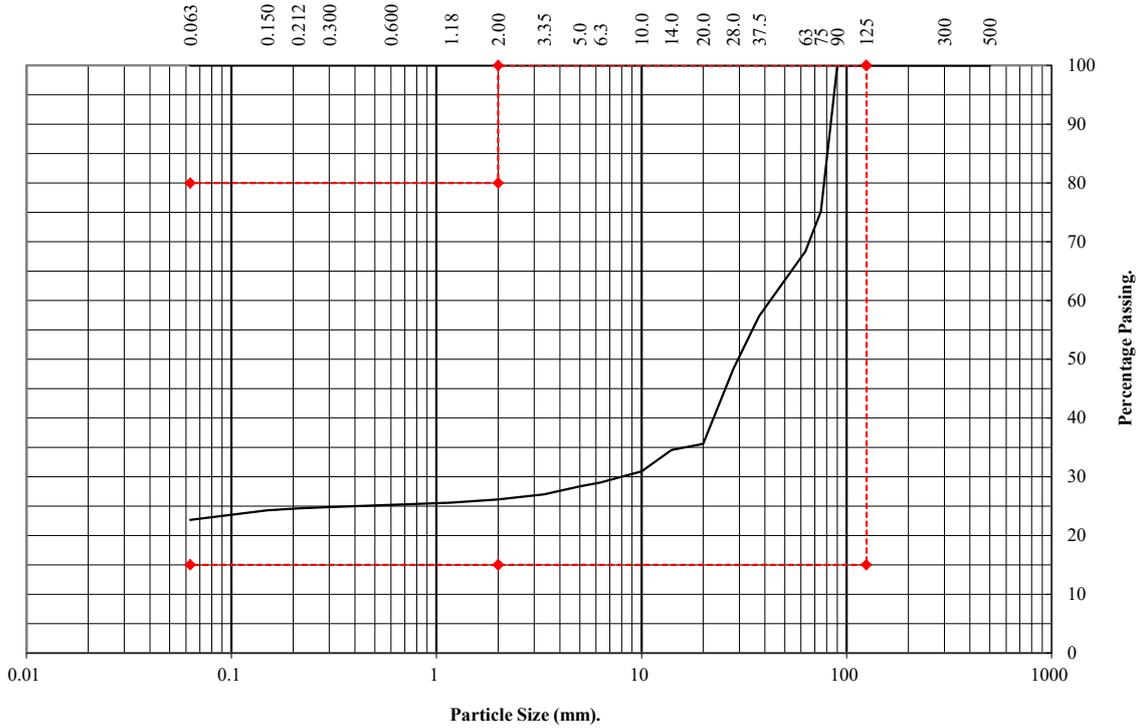
Classification for Acceptable Earthworks Materials

Sample Number: **GF6**

GF6

Classification Type: **2C**

2C



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100		
75	75		
63	68		
37.5	57		
28	48		
20	36		
14	35		
10	31		
6.3	29		
5	28		
3.35	27		
2	26	15	80
1.18	26		
0.6	25		
0.3	25		
0.212	25		
0.15	24		
0.063	23	15	80

Remarks:
SHW Series 600 Table 6/2 :
Class 2C



Owl Lane, Chidswell

Contract No.:

PSL21/9616

Client Ref:

SR3786

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

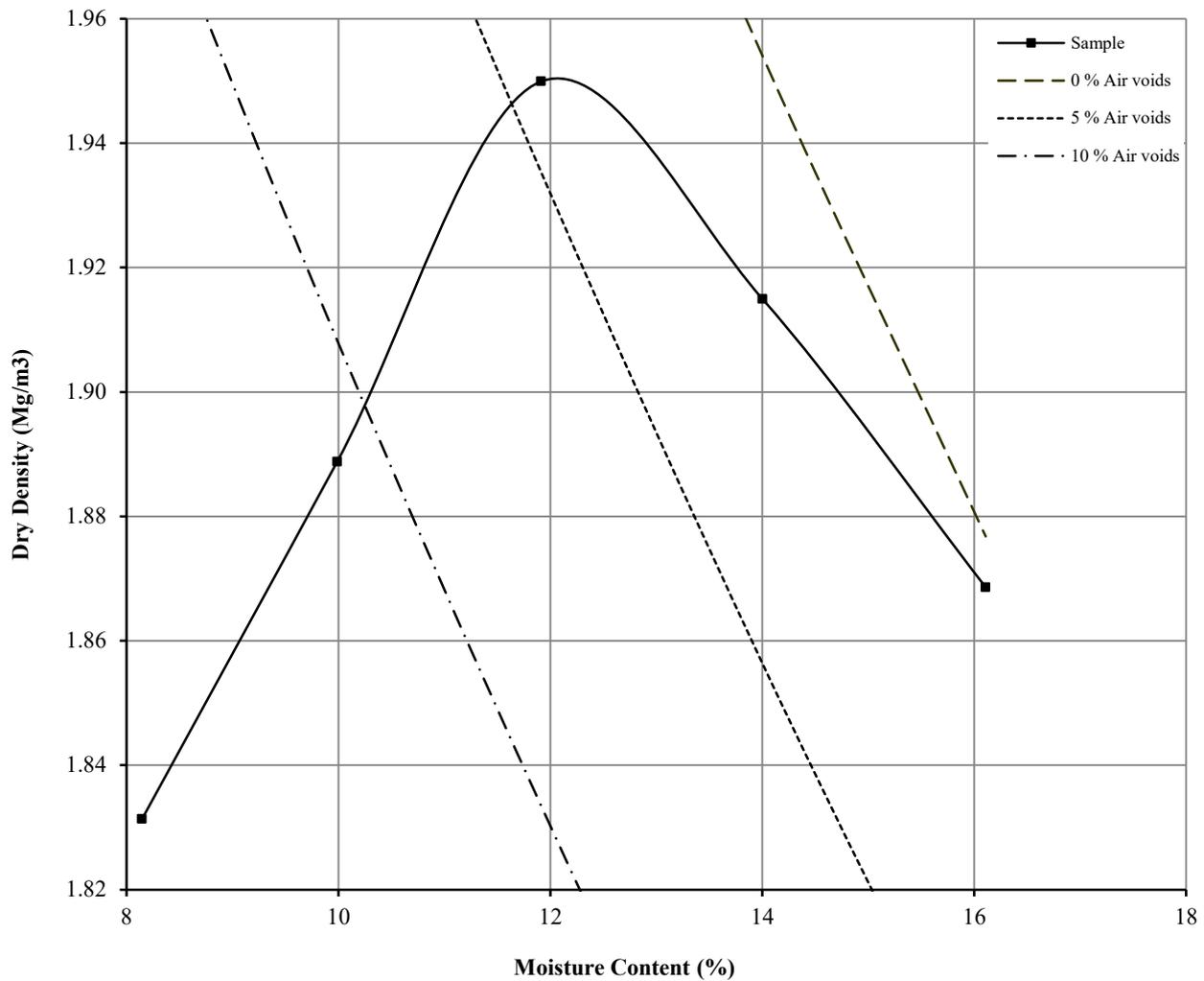
Hole Number: **GF6**

Top Depth (m) :

Sample Number:

Base Depth (m) :

Sample Type: **B**



Initial Moisture Content:	10	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.69	Assumed	Material Retained on 37.5 mm Test Sieve (%):	43
Maximum Dry Density (Mg/m ³):	1.95	Material Retained on 20.0 mm Test Sieve (%):	21	
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				



Owl Lane, Chidswell

Contract
PSL21/9616
Client Ref
SR3786



LABORATORY REPORT



4043

Contract Number: PSL21/9554

Report Date: 07 December 2021

Client's Reference:

Client Name: Sirius Environmental
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Holdsworth

Contract Title: Chidswell Lane, Dewsbury

Date Received: 6/12/2021

Date Commenced: 6/12/2021

Date Completed: 7/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 06-Dec-21

Test Position: PBT 1

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

104.74

Maximum Deformation (mm):

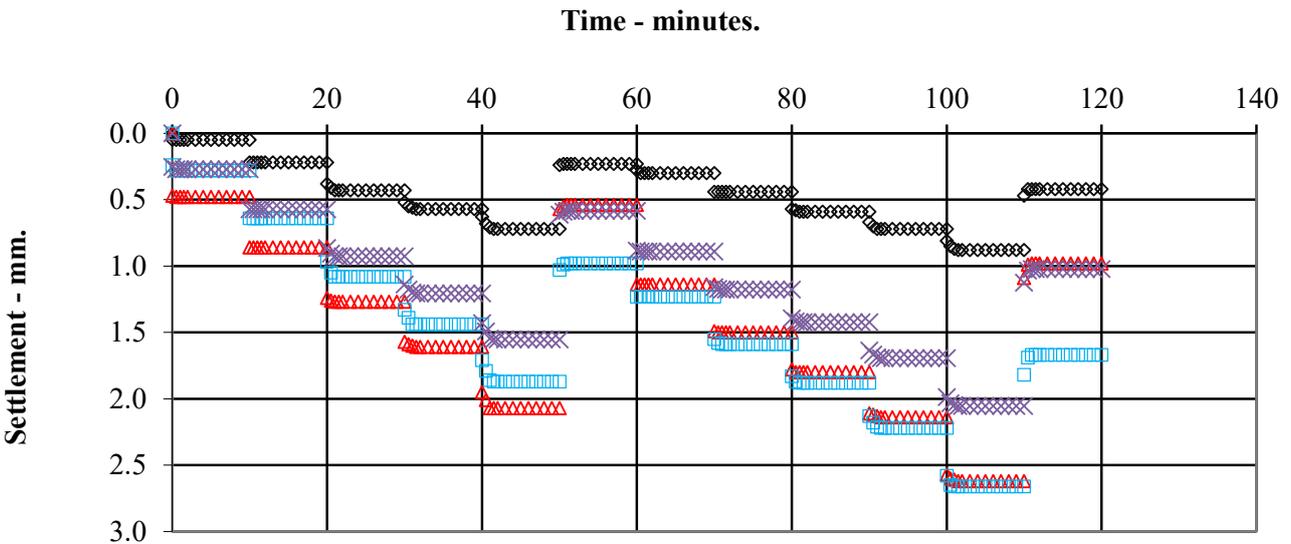
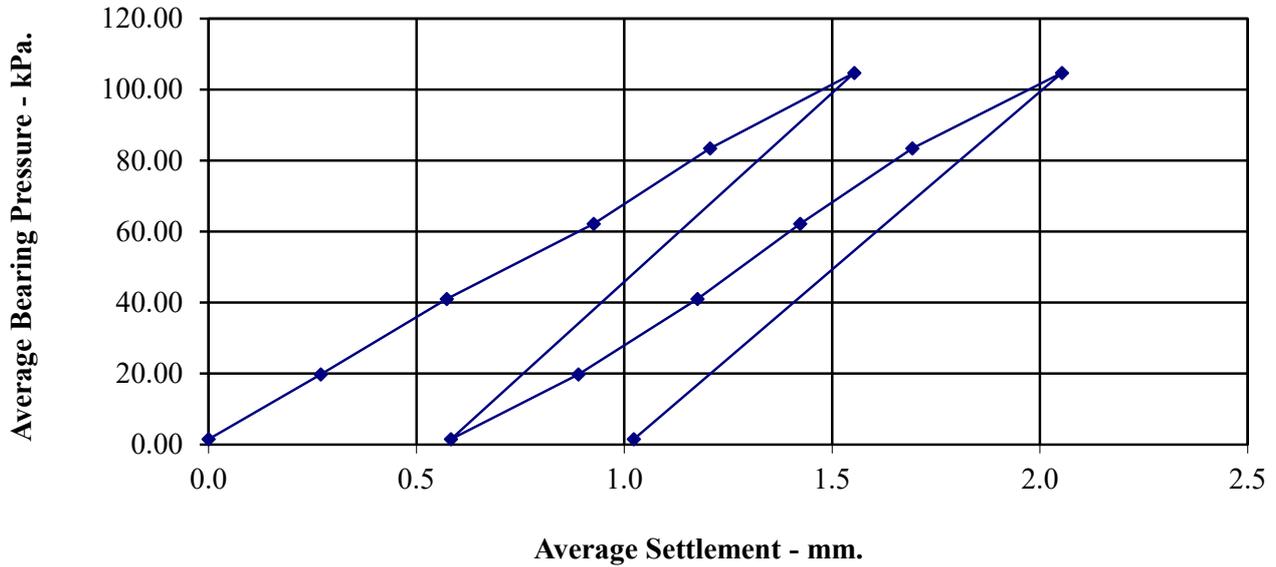
2.05

Description:

Brown GRAVEL

Ratio of EV2/EV1

1.06



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell, Dewsbury

Contract No:
PSL21/9554
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	6-Dec-21	
Test Position	PBT 1	
Depth (m)	GL	
Description	Brown GRAVEL	
Maximum Deflection	1.55	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	86	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	56.3	kN/m²/mm
CBR Value	10.4	%



Chidswell, Dewsbury

Contract No:
PSL21/9554
Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 06-Dec-21

Test Position: PBT 2

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

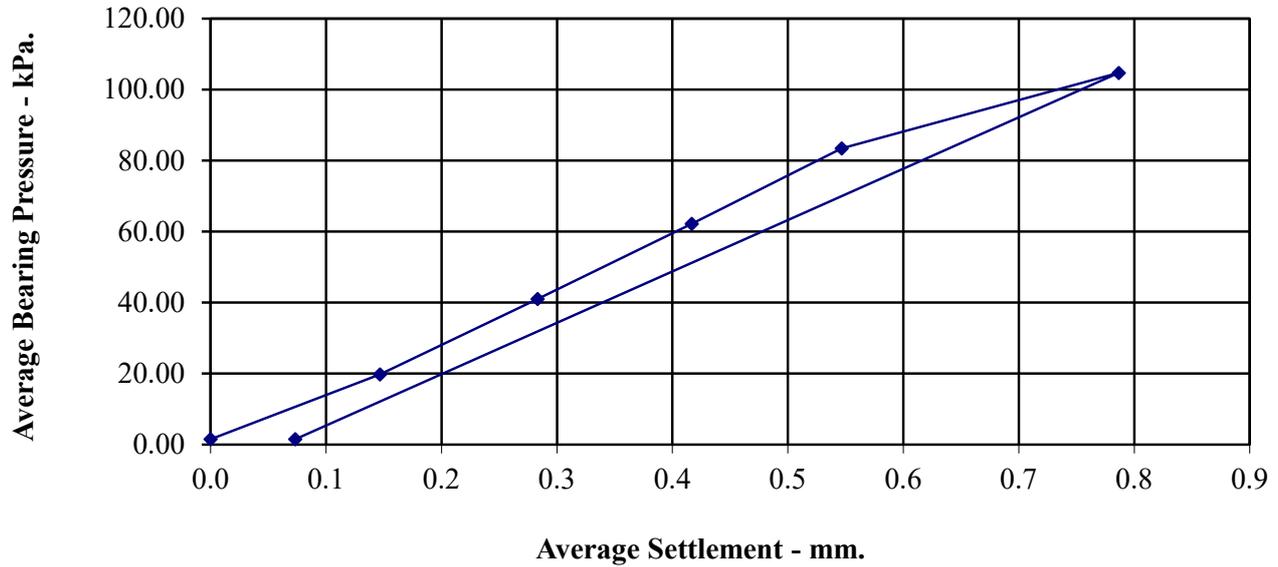
104.74

Maximum Deformation (mm):

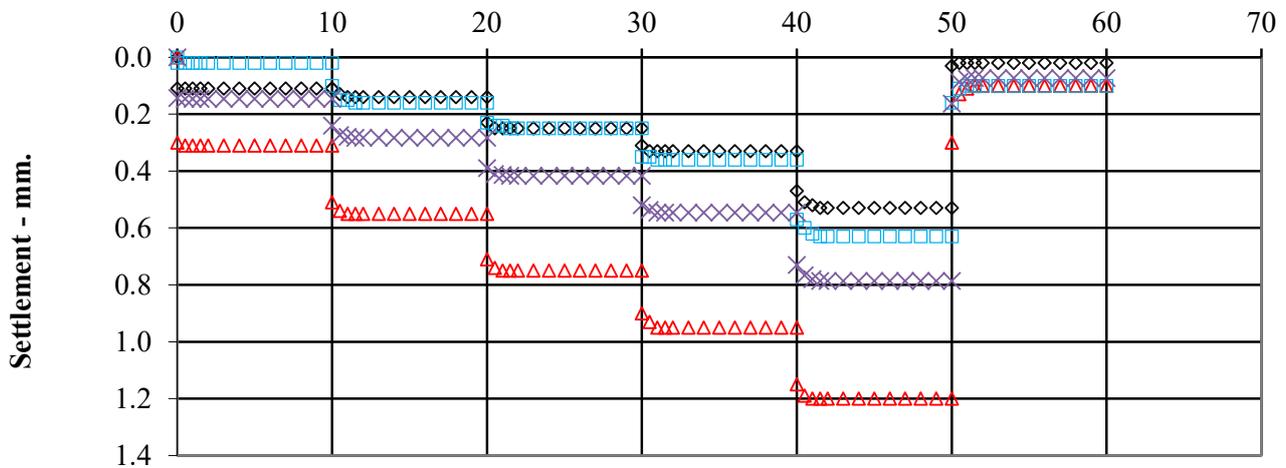
0.79

Description:

Brown Clayey SAND STONE



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell, Dewsbury

Contract No:

PSL21/9554

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	6-Dec-21	
Test Position	PBT 2	
Depth (m)	GL	
Description	Brown Clayey SAND STONE	
Maximum Deflection	0.79	mm
Deflection required for CBR value	1.25	mm
Load at 0.79mm	105	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	> 68.4	kN/m²/mm
CBR Value	> 14.6	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 06-Dec-21

Test Position: PBT 3

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

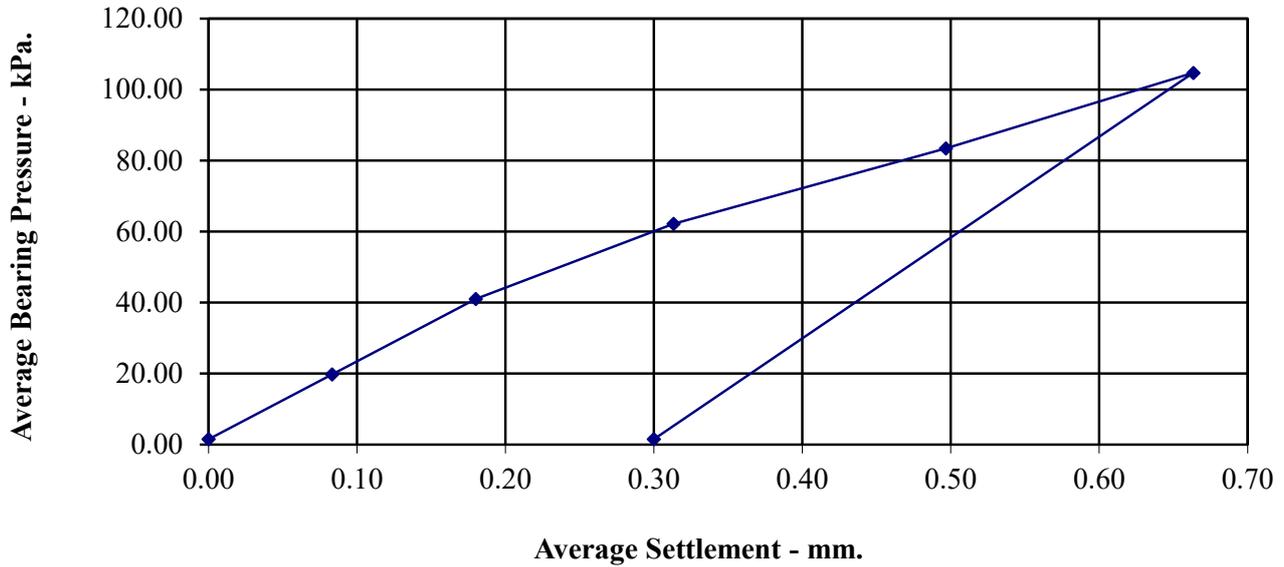
104.74

Maximum Deformation (mm):

