Compass Geotechnical

Geotechnical, Geoenvironmental and Civil Engineering Consultants

REPORT ON A SUPPLEMENTARY GEOTECHNICAL INVESTIGATION FOR A PROPOSED MIXED-USE DEVELOPMENT AT FORMER CHAMBERS BUS DEPOT, CHURCH SQUARE, BURES, SUFFOLK, CO8 5AB

Report No: 222945S

August 2022

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1. INTRODUCTION AND OBJECTIVES

1.1 This report has been prepared on instructions given by the Client, Rose Builders Limited (Riverside House, Riverside Avenue East, Lawford, Essex, CO11 1US).

1.2 The site is located on the north eastern side of High Street and immediately to the north of the B1508 (Church Square) in the village of Bures, Suffolk as shown on Figure 1, Appendix (i). Bures lies approximately 9km to the south of Sudbury and 16km to the north west of Colchester. As shown on Figure 2, Appendix (i), the site is irregular in shape comprising a number of buildings and areas of hard standing formerly used as a bus depot. The site is at and around National Grid Reference 590750, 124090 and covers an area of around 0.32ha (Reference 1).

1.3 The site has been the subject of a previous desk study and intrusive investigation as referenced below.

- Compass Geotechnical Limited Report on a Phase 1 Desk Study and Risk Assessment for A Proposed Mixed-Use Development at Former Chambers Bus Depot, Church Square, Bures, Suffolk, CO8 5AB. Report No: 212945A dated September 2021.
- Compass Geotechnical Limited Report on a Phase 2 Ground Investigation and Contamination Assessment for a Proposed Mixed-Use Development at Former Chambers Bus Depot, Church Square, Bures, Suffolk, CO8 5AB. Report No: 212945B dated June 2022.

1.4 Outline proposals are to redevelop the front (west) section of the site for retail/commercial use with residential above and housing with private gardens to the rear (east). A plan showing the proposed layout is presented as Figure 4, Appendix (i).

1.5 The aims of the current intrusive investigation were to:

- Undertake three boreholes to investigate the ground and groundwater conditions at depth to provide geotechnical information for piled foundations.
- Undertake material property testing of samples recovered from an intrusive investigation.
- Present an interpretative report on the findings.

1.6 The investigation, assessment and reporting has been carried out in general accordance with the following:

- BS 5930:2015+A1:2020. Code of Practice for Ground Investigations.
- BS 10175:2011+A2:2017. Investigation of potentially contaminated sites – Code of practice.
- BS 8485:2015+A1:2019. Code of practice for the design of protective measures for methane and carbon dioxide ground gasses for new buildings.
- BS 8576:2013. Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs).
- BS EN ISO 14688-1:2018. Geotechnical investigation and testing – Identification and classification of a soil – Part 1: Identification and description.
- BS EN ISO 14688-2:2018. Geotechnical investigation and testing – Identification and classification of a soil – Part 2: Principles for a classification.
- BS EN ISO 22476-2:2005+A1:2011. Geotechnical investigation and testing – Field testing – Part 2: Dynamic Probing.
- BS EN ISO 22476-3:2005+A1:2011. Geotechnical investigation and testing – Field testing – Part 3: Standard Penetration Test.
- BS EN ISO 14689:2018. Geotechnical investigation and testing – Identification and classification of rock – Part 1: Identification and description.
- BS EN ISO 22475-1:2006. Geotechnical investigation and testing – Sampling methods and groundwater measurements – Part 1: Technical principles for execution.
- BS 1377-9:1990. Soils for civil engineering purposes – Part 9 In-situ tests.
- BS EN 1997-1:2004+A1:2013 Eurocode 7: Geotechnical design – Part 1: General Rules.
- NA to BS EN 1997-1:2004+A1:2013. UK National Annex to Eurocode 7: Geotechnical design – Part 1: General Rules.
- BS EN 1997-2:2007. Eurocode 7: Geotechnical design – Part 2: Ground investigation and testing.
- NA to BS EN 1997-2:2007. UK National Annex to Eurocode 7: Geotechnical design – Part 2: Ground investigation and testing.

2. SITE RECONNAISANCE

2.1 As shown on Figure 2, Appendix (i), the area under consideration comprises a former bus garage and yard off Church Square in the centre of the village of Bures. A detailed description of the site is given in the reports of Section 1.3.

3. PUBLISHED GEOLOGY

3.1 Published geological information (Reference 2) indicates that the site lies in an area where the general downwards strata succession is as detailed in Table 3.1 below:

Table 3.1 Geological Sequence

Lithology	Lithological Description	Age Range
River Terrace Deposits	Sand and Gravel	Quaternary Period (3 Ma)
Thanet Formation and Lambeth Group (undifferentiated) to the east	Clay, Silt and Sand	Palaeogene Period (48 to 66 Ma)
Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) to the west	Chalk	Cretaceous Period (84 to 94 Ma)

The published geological map (Reference 2) indicates that the site is underlain by solid deposits of the Thanet Formation and Lambeth Group (undifferentiated) to the east and Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) to the west. The solid deposits are shown as overlain by River Terrace Deposits. Further superficial deposits including Head to the east and Alluvium to the west are shown.

3.2 A search of the British Geological Survey (BGS) borehole database (GeoIndex) indicates that there are few borehole records in the area of the site. The closest borehole, around 50m to the north, indicates around 1.2m of made ground overlying sand and gravel to around 12.8m, in turn overlying the clay, silt and sand of the Thanet Formation and Lambeth Group (undifferentiated), below which at around 19.5m depth deposits of Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) are present.

3.3 The previous investigation at the site was primarily to assess the near surface ground conditions and possible contamination with a series of exploratory holes (windowless sample holes, boreholes and trial pits) which extended to a maximum 6.0m bgl. The exploratory holes confirmed the presence of variable made ground and disturbed soils overlying sands and gravels of the River Terrace Deposits. It was recommended that further deeper boreholes were drilled in the area of the proposed new structures to provide additional geotechnical information for pile design. For completeness the exploratory hole logs from the previous investigations are included in Appendix (iii). Plans showing the location of all of the exploratory holes are presented as Figure 3 in Appendix (i).

4. SITE WORK

4.1 Three exploratory holes (BHE, BHF and BHG) of 150mm diameter was drilled by light cable percussive methods to depths between 13.45 and 15.0m to provide geotechnical information at depth below the site. Within the boreholes, Standard Penetration Tests (SPTs) were undertaken at regular intervals. Small and bulk disturbed samples were recovered from all of the strata encountered in the boreholes.

4.2 Groundwater monitoring points were installed in BHE and BHG of the current investigation. The installations comprised a slotted pipe with pea gravel surround between 1.0 and 7.0m bgl. The upper 1m of the installation comprised a plain pipe with a bentonite surround and a lockable cover was concreted in flush with the existing ground surface. Other monitoring points had been installed in some of the previous holes elsewhere at the site. Full details of the ground conditions and the installations are given on the relevant borehole logs of Appendix (ii) and the location of the boreholes is shown on Figure 3, Appendix (i).

4.3 The boreholes of the current investigation were drilled during the period 20th to 22nd July 2022.

4.4 The investigation and sampling strategies were to obtain representative samples of any fill, natural deposits and groundwater, where encountered, and to recover materials for laboratory soil property analysis and appraisal. The investigation was in general accordance with the documents of Section 1.6.

4.5 All of the samples were transported to the laboratory for detailed examination by an experienced geologist and selected samples were programmed for testing.

4.6 Subsequently, return visits were made to site to record the groundwater levels in all of the monitoring points. The results of the groundwater monitoring are presented in Appendix (iv) and it is proposed to continue to monitor groundwater levels at the site. The results of the on-going monitoring will be available in due course.

4.7 Details of the strata encountered in the exploratory holes are given on the borehole logs presented in Appendix (ii) and the positions of the holes are shown on Figure 3, Appendix (i).

5. LABORATORY WORK

5.1 Detailed below in Table 5.1 is the material property testing undertaken as part of this investigation:

Table 5.1 Summary of Material Property Tests

Material Property Test	Number of Tests Natural Soils
Water Content	4 (7)
Liquid and Plastic Limit	4 (7)
Particle Size Distribution (wet sieve)	9 (15)
Soluble Sulphate Content	6 (13)
pH Value	6 (13)

Some geotechnical testing was undertaken as part of the initial investigation. The figures in brackets denote the total number of tests carried out over both phases of investigation.

5.2 The material property test results from both phases of investigation are included as Appendix (v).

5.3 The laboratory testing for the current investigation was undertaken during the period 27th July to 11th August 2022.

5.4 The testing was undertaken at a UKAS accredited laboratory.

6. ENGINEERING ASSESSMENT AND RECOMMENDATIONS

6.1 Soil Profile

The following discussion on the ground conditions includes information and pertinent comments from the initial investigation. The boreholes of the current investigation were drilled in the central and eastern sections of the site.

The surface conditions across the site were variable. At the eastern end of the site the surfacing to the open yard typically comprised asphalt planings (BHE, BHF, WS1 and WS8 to WS10 and TP1 to TP3). The planings were generally around 0.08 to 0.4m thick however, in WS1 in the north eastern corner the planings were noted as pockets and inclusions in the made ground present from surface. Over the remainder of the external areas concrete was present at surface and the main bus garage had a concrete floor. The concrete varied in thickness, being thinnest (90 and 200mm) inside the oldest section of the garage building with thicker concrete, up to 400mm thick, present external to the structures.

Beneath the surface materials in all of the exploratory holes, variable made ground was encountered comprising demolition rubble, clays, silts, sands and gravels with inclusions of brick, concrete, tile, shell, coal, mortar and fragments of ACM sheet. In TP3 and TP5 towards the rear of the site, significant volumes of made ground were found containing large pieces of metal, concrete fragments up to boulder size, bus parts, timber, rubber matting and ACM. The made ground was found to varying depths, typically between 0.52 and 1.35m but extended to at least 2.50m bgl in TP3 and TP5. Reference should be made to the individual exploratory hole logs for a full description of the materials present.