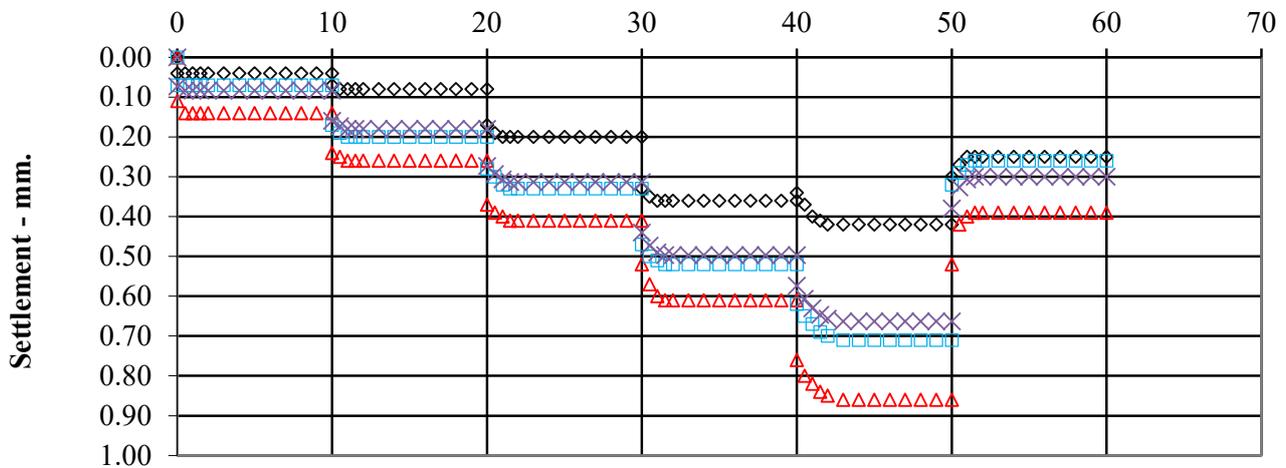
0.66

Description:

Brown clayey SAND STONE



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell, Dewsbury

Contract No:
 PSL21/9554
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	6-Dec-21	
Test Position	PBT 3	
Depth (m)	GL	
Description	Brown clayey SAND STONE	
Maximum Deflection	0.66	mm
Deflection required for CBR value	1.25	mm
Load at 0.66mm	105	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	> 68.4	kN/m²/mm
CBR Value	> 14.6	%



LABORATORY REPORT



4043

Contract Number: PSL21/9939

Report Date: 21 December 2021

Client's Reference:

Client Name: Sirius Environmental
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Holdsworth

Contract Title: Chidswell Lane, Dewsbury

Date Received: 20/12/2021

Date Commenced: 20/12/2021

Date Completed: 21/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 4

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

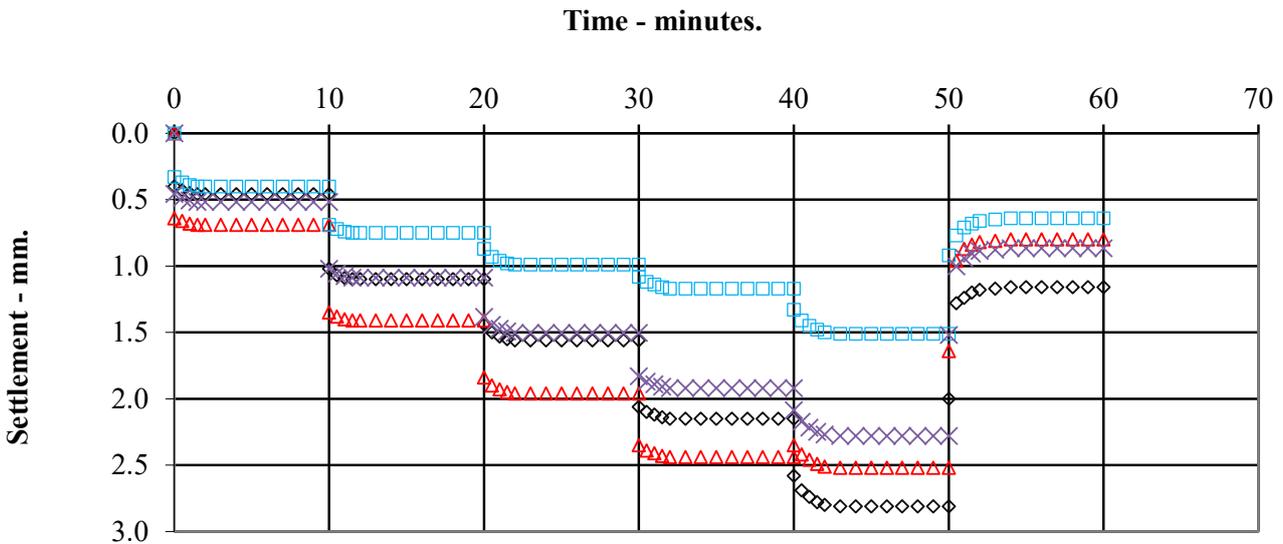
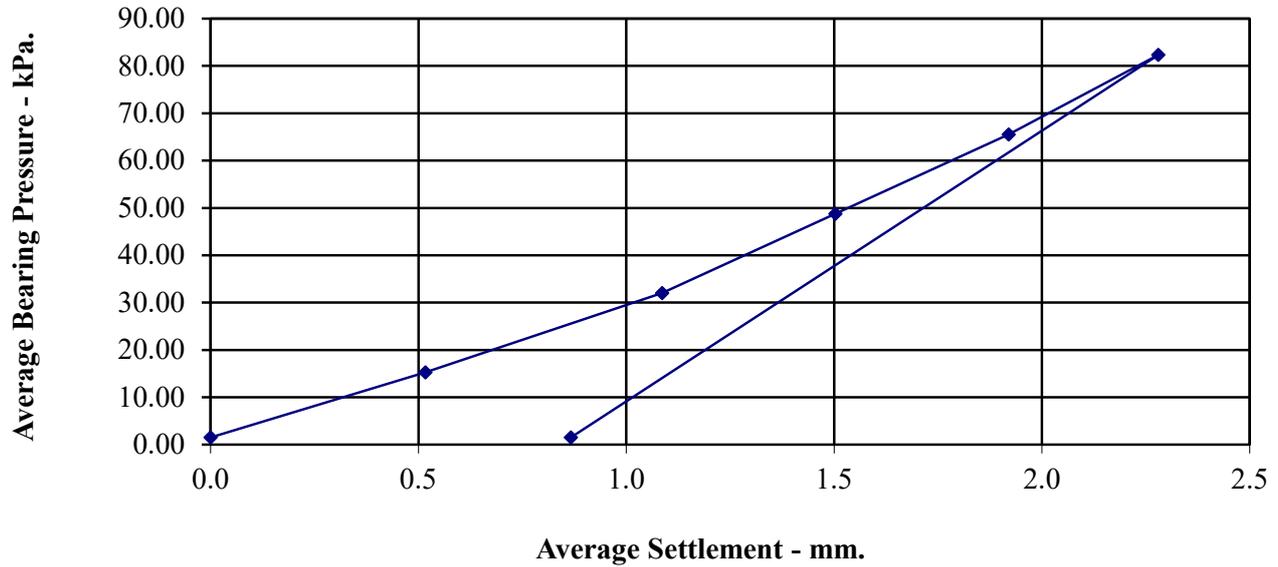
82.32

Maximum Deformation (mm):

2.28

Description:

Brown mottled grey slightly gravelly CLAY.



◇ Settlement Gauge 1
 △ Settlement Gauge 2
 □ Settlement Gauge 3
 × Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 4	
Depth (m)	FRL	
Description	Brown mottled grey slightly gravelly CLAY.	
Maximum Deflection	2.28	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	39	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	25.2	kN/m²/mm
CBR Value	2.6	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 5

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

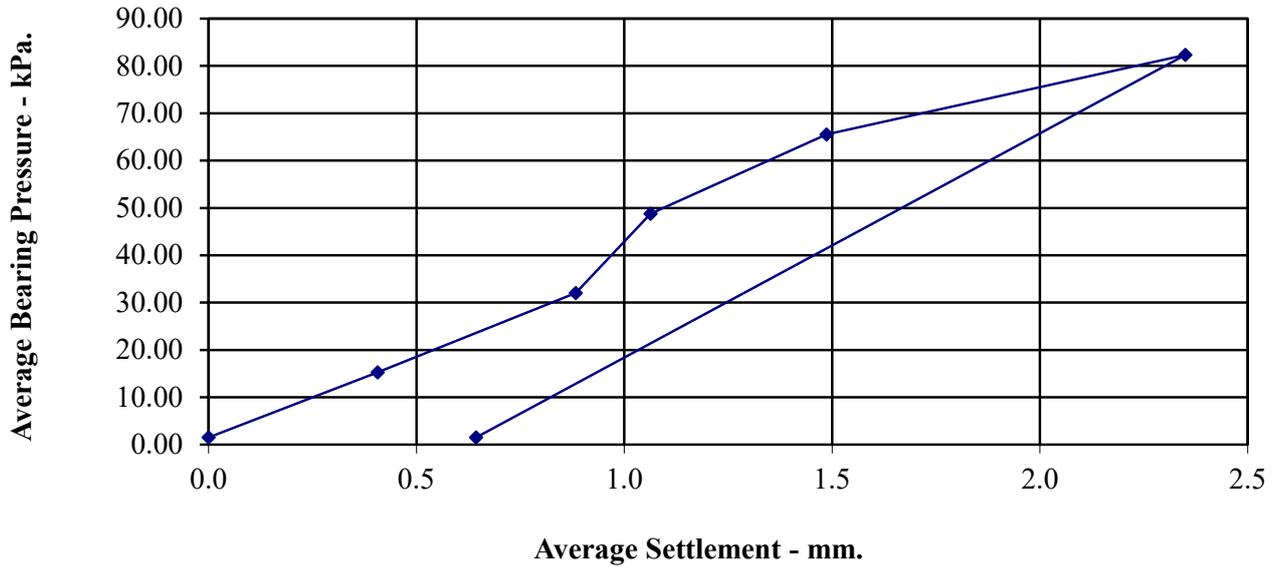
82.32

Maximum Deformation (mm):

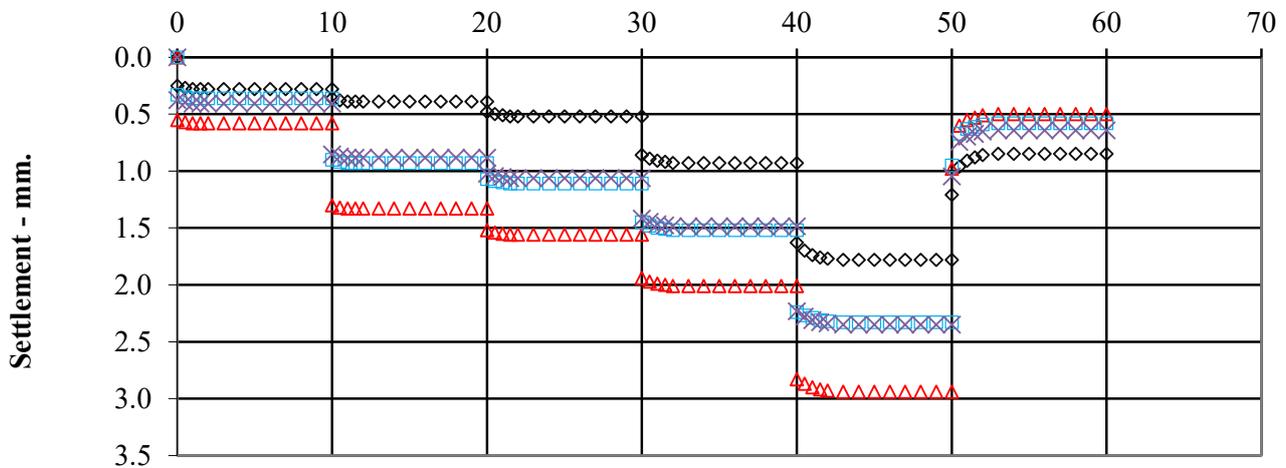
2.35

Description:

Brown mottled grey gravelly CLAY.



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 5	
Depth (m)	FRL	
Description	Brown mottled grey gravelly CLAY.	
Maximum Deflection	2.35	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	56	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	36.7	kN/m²/mm
CBR Value	5.0	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 6

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

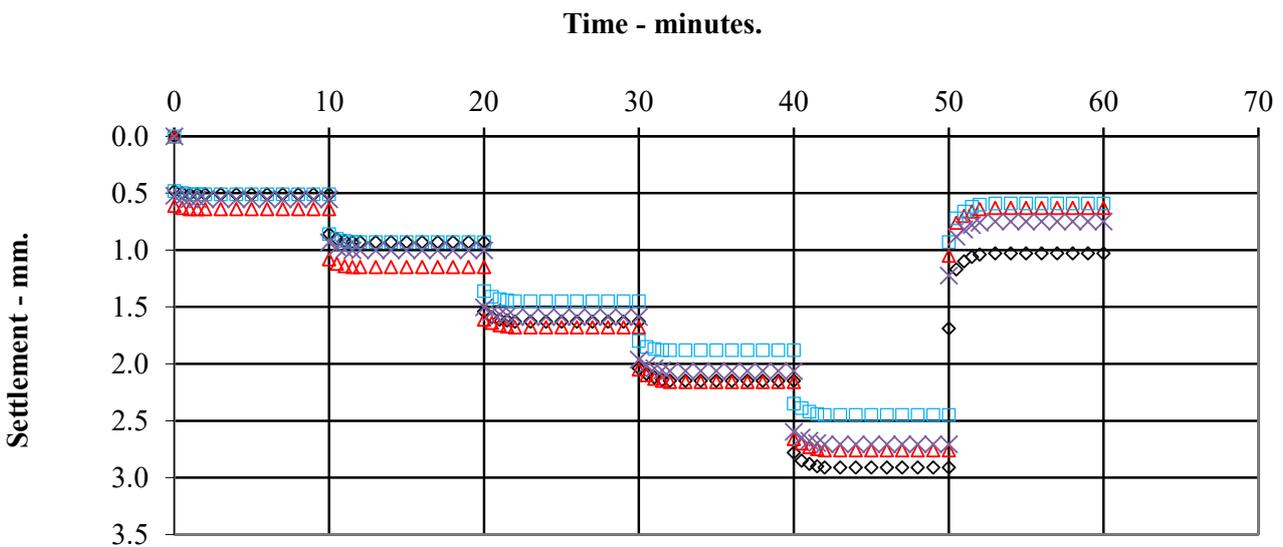
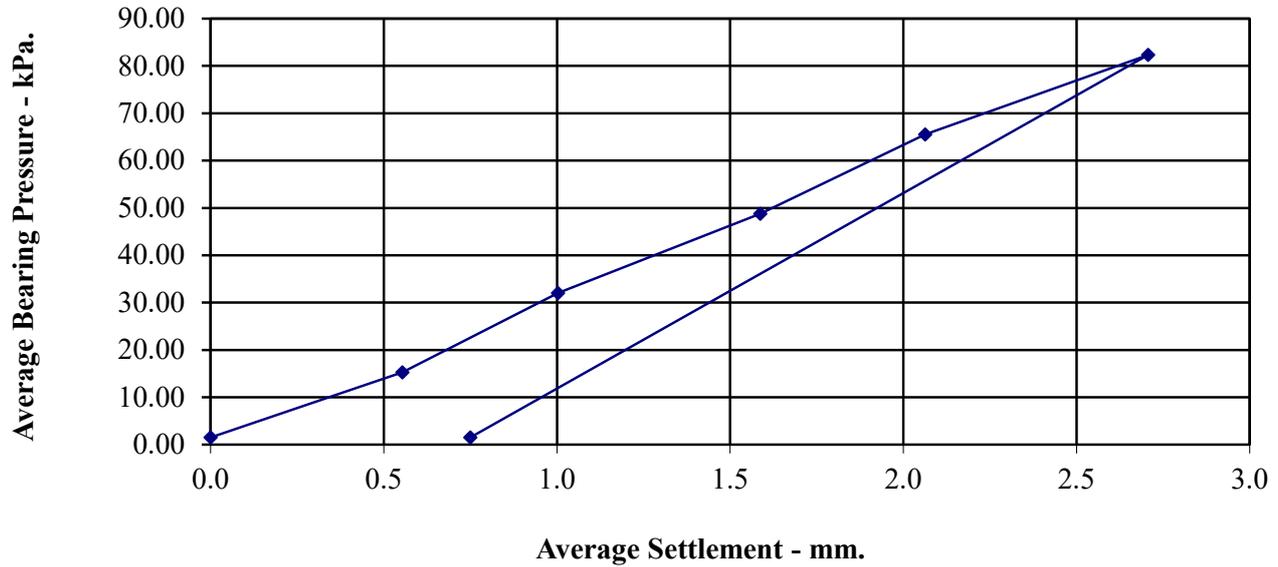
82.32

Maximum Deformation (mm):

2.71

Description:

Brown mottled grey slightly gravelly CLAY.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 6	
Depth (m)	FRL	
Description	Brown mottled grey slightly gravelly CLAY.	
Maximum Deflection	2.71	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	39	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	25.5	kN/m²/mm
CBR Value	2.7	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 7