Beneath the made ground, materials which have been designated disturbed ground were encountered in all of the positions other than BHF, BHG, WS4, WS12, WS13, BHA, BHB and TP1 to TP5. The disturbed ground comprised either clays or sands with rare inclusions of brick or other man made artifacts and the disturbed ground extended to depths between 0.82 and 1.90m bgl. A limited number of in-situ tests

were carried out in the made ground and disturbed ground. The logs suggest SPT N values of 4 and 13 indicating these upper materials are relatively loose or weak.

Underlying the made ground and disturbed ground were natural deposits thought to represent the River Terrace Deposits. These materials were mainly granular in nature comprising sands and gravels in varying proportions. Locally, however, horizons of gravel in a clay matrix were noted particularly in WS11 and WS13 in the west and north of the site, and the upper materials in BHF, BHG, WS4, WS5 and BHA comprised slightly gravelly silty sandy clays which extended to around 2.0m depth. Reference should be made to the individual exploratory hole logs for a full description of the materials present. The geotechnical parameters for the River Terrace Deposits are summarized in Table 6.1 below and on the plot of SPT N Value against depth included in Appendix (vi).

Table 7.1 Geotechnical Parameters for River Terrace Deposits

Parameter (units)	Results	Classification	Comments
Undrained Shear Strength Cu (kPa) Cohesive deposits	65 – 85 (based on SPT N)		Soft and firm based on examination
SPT N Value Granular deposits	General range 10 – 67 minimum - 4 maximum - 74	Generally medium dense to very dense Very loose/loose Very dense	 WS12 @ 2m WS11 @ 2m (gravel)
Particle Size Distributions		GRAVEL in a clay matrix Sandy GRAVEL Very sandy GRAVEL SAND and GRAVEL Very gravelly SAND	See individual logs for full description
Water Content (%)	18.7		
Liquid Limit (%)	23	CL Soils Non-shrinkable	Based on 1 clayey sample. Plasticity tests on clay matrix in gravels = CL soils
Plastic Limit (%)	17		
Plasticity Index (%)	6		
Modified Plasticity Index (%)	5		
Organic Matter Content (%)	<0.40 – 1.1		
Soluble Sulphate Content SO_4 (g/l)	<0.010 – 0.17	AC-1	
pH Value	7.9 – 9.1		

The full depth of the River Terrace Deposits was not proved during the initial investigation. BHE and BHF of the current investigation in the east of the site proved the River Terrace Deposits extended to 7.00m and 6.90m bgl respectively. However, in BHG, located in the centre of the site, the River Terrace Deposits extended to 12.50m bgl which is consistent with the BGS records of boreholes nearby where the River Terrace Deposits extend to around 13m bgl.

Underlying the River Terrace Deposits in BHE to BHG were natural strata thought to represent the Thanet Formation and Lambeth Group (undifferentiated). These deposits consisted of silty sandy clays and sandy clay/silt of stiff consistency. The geotechnical parameters for the Thanet Formation and Lambeth Group (undifferentiated) are summarized in Table 6.2 below.

Table 6.2 Geotechnical Parameters for Thanet Formation and Lambeth Group

Parameter (units)	Results	Classification	Comments
Undrained Shear Strength Cu (kPa) Cohesive deposits	125 – 280 (based on SPT N)		
SPT N Value Cohesive Deposits	25 - 56		
Particle Size Distributions		Sandy CLAY/SILT Sandy silty CLAY	See individual logs for full description
Water Content (%)	31.0 – 35.6		
Liquid Limit (%)	44 - 45	CI and MI Soils Low and Medium shrinkable	
Plastic Limit (%)	24 – 30		
Plasticity Index (%)	14 - 21		
Modified Plasticity Index (%)	n/a		
Soluble Sulphate Content SO_4 (g/l)	0.035 – 0.56	AC-1	
pH Value	8.3 – 9.2		

The deposits of the Thanet Formation and Lambeth Group were proved to the full depth of the investigation (15.0m bgl). From records of boreholes nearby it is thought that the clays and silts of the Thanet Formation and Lambeth Group are of limited thickness and may only extend to around 19.5m bgl below which the chalk is present.

6.2 Ground Contamination Observations

No visual or olfactory evidence of significant contamination was noted during the current investigation. Details of contamination encountered during the previous phases of investigation are detailed in the ground investigation report of Section 1.3.

6.3 Groundwater Conditions

Groundwater seepages were encountered at depths between 6.0 and 6.5m in BHE to BHG of the current investigation. Monitoring of groundwater levels at the site has been ongoing since February 2022 and will be continued over at least the next few months. The results of the groundwater monitoring to date are included in Appendix (iv).

To date a shallowest standing water level of 2.76m bgl was recorded in BHA in the extreme west of the site in March 2022. In BHE towards the eastern boundary a water level of 4.69m bgl was reported in August 2022 when groundwater levels were generally lower following a particularly dry period.

It should be borne in mind that groundwater conditions can vary with seasonal and other effects and thus at times may be at variance with the conditions noted at the time of the site work.

6.4 Excavations

Random falls and collapse of vertical excavation faces can be expected in the made ground and natural materials dependent on the depth of excavation, the length of time excavations stand open, and the incidence of any groundwater entries.

Consideration should be given to providing at least intermittent to close support in deepened vertical sided excavations where personnel are required to enter. The adequacy of all excavation support should be continually inspected by experienced personnel. Excavations into any deeper made ground are likely to be particularly unstable and collapse readily particularly as inclusions of up to boulder size are present.

6.5 Structural Foundations

It is understood that the development is to comprise houses of traditional construction in the rear portion of the site and a retail/commercial unit with residential above in the front (western) section. Foundation recommendations for buildings take account of the following:-

- Ultimate Limit State (ULS) (stability)
- Serviceability Limit State (SLS) (settlements and ground movements)

The ULS assessment of stability examines the bearing resistance of the ground. The SLS assessment limits the settlements to assessed acceptable limits. The SLS also requires that suitable foundation depths and construction are adopted to cater for the potential ground movements due to the presence of trees and other major vegetation (including future planting) in close proximity to the proposed buildings.

The near surface deposits at the site are highly variable with deep made ground (>2.5m) in places and disturbed ground near surface and natural, predominantly granular, soils below. In TP3 and TP5 towards the rear of the site where the made ground is thickest, obstructions and potentially deleterious materials were encountered such as large pieces of metal, concrete up to boulder size, bus parts, timber, rubber matting and ACM. Consideration needs to be given to removal of at least the worst of the materials before construction commences in order to ease foundation operations. There are also a number of inspection pits up to 1.2m deep, bus lifts, a bus wash and a former bus wash, two sets of interceptors and associated pipework, at least two below ground fuel tanks, along with the foundations to the existing bus garage buildings and to Knowle House, and possibly the foundations to a pill box in the southern corner of the site, all of which will need to be removed as part of the redevelopment. The removal of the below ground construction, interceptors, inspection pits, bus washes, tanks, other obstructions and otherwise unsuitable materials is likely to result in significant disturbance to large areas of the site and thus influence the selection of foundation solutions. Careful consideration will need to be given to the choice of foundations for the different parts of the development taking account of the potential disturbance. Careful site preparation prior to development is essential.

A discussion of possible alternative foundations solutions was presented in the previous reports. The following provides information for the design of piles at the site. Although a driven pile would be suitable in the granular deposits it may not be acceptable because of the proximity of adjacent buildings. The alternatives include screw, bored or augered piles. The advice of a specialist piling contractor should be sought given the ground and groundwater conditions. Due to the potential for below ground obstructions allowance should be made for abortive piling.

The current investigation has shown that the ground conditions change from east to west across the site. In the east of the site where the new houses are proposed the sands and gravels of the River Terrace Deposits extend to approximately 7m bgl, however in the west the sands and gravels appear to extend to greater depth (12.5m bgl). Underlying the River Terrace Deposits are silty clays of the Thanet Formation and Lambeth Group which have been proved to extend to around 15m bgl however, it is thought that these clays may only be of limited thickness above the underlying chalk strata.

For the houses, piles could be taken down to bear uniformly in the dense sands and gravels of the River Terrace Deposits at around 6m below existing ground level. Or piles could be taken down to bear in the stiff clays of the Thanet Formation and Lambeth Group with pile lengths of around 12m. For the retail unit in the west of the site where the River Terrace Deposits are thicker, piles could extend further into the sands and gravels. As a guide to likely pile loading calculations, which assess the Ultimate Limit State (ULS) of the ground (Geo Limit State) and the Serviceability Limit State (SLS) (settlements), have been undertaken and are summarized in Table 6.3 below. The characteristic geotechnical parameters for the sands of the River Terrace

Deposits and the clays and silts of the Thanet Formation and Lambeth Group are based on an assessment of the reported SPT results, laboratory testing and examination of the materials. The assessed carrying capacities in Table 6.3 are based two pile diameters and the different scenarios outlined above.

Table 6.3 Summary of Pile Carrying Capacities

	Houses - East of Site		Retail - West of Site	
Pile Length (m)	6		12	
Penetration into River Terrace Deposits (m)	4		10	
Pile Diameter (m)	0.30	0.45	0.30	0.45
Carrying Capacity in River Terrace Deposits (kN)	167	334	274	568
Pile Length (m)	12		17.5	
Penetration into Thanet Formation and Lambeth Group (m)	5		5	
Pile Diameter (m)	0.30	0.45	0.30	0.45
Carrying Capacity in River Terrace Deposits (kN)	180	298	180	298

6.6 Ground Floor Slabs

Given the presence of significant volumes of made ground, ground floor slabs for the houses are likely to best be constructed as suspended. Consideration also needs to be given to possible venting of ground gases including radon. In this event a suitable void may be required below a suspended floor.

For the commercial/retail structure, the design of the floor slab will depend on the span and required performance. If a piled foundation is to be adopted then consideration could be given to a piled floor slab although this may not be cost effective. It may be more appropriate to consider a ground bearing floor slab constructed on compacted stone.

6.7 Chemical Attack on Concrete

Laboratory determinations of soluble sulphate content have been undertaken on samples of the natural clay soil present at the site. Reported concentrations were between <0.010 and 0.56g/l SO_4 in association with alkali pH values. The highest concentration was reported in the sample from BHE 13.0-14.0m depth in the clays of the Thanet Formation and Lambeth Group.

In accordance with BRE Special Digest 1 (Reference 7) the site has been classed as 'natural ground' the groundwater regime is considered 'mobile' as permeable strata are present on site.

Comparison of the characteristic sulphate contents for the soil (based on the mean of the highest two results) and pH concentrations with Table C1 of Reference 7 suggests the ACEC class for the site is AC-1.

However, if piles are to extend into the clays of the Thanet Formation and Lambeth Group consideration should be given to revising the ACEC class to AC-2.

R. Foord BSc, MSc, MCSM, CGeol, FGS

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1. Ordnance Survey 1:50,000 Series Sheet 155 Bury St Edmunds & Sudbury area 2016.

2. British Geological Survey 1:50,000 Series Sheet 223 Braintree. Solid and Drift Edition 1982.

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4. Stroud, M. A. and Butler, F. G. 1975. 'The Standard Penetration Test and the Engineering Properties of Glacial Materials' Proceedings of the Symposium of University of Birmingham 21-23 April 1975.

5. NHBC Standards Chapter 4.2 2022 'Building Near Trees' National House Building Council.

6. BRE Special Digest 1:2005 Third Edition Concrete in Aggressive Ground. BRE Construction Division.

GENERAL NOTES

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The report is provided for the sole use of the client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the client.

New information, improved practices, changes in legislation, or changes in guidelines from Statutory Bodies may necessitate a re-interpretation of the report in whole or part after its original submission.

The report and/or opinion will be prepared and written for the specific purposes and/or development stated in the document and in relation to the nature and extent of proposals made available to us at the time of writing. The recommendations should not be used for other schemes on or adjacent to the site.

The report is based on the ground conditions encountered in the exploratory holes together with the results of field and laboratory testing in the context of the proposed development. Conditions between exploratory holes have been interpolated, however soil conditions are highly variable and may differ from the interpolation. There may be conditions, appertaining to the site, which may not be revealed by the investigation, and which may not be taken into account in the report.

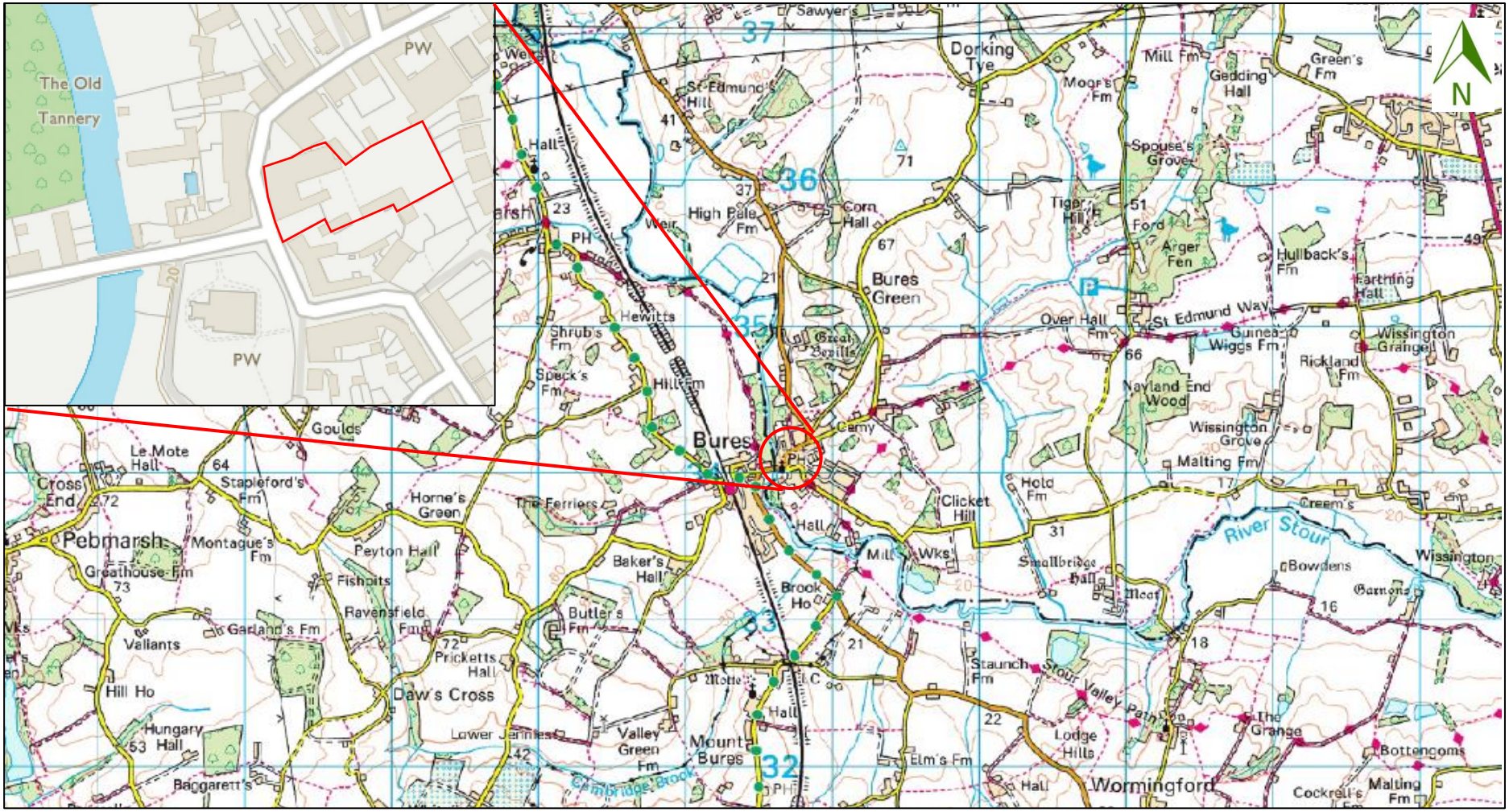
The accuracy of the results reported will depend on the technique of measurement, investigation and test used and these values should not be regarded necessarily as characteristic of the strata as a whole. Where such measurements are critical, the technique of the investigation will need to be reviewed and supplementary investigation undertaken in accordance with the advice of the company where necessary.

The economic viability of the proposal referred to in the report, or of the solutions put forward to any problems encountered, will depend on very many factors in addition to the geotechnical considerations hence its evaluation will be outside the scope of the report.

Where any data supplied by the Client or from other sources, including previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by Compass Geotechnical Limited for inaccuracies in the data supplied by any other party.

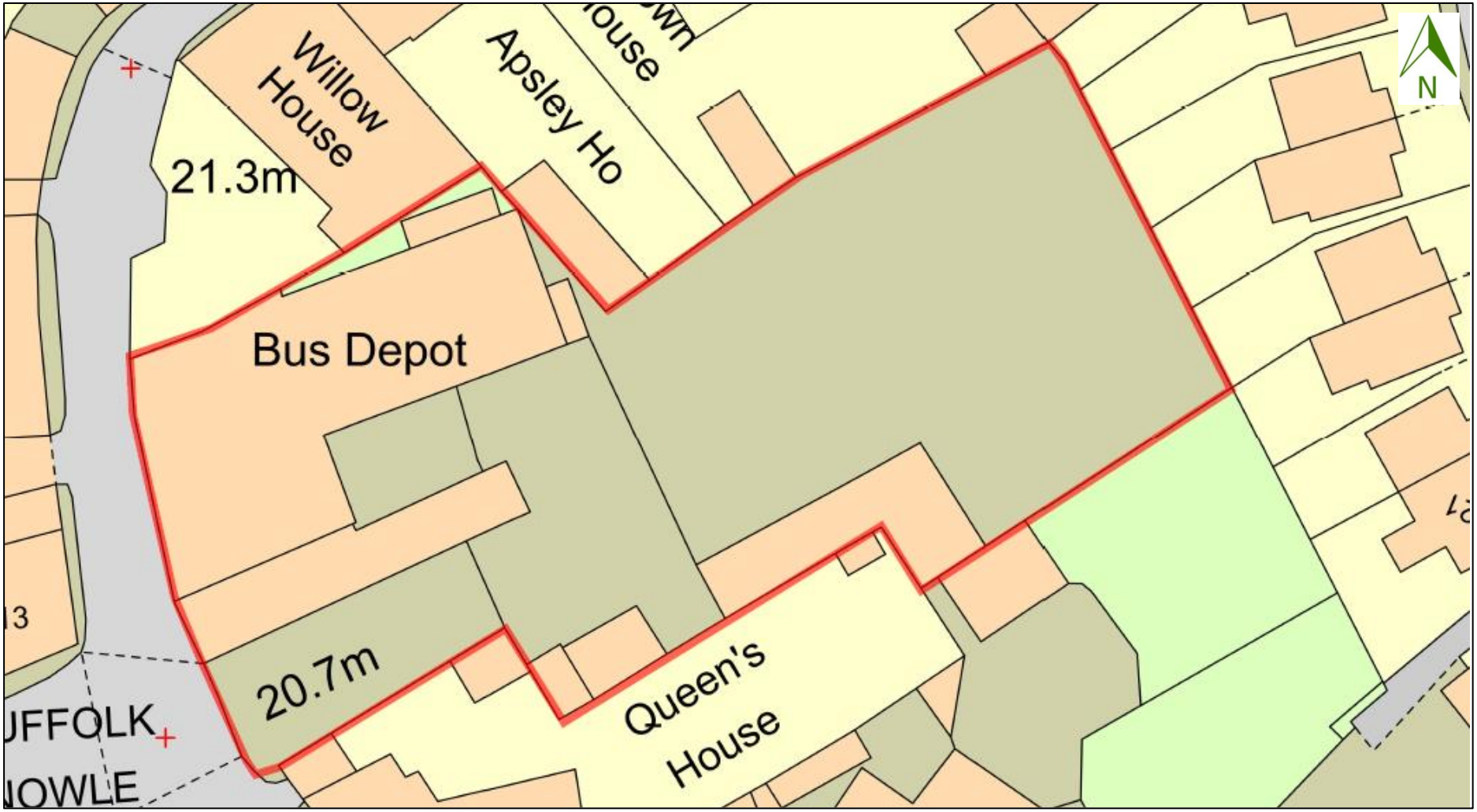
The investigation does not include the identification of Japanese Knotweed. Any such survey should be undertaken by a specialist.