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

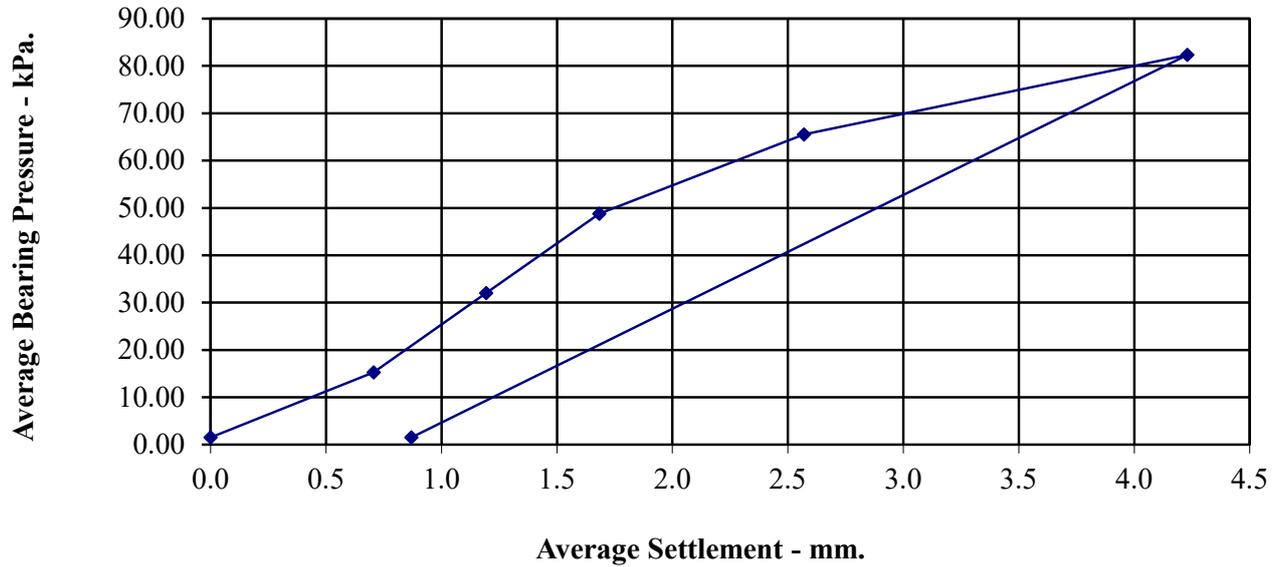
82.32

Maximum Deformation (mm):

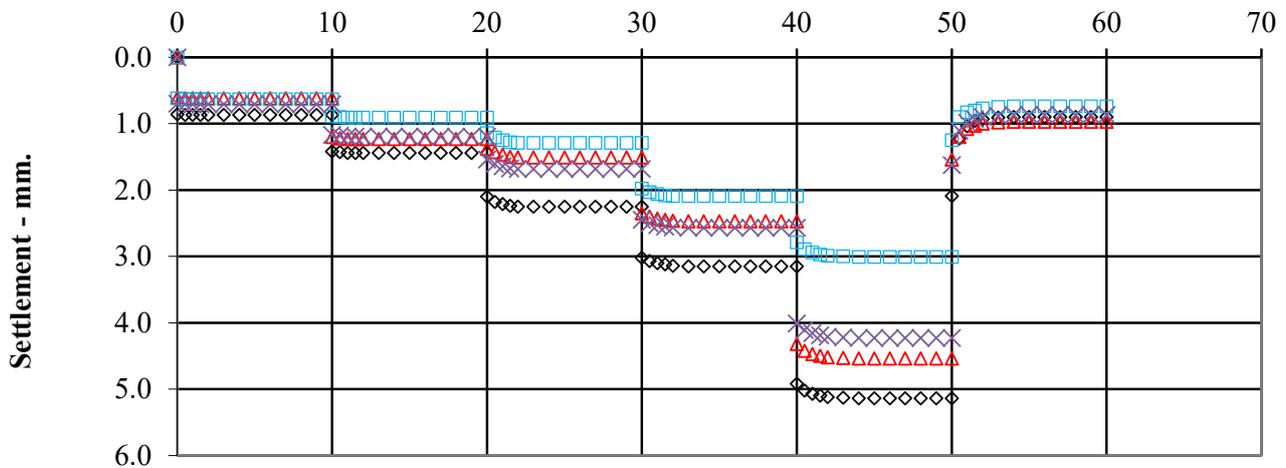
4.23

Description:

Brown mottled grey slightly gravelly CLAY.



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 7	
Depth (m)	FRL	
Description	Brown mottled grey slightly gravelly CLAY.	
Maximum Deflection	4.23	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	34	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	22.2	kN/m²/mm
CBR Value	2.1	%



Chidswell Lane, Dewsbury

Contract No:
PSL21/9939
Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 8

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

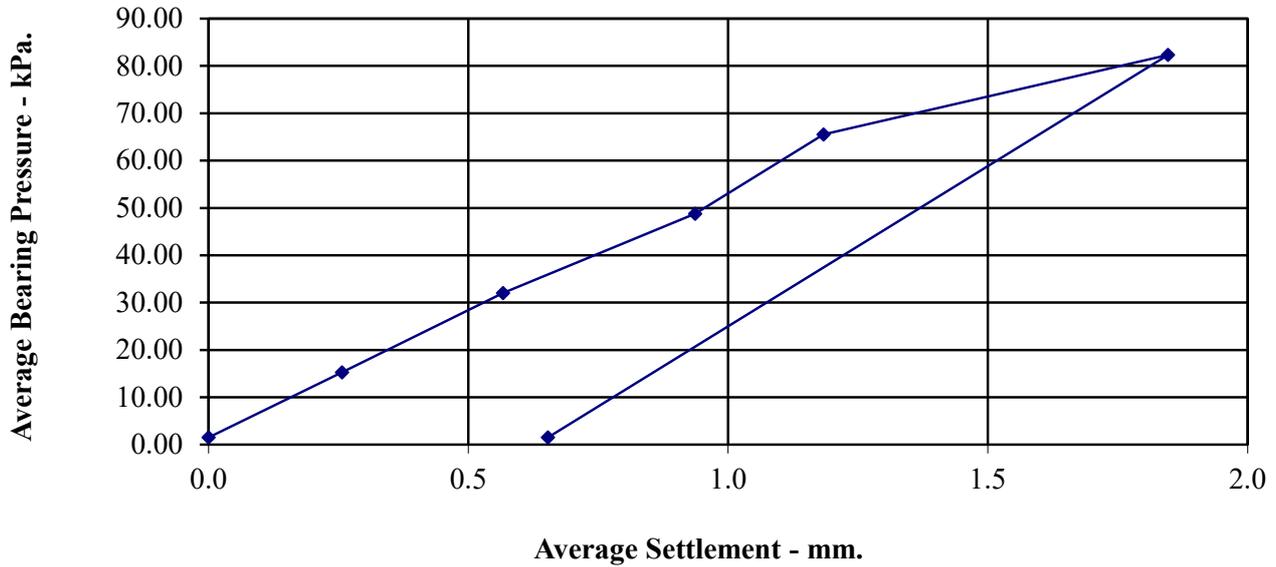
82.32

Maximum Deformation (mm):

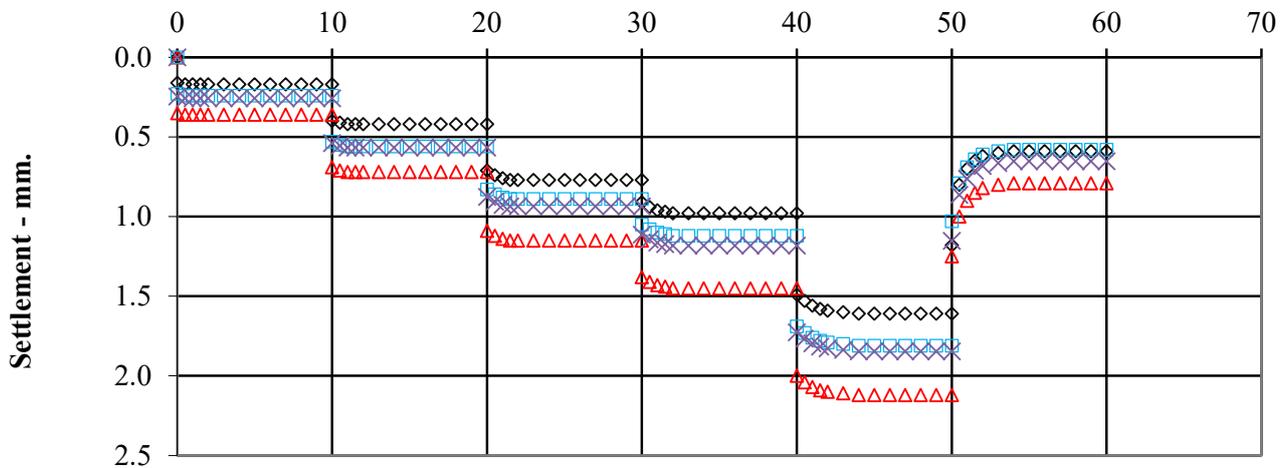
1.85

Description:

Brown mottled grey slightly gravelly CLAY.



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 8	
Depth (m)	FRL	
Description	Brown mottled grey slightly gravelly CLAY.	
Maximum Deflection	1.85	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	67	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	43.9	kN/m²/mm
CBR Value	6.8	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 20-Dec-21

Test Position: PBT 9

Depth (m): FRL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

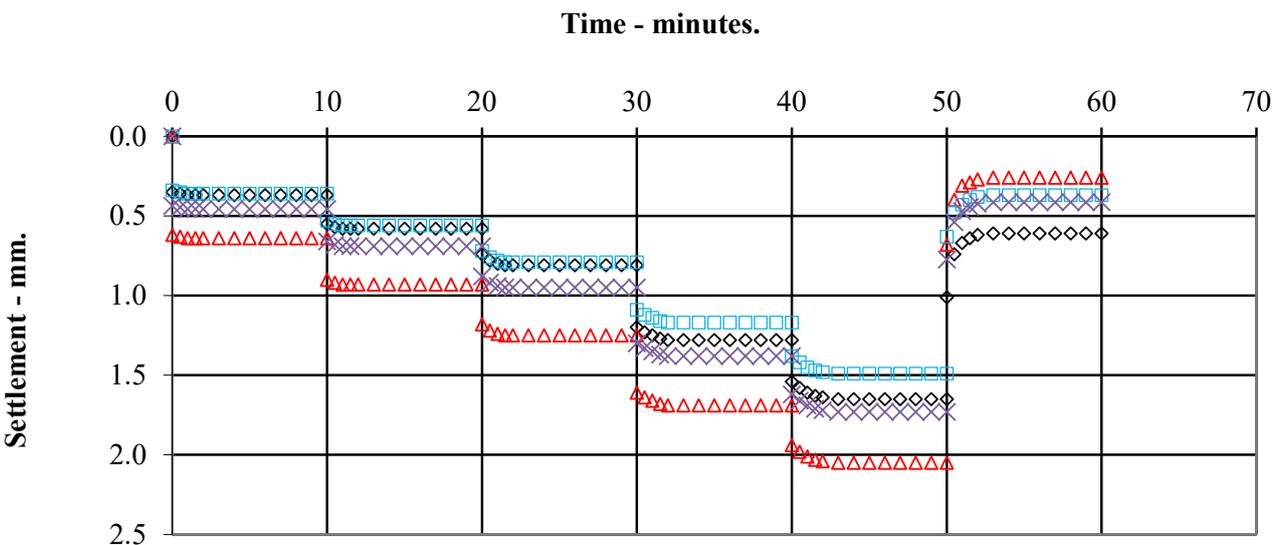
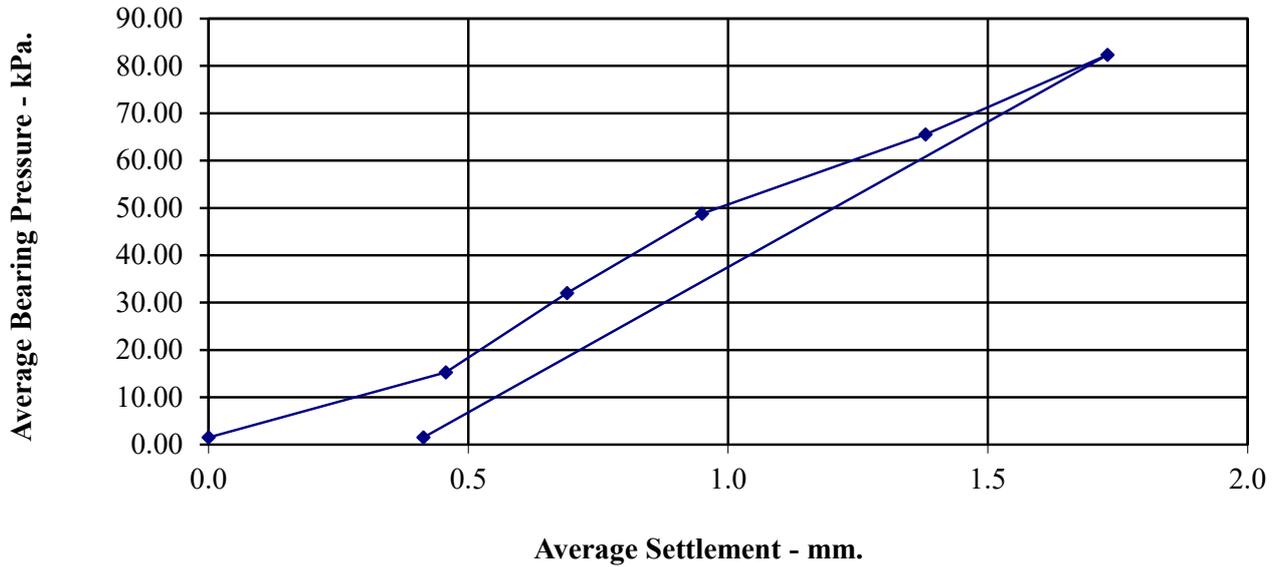
82.32

Maximum Deformation (mm):

1.73

Description:

Brown mottled grey slightly gravelly CLAY.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL21/9939

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	20-Dec-21	
Test Position	PBT 9	
Depth (m)	FRL	
Description	Brown mottled grey slightly gravelly CLAY.	
Maximum Deflection	1.73	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	60	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	39.5	kN/m²/mm
CBR Value	5.6	%



LABORATORY REPORT



4043

Contract Number: PSL22/0249

Report Date: 12 January 2022

Client's Reference:

Client Name: Sirius Environmental
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Holdsworth

Contract Title: Chidswell Lane, Dewsbury

Date Received: 11/1/2022

Date Commenced: 11/1/2022

Date Completed: 12/1/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 11-Jan-22

Test Position: PBT 10 Re-Test

Depth (m): Formation

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

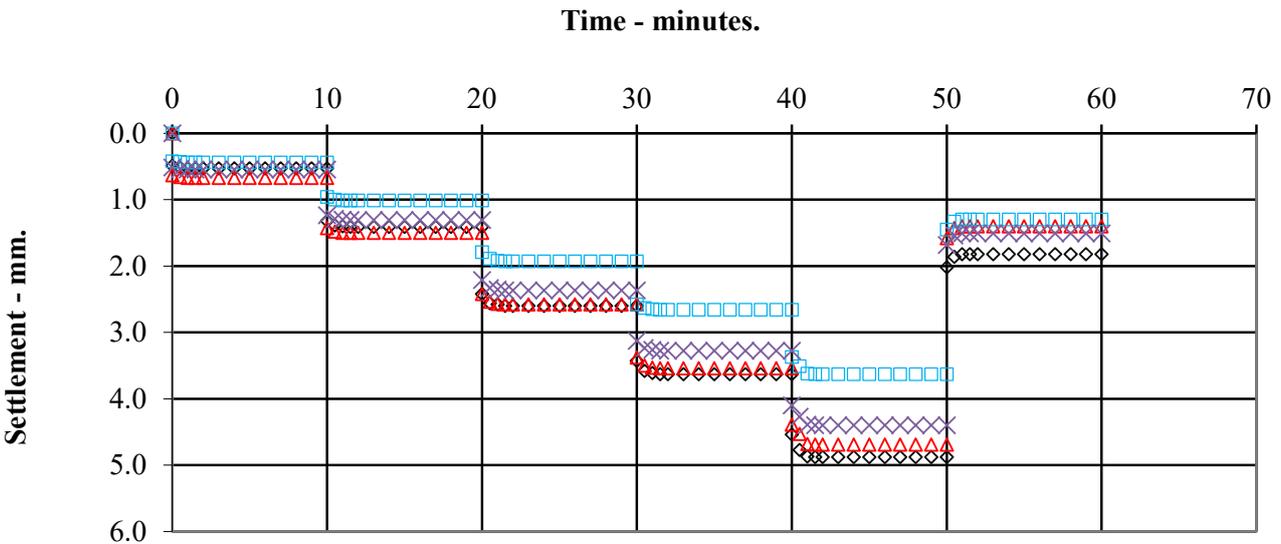
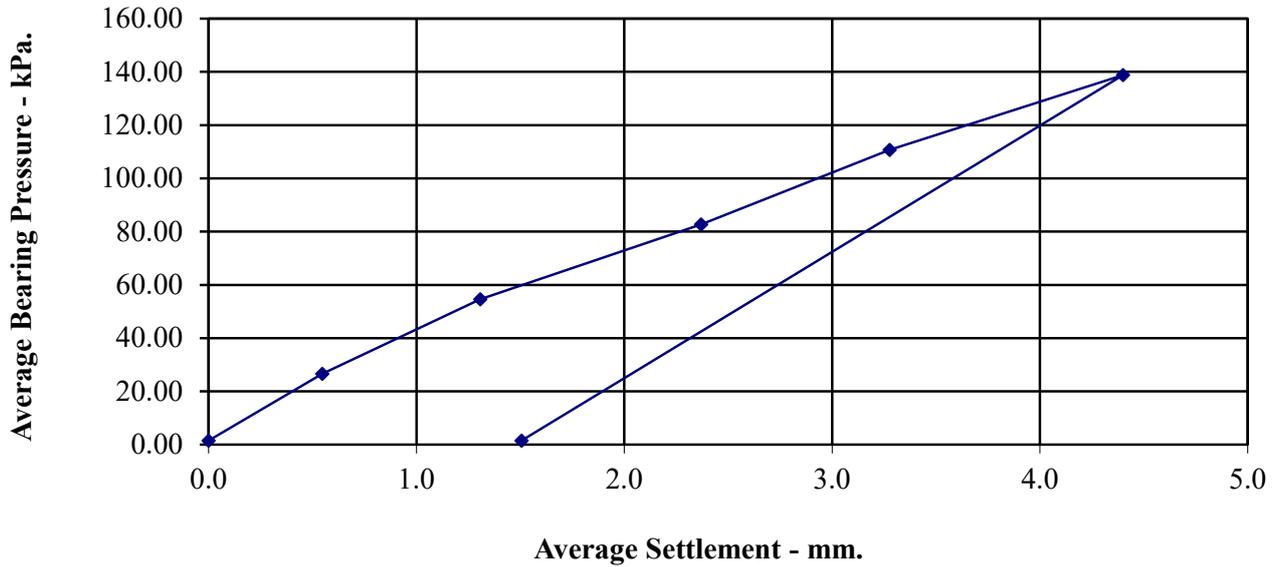
138.78

Maximum Deformation (mm):

4.40

Description:

Brown very gravelly very sandy CLAY.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0249

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	11-Jan-22	
Test Position	PBT 10 Re-Test	
Depth (m)	Formation	
Description	Brown very gravelly very sandy CLAY.	
Maximum Deflection	4.40	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	53	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	34.3	kN/m²/mm
CBR Value	4.4	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 11-Jan-22