Appendix (i)
Figures



Reproduced with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown Copyright Licence No: AL100034022.	**Figure 1**	Site Location Plan
	Date	August 2022
	Not to Scale	

Report on a Supplementary Geotechnical Investigation for a
Proposed Mixed-Use Development at Former Chambers Bus Depot,
Church Square, Bures, Suffolk, CO8 5AB



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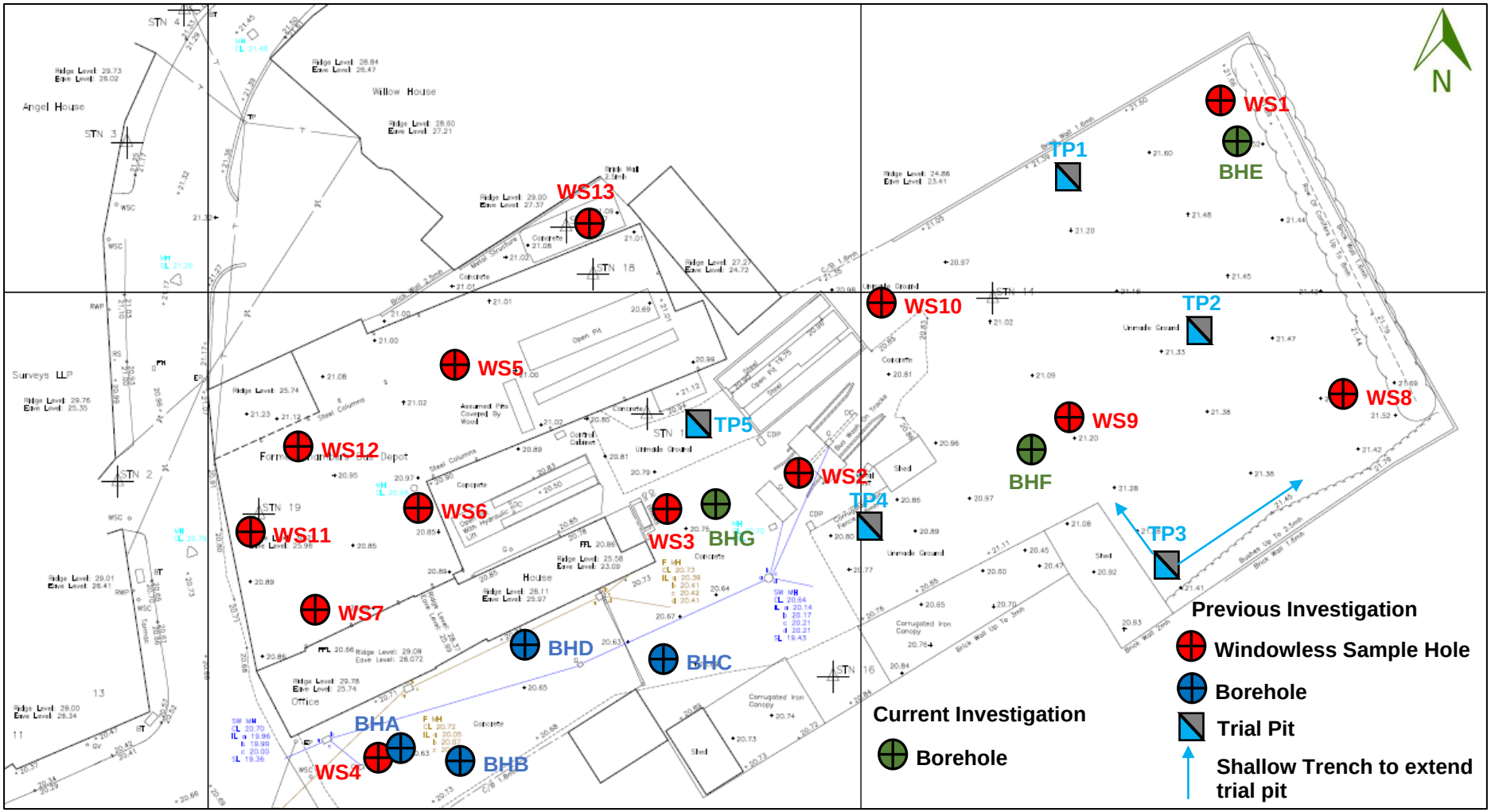
	Date	August 2022
	Not to Scale	



Extract from Randall Surveys Existing Site Layout Drawing No: 16449/OG/1 dated June 2021	**Figure 3**	Exploratory Hole Plan
	Date	August 2022
	Not to Scale	

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	Date	August 2022
	Not to Scale	

Appendix (ii)
Borehole Logs – Current Investigation

Introduction

All sampling and in-situ test methods are carried out in accordance with the relevant British and European standards as referenced below.

Abbreviations Used

Exploratory hole records are presented in graphical format with the use of standard abbreviations as outlined below.

Sampling Method

BH	Borehole
TP	Trial Pit
WS	Windowless Sample Hole
CC	Concrete Cored Hole

Sample Types

D	Disturbed Sample
B	Bulk Sample
ES	Environmental Sample
PID	Sample for total VOC screen
L	Liner Tube Sample
U	Undisturbed Sample
UT	Thin Wall Undisturbed Sample
NR	No Recovery
W	Water Sample
C	Rotary Core

In-Situ Tests

DP	Dynamic Probe Test
CPT	Cone Penetrometer Test
SPT	Standard Penetrometer Test
V	Hand Shear Vane Strength Determination (kPa) – manufacturer's calibration of 1.491 applied to direct reading
V*	Hand Shear Vane Strength Determination (kPa) on excavated block of material

References

BS 5930:2015 + A1:2020 Code of Practice for Ground Investigations

BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice

BS EN ISO 14688-1:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil: Part 1 Identification and description.

BS EN ISO 14688-2:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil: Part 2 Principles of Classification.

BS EN ISO 22475-1:2006 Geotechnical Investigation and Testing – Sampling Methods and Groundwater measurements: Part 1 Technical Principles for Execution.

BS EN ISO 22476-2:2005+A1:2011 Field Testing Part 2: Dynamic Probing.

BS EN ISO 22476-3:2005 + A1:2011 Geotechnical Investigation and Testing – Field Testing: Part 3: Standard Penetration Test.

EUR 26227 EN, 2013 Eurocode 7 Chapter 5 Ground Investigation and Testing.

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Cable Percussion Borehole Log

Project ID	Borehole No.
222945S	BHE
	Sheet 1 of 2
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	20/07/2022
			Rig Crew: RW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
				0.20		MADE GROUND: Asphalt plannings. (Driller's Description).(0.20m)		
0.60	D			0.80		MADE GROUND: Very dark grey slightly gravelly clay. Gravel is rare white fine to coarse sub angular chert with rare white fine quartz, asphalt plannings, lime mortar and rare red brick of coarse gravel size.(0.60m)		
0.90	D					DISTURBED GROUND: Dark yellowish brown slightly gravelly sandy CLAY with occasional very dark brown clay pockets. Gravel is black brown white fine to coarse angular to rounded chert with occasional white fine to coarse sub rounded to rounded quartz, rare red brick fragments, slate, asphalt plannings and dark grey and brown clay pockets.(1.00m)		
1.10 - 1.55	SPT(C)	N=13 (4/3,3,3,4)						
1.10 - 1.50	B							
1.80 - 2.25	SPT(C)	N=14 (5/3,3,3,5)		1.80		Medium dense becoming dense brown black white sandy fine to coarse angular to sub rounded chert GRAVEL. Sand is yellowish brown fine to coarse. [River Terrace Deposits].(5.20m)	Water Added =3600 l	
1.80 - 2.20	B							
3.00 - 3.45	SPT(C)	N=18 (7/3,4,4,7)						
3.00 - 3.45	D							
4.00 - 4.45	SPT(C)	N=20 (7/4,5,5,6)						
4.00 - 4.40	B							
5.00 - 5.45	SPT(C)	N=27 (7/5,5,9,8)						
5.00 - 5.45	D							
6.50 - 6.95	SPT(C)	N=36 (6/5,9,11,11)						
6.50 - 6.90	B							
7.00 - 7.45	SPT(S)	N=27 (9/4,4,8,11)		7.00		Very dark greenish grey oxidising dark grey green glauconitic sandy CLAY/SILT. [Thanet Formation and Lambeth Group (Undifferentiated)].(1.30m)		
7.00 - 7.45	D							
				8.30		Stiff grey sandy silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(6.70m)		
8.50 - 8.95	SPT(S)	N=32 (11/4,6,11,11)					Water Added =300 l	
8.50 - 8.95	D							
						Continued next sheet		

Depth (mBGL): 1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					15.00	150	15.00	150

Remarks:
Groundwater Conditions - On completion 10.5m bgl

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	01:00	Service Pit	0.00	1.00	PLAIN	50
				1.00	7.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.00					

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Cable Percussion Borehole Log

Project ID	Borehole No.
222945S	BHE
	Sheet 2 of 2
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	20/07/2022
			Rig Crew: RW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
10.00 - 10.45	SPT(S)	N=36				Stiff grey sandy silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(6.70m)			
10.00 - 10.45	D	(11/6,8,10,12)							
11.50 - 11.95	SPT(S)	N=25 (6/5,6,7,7)							
11.50 - 11.95	D								
13.00 - 13.45	SPT(S)	N=50							
13.00 - 13.45	D	(11/8,11,14,17)							
14.50 - 14.95	SPT(S)	N=56							
14.50 - 14.95	D	(13/10,12,15,19)							
				15.00		Borehole Completed at 15.000m			

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					15.00	150	15.00	150

Remarks:
Groundwater Conditions - On completion 10.5m bgl

Chiselling & Pits			
From (m)	To (m)	Duration	Remarks
0.00	1.00	01:00	Service Pit

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	7.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.00					

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Cable Percussion Borehole Log

Project ID	Borehole No.	Sheet	Scale
222945S	BHF	1 of 2	1:50

Project Title:	Location:	Client:	Date Drilled	Rig Crew:	Logged:	Checked:
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	21/07/2022	RW	TF	

Easting: **Northing:** **Level (mAOD):**

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
				0.20		MADE GROUND: Asphalt plannings. (Driller's Description).(0.20m)			
0.50	D			0.70		MADE GROUND: Very dark grey slightly gravelly clay. Gravel is rare white fine to coarse sub angular chert with rare white fine quartz, asphalt plannings, lime mortar and rare red brick of coarse gravel size.(0.50m)			
0.90	D			1.00		Dark greyish brown slightly gravelly slightly silty slightly sandy CLAY. Gravel is rare isolated white and brown fine angular chert. Sand is fine. [River Terrace Deposits].(0.30m)	1	Water Added =4000 l	
1.10 - 1.55	SPT(C)	N=17 (5/3,4,4,6)		1.50		Yellowish brown slightly gravelly sandy CLAY with occasional dark brown clay pockets. Gravel is rare black white fine to medium sub angular chert. Sand is fine. [River Terrace Deposits].(0.50m)			
1.10 - 1.55	D					Medium dense becoming dense brown black white slightly silty sandy fine to coarse angular to sub rounded chert GRAVEL. Sand is yellowish brown fine to coarse. [River Terrace Deposits].(5.40m)	2		
2.00 - 2.45	SPT(C)	N=19 (7/4,5,5,5)							
2.00 - 2.40	B								
3.00 - 3.45	SPT(C)	N=28 (7/5,5,7,11)					3		
3.00 - 3.40	B								
4.00 - 4.45	SPT(C)	N=33 (7/6,7,9,11)					4		
4.00 - 4.45	D								
5.00 - 5.45	SPT(C)	N=38 (11/9,8,9,12)					5		
5.00 - 5.45	D								
							6		
6.50 - 6.95	SPT(C)	N=32 (11/7,8,8,9)							
6.50 - 6.90	B								
7.00 - 7.45	SPT(S)	N=25 (10/7,5,5,8)		6.90		Yellowish brown silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(0.55m)	7		
7.00 - 7.45	D			7.45		Stiff greenish grey glauconitic sandy silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(6.00m)			
							8		
8.50 - 8.95	SPT(S)	N=30 (10/8,6,8,8)							
8.50 - 8.95	D						9		
10.00 - 10.45	SPT(S)	N=36 (12/8,10,9,9)					10		

Continued next sheet

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					13.45	150	12.50	150

Remarks:
Groundwater Conditions - On completion 9.00m bgl

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	01:00	Service pit				

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.50					

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Cable Percussion Borehole Log

Project ID	Borehole No.
222945S	BHF
	Sheet 2 of 2
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	21/07/2022
			Rig Crew: RW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 10.45	D					Stiff greenish grey glauconitic sandy silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(6.00m)	Water Added =150 l	
11.50 - 11.95	SPT(S)	N=42						
11.50 - 11.95	D	(10/8,12,10,12)						
13.00 - 13.45	SPT(S)	N=45						
13.00 - 13.45	D	(12/7,10,13,15)						
				13.45		Borehole Completed at 13.450m		

Depth (mBGL): 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					13.45	150	12.50	150

Remarks:
Groundwater Conditions - On completion 9.00m bgl

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	01:00	Service pit				

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.50					

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Cable Percussion Borehole Log

Project ID	Borehole No.
222945S	BHG
	Sheet 1 of 2
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	22/07/2022
			Rig Crew: RW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
				0.13		Reinforced Concrete.(0.12m)		
						MADE GROUND: Brick (Driller's Description).(0.57m)		
0.80	D			0.70		DISTURBED GROUND: Stiff yellowish brown mottled brown silty CLAY. (0.30m)		
1.00 - 1.45 1.00 - 1.45	SPT(C) D	N=13 (6/4,3,3,3)		1.00		Dark yellowish brown slightly gravelly very sandy CLAY. Gravel is black brown white fine to coarse angular to sub rounded chert with occasional white and brown fine to coarse sub rounded to rounded quartz. Rare dark greyish brown clay pockets. [River Terrace Deposits].(0.80m)		
2.00 - 2.45 2.00 - 2.40	SPT(C) B	N=21 (6/4,5,6,6)		1.80		Medium dense becoming dense brown black white slightly silty sandy fine to coarse angular to sub rounded chert GRAVEL. Sand is yellowish brown fine to coarse. [River Terrace Deposits].(5.70m)	Water Added =3750 l	
3.00 - 3.45 3.00 - 3.45	SPT(C) D	N=28 (8/5,7,7,9)						
4.00 - 4.45 4.00 - 4.40	SPT(C) B	N=35 (8/7,8,9,11)						
5.00 - 5.45 5.00 - 5.45	SPT(C) D	N=37 (10/8,9,10,10)						
6.50 - 6.95 6.50 - 6.90	SPT(C) B	N=34 (10/8,9,8,9)						
				7.50		Dense becoming very dense pale brown slightly silty fine to coarse slightly calcareous SAND and fine to coarse GRAVEL. Gravel is brown and white angular to sub rounded chert with rare white medium to coarse rounded quartz and white chalk of coarse sand size. [River Terrace Deposits].(5.00m)		
8.00 - 8.45 8.00 - 8.40	SPT(C) B	N=31 (11/7,7,8,9)						
9.50 - 9.95 9.50	SPT(C) D	N=42 (12/8,10,10,14)						

Continued next sheet

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					15.00	150	15.00	150

Remarks:
Groundwater Conditions - On completion 6.00m bgl. Surface concrete cut out.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.00	0.13		Cutting out concrete	0.00	1.00	PLAIN	50
0.13	1.00	01:00	Service Pit	1.00	7.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.00					

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Cable Percussion Borehole Log

Project ID	Borehole No.	Sheet
222945S	BHG	2 of 2

Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Bures	Former Chamber Bus Garage, Church Square, Bures, CO8 5AB	Rose Builders Limited	22/07/2022

Rig Crew: RW
Logged: TF
Checked:

Easting: **Northing:** **Level (mAOD):**

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
11.00 - 11.45 11.00 - 11.40	SPT(C) B	N=53 (12/9,12,15,17)				Dense becoming very dense pale brown slightly silty fine to coarse slightly calcareous SAND and fine to coarse GRAVEL. Gravel is brown and white angular to sub rounded chert with rare white medium to coarse rounded quartz and white chalk of coarse sand size. [River Terrace Deposits].(5.00m)	11		
12.50 - 12.95 12.50 - 12.95	SPT(S) D	N=40 (12/7,9,11,13)		12.50		Stiff greenish grey glauconitic sandy silty CLAY. Thanet Formation and Lambeth Group (Undifferentiated)].(2.50m)	12		
14.00 - 14.45 14.00 - 14.45	SPT(S) D	N=44 (14/8,9,12,15)					13		
				15.00		Borehole Completed at 15.000m	14		
							15		
							16		
							17		
							18		
							19		
							20		

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
					15.00	150	15.00	150

Remarks:
Groundwater Conditions - On completion 6.00m bgl. Surface concrete cut out.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.00	0.13		Cutting out concrete	0.00	1.00	PLAIN	50
0.13	1.00	01:00	Service Pit	1.00	7.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
6.00					

Appendix (iii)
Exploratory Hole Logs – Previous Investigation

Introduction

All sampling and in-situ test methods are carried out in accordance with the relevant British and European standards as referenced below.

Abbreviations Used

Exploratory hole records are presented in graphical format with the use of standard abbreviations as outlined below.

Sampling Method

BH	Borehole
TP	Trial Pit
WS	Windowless Sample Hole
CC	Concrete Cored Hole

Sample Types

D	Disturbed Sample
B	Bulk Sample
ES	Environmental Sample
PID	Sample for total VOC screen
L	Liner Tube Sample
U	Undisturbed Sample
UT	Thin Wall Undisturbed Sample
NR	No Recovery
W	Water Sample
C	Rotary Core

In-Situ Tests

DP	Dynamic Probe Test
CPT	Cone Penetrometer Test
SPT	Standard Penetrometer Test
V	Hand Shear Vane Strength Determination (kPa) – manufacturer's calibration of 1.491 applied to direct reading
V*	Hand Shear Vane Strength Determination (kPa) on excavated block of material

References

BS 5930:2015 + A1:2020 Code of Practice for Ground Investigations

BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice

BS EN ISO 14688-1:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil: Part 1 Identification and description.

BS EN ISO 14688-2:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil: Part 2 Principles of Classification.

BS EN ISO 22475-1:2006 Geotechnical Investigation and Testing – Sampling Methods and Groundwater measurements: Part 1 Technical Principles for Execution.

BS EN ISO 22476-2:2005+A1:2011 Field Testing Part 2: Dynamic Probing.