Test Position: PBT 10

Depth (m): Formation

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

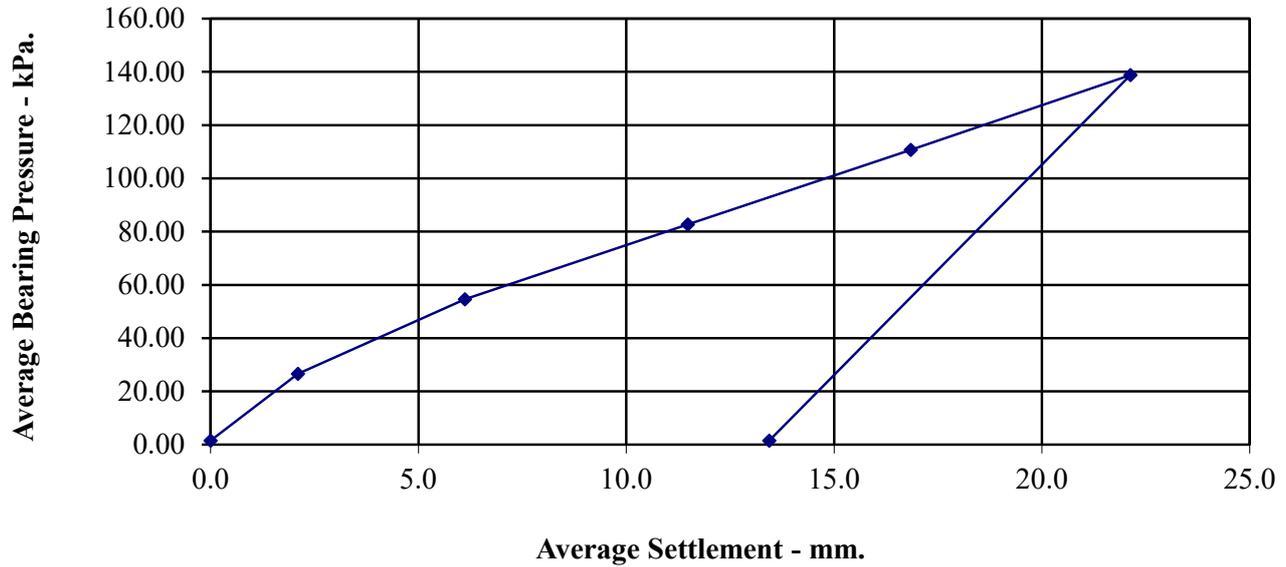
138.78

Maximum Deformation (mm):

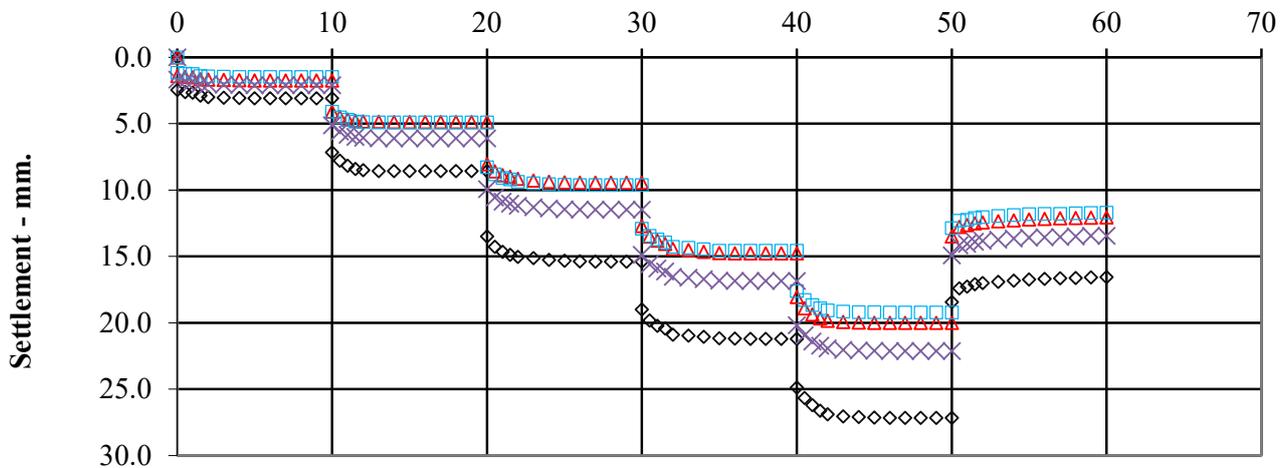
22.13

Description:

Brown very gravelly very sandy CLAY.



Time - minutes.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0249

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	11-Jan-22	
Test Position	PBT 10	
Depth (m)	Formation	
Description	Brown very gravelly very sandy CLAY.	
Maximum Deflection	22.13	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	16	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	10.7	kN/m²/mm
CBR Value	0.6	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 11-Jan-22

Test Position: PBT 11

Depth (m): Formation

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

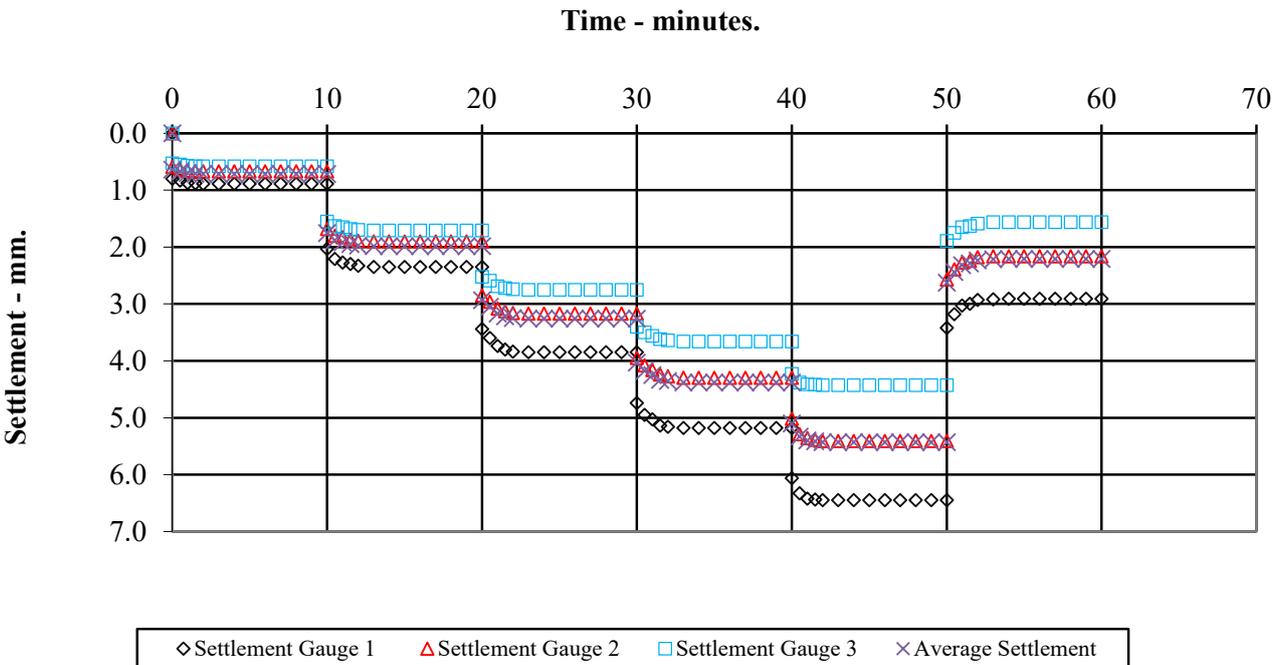
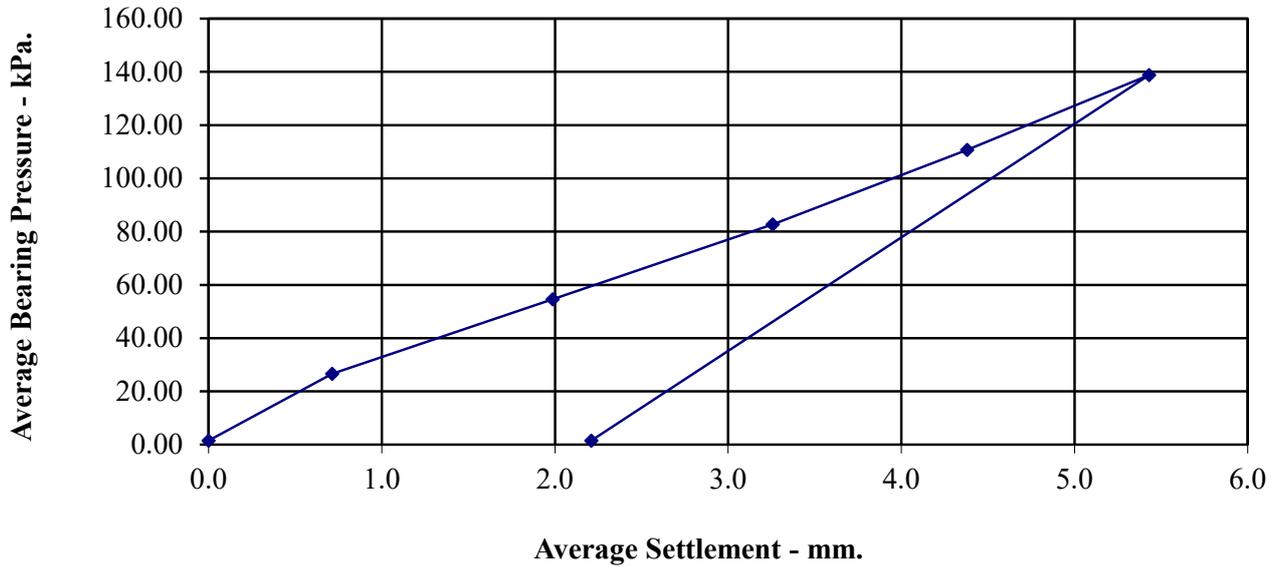
138.78

Maximum Deformation (mm):

5.43

Description:

Brown very gravelly very sandy CLAY.



Chidswell Lane, Dewsbury

Contract No:

PSL22/0249

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	11-Jan-22	
Test Position	PBT 11	
Depth (m)	Formation	
Description	Brown very gravelly very sandy CLAY.	
Maximum Deflection	5.43	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	38	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	25.1	kN/m²/mm
CBR Value	2.6	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 11-Jan-22

Test Position: PBT 12

Depth (m): Formation

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

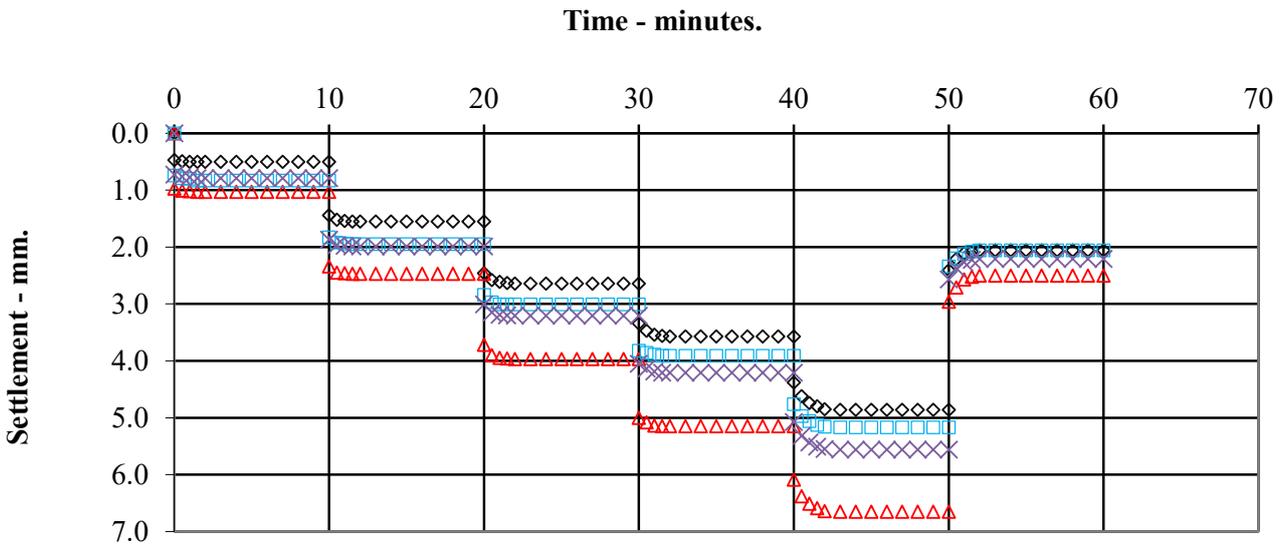
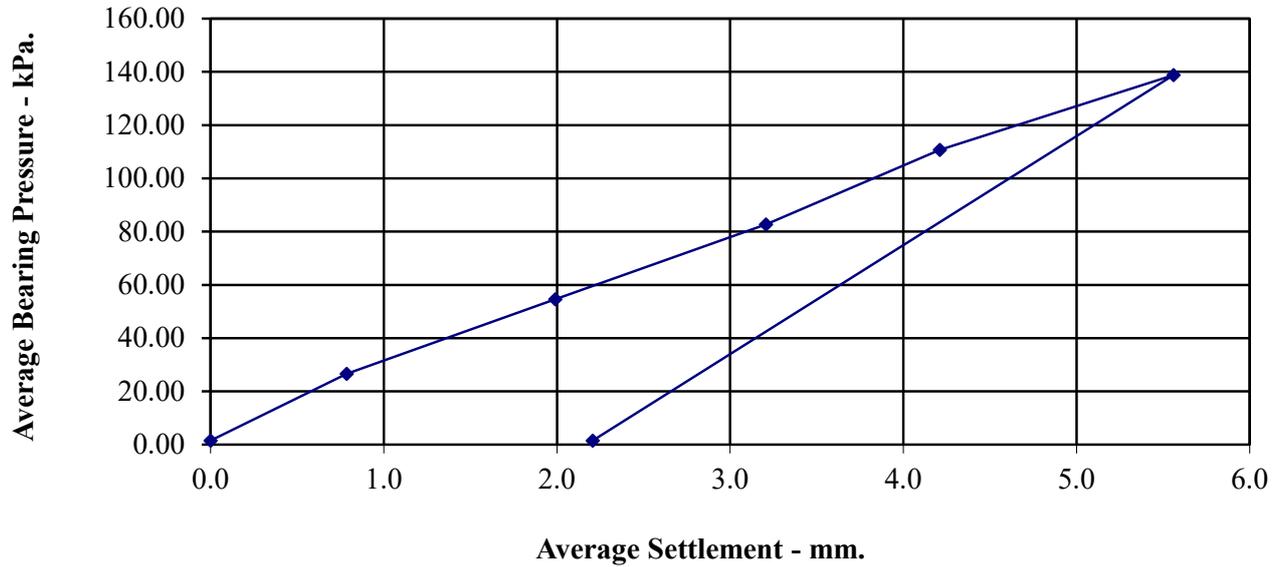
138.78

Maximum Deformation (mm):

5.56

Description:

Brown very gravelly very sandy CLAY.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0249

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	11-Jan-22	
Test Position	PBT 12	
Depth (m)	Formation	
Description	Brown very gravelly very sandy CLAY.	
Maximum Deflection	5.56	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	37	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	24.4	kN/m²/mm
CBR Value	2.4	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 11-Jan-22

Test Position: PBT 13

Depth (m): Formation

Plate Area (m²): 0.2922467

Type of Kentledge: Wheeled

Maximum Applied Pressure (kPa):

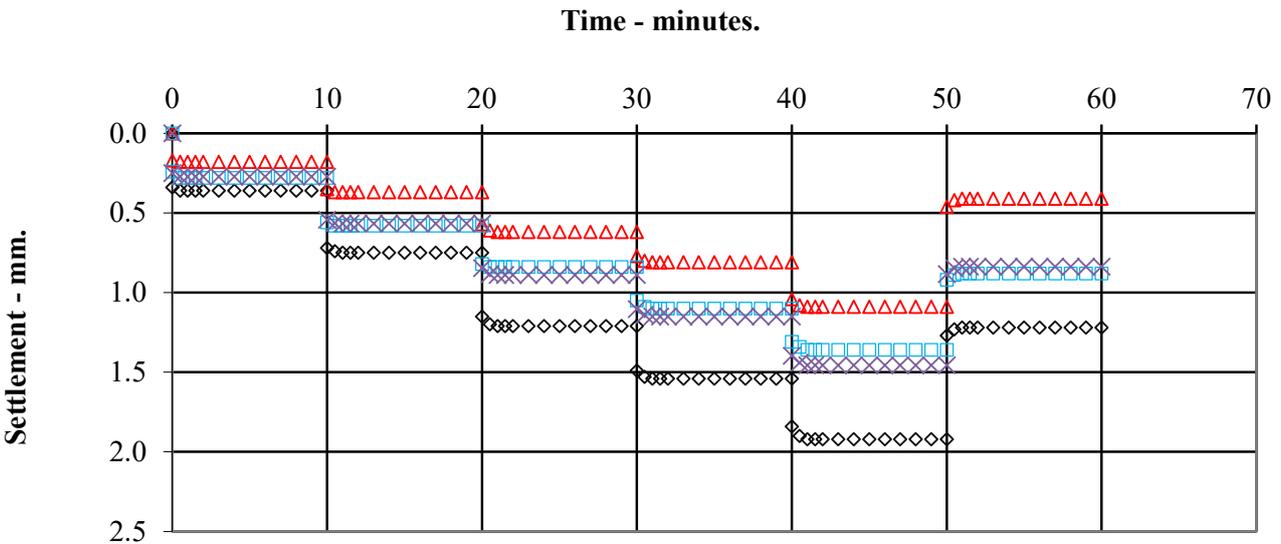
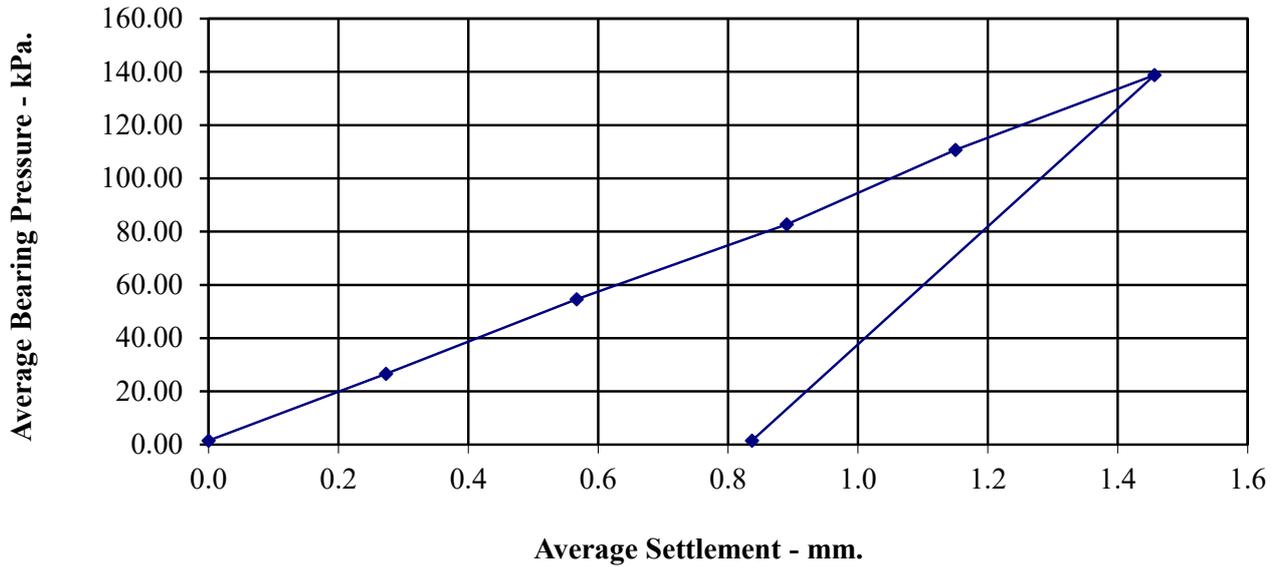
138.78

Maximum Deformation (mm):

1.46

Description:

Brown very gravelly very sandy CLAY.



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0249

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	11-Jan-22	
Test Position	PBT 13	
Depth (m)	Formation	
Description	Brown very gravelly very sandy CLAY.	
Maximum Deflection	1.46	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	120	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	78.3	kN/m²/mm
CBR Value	18.5	%



LABORATORY REPORT



4043

Contract Number: PSL22/0410

Report Date: 25 January 2022

Client's Reference:

Client Name: Sirius Environmental
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Holdsworth

Contract Title: Chidswell Lane, Dewsbury

Date Received: 18/1/2022

Date Commenced: 18/1/2022

Date Completed: 19/1/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 14

Depth (m): GL

Plate Area (m2): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

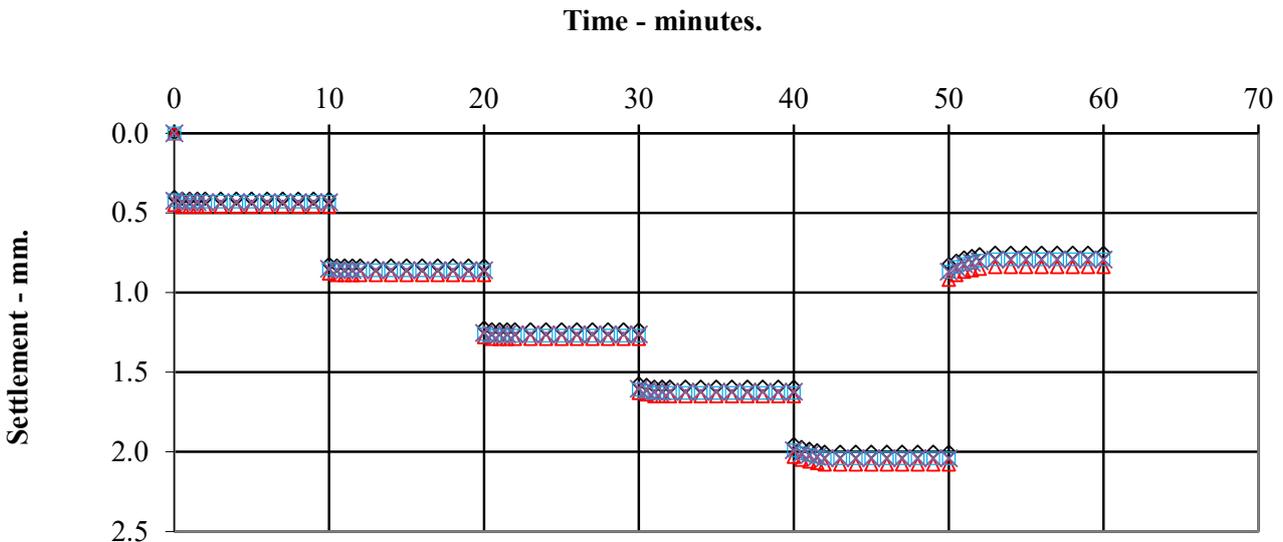
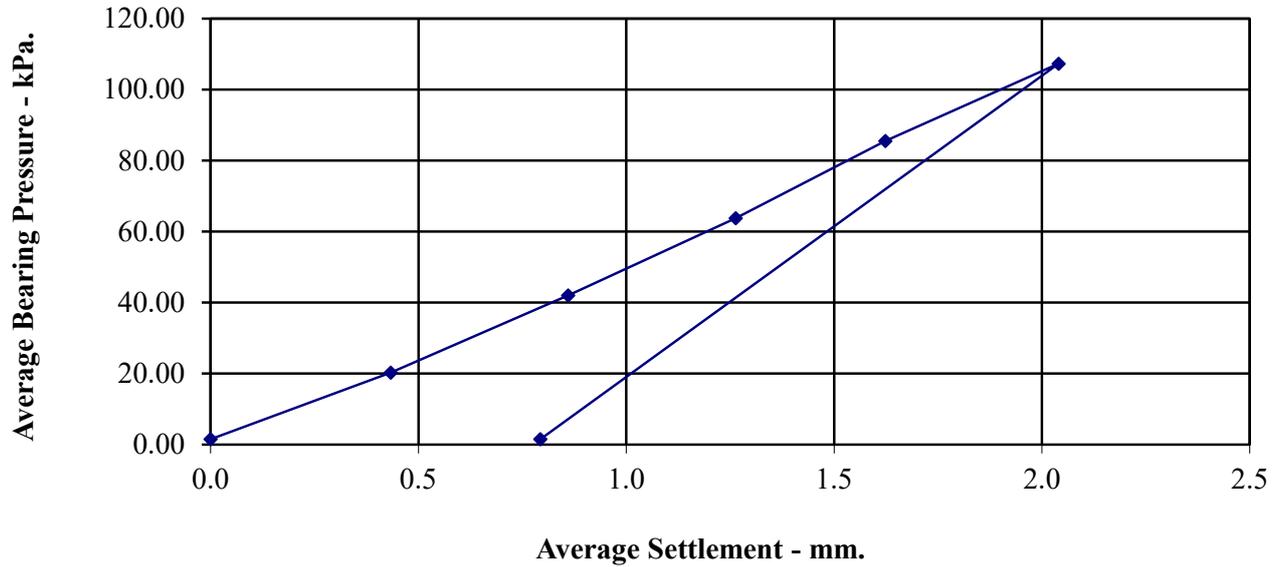
107.30

Maximum Deformation (mm):

2.04

Description:

2C



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 14	
Depth (m)	GL	
Description	2C	
Maximum Deflection	2.04	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	63	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	41.2	kN/m²/mm
CBR Value	6.1	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 15

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

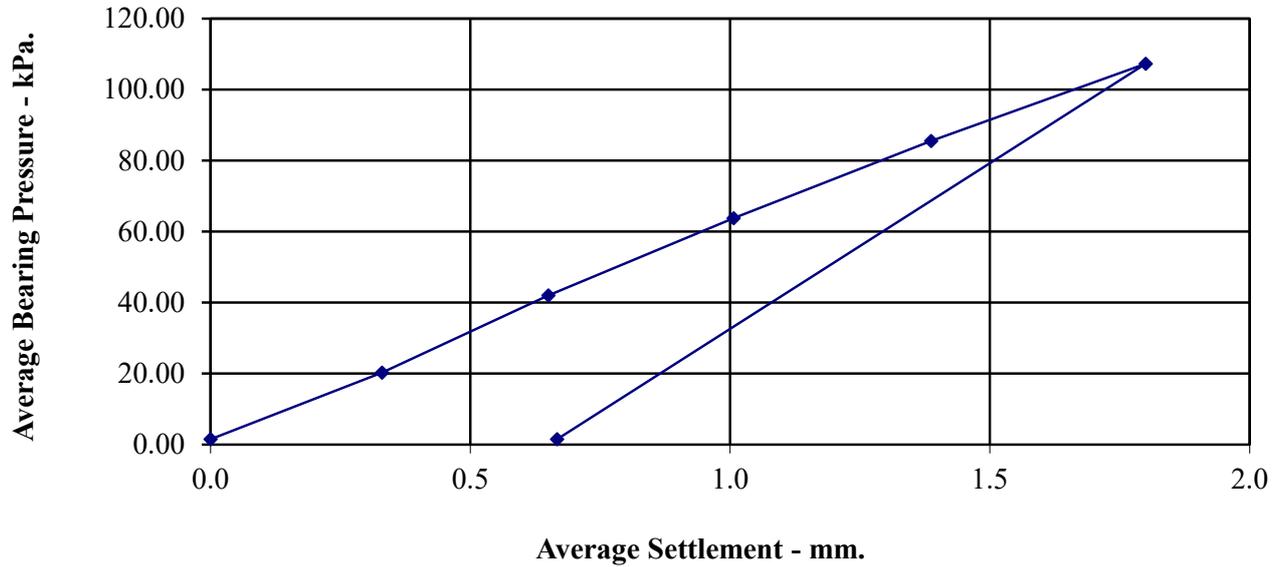
107.30

Maximum Deformation (mm):

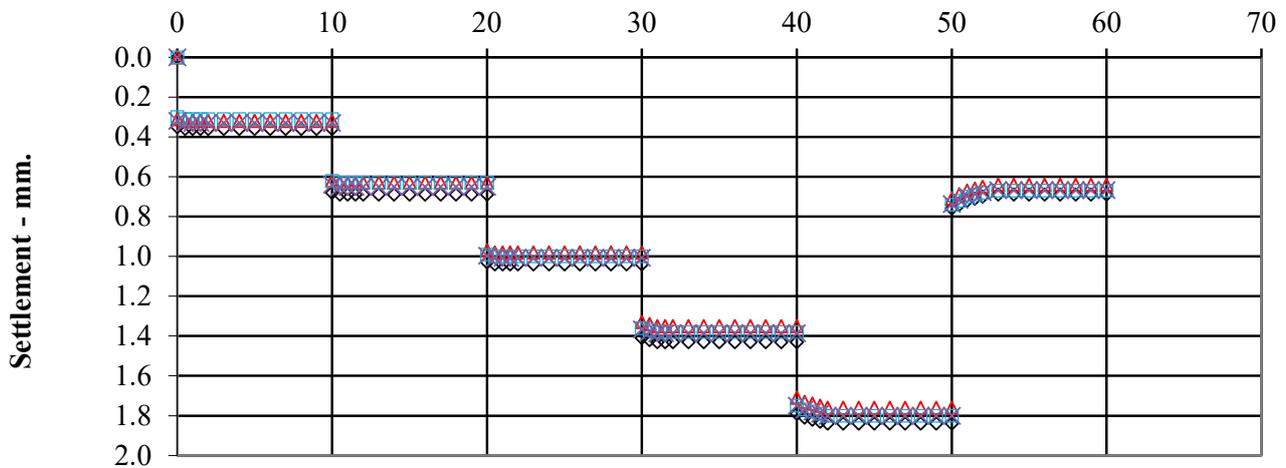
1.80

Description:

2C



Time - minutes.



◇ Settlement Gauge 1
 △ Settlement Gauge 2
 □ Settlement Gauge 3
 × Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 15	
Depth (m)	GL	
Description	2C	
Maximum Deflection	1.80	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	78	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	50.8	kN/m²/mm
CBR Value	8.7	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 16

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

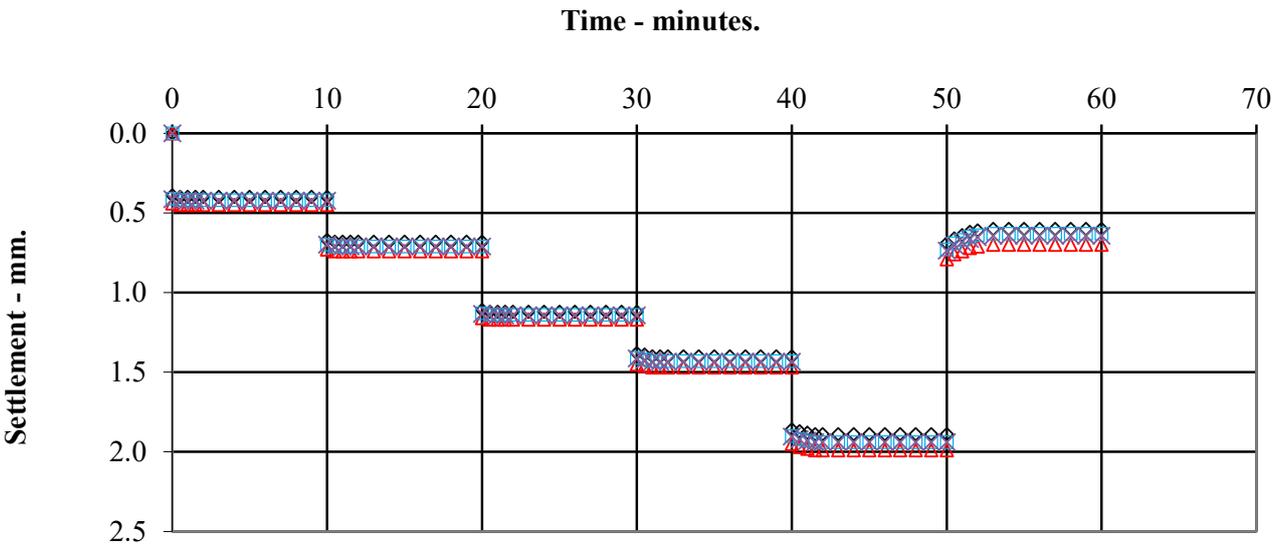
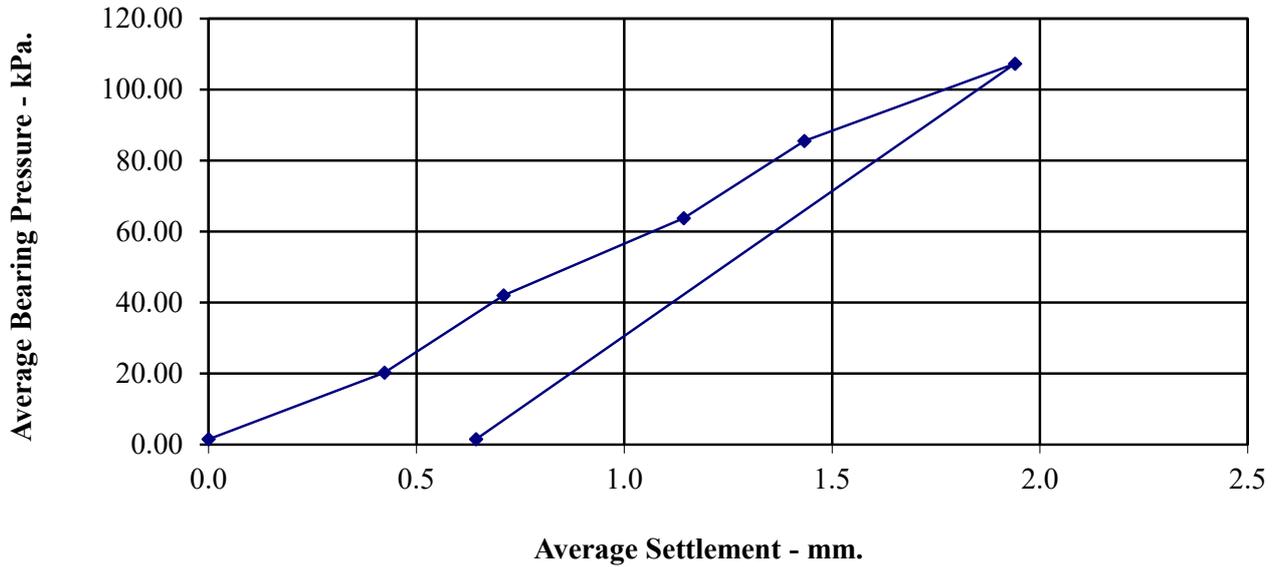
107.30

Maximum Deformation (mm):

1.94

Description:

2C



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 16	
Depth (m)	GL	
Description	2C	
Maximum Deflection	1.94	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	72	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	46.9	kN/m²/mm
CBR Value	7.6	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 18

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

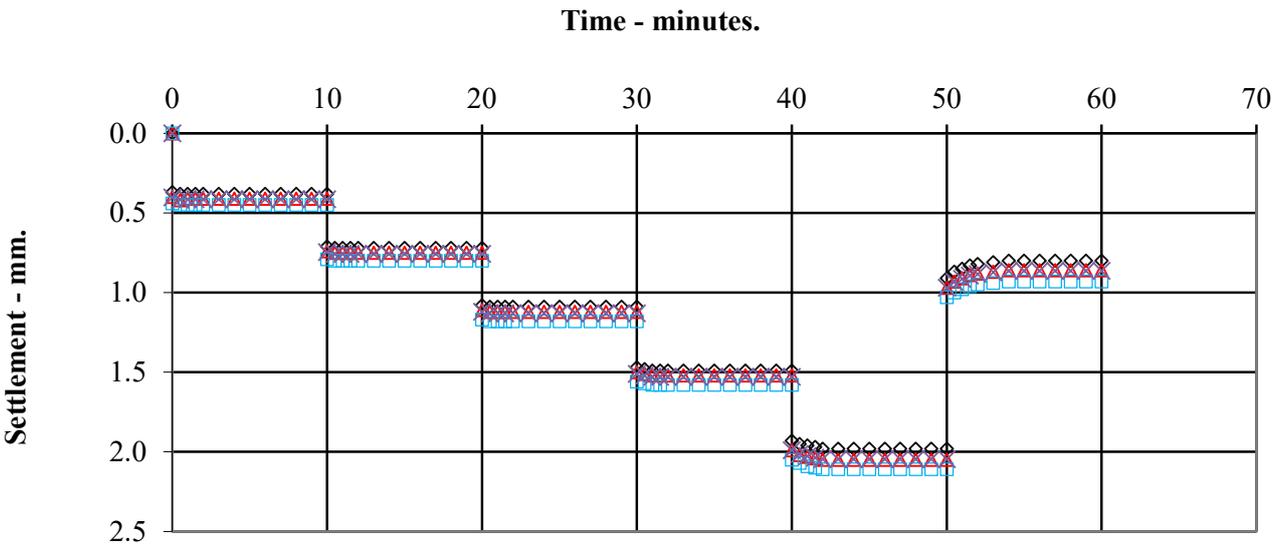
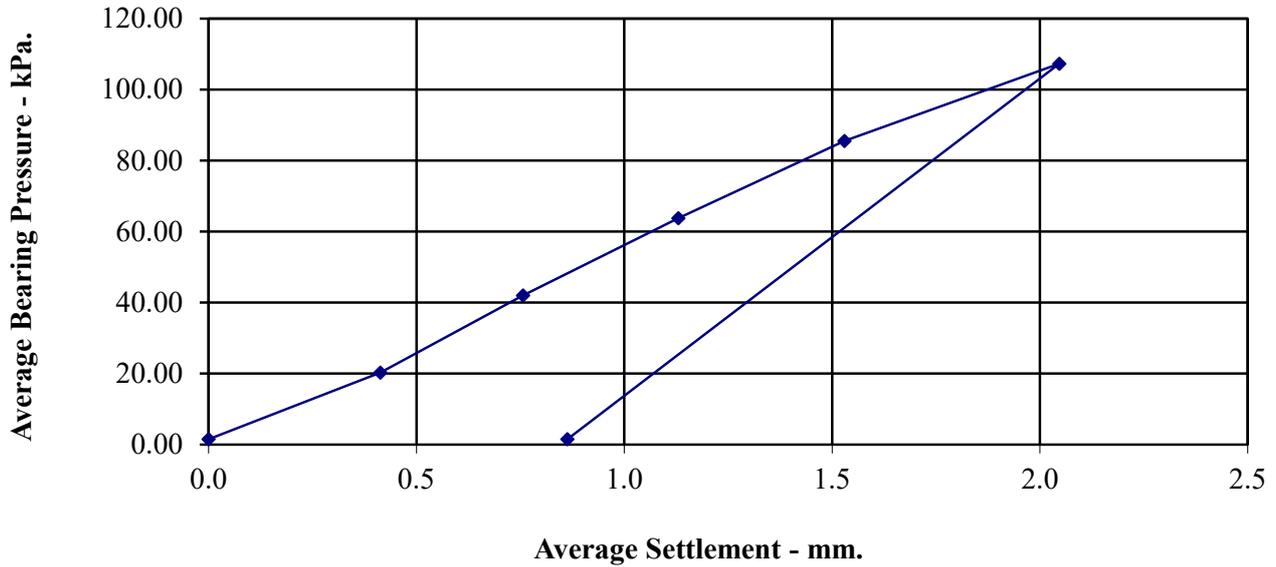
107.30