BS EN ISO 22476-3:2005 + A1:2011 Geotechnical Investigation and Testing – Field Testing: Part 3: Standard Penetration Test.

EUR 26227 EN, 2013 Eurocode 7 Chapter 5 Ground Investigation and Testing.

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Cable Percussion Borehole Log

Project ID	Borehole No.
212945	BHA
	Sheet 1 of 1
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/02/2022
			Rig Crew: SW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
				0.30		MADE GROUND: Reinforced concrete.(0.30m)		
0.50	ES					MADE GROUND: Crushed concrete of fine to coarse gravel size with rare red brick and cinder fragments, brown and white fine to coarse sub angular to rounded chert gravel infilled with greyish brown slightly clayey fine to coarse sand.(0.50m)		
0.50	PID			0.80		Soft dark greyish brown slightly gravelly slightly silty CLAY with occasional decayed plant material. Gravel is rare brown and white fine angular to sub rounded chert. [River Terrace Deposits].(1.10m)		
1.00	ES							
1.00	PID							
1.50	ES							
1.50	PID							
2.00	ES			1.90		Black brown and white fine to coarse angular to sub rounded slightly sandy chert GRAVEL. Gravel is stained grey with strong hydrocarbon odour. [River Terrace Deposits].(1.80m)	Water Added =1000 l	
2.00	PID							
2.50	ES							
2.50	PID							
3.00	ES							
3.00	PID							
3.50	ES							
3.50	PID			3.70		Yellowish brown slightly gravelly medium to coarse SAND. Gravel is black brown and white fine to coarse angular to sub rounded chert. Faint hydrocarbon odour. [River Terrace Deposits].(1.55m)		
4.00	ES							
4.00	PID							
4.50	ES							
4.50	PID							
5.00	ES							
5.00	PID			5.25		Greyish brown slightly gravelly fine to coarse SAND. Gravel is brown white and black fine to coarse angular to sub rounded chert. [River Terrace Deposits].(0.75m)		
5.50	ES							
5.50	PID							
6.00	ES			6.00		Borehole Completed at 6.000m		
6.00	PID							

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
09-02-2022	13:00	6.00	6.00	3.00	6.00	150	6.00	150

Remarks:
Groundwater ingress masked by water added to aid drilling.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.30	1.00	01:00	Service pit	0.00	3.00	PLAIN	50
				3.00	6.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
					No groundwater

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Cable Percussion Borehole Log

Project ID	Borehole No.
212945	BHB
	Sheet 1 of 1
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/02/2022
			Rig Crew: SW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.50	ES			0.15		MADE GROUND: Reinforced Concrete.(0.15m)		
0.50	PID					MADE GROUND: Firm greyish brown and yellowish brown slightly gravelly slightly sandy clay, Gravel is brown white and black fine to coarse angular to sub rounded chert with occasional fine to coarse red brick and concrete.(0.75m)		
1.00	ES			0.90		Yellowish brown slightly gravelly slightly clayey silty fine SAND with occasional yellowish brown clay pockets. Gravel is brown white and black fine to coarse angular to sub angular chert. [River Terrace Deposits].(0.40m)		
1.00	PID			1.30		Yellowish brown fine to coarse SAND and black brown and white fine to coarse angular to sub rounded GRAVEL, locally a sandy gravel. [River Terrace Deposits].(4.40m)	Water Added =1000 l	
1.50	ES					*Slight hydrocarbon odour noted at 2.80m bgl*		
1.50	PID					*Slightly grey staining*		
2.00	ES							
2.00	PID							
2.50	ES							
2.50	PID							
3.00	ES							
3.00	PID							
3.50	ES							
3.50	PID							
4.00	ES							
4.00	PID							
4.50	ES							
4.50	PID							
5.00	ES							
5.00	PID							
5.50	ES							
5.50	PID			5.70		Yellowish brown gravelly fine to coarse SAND. Gravel is brown, black and white fine to coarse sub angular to sub rounded chert and rare white fine to coarse quartz. [River Terrace Deposits]. (0.30m)		
6.00	ES			6.00		Borehole Completed at 6.000m		
6.00	PID							

Depth (mBGL): 1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
09-02-2022	16:00	6.00	6.00	2.60	6.00	150	6.00	150

Remarks:
Groundwater ingress masked by water added to aid drilling.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.15	1.00	01:00	Service pit	0.00	3.00	PLAIN	50
				3.00	6.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
					No groundwater seepage

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Cable Percussion Borehole Log

Project ID	Borehole No.
212945	BHC
	Sheet 1 of 1
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	10/02/2022
			Rig Crew: SW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
				0.30		MADE GROUND: Reinforced Concrete.(0.30m)			
0.50	ES					MADE GROUND: Yellowish brown slightly sandy gravelly clay. Gravel is brown black white fine to coarse sub angular chert, occasional fine to coarse concrete and fine brick fragments.(0.70m)			
0.50	PID								
1.00	ES			1.00		DISTURBED GROUND: Soft yellowish brown slightly sandy slightly gravelly slightly silty clay. Gravel is brown and white fine to coarse chert and rare brick.(0.40m)	1		
1.00	PID								
1.50	ES			1.40		Yellowish brown slightly gravelly clayey silty fine SAND. Gravel is white and brown fine to coarse angular to sub rounded chert. [River Terrace Deposits].(0.50m)		Water Added =1000 l	
1.50	PID								
2.00	ES			1.90		Yellowish brown fine to coarse SAND and brown, white and black fine to coarse angular to sub rounded chert and rare white fine quartz GRAVEL. Locally slightly sandy gravel. [River Terrace Deposits].(4.10m)	2		
2.00	PID								
2.50	ES								
2.50	PID								
3.00	ES						3		
3.00	PID								
3.50	ES								
3.50	PID								
4.00	ES						4		
4.00	PID								
4.50	ES								
4.50	PID								
5.00	ES						5		
5.00	PID								
5.50	ES								
5.50	PID								
6.00	ES			6.00		Borehole Completed at 6.000m	6		
6.00	PID								
							7		
							8		
							9		
							10		

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
10-02-2022	12:00	6.00	6.00	2.80	6.00	150	6.00	150

Remarks:
Groundwater ingress masked by water added to aid drilling.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.30	1.00	01:00	Service pit	0.00	3.00	PLAIN	50
				3.00	6.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
					No groundwater seepages

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Cable Percussion Borehole Log

Project ID	Borehole No.
212945	BHD
	Sheet 1 of 1
	Scale: 1:50

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	10/02/2022
			Rig Crew: SW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.50	ES			0.40		MADE GROUND: Reinforced Concrete.(0.40m)			
0.50	PID					MADE GROUND; Dark yellowish brown slightly clayey slightly gravelly fine to medium sand with soft yellowish brown clay pockets. Gravel is brown black and white fine to coarse sub rounded chert, chert cobbles, rare white quartz, brick and concrete (1.00m)	1		
1.00	ES			1.40		DISTURBED GROUND: Dark yellowish brown slightly clayey slightly gravelly fine to medium SAND with soft yellowish brown clay pockets. Gravel is brown black and white fine to coarse sub rounded chert and rare brick. (0.50m)			
1.00	PID			1.90		Dark yellowish brown slightly clayey slightly gravelly fine to medium SAND with soft yellowish brown clay pockets. Gravel is brown black and white fine to coarse sub rounded chert. [River Terrace Deposits].(0.40m)	2		
1.50	ES			2.30		Dark brown slightly clayey slightly gravelly silty fine SAND with occasional black organic matter/decayed plant material. Gravel is white and brown fine to coarse sub angular chert. [River Terrace Deposits].(0.50m)			
1.50	PID			2.80		Yellowish brown fine to coarse slightly gravelly fine to coarse SAND with rare clay pockets. Gravel is brown and white fine to coarse sub rounded chert. [River Terrace Deposits].(0.60m)	3	Water Added =1000 l	
2.00	ES			3.40		Yellowish brown fine to coarse SAND and brown white and black fine to coarse sub angular to sub rounded chert GRAVEL with rare greyish brown silty clay pockets. locally sandy gravel. [River Terrace Deposits].(2.60m)			
2.00	PID						4		
2.50	ES								
2.50	PID						5		
3.00	ES								
3.00	PID						6		
3.50	ES			6.00		Borehole Completed at 6.000m			
3.50	PID						7		
4.00	ES								
4.00	PID						8		
4.50	ES								
4.50	PID						9		
5.00	ES								
5.00	PID						10		
5.50	ES								
5.50	PID								
6.00	ES								
6.00	PID								

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
10-02-2022	15:00	6.00	6.00	2.80	6.00	150	6.00	150

Remarks:
Groundwater ingress masked by water added to aid drilling.