Maximum Deformation (mm):

2.05

Description:

2C



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:
PSL22/0410
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 18	
Depth (m)	GL	
Description	2C	
Maximum Deflection	2.05	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	70	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	45.9	kN/m²/mm
CBR Value	7.3	%



Chidswell Lane, Dewsbury

Contract No:
PSL22/0410
Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 18

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

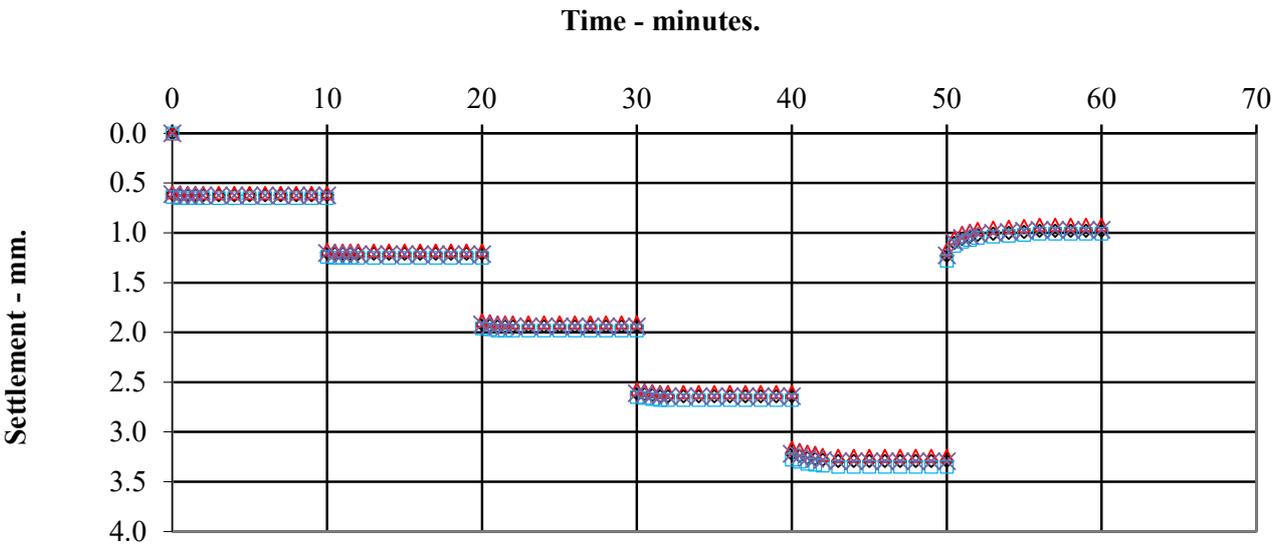
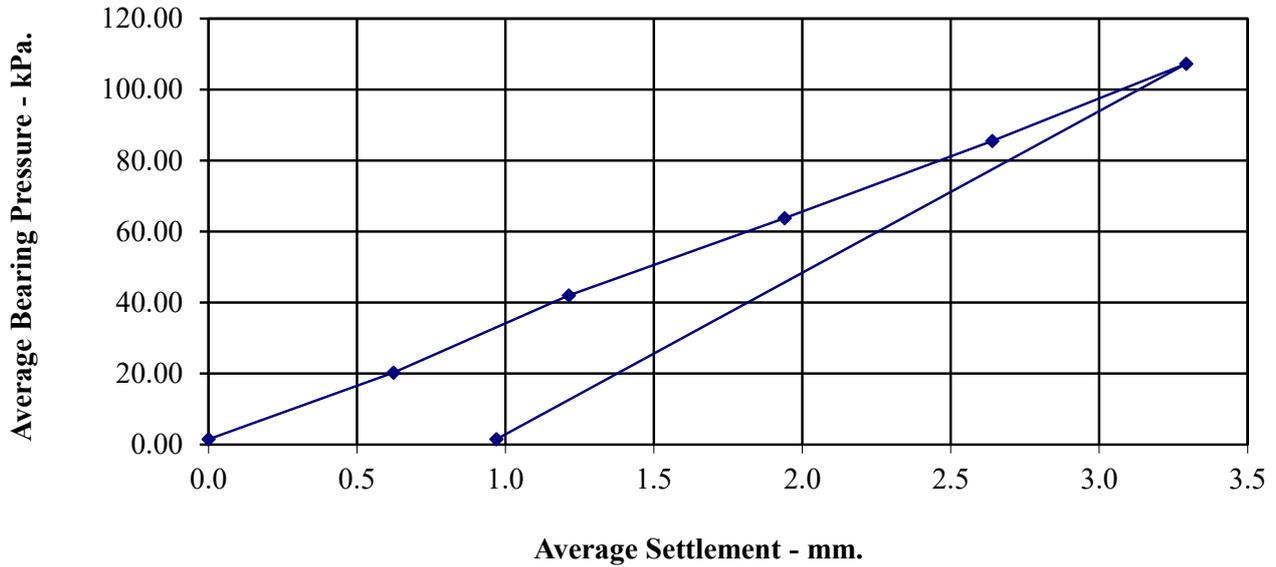
107.30

Maximum Deformation (mm):

3.29

Description:

2C



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 18	
Depth (m)	GL	
Description	2C	
Maximum Deflection	3.29	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	43	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	28.2	kN/m²/mm
CBR Value	3.1	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 19

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

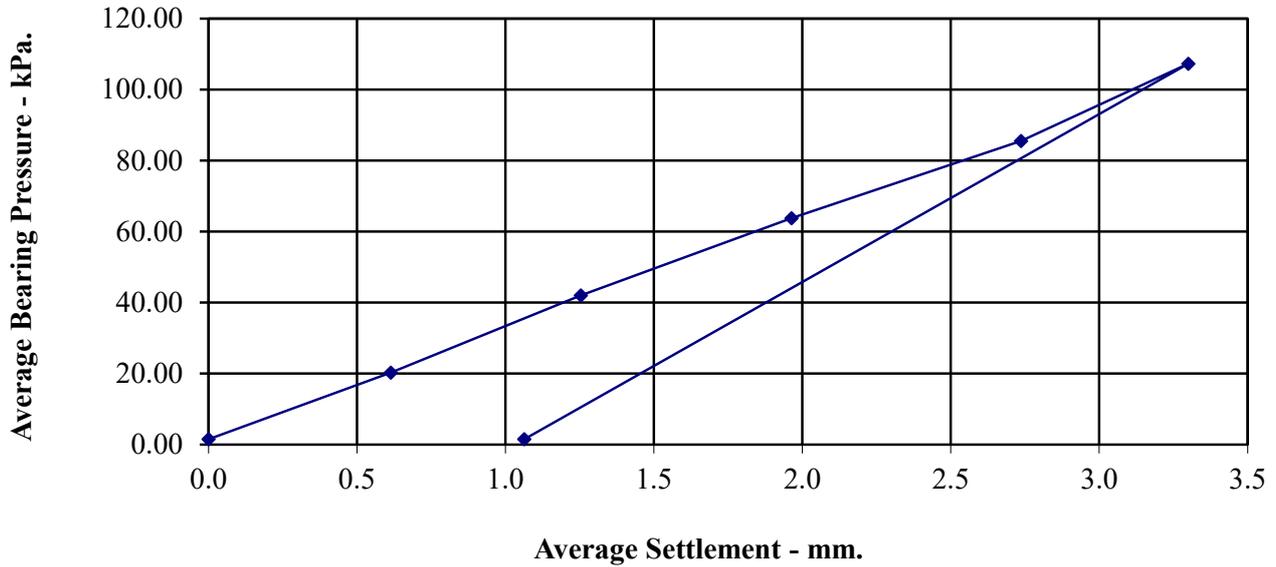
107.30

Maximum Deformation (mm):

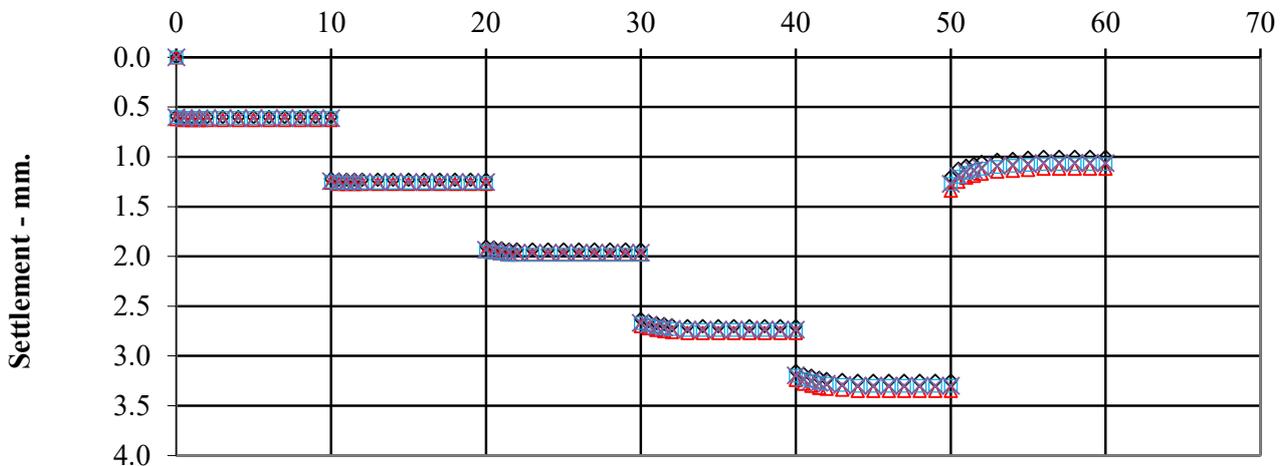
3.30

Description:

2C



Time - minutes.



◇ Settlement Gauge 1
 △ Settlement Gauge 2
 □ Settlement Gauge 3
 × Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 19	
Depth (m)	GL	
Description	2C	
Maximum Deflection	3.30	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	42	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	27.4	kN/m²/mm
CBR Value	3.0	%

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 18-Jan-22

Test Position: PBT 20

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

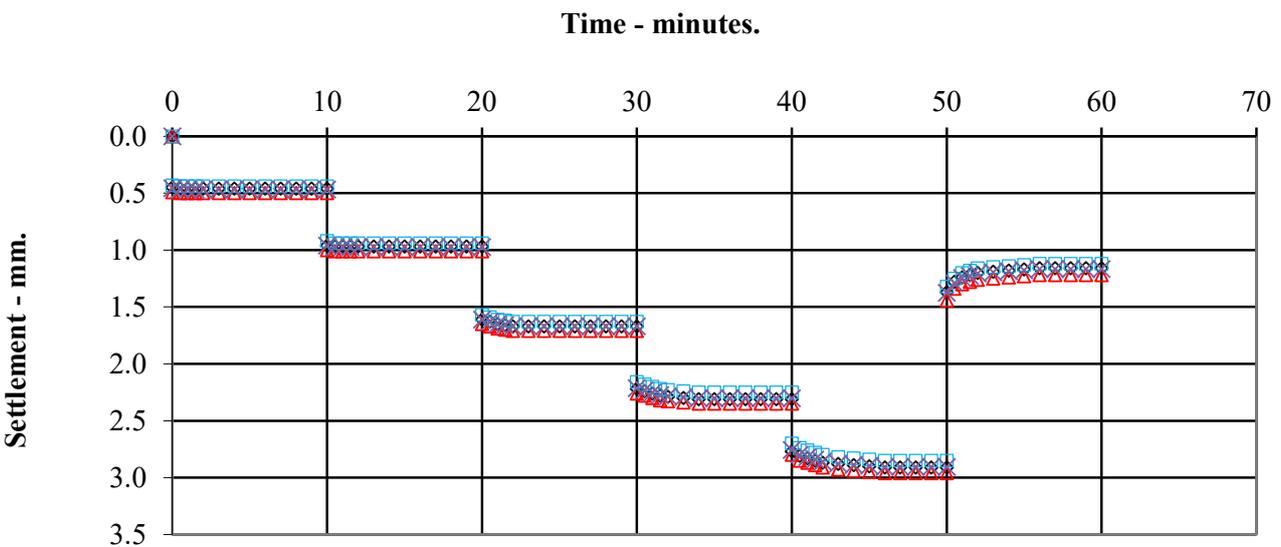
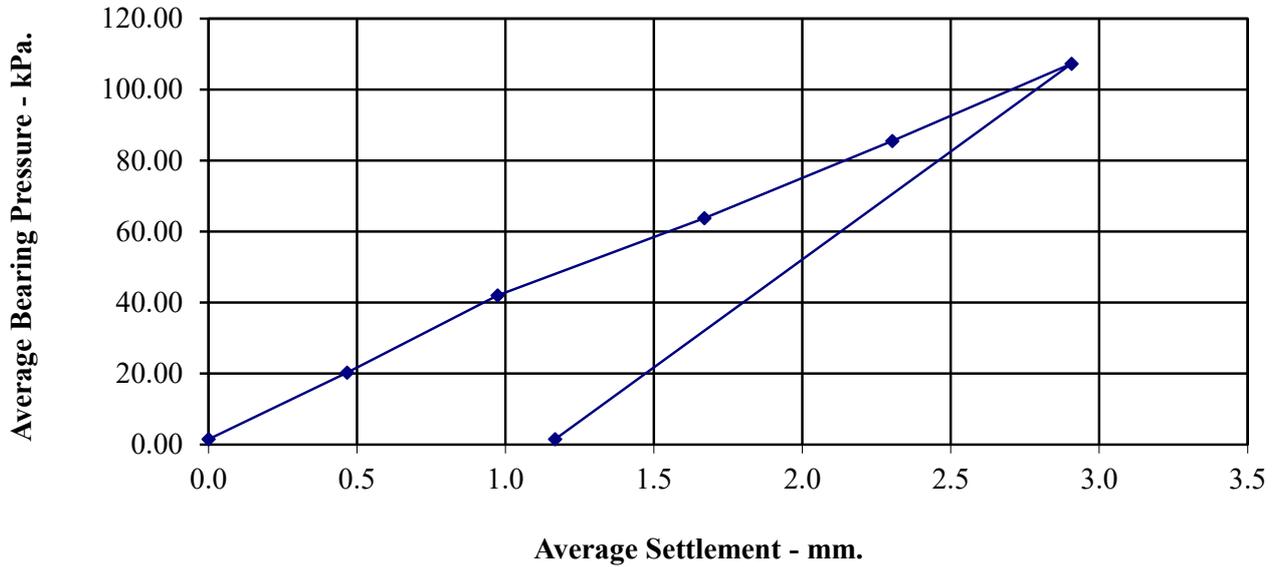
107.30

Maximum Deformation (mm):

2.91

Description:

2C



◇ Settlement Gauge 1
△ Settlement Gauge 2
□ Settlement Gauge 3
× Average Settlement



Chidswell Lane, Dewsbury

Contract No:

PSL22/0410

Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	18-Jan-22	
Test Position	PBT 20	
Depth (m)	GL	
Description	2C	
Maximum Deflection	2.91	mm
Deflection required for CBR value	1.25	mm
Load at 1.25mm	51	kN/m²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K₇₆₂(modulus of subgrade reaction) calculated using 1.25mm settlement	33.1	kN/m²/mm
CBR Value	4.1	%



Chidswell Lane, Dewsbury

Contract No:
PSL22/0410
Client Ref:



APPENDIX D

CHEMICAL TESTING RESULTS



Final Report

Report No.: 21-25321-1

Initial Date of Issue: 28-Jul-2021

Client: Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Philip Hughes
Stephen Gleadall

Project: SR3786 Owl Lane Chidswell

Quotation No.:		Date Received:	23-Jul-2021
Order No.:	PO/A4011/SR3786/SG	Date Instructed:	23-Jul-2021
No. of Samples:	15		
Turnaround (Wkdays):	5	Results Due:	29-Jul-2021
Date Approved:	28-Jul-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:				21-25321	21-25321	21-25321	21-25321	21-25321	21-25321	21-25321	21-25321	21-25321
Quotation No.:	Chemtest Sample ID.:				1246219	1246220	1246221	1246222	1246223	1246224	1246225	1246226	1246226
	Client Sample ID.:				STA-1	STA-2	STA-3	STA-4	STA-5	STA-6	STA-7	STA-8	STA-8
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Date Sampled:				21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps	Fibres/Clumps	Fibres/Clumps	-	-	-	-	-
Asbestos Identification	U	2192		N/A	Chrysotile	Chrysotile	Chrysotile	Chrysotile	No Asbestos Detected				
Asbestos by Gravimetry	U	2192	%	0.001	0.001	0.007	0.002	0.001					
Total Asbestos	U	2192	%	0.001	0.001	0.007	0.002	0.001					

Results - Soil

Project: SR3786 Owl Lane Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-25321	21-25321	21-25321	21-25321	21-25321	21-25321	21-25321	21-25321
Quotation No.:		Chemtest Sample ID.:		1246227	1246228	1246229	1246230	1246231	1246232	1246233	
		Client Sample ID.:		STA-9	STA-10	STA-11	STA-12	STA-13	STA-14	STA-15	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		Date Sampled:		21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD							
ACM Type	U	2192		N/A	-	Fibres/Clumps	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	Chrysotile	No Asbestos Detected				
Asbestos by Gravimetry	U	2192	%	0.001		0.006					
Total Asbestos	U	2192	%	0.001		0.006					

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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:



Final Report

Report No.: 21-25316-1

Initial Date of Issue: 27-Jul-2021

Client Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Philip Hughes
Stephen Gleadall

Project SR3786 Owl Lane Chidswell

Quotation No.:		Date Received:	23-Jul-2021
Order No.:	PO/A4011/SR3786/SG	Date Instructed:	23-Jul-2021
No. of Samples:	15		
Turnaround (Wkdays):	5	Results Due:	29-Jul-2021
Date Approved:	27-Jul-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316
Quotation No.:	Chemtest Sample ID.:		1246194	1246195	1246196	1246197	1246198	1246199	1246200	1246201	1246202		
	Client Sample ID.:		STB-1	STB-2	STB-3	STB-4	STB-5	STB-6	STB-7	STB-8	STB-9		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Top Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
	Date Sampled:		21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021		
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								