Chiselling & Pits				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
0.40	1.00	01:00	Service pit	0.00	3.00	PLAIN	50
				3.00	6.00	SLOTTED	50

Groundwater Observations

Strike at (m)	Casing at (m)	Sealed at (m)	Time (min)	Rose to (m)	Remarks
					No groundwater seepages

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS1
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater	
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 0.70	ES					MADE GROUND: Dark grey brown black slightly gravelly slightly sandy clay. Gravel is brown and black fine to coarse angular to rounded chert with occasional red and yellow brick fragments of fine to coarse gravel size, rare plastic and very rare asphalt fragments of fine to medium gravel size.(0.71m)		
0.00 - 1.00	L							
0.20	PID							
				0.71		DISTURBED GROUND: Stiff greyish brown slightly gravelly silty CLAY with occasional gravelly silty clay pockets. Gravel is brown black and white fine to coarse sub angular to sub rounded chert and rare white fine to medium quartz.(0.34m)		
0.90	PID							
0.90 - 1.00	ES							
1.00 - 1.45	SPT(C)	N=17 (5/3,3,4,7)		1.05		Medium dense yellowish brown mottled orange brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(0.57m)		
1.00 - 2.00	L							
1.10	PID							
1.10 - 1.20	ES							
1.65 - 2.00	D			1.62		Medium dense becoming very dense brown and black very sandy slightly clayey fine to coarse angular to rounded chert and rare white fine to coarse sub rounded quartz GRAVEL. Sand is yellowish brown fine to coarse. [River Terrace Deposits].(1.38m)		
1.90	PID							
2.00 - 2.45	SPT(C)	N=18 (6/5,4,4,5)						
2.00 - 3.00	L							
2.60	PID							
						Refusal		
3.00 - 3.45	SPT(C)	N=67 (22/15,17,17,18)		3.00		Borehole Completed at 3.000m		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	3.00	SLOTTED	50

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS2
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.20m)			
0.20 - 0.50	ES			0.20		MADE GROUND: Greyish brown, dark grey and black slightly clayey gravel. Gravel is brick, chert, occasional ACM sheet with rare coal, cinder, yellow brick and mortar.(0.80m)			
0.20 - 0.50	PID								
1.00 - 1.20	ES			1.00		DISTURBED GROUND: Greyish brown slightly clayey slightly silty gravelly fine to coarse SAND. Gravel is black and brown fine to coarse angular to rounded chert.(0.34m)	1		
1.00 - 1.20	PID								
1.00 - 2.00	L								
				1.34		Medium dense yellowish brown slightly clayey slightly silty gravelly fine to coarse SAND with occasional yellowish brown slightly clayey silty fine sand pockets. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine to coarse sub rounded quartz. [River Terrace Deposits].(2.11m)			
1.75 - 1.80	PID								
2.00 - 3.00	D						2		
2.00 - 3.00	L								
2.00 - 3.00	PID								
3.00 - 4.00	L						3		
				3.45		Medium dense light yellowish brown silty fine to coarse SAND and brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL with rare fine sand pockets. [River Terrace Deposits].(1.55m)			
3.55 - 3.65	ES								
3.55 - 3.65	PID								
4.00 - 5.00	L						4		
4.50 - 5.00	D								
4.90 - 5.00	PID								
				5.00		Borehole Completed at 5.000m	5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
5.00	115	1.00	115					3.50	1.00				Water standing at 3.50m bgl on completion

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	5.00	SLOTTED	50

Remarks:

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS3
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.20m)			
				0.20		MADE GROUND: Yellowish brown slightly gravelly fine to medium sand. Gravel is brown and black fine to coarse angular to rounded chert.(0.11m)			
0.35 - 0.45	ES			0.31		MADE GROUND: Dark greyish brown slightly gravelly slightly sandy silty clay. Gravel is brown and black fine to coarse angular to rounded chert, occasional fine to coarse red brick, lime mortar, oyster shell, tile, coal, ceramic, glass and bone. (0.45m)			
0.35 - 0.45	PID								
0.76 - 0.85	PID			0.76		Disturbed Ground: Greyish brown and dark greyish brown slightly gravelly slightly silty CLAY. Gravel is rare brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz.(0.55m)			
1.00 - 2.00	L						1		
				1.31		Medium dense yellowish brown gravelly slightly clayey fine to medium SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(0.69m)			
1.65 - 1.75	ES								
1.65 - 1.75	PID								
				2.00		Borehole Completed at 2.000m	2		
							3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 2.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS4
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.19m)			
0.20 - 0.25	PID			0.19		MADE GROUND: Yellowish brown gravelly slightly clayey fine to coarse sand. Gravel is brown and black fine to coarse angular to rounded chert, occasional brick, terracotta tile, lime mortar, rare chert cobbles and rare white fine sub rounded quartz.(0.33m)			
0.20 - 0.50	ES								
0.50 - 0.65	PID			0.52		Soft yellowish brown stained grey and black silty slightly gravelly CLAY. Gravel is brown and black fine to coarse angular to rounded chert. Faint hydrocarbon odour. [River Terrace Deposits].(0.48m)			
1.00 - 1.10	ES			1.00		Soft dark yellowish brown slightly gravelly slightly silty CLAY. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. Sand is fine. Hydrocarbon odour. [River Terrace Deposits].(1.13m)	1		
1.00 - 1.10	PID								
1.00 - 2.00	L								
1.50 - 1.60	PID								
1.65 - 1.85	ES					*Stained black with strong hydrocarbon odour.*			
1.75 - 1.85	PID								
2.00 - 3.00	L						2		
2.15 - 2.20	ES			2.13		Medium dense greyish brown gravelly fine to coarse SAND with occasional silty fine sand pockets. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. Hydrocarbon odour. [River Terrace Deposits].(0.87m)			
2.15 - 2.20	PID					*Stained black to 2.38m bgl.*			
2.50 - 2.60	PID								
2.90 - 3.00	PID								
				3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	3.00	SLOTTED	50

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS5
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
Easting:	**Northing:**	**Level (mAOD):**	**Rig Crew:** / **Logged:** / **Checked:**

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out. DPM at base.(0.12m)			
				0.12		MADE GROUND: Brown and black fine to coarse angular to rounded chert gravel with occasional white fine to coarse rounded quartz gravel and occasional brick and concrete fragments.(0.13m)			
0.25 - 0.35	PID			0.25		MADE GROUND: Dark greyish brown slightly gravelly slightly silty clay. Gravel is red brick, mortar, red tile, chert and quartz.(0.54m)			
0.25 - 0.50	ES								
0.80 - 1.00	ES			0.79		Disturbed Ground: Dark greyish brown mottled yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is rare brown and black fine to coarse angular to rounded chert, rare white fine sub rounded quartz and rare red brick.(0.65m)			
0.80 - 1.00	PID								
1.00 - 1.45	SPT(C)	N=4 (1/1,1,1,1)					1		
1.00 - 2.00	L								
1.35 - 1.40	PID								
1.50 - 2.00	D			1.44		Firm yellowish brown and greyish brown slightly gravelly sandy silty CLAY with rare black carbonaceous material and rare pockets of orange brown clayey sand. Gravel is rare brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(1.56m)			
1.80 - 1.95	ES								
1.90 - 1.95	PID								
2.00 - 2.45	SPT(C)	N=17 (7/4,4,4,5)					2		
2.00 - 3.00	L					*Grading to a yellowish brown slightly clayey slightly gravelly fine to medium SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz.*			
2.00 - 3.00	PID								
3.00 - 3.45	SPT(C)	N=61 (22/16,15,15,15)		3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata. Hole located inside garage.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS6
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: BC
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L			0.11		Concrete - cored out.(0.11m)			
0.15 - 0.25	PID			0.15		MADE GROUND: Brown and black slightly clayey fine to coarse angular to rounded chert gravel.			
0.15 - 0.50	ES					MADE GROUND: Soft to firm greyish brown slightly gravelly silty clay. Gravel is rare brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz, oyster shell fragments, and tile.(0.37m)			
0.55 - 0.65	PID			0.52		Disturbed Ground: Yellowish brown mottled greyish brown slightly gravelly silty CLAY. Gravel is very rare brown and black fine to coarse angular to rounded chert.(0.65m)			
1.00 - 1.45	SPT(C)	N=10 (2/3,2,2,3)					1		
1.00 - 2.00	L								
1.20 - 1.25	PID			1.17		Medium dense orange brown clayey fine to coarse SAND and brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL. [River Terrace Deposits]. (0.57m)			
1.25 - 1.35	ES								
1.35 - 1.70	D			1.74		Dense yellowish brown becoming light yellowish brown gravelly fine to coarse SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(1.26m)			
2.00 - 2.45	SPT(C)	N=33 (11/6,8,10,9)					2		
2.00 - 3.00	L								
2.55 - 2.75	ES								
2.65 - 2.75	PID								
3.00 - 3.45	SPT(C)	N=73 (34/17,18,19,19)		3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata. Hole located inside bus garage.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS7
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
			Rig Crew: BC
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L			0.09		Concrete - cored out.			
0.10 - 0.20	PID					MADE GROUND: Red and yellow brick, mortar, slate, burnt brick, engineering brick and chert gravel infilled with greyish brown slightly clayey fine to coarse sand. Possible ACM sheet fragments. (0.23m)			
0.10 - 0.30	ES			0.32		MADE GROUND: Firm yellowish brown mottled dark greyish brown and black slightly gravelly clay with rare sand pockets. Gravel is chalk, lime mortar, rare flint, burnt salt glazed earthenware.(0.31m)			
0.35 - 0.45	PID					DISTURBED GROUND: Firm dark greyish brown slightly gravelly silty CLAY.(0.52m)			
0.35 - 0.50	ES			0.63					
0.65 - 0.75	ES								
0.65 - 0.75	PID								
1.00 - 1.45	SPT(C)	N=10 (2/2,1,2,5)					1		
1.00 - 2.00	L			1.15		Medium dense orange brown becoming light yellowish brown slightly clayey gravelly fine to coarse SAND., Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. Becoming less clayey with depth. [River Terrace Deposits].(0.85m)			
1.30 - 1.70	D								
1.60 - 1.70	PID								
2.00 - 2.45	SPT(C)	N=57 (9/10,14,15,18)		2.00		Borehole Completed at 2.000m	2		
							3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 2.0m depth due to very dense nature of strata. Hole located inside bus garage.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS8
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	04/11/2021
Easting:	Northing:	Level (mAOD):	Rig Crew: JW / Logged: TF / Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					MADE GROUND: Asphalt planings.(0.40m)			
0.40 - 0.50	PID			0.40					
0.40 - 0.65	ES					DISTURBED GROUND: Dark greyish brown slightly gravelly silty CLAY. Gravel is rare brown and black fine to coarse angular to sub rounded chert and rare shell fragments. (0.26m)			
				0.66		DISTURBED GROUND: Greyish brown slightly gravelly silty CLAY. Gravel is rare brown and black fine to coarse angular to rounded chert. (0.52m)			
0.90 - 1.00	PID								
1.00 - 1.45	SPT(C)	N=12 (2/3,3,3,3)					1		
1.00 - 2.00	L								
1.20 - 1.30	ES			1.18		Medium dense yellowish brown clayey very gravelly fine to coarse SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(0.63m)			
1.40 - 1.80	D								
1.60 - 1.70	PID								
				1.81		Medium dense yellowish brown gravelly locally very gravelly slightly clayey fine to coarse SAND with occasional light yellowish brown silty fine sand pockets. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(1.19m)			
2.00 - 2.45	SPT(C)	N=12 (8/3,3,3,3)					2		
2.00 - 3.00	L								
2.30 - 2.65	D								
2.55 - 2.65	PID								
3.00 - 3.45	SPT(C)	N=61 (17/12,15,17,17)		3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	3.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS9
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					MADE GROUND: Asphalt planings with a matrix of dark greyish brown silty sand with rare red brick fragments and brown fine to coarse chert gravel.(0.21m)			
0.25 - 0.35	PID			0.21		MADE GROUND: Dark greyish brown becoming dark brown slightly gravelly slightly sandy silt with rare black carbonaceous specs. Gravel is brown and black fine to coarse angular to rounded chert , red brick fragments of fine to coarse gravel size, lime mortar, ceramic and cinder. (0.37m)			
0.25 - 0.50	ES								
0.60 - 0.70	ES			0.58		DISTURBED GROUND: Firm dark yellowish brown slightly sandy slightly gravelly silty CLAY. Gravel is rare brown and black fine to coarse sub angular to rounded chert and rare white fine sub rounded quartz.(0.24m)			
0.60 - 0.70	PID								
0.85 - 0.90	PID			0.82		Medium dense dark yellowish brown slightly gravelly becoming gravelly slightly silty fine to medium occasionally coarse SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits]. (1.18m)	1		
1.00 - 1.45	SPT(C)	N=9 (3/2,2,2,3)				*Occasional pockets of dark yellowish brown silty CLAY and dark yellowish brown gravelly SAND.*			
1.00 - 1.50	D								
1.00 - 2.00	L								
1.60 - 1.70	ES					*Becoming very dense*			
1.60 - 1.70	PID								
2.00 - 2.45	SPT(C)	N=54		2.00		Borehole Completed at 2.000m	2		
2.00 - 3.00	L	(13/15,13,13,13)							
							3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 2.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS10
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					MADE GROUND: Asphalt planings.(0.32m)			
				0.32					
0.35 - 0.70	ES					MADE GROUND: Red brick, aerated block with a matrix of greyish brown silty sand.(0.43m)			
0.35 - 0.70	PID								
0.75 - 0.80	PID			0.75		DISTURBED GROUND: Dark greyish brown slightly gravelly slightly silty slightly sandy CLAY with rare decayed roots. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz.(0.30m)			
1.00 - 1.45	SPT(C)	N=29 (9/6,8,8,7)					1		
1.00 - 2.00	L			1.05		Dense dark yellowish brown gravelly becoming very gravelly slightly silty fine to coarse SAND with occasional pockets of sandy gravel. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(1.43m)			
1.10 - 1.15	ES								
1.10 - 1.15	PID								
2.00 - 2.45	SPT(C)	N=30 (12/6,7,7,10)					2		
2.00 - 3.00	L								
2.05 - 2.10	PID								
2.50 - 3.00	D			2.48		Dense pale yellowish brown fine to coarse SAND and brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL. [River Terrace Deposits].(0.85m)			
3.00 - 3.45	SPT(C)	N=48 (29/12,12,13,11)					3		
3.00 - 3.05	PID								
3.00 - 4.00	L								
				3.33		Dense pale yellowish brown slightly silty fine to medium SAND with very rare fine brown chert gravel. [River Terrace Deposits].(0.30m)			
				3.63		Very dense brown white and black sandy fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL. Sand is pale yellowish brown fine to coarse. [River Terrace Deposits].(0.37m)			
3.70 - 4.00	ES								
4.00 - 4.45	SPT(C)	N=51 (17/13,12,13,13)		4.00		Borehole Completed at 4.000m	4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
4.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 4.0m depth due to very dense nature of strata.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS11
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.20m)			
0.20 - 0.30	PID			0.20		MADE GROUND: Brick, concrete and mortar infilled with greyish brown clay.(0.94m)			
1.00 - 1.45	SPT(C)	N=8 (0/1,1,3,3)					1		
1.00 - 2.00	L								
1.15 - 1.25	ES			1.14		DISTURBED GROUND: Very soft yellowish brown mottled greyish brown slightly sandy slightly gravelly CLAY. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz.(0.24m)			
1.15 - 1.25	PID								
1.40 - 1.75	D			1.38		Medium dense becoming dense brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL infilled with yellowish brown slightly sandy slightly gravelly clay. [River Terrace Deposits].(0.62m)			
2.00 - 2.45	SPT(C)	N=74 (20/17,17,20,20)		2.00		Borehole Completed at 2.000m	2		
							3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	2.00	SLOTTED	50

Remarks:
No sample recovery possible below 2.0m depth due to very dense nature of strata. Hole located inside bus garage.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS12
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.17m)			
0.20 - 1.00	ES			0.17		MADE GROUND: Crushed red brick, mortar, cinder, clinker, plaster, pottery fragments, burnt brick and wood fibre, flint cobbles and occasional chert and quartz gravel infilled with greyish brown slightly sandy clay. (1.11m)			
0.20 - 1.00	PID								
1.00 - 1.45	SPT(C)	N=4 (1/1,1,1,1)					1		
1.00 - 2.00	L								
1.30 - 1.50	ES			1.28		Loose to medium dense yellowish brown mottled orange brown slightly gravelly slightly clayey fine to medium SAND. Gravel is brown and black fine to coarse sub angular to sub rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits]. (1.12m)			
1.30 - 1.50	PID								
2.00 - 2.45	SPT(C)	N=4 (3/1,2,1,0)					2		
2.00 - 3.00	L								
2.40 - 2.50	PID			2.40		Medium dense becoming dense light yellowish brown slightly gravelly fine SAND. Gravel is brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(0.60m)			
3.00 - 3.45	SPT(C)	N=42 (10/9,9,11,13)		3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata. Hole located inside bus garage.

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Windowless Sample Borehole Log

Project ID	Borehole No.
212945	WS13
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Drilled
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	09/11/2021
			Rig Crew: JW
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked:

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.00 - 1.00	L					Concrete - cored out.(0.18m)			
				0.18		MADE GROUND: Crushed red brick and concrete.(0.18m)			
0.40 - 1.00	ES			0.36		MADE GROUND: Dark greyish brown slightly gravelly slightly sandy clay. Gravel is rare fine to coarse red brick, mortar, coal fragments, brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz, cinder, tile and ash.(0.99m)			
0.40 - 1.00	PID								
1.00 - 2.00	L						1		
1.35 - 1.40	ES			1.35		Brown and black fine to coarse angular to rounded chert and rare white fine sub rounded quartz GRAVEL infilled with yellowish brown mottled orange brown and light yellowish brown slightly sandy clay. [River Terrace Deposits].(1.26m)			
1.35 - 1.40	PID								
1.50 - 2.00	D								
2.00 - 3.00	L						2		
2.65 - 2.70	PID			2.61		Yellowish brown and light yellowish brown slightly gravelly fine to coarse SAND. Gravel is brown and black fine to coarse sub angular to sub rounded chert and rare white fine sub rounded quartz. [River Terrace Deposits].(0.39m)			
				3.00		Borehole Completed at 3.000m	3		
							4		
							5		

Borehole Diameter		Casing Diameter		Chiselling & Pits				Water Strikes			Observations		
Depth (m)	Diameter	Depth (m)	Diameter	Depth Top	To (m)	Duration	Remarks	Strike at (m)	Casing at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	115	1.00	115										No groundwater seepages encountered

Installation			
Top (m)	Base (m)	Type	Dia (mm)

Remarks:
No sample recovery possible below 3.0m depth due to very dense nature of strata.

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Trial Pit Log

Project ID	Trial Pit No.
212945	TP1
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Excavated
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	25/02/2022
Easting:	Northing:	Level (mAOD):	Logged: TF / Checked: RF

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.30 - 0.40	ES			0.28		MADE GROUND: Asphalt Planings(0.28m)			
				0.57		MADE GROUND: Brick and concrete fragments of fine gravel to cobble size with rare glass and plastic. (0.29m)			
0.70 - 0.80	ES			1.43		Firm yellowish brown slightly gravelly silty CLAY. Gravel is brown, white and black fine to coarse angular to rounded chert.(0.86m)	1		
				2.38		Medium dense brown slightly silty slightly gravelly fine to coarse SAND. Gravel is brown, white and black fine to coarse angular to rounded chert with occasional white fine to coarse sub angular to rounded quartz.(0.95m)	2		
				3.44		Dense light yellowish brown fine to coarse SAND and brown, white and black fine to coarse angular to rounded chert GRAVEL with occasional white fine to coarse sub angular to rounded quartz. [River Terrace Deposits](1.06m)	3		
						Trial Pit Completed at 3.440m	4		
							5		

Pit Dimensions		Pit Stability and Comments			Water Strikes		Observations		
Pit Length (m)	Pit Width (m)	Pit Stability	Shoring Used	Remarks	Strike at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.20	0.60	Stable	None						No groundwater seepages encountered

Plant Used:
JCB 3CX

Remarks:

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Trial Pit Log

Project ID	Trial Pit No.
212945	TP2
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Excavated
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	25/02/2022
Easting:	Northing:	Level (mAOD):	Logged: TF / Checked: RF

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.20 - 0.30	ES			0.08		MADE GROUND: Asphalt planings.(0.08m)			
						MADE GROUND: Dark greyish brown and black slightly gravelly sandy clay. Gravel is black, brown and white fine to coarse sub angular to rounded chert with occasional asphalt planings, concrete and brick of fine gravel to cobble size.(0.57m)			
0.70 - 0.80	