Results - Soil

Project: SR3786 Owl Lane Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-25316	21-25316	21-25316	21-25316	21-25316	21-25316	21-25316
Quotation No.:	Chemtest Sample ID.:		1246203	1246204	1246205	1246206	1246207	1246208	1246208
	Client Sample ID.:		STB-10	STB-11	STB-12	STB-13	STB-14	STB-15	STB-15
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Date Sampled:		21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected				

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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.: 21-26251-1

Initial Date of Issue: 03-Aug-2021

Client Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Philip Hughes
Stephen Gleadall

Project SR3786 Owl Lane, Chidswell

Quotation No.:		Date Received:	30-Jul-2021
Order No.:	PO/A4104/SR3786/SG	Date Instructed:	30-Jul-2021
No. of Samples:	7		
Turnaround (Wkdays):	5	Results Due:	05-Aug-2021
Date Approved:	03-Aug-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-26251	21-26251	21-26251	21-26251	21-26251	21-26251	21-26251	21-26251
Quotation No.:		Chemtest Sample ID.:		1250859	1250860	1250861	1250862	1250863	1250864	1250865	
		Client Sample ID.:		STC-1	STC-2	STC-3	STC-4	STC-5	STC-6	STC-7	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.1	0.1	0.1	0.1	0.1	0.1	0.1	
		Date Sampled:		29-Jul-2021	29-Jul-2021	29-Jul-2021	29-Jul-2021	29-Jul-2021	29-Jul-2021	29-Jul-2021	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD							
ACM Type	U	2192		N/A	-	-	-	-	-	-	Fibres/Clumps
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones, Roots and Wood	Stones and Roots	Stones and Roots				
Soil Texture	N	2040		N/A	Clay	Sand	Sand	Clay	Sand	Sand	Sand

Test Methods

SOP	Title	Parameters included	Method summary
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
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

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M	MCERTS and UKAS accredited
N	Unaccredited
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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"
SOP	Standard operating procedure
LOD	Limit of detection

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

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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 30 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



Amended Report

Report No.: 21-34556-2

Initial Date of Issue: 11-Oct-2021 **Date of Re-Issue:** 11-Oct-2021

Client: Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Stephen Gleadall

Project: SR3786 Owl Lane, Chidswell

Quotation No.: **Date Received:** 06-Oct-2021

Order No.: PO/A5111/SR3786/JH **Date Instructed:** 06-Oct-2021

No. of Samples: 21

Turnaround (Wkdays): 5 **Results Due:** 12-Oct-2021

Date Approved: 11-Oct-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556
Quotation No.:	Chemtest Sample ID.:		1292279	1292280	1292281	1292282	1292283	1292284	1292285	1292286	1292287	1292287
	Client Sample ID.:		Area A-B1	Area A-B2	Area A-B3	Area A-B4	Area A-B5	Area A-B6	Area A-B7	Area A-B8	Area A-B9	Area A-B9
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	Date Sampled:		04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected							

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556
Quotation No.:	Chemtest Sample ID.:		1292288	1292289	1292290	1292291	1292292	1292293	1292294	1292295	1292296	1292296
	Client Sample ID.:		Area A-B10	Area A-B11	Area A-B12	Area A-B13	Area A-B14	Area A-B15	Area A-B16	Area A-NSW1	Area A-NSW2	
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	Date Sampled:		04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected							

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:				21-34556	21-34556	21-34556
Quotation No.:	Chemtest Sample ID.:				1292297	1292298	1292299
	Client Sample ID.:				Area A-NSW3	Area A-ESW1	Area A-ESW2
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0.35	0.35	0.35
	Date Sampled:				04-Oct-2021	04-Oct-2021	04-Oct-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

U	UKAS accredited
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S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
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I/S	Insufficient Sample
U/S	Unsuitable Sample
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<	"less than"
>	"greater than"
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LOD	Limit of detection

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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 30 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.: 21-33912-1

Initial Date of Issue: 04-Oct-2021

Client Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Stephen Gleadall

Project SR3786 Owl Lane, Chidswell

Quotation No.:		Date Received:	30-Sep-2021
Order No.:	PO/A4929/SR3786/JH	Date Instructed:	30-Sep-2021
No. of Samples:	13		
Turnaround (Wkdays):	5	Results Due:	06-Oct-2021
Date Approved:	04-Oct-2021		

Approved By: _____

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-33912	21-33912	21-33912	21-33912	21-33912	21-33912	21-33912	21-33912	21-33912	21-33912	21-33912
Quotation No.:	Chemtest Sample ID.:		1289034	1289035	1289036	1289037	1289038	1289039	1289040	1289041	1289042		
	Client Sample ID.:		Area B-B1	Area B-B2	Area B-B3	Area B-B4	Area B-B5	Area B-B6	Area B-B7	Area B-B8	Area B-B9		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Top Depth (m):		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35		
	Date Sampled:		27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021		
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:		21-33912	21-33912	21-33912	21-33912
Quotation No.:	Chemtest Sample ID.:		1289043	1289044	1289045	1289046
	Client Sample ID.:		Area B-NSW1	Area B-NSW2	Area B-WSW1	Area B-WSW2
	Sample Type:		SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.35	0.35	0.35	0.35
	Date Sampled:		27-Sep-2021	27-Sep-2021	27-Sep-2021	27-Sep-2021
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

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

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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 30 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.: 21-34556-1
Initial Date of Issue: 11-Oct-2021
Client: Sirius Geotechnical Ltd
Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB
Contact(s): Jack Holdsworth
Stephen Gleadall
Project: SR3786 Owl Lane, Chidswell
Quotation No.: **Date Received:** 06-Oct-2021
Order No.: PO/A5111/SR3786/JH **Date Instructed:** 06-Oct-2021
No. of Samples: 21
Turnaround (Wkdays): 5 **Results Due:** 12-Oct-2021
Date Approved: 11-Oct-2021
Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556
Quotation No.:		Chemtest Sample ID.:		1292279	1292280	1292281	1292282	1292283	1292284	1292285	1292286	1292287	
		Client Sample ID.:		Area B-A1	Area B-A2	Area B-A3	Area B-A4	Area B-A5	Area B-A6	Area B-A7	Area B-A8	Area B-A9	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	
		Date Sampled:		04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	04-Oct-2021	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:				21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556	21-34556
Quotation No.:	Chemtest Sample ID.:				1292288	1292289	1292290	1292291	1292292	1292293	1292294	1292295	1292296
	Client Sample ID.:				Area B-A10	Area B-A11	Area B-A12	Area B-A13	Area B-A14	Area B-A15	Area B-A16	Area B-NSW1	Area B-NSW2
	Sample Type:				SOIL								
	Top Depth (m):				0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	Date Sampled:				04-Oct-2021								
	Asbestos Lab:				DURHAM								
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:				21-34556	21-34556	21-34556
Quotation No.:	Chemtest Sample ID.:				1292297	1292298	1292299
	Client Sample ID.:				Area B-NSW3	Area B-ESW1	Area B-ESW2
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0.35	0.35	0.35
	Date Sampled:				04-Oct-2021	04-Oct-2021	04-Oct-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

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U/S	Unsuitable Sample
N/E	not evaluated
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>	"greater than"
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Sample Deviation Codes

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B - Sample age exceeds stability time (sampling to extraction)

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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 30 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.: 21-28022-1

Initial Date of Issue: 17-Aug-2021

Client: Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Glanville-Mason
Stephen Gleadall

Project: SR3786 Owl Lane, Chidswell

Quotation No.:		Date Received:	13-Aug-2021
Order No.:	PO/A4337/SR3786/SG	Date Instructed:	13-Aug-2021
No. of Samples:	4		
Turnaround (Wkdays):	5	Results Due:	19-Aug-2021
Date Approved:	17-Aug-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd	Chemtest Job No.:				21-28022	21-28022	21-28022	21-28022
Quotation No.:	Chemtest Sample ID.:				1259931	1259932	1259933	1259934
	Client Sample ID.:				Area C-B1	Area C-B2	Area C-B3	Area C-B4
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.35	0.35	0.35	0.35
	Date Sampled:				06-Aug-2021	06-Aug-2021	06-Aug-2021	06-Aug-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

U	UKAS accredited
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SOP	Standard operating procedure
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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 30 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.: 21-36190-1

Initial Date of Issue: 25-Oct-2021

Client: Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Eliphanos Moyo
Jack Holdsworth
Philip Hughes

Project: SR3576 New Farnley

Quotation No.:		Date Received:	18-Oct-2021
Order No.:	PO/A5241/SR3576/JH	Date Instructed:	18-Oct-2021
No. of Samples:	20		
Turnaround (Wkdays):	5	Results Due:	22-Oct-2021
Date Approved:	25-Oct-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3576 New Farnley

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190
Quotation No.:		Chemtest Sample ID.:		1300575	1300576	1300577	1300578	1300579	1300580	1300581	1300582	1300583	
Client Sample ID.:		Area B-TSS-01	Area B-TSS-02	Area B-TSS-03	Area B-TSS-04	Area B-TSS-05	Area B-TSS-06	Area B-TSS-07	Area B-TSS-08	Area B-TSS-09	Area B-TSS-08	Area B-TSS-09	
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Date Sampled:		13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	
Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								
Moisture	N	2030	%	0.020	11	11	12	11	10	13	11	11	12
Soil Colour	N	2040		N/A	Brown								
Other Material	N	2040		N/A	Stones								
Soil Texture	N	2040		N/A	Sand								
pH	M	2010		4.0	8.6	8.5	8.4	7.9	8.4	8.3	8.3	8.4	8.4
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	0.027	< 0.010	0.038	0.011	< 0.010	< 0.010
Sulphate (Total)	M	2430	%	0.010	0.20	0.28	0.15	0.15	0.17	0.22	0.19	0.20	0.31
Arsenic	M	2450	mg/kg	1.0	49	120	51	65	94	54	72	59	47
Cadmium	M	2450	mg/kg	0.10	0.14	0.43	0.17	0.19	0.61	0.16	0.28	0.22	0.18
Chromium	M	2450	mg/kg	1.0	20	46	21	30	35	22	24	21	28
Copper	M	2450	mg/kg	0.50	52	120	54	58	120	58	66	60	50
Mercury	M	2450	mg/kg	0.10	0.20	0.43	0.15	0.16	0.47	0.18	0.30	0.19	0.22
Nickel	M	2450	mg/kg	0.50	23	53	26	30	39	26	31	25	27
Lead	M	2450	mg/kg	0.50	60	160	66	67	260	60	83	74	53
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	76	150	81	97	270	78	98	110	71
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	8.8	8.1	9.4	6.7	7.9	9.5	8.2	8.7	11
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.64
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.32
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.35
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.73
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.3	< 0.10	< 0.10	< 0.10	1.9
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.52	< 0.10	< 0.10	< 0.10	0.12
Fluoranthene	M	2700	mg/kg	0.10	1.4	1.7	1.4	1.2	3.8	3.5	0.72	1.1	1.5
Pyrene	M	2700	mg/kg	0.10	2.6	1.4	1.4	1.4	3.8	3.3	0.75	1.4	1.6
Benzo[a]anthracene	M	2700	mg/kg	0.10	1.2	1.1	2.4	1.1	2.0	1.7	0.52	0.77	0.99
Chrysene	M	2700	mg/kg	0.10	1.5	1.6	2.2	1.3	2.7	2.4	1.3	1.5	2.5
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	3.7	< 0.10	1.3	< 0.10	2.4	2.0	< 0.10	0.86	0.84
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	0.87	< 0.10	1.4	< 0.10	1.8	1.5	< 0.10	1.0	1.4
Benzo[a]pyrene	M	2700	mg/kg	0.10	1.1	< 0.10	0.98	< 0.10	1.8	1.9	< 0.10	0.75	0.70
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.97	1.7	< 0.10	< 0.10	0.32
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.64	0.82	< 0.10	< 0.10	0.57
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.3	1.3	< 0.10	< 0.10	0.52
Total Of 16 PAH's	M	2700	mg/kg	2.0	12	5.8	11	5.0	25	20	3.3	7.4	15
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10

Results - Soil

Project: SR3576 New Farnley

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190	21-36190
Quotation No.:		Chemtest Sample ID.:		1300584	1300585	1300586	1300587	1300588	1300589	1300590	1300591	1300592	
Client Sample ID.:		Area B-TSS-10	Area B-TSS-11	Area B-TSS-12	Area B-TSS-13	Area B-TSS-14	Area B-TSS-15	Area B-TSS-16	Area B-TSS-17	Area B-TSS-18	Area B-TSS-19	Area B-TSS-20	
Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Date Sampled:		13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	13-Oct-2021	
Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								
Moisture	N	2030	%	0.020	14	13	12	10	7.4	11	10	9.4	11
Soil Colour	N	2040		N/A	Brown								
Other Material	N	2040		N/A	Stones								
Soil Texture	N	2040		N/A	Sand	Clay	Clay	Clay	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0	8.4	8.4	8.2	8.3	8.2	8.2	8.3	8.0	8.2
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.013	< 0.010	< 0.010	< 0.010	< 0.010	0.011	< 0.010	0.016	< 0.010
Sulphate (Total)	M	2430	%	0.010	0.32	0.24	0.22	0.25	0.30	0.33	0.31	0.17	0.32
Arsenic	M	2450	mg/kg	1.0	61	64	44	53	52	52	60	61	56
Cadmium	M	2450	mg/kg	0.10	0.22	0.17	0.14	0.15	0.17	0.17	0.22	0.29	0.20
Chromium	M	2450	mg/kg	1.0	23	26	24	22	24	31	26	31	25
Copper	M	2450	mg/kg	0.50	65	70	53	67	52	62	60	61	53
Mercury	M	2450	mg/kg	0.10	0.19	0.21	0.15	0.18	0.20	0.15	0.22	0.17	0.26
Nickel	M	2450	mg/kg	0.50	28	32	27	28	28	35	31	32	31
Lead	M	2450	mg/kg	0.50	78	77	53	65	61	55	69	63	59
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	85	96	77	81	80	82	90	100	81
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	8.5	9.6	7.8	7.8	7.0	8.8	7.0	7.3	7.5
Naphthalene	M	2700	mg/kg	0.10	0.63	0.61	< 0.10	1.3	< 0.10	0.89	< 0.10	0.65	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	0.29	0.14	< 0.10	0.89	< 0.10	0.94	< 0.10	0.32	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	0.28	0.20	< 0.10	1.2	< 0.10	1.1	< 0.10	0.22	< 0.10
Fluorene	M	2700	mg/kg	0.10	0.54	0.55	< 0.10	1.7	< 0.10	1.8	< 0.10	0.32	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	1.9	1.4	< 0.10	5.8	2.3	6.7	< 0.10	0.80	< 0.10
Anthracene	M	2700	mg/kg	0.10	0.29	0.16	< 0.10	1.0	0.32	1.2	< 0.10	0.22	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	2.1	1.5	2.5	5.1	3.1	6.6	0.94	1.1	2.6
Pyrene	M	2700	mg/kg	0.10	2.3	1.4	2.5	5.8	4.0	7.4	1.2	0.96	2.4
Benzo[a]anthracene	M	2700	mg/kg	0.10	1.4	1.1	2.0	2.5	1.7	3.5	0.82	0.76	1.3
Chrysene	M	2700	mg/kg	0.10	2.3	2.0	2.6	2.9	2.4	4.0	0.81	1.5	1.9
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	1.8	1.0	1.5	3.5	2.9	3.9	0.73	0.62	1.5
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	1.2	1.1	1.6	2.2	2.4	2.1	1.0	1.1	1.2
Benzo[a]pyrene	M	2700	mg/kg	0.10	1.3	0.82	1.1	2.4	2.4	3.1	0.62	0.70	1.2
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	0.83	0.38	< 0.10	< 0.10	< 0.10	1.7	< 0.10	0.43	0.61
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	0.71	0.56	< 0.10	< 0.10	< 0.10	0.85	< 0.10	0.36	0.40
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	1.0	0.57	< 0.10	< 0.10	< 0.10	1.8	< 0.10	0.59	0.66
Total Of 16 PAH's	M	2700	mg/kg	2.0	19	14	14	36	22	48	6.1	11	14
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: SR3576 New Farnley

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36190	21-36190	
Quotation No.:		Chemtest Sample ID.:		1300593	1300594	
		Client Sample ID.:		Area B-TSS-19	Area B-TSS-20	
		Sample Type:		SOIL	SOIL	
		Date Sampled:		13-Oct-2021	13-Oct-2021	
		Asbestos Lab:		COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	9.9	19
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay
pH	M	2010		4.0	8.7	8.7
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010
Sulphate (Total)	M	2430	%	0.010	0.28	0.30
Arsenic	M	2450	mg/kg	1.0	76	56
Cadmium	M	2450	mg/kg	0.10	0.24	0.18
Chromium	M	2450	mg/kg	1.0	35	23
Copper	M	2450	mg/kg	0.50	75	58
Mercury	M	2450	mg/kg	0.10	0.26	0.17
Nickel	M	2450	mg/kg	0.50	45	27
Lead	M	2450	mg/kg	0.50	75	64
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	100	79
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	8.1	12
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	0.97	1.6
Pyrene	M	2700	mg/kg	0.10	0.99	1.9
Benzo[a]anthracene	M	2700	mg/kg	0.10	1.1	0.88
Chrysene	M	2700	mg/kg	0.10	1.1	1.4
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	1.2
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	1.3
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	1.1
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	4.2	9.4
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10

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
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
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.
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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.: 21-36821-1

Initial Date of Issue: 29-Oct-2021

Client Sirius Geotechnical Ltd

Client Address: 4250 (Downstairs)
Thorpe Park
Park Approach
Leeds
West Yorkshire
LS15 8GB

Contact(s): Jack Holdsworth
Philip Hughes
Stephen Gleadall

Project SR3786 Owl Lane, Chidswell

Quotation No.: **Date Received:** 22-Oct-2021

Order No.: PO.A5243.SR3786.JH **Date Instructed:** 22-Oct-2021

No. of Samples: 20

Turnaround (Wkdays): 5 **Results Due:** 28-Oct-2021

Date Approved: 29-Oct-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821
Quotation No.:		Chemtest Sample ID.:		1303953	1303954	1303955	1303956	1303957	1303958	1303959	1303960	1303961	
		Client Sample ID.:		ES-TSS-01	ES-TSS-02	ES-TSS-03	ES-TSS-04	ES-TSS-05	ES-TSS-06	ES-TSS-07	ES-TSS-08	ES-TSS-09	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		Date Sampled:		21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								
Moisture	N	2030	%	0.020	8.8	7.6	7.2	7.5	6.9	8.3	8.6	8.9	9.2
Soil Colour	N	2040		N/A	Brown								
Other Material	N	2040		N/A	Stones								
Soil Texture	N	2040		N/A	Sand								
pH	M	2010		4.0	[B] 6.5	[B] 6.6	[B] 6.7	[B] 6.6	[B] 6.6	[B] 6.7	[B] 6.6	[B] 6.6	[B] 6.6
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010
Sulphate (Total)	M	2430	%	0.010	[B] 0.087	[B] 0.096	[B] 0.12	[B] 0.15	[B] 0.094	[B] 0.11	[B] 0.14	[B] 0.13	[B] 0.12
Arsenic	M	2450	mg/kg	1.0	31	39	42	48	34	47	61	55	53
Cadmium	M	2450	mg/kg	0.10	< 0.10	0.12	0.12	< 0.10	< 0.10	< 0.10	0.10	0.12	0.10
Chromium	M	2450	mg/kg	1.0	44	56	75	68	58	49	65	63	54
Copper	M	2450	mg/kg	0.50	110	130	140	140	100	120	210	160	140
Mercury	M	2450	mg/kg	0.10	0.21	0.25	0.26	0.28	0.21	0.22	0.30	0.24	0.28
Nickel	M	2450	mg/kg	0.50	30	51	43	46	39	35	47	45	40
Lead	M	2450	mg/kg	0.50	41	50	57	58	42	52	69	65	58
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	0.20	0.34	< 0.20	0.57	< 0.20	0.32	0.26
Zinc	M	2450	mg/kg	0.50	150	170	190	210	150	170	210	210	180
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	[B] 6.8	[B] 10	[B] 5.6	[B] 5.0	[B] 6.8	[B] 12	[B] 8.1	[B] 10	[B] 9.3
Naphthalene	M	2700	mg/kg	0.10	[B] 11	[B] 8.6	[B] 8.2	[B] 8.1	[B] 8.7	[B] 7.7	[B] 7.1	[B] 8.3	[B] 8.0
Acenaphthylene	M	2700	mg/kg	0.10	[B] 0.97	[B] 0.46	[B] 0.48	[B] 0.57	[B] 0.50	[B] 1.2	[B] 1.1	[B] 1.1	[B] 1.1
Acenaphthene	M	2700	mg/kg	0.10	[B] 2.9	[B] 0.60	[B] 1.1	[B] 0.92	[B] 1.1	[B] 1.3	[B] 0.71	[B] 1.2	[B] 0.96
Fluorene	M	2700	mg/kg	0.10	[B] 2.5	[B] 0.48	[B] 0.77	[B] 0.77	[B] 0.96	[B] 1.7	[B] 1.0	[B] 1.2	[B] 1.0
Phenanthrene	M	2700	mg/kg	0.10	[B] 17	[B] 4.2	[B] 8.8	[B] 7.3	[B] 8.5	[B] 21	[B] 11	[B] 13	[B] 9.7
Anthracene	M	2700	mg/kg	0.10	[B] 3.4	[B] 0.73	[B] 1.7	[B] 1.7	[B] 1.9	[B] 3.9	[B] 2.2	[B] 2.4	[B] 2.0
Fluoranthene	M	2700	mg/kg	0.10	[B] 18	[B] 6.6	[B] 13	[B] 11	[B] 12	[B] 32	[B] 20	[B] 21	[B] 18
Pyrene	M	2700	mg/kg	0.10	[B] 17	[B] 6.1	[B] 13	[B] 11	[B] 12	[B] 31	[B] 18	[B] 20	[B] 18
Benzo[a]anthracene	M	2700	mg/kg	0.10	[B] 7.6	[B] 3.1	[B] 5.7	[B] 5.3	[B] 5.9	[B] 14	[B] 9.2	[B] 9.3	[B] 9.0
Chrysene	M	2700	mg/kg	0.10	[B] 10	[B] 3.8	[B] 6.4	[B] 5.0	[B] 5.7	[B] 14	[B] 9.4	[B] 9.1	[B] 9.4
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	[B] 9.3	[B] 4.3	[B] 7.9	[B] 6.5	[B] 6.8	[B] 18	[B] 11	[B] 11	[B] 12
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	[B] 3.9	[B] 1.9	[B] 3.2	[B] 2.9	[B] 3.1	[B] 7.5	[B] 4.7	[B] 5.1	[B] 5.3
Benzo[a]pyrene	M	2700	mg/kg	0.10	[B] 6.9	[B] 3.1	[B] 5.9	[B] 5.0	[B] 5.3	[B] 14	[B] 8.9	[B] 9.2	[B] 9.1
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	[B] 4.0	[B] 2.3	[B] < 0.10	[B] 3.1	[B] 3.3	[B] 8.8	[B] 5.7	[B] 5.8	[B] 5.8
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	[B] 1.4	[B] 1.2	[B] < 0.10	[B] 1.2	[B] 1.0	[B] 2.4	[B] 1.7	[B] 1.8	[B] 1.8
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	[B] 3.8	[B] 2.2	[B] < 0.10	[B] 3.0	[B] 3.3	[B] 8.3	[B] 5.2	[B] 5.9	[B] 5.4
Total Of 16 PAH's	M	2700	mg/kg	2.0	[B] 120	[B] 50	[B] 76	[B] 73	[B] 80	[B] 190	[B] 120	[B] 130	[B] 120
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821	21-36821
Quotation No.:		Chemtest Sample ID.:		1303962	1303963	1303964	1303965	1303966	1303967	1303968	1303969	1303970	
		Client Sample ID.:		ES-TSS-10	ES-TSS-11	ES-TSS-12	ES-TSS-13	ES-TSS-14	ES-TSS-15	ES-TSS-16	ES-TSS-17	ES-TSS-18	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		Date Sampled:		21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected								
Moisture	N	2030	%	0.020	8.8	9.4	11	9.7	8.8	7.8	9.9	8.8	8.5
Soil Colour	N	2040		N/A	Brown								
Other Material	N	2040		N/A	Stones								
Soil Texture	N	2040		N/A	Sand								
pH	M	2010		4.0	[B] 6.7	[B] 6.6	[B] 6.7	[B] 6.7	[B] 6.8	[B] 6.7	[B] 6.7	[B] 6.6	[B] 6.6
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010	[B] < 0.010
Sulphate (Total)	M	2430	%	0.010	[B] 0.12	[B] 0.094	[B] 0.14	[B] 0.13	[B] 0.085	[B] 0.11	[B] 0.10	[B] 0.12	[B] 0.12
Arsenic	M	2450	mg/kg	1.0	45	38	53	50	40	42	44	45	41
Cadmium	M	2450	mg/kg	0.10	0.15	0.10	0.12	< 0.10	< 0.10	0.13	0.12	0.15	0.10
Chromium	M	2450	mg/kg	1.0	88	52	74	73	53	68	69	56	57
Copper	M	2450	mg/kg	0.50	150	120	200	140	110	120	190	130	150
Mercury	M	2450	mg/kg	0.10	0.35	0.22	0.33	0.21	0.18	0.23	0.25	0.23	0.25
Nickel	M	2450	mg/kg	0.50	46	35	50	45	35	40	43	38	40
Lead	M	2450	mg/kg	0.50	63	51	70	61	47	53	55	51	49
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.70	< 0.20	0.39	0.45	0.39
Zinc	M	2450	mg/kg	0.50	210	160	230	210	160	190	190	180	180
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	[B] 7.0	[B] 5.9	[B] 6.7	[B] 7.0	[B] 7.1	[B] 8.4	[B] 7.0	[B] 8.5	[B] 6.2
Naphthalene	M	2700	mg/kg	0.10	[B] 8.2	[B] 7.2	[B] 7.0	[B] 14	[B] 7.9	[B] 13	[B] 7.0	[B] 10	[B] 7.5
Acenaphthylene	M	2700	mg/kg	0.10	[B] 0.63	[B] 0.66	[B] 0.46	[B] 3.0	[B] 0.69	[B] 1.3	[B] 0.79	[B] 0.82	[B] 0.49
Acenaphthene	M	2700	mg/kg	0.10	[B] 1.8	[B] 0.56	[B] 1.2	[B] 2.5	[B] 0.87	[B] 0.96	[B] 1.5	[B] 1.8	[B] 0.77
Fluorene	M	2700	mg/kg	0.10	[B] 1.9	[B] 0.62	[B] 1.1	[B] 4.3	[B] 0.78	[B] 1.4	[B] 1.5	[B] 1.4	[B] 0.63
Phenanthrene	M	2700	mg/kg	0.10	[B] 11	[B] 5.5	[B] 9.3	[B] 23	[B] 8.2	[B] 10	[B] 12	[B] 11	[B] 5.9
Anthracene	M	2700	mg/kg	0.10	[B] 3.0	[B] 1.1	[B] 1.8	[B] 5.5	[B] 1.3	[B] 2.0	[B] 2.5	[B] 2.3	[B] 1.3
Fluoranthene	M	2700	mg/kg	0.10	[B] 13	[B] 9.5	[B] 12	[B] 23	[B] 12	[B] 12	[B] 15	[B] 15	[B] 8.2
Pyrene	M	2700	mg/kg	0.10	[B] 13	[B] 8.8	[B] 11	[B] 23	[B] 11	[B] 12	[B] 15	[B] 16	[B] 8.5
Benzo[a]anthracene	M	2700	mg/kg	0.10	[B] 5.9	[B] 4.7	[B] 5.4	[B] 11	[B] 5.6	[B] 6.4	[B] 7.1	[B] 7.7	[B] 4.5
Chrysene	M	2700	mg/kg	0.10	[B] 5.5	[B] 4.3	[B] 5.7	[B] 10	[B] 5.8	[B] 6.9	[B] 9.4	[B] 9.8	[B] 5.5
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	[B] 6.3	[B] 5.2	[B] 6.4	[B] 12	[B] 7.3	[B] 7.5	[B] 8.5	[B] 11	[B] 5.6
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	[B] 2.8	[B] 2.4	[B] 3.0	[B] 5.0	[B] 3.1	[B] 3.3	[B] 3.7	[B] 4.9	[B] 2.5
Benzo[a]pyrene	M	2700	mg/kg	0.10	[B] 5.1	[B] 4.3	[B] 4.9	[B] 9.5	[B] 5.7	[B] 5.7	[B] 6.8	[B] 8.3	[B] 4.4
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	[B] 3.2	[B] 2.7	[B] 3.1	[B] 6.0	[B] 3.7	[B] 3.5	[B] 3.9	[B] 5.5	[B] 3.0
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	[B] 0.98	[B] 1.0	[B] 1.0	[B] 2.2	[B] 1.2	[B] 1.5	[B] 1.3	[B] 1.7	[B] 1.2
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	[B] 2.7	[B] 2.6	[B] 3.1	[B] 5.5	[B] 3.5	[B] 3.5	[B] 3.8	[B] 5.1	[B] 2.8
Total Of 16 PAH's	M	2700	mg/kg	2.0	[B] 85	[B] 61	[B] 77	[B] 160	[B] 79	[B] 91	[B] 100	[B] 110	[B] 63
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: SR3786 Owl Lane, Chidswell

Client: Sirius Geotechnical Ltd		Chemtest Job No.:		21-36821	21-36821
Quotation No.:		Chemtest Sample ID.:		1303971	1303972
		Client Sample ID.:		ES-TSS-19	ES-TSS-20
		Sample Type:		SOIL	SOIL
		Top Depth (m):		0.10	0.10
		Date Sampled:		21-Jul-2021	21-Jul-2021
		Asbestos Lab:		DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
Moisture	N	2030	%	0.020	22
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Sand
pH	M	2010		4.0	[B] 8.2
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	[B] < 0.010
Sulphate (Total)	M	2430	%	0.010	[B] 0.12
Arsenic	M	2450	mg/kg	1.0	38
Cadmium	M	2450	mg/kg	0.10	0.11
Chromium	M	2450	mg/kg	1.0	67
Copper	M	2450	mg/kg	0.50	140
Mercury	M	2450	mg/kg	0.10	0.25
Nickel	M	2450	mg/kg	0.50	44
Lead	M	2450	mg/kg	0.50	49
Selenium	M	2450	mg/kg	0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	200
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Total Organic Carbon	M	2625	%	0.20	[B] 7.8
Naphthalene	M	2700	mg/kg	0.10	[B] 0.74
Acenaphthylene	M	2700	mg/kg	0.10	[B] 0.34
Acenaphthene	M	2700	mg/kg	0.10	[B] 0.53
Fluorene	M	2700	mg/kg	0.10	[B] 0.75
Phenanthrene	M	2700	mg/kg	0.10	[B] 5.7
Anthracene	M	2700	mg/kg	0.10	[B] 1.5
Fluoranthene	M	2700	mg/kg	0.10	[B] 7.2
Pyrene	M	2700	mg/kg	0.10	[B] 7.0
Benzo[a]anthracene	M	2700	mg/kg	0.10	[B] 5.0
Chrysene	M	2700	mg/kg	0.10	[B] 4.2
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	[B] 4.2
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	[B] 1.5
Benzo[a]pyrene	M	2700	mg/kg	0.10	[B] 3.3
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	[B] 1.8
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	[B] 0.47
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	[B] 1.8
Total Of 16 PAH's	M	2700	mg/kg	2.0	[B] 46
Total Phenols	M	2920	mg/kg	0.10	< 0.10

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:
1303953		ES-TSS-01		21-Jul-2021	B	Amber Glass 250ml
1303953		ES-TSS-01		21-Jul-2021	B	Amber Glass 60ml
1303953		ES-TSS-01		21-Jul-2021	B	Plastic Tub 500g
1303954		ES-TSS-02		21-Jul-2021	B	Amber Glass 250ml
1303954		ES-TSS-02		21-Jul-2021	B	Amber Glass 60ml
1303954		ES-TSS-02		21-Jul-2021	B	Plastic Tub 500g
1303955		ES-TSS-03		21-Jul-2021	B	Amber Glass 250ml
1303955		ES-TSS-03		21-Jul-2021	B	Amber Glass 60ml
1303955		ES-TSS-03		21-Jul-2021	B	Plastic Tub 500g
1303956		ES-TSS-04		21-Jul-2021	B	Amber Glass 250ml
1303956		ES-TSS-04		21-Jul-2021	B	Amber Glass 60ml
1303956		ES-TSS-04		21-Jul-2021	B	Plastic Tub 500g
1303957		ES-TSS-05		21-Jul-2021	B	Amber Glass 250ml
1303957		ES-TSS-05		21-Jul-2021	B	Amber Glass 60ml
1303957		ES-TSS-05		21-Jul-2021	B	Plastic Tub 500g
1303958		ES-TSS-06		21-Jul-2021	B	Amber Glass 250ml
1303958		ES-TSS-06		21-Jul-2021	B	Amber Glass 60ml
1303958		ES-TSS-06		21-Jul-2021	B	Plastic Tub 500g
1303959		ES-TSS-07		21-Jul-2021	B	Amber Glass 250ml
1303959		ES-TSS-07		21-Jul-2021	B	Amber Glass 60ml
1303959		ES-TSS-07		21-Jul-2021	B	Plastic Tub 500g
1303960		ES-TSS-08		21-Jul-2021	B	Amber Glass 250ml
1303960		ES-TSS-08		21-Jul-2021	B	Amber Glass 60ml
1303960		ES-TSS-08		21-Jul-2021	B	Plastic Tub 500g

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:
1303961		ES-TSS-09		21-Jul-2021	B	Amber Glass 250ml
1303961		ES-TSS-09		21-Jul-2021	B	Amber Glass 60ml
1303961		ES-TSS-09		21-Jul-2021	B	Plastic Tub 500g
1303962		ES-TSS-10		21-Jul-2021	B	Amber Glass 250ml
1303962		ES-TSS-10		21-Jul-2021	B	Amber Glass 60ml
1303962		ES-TSS-10		21-Jul-2021	B	Plastic Tub 500g
1303963		ES-TSS-11		21-Jul-2021	B	Amber Glass 250ml
1303963		ES-TSS-11		21-Jul-2021	B	Amber Glass 60ml
1303963		ES-TSS-11		21-Jul-2021	B	Plastic Tub 500g
1303964		ES-TSS-12		21-Jul-2021	B	Amber Glass 250ml
1303964		ES-TSS-12		21-Jul-2021	B	Amber Glass 60ml
1303964		ES-TSS-12		21-Jul-2021	B	Plastic Tub 500g
1303965		ES-TSS-13		21-Jul-2021	B	Amber Glass 250ml
1303965		ES-TSS-13		21-Jul-2021	B	Amber Glass 60ml
1303965		ES-TSS-13		21-Jul-2021	B	Plastic Tub 500g
1303966		ES-TSS-14		21-Jul-2021	B	Amber Glass 250ml
1303966		ES-TSS-14		21-Jul-2021	B	Amber Glass 60ml
1303966		ES-TSS-14		21-Jul-2021	B	Plastic Tub 500g
1303967		ES-TSS-15		21-Jul-2021	B	Amber Glass 250ml
1303967		ES-TSS-15		21-Jul-2021	B	Amber Glass 60ml
1303967		ES-TSS-15		21-Jul-2021	B	Plastic Tub 500g
1303968		ES-TSS-16		21-Jul-2021	B	Amber Glass 250ml
1303968		ES-TSS-16		21-Jul-2021	B	Amber Glass 60ml
1303968		ES-TSS-16		21-Jul-2021	B	Plastic Tub 500g

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:
1303969		ES-TSS-17		21-Jul-2021	B	Amber Glass 250ml
1303969		ES-TSS-17		21-Jul-2021	B	Amber Glass 60ml
1303969		ES-TSS-17		21-Jul-2021	B	Plastic Tub 500g
1303970		ES-TSS-18		21-Jul-2021	B	Amber Glass 250ml
1303970		ES-TSS-18		21-Jul-2021	B	Amber Glass 60ml
1303970		ES-TSS-18		21-Jul-2021	B	Plastic Tub 500g
1303971		ES-TSS-19		21-Jul-2021	B	Amber Glass 250ml
1303971		ES-TSS-19		21-Jul-2021	B	Amber Glass 60ml
1303971		ES-TSS-19		21-Jul-2021	B	Plastic Tub 500g
1303972		ES-TSS-20		21-Jul-2021	B	Amber Glass 250ml
1303972		ES-TSS-20		21-Jul-2021	B	Amber Glass 60ml
1303972		ES-TSS-20		21-Jul-2021	B	Plastic Tub 500g

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
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
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.
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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 E
DRILLING LOGS



Sirius Drilling

OPENHOLE DRILL LOG

Job No. 3791
 Contract Name: Chidswell
 Working Day: Tuesday

Date: 21-12-21
 Client: Barrett Pioneers
 Sheet: 1 of 7

Hole No.	From	To	Flush (W/A/M)	Casing T/S (m)	Strata Description	Rig Type:
Shaft	0.0	2			fm	C684
	2	3			Sandstone (boulder)	
	3	27			soft push - No Return	
	27	30			Hard Strata	
Probe	0.0	0.5			fm	Remarks:
	0.5	23.5			Sandstone - Mudstone	
	23.5	27			Coal	
	27	30			mudstone	
						Gas Monitoring
						% O ₂ CO ₂ CH ₄ CO
						Start 2.8 0 0 0
						Mid / 0 0 0
						End / 0 0 0
						Weather Conditions:
						Cloudy
						Boreholes Total
						Today
						Previous
						To Date
						Drilled Total
						Today
						Previous
						To Date
						Casing Total
						Today
						Previous
						To Date
						Signed by Sirius Drilling Ltd: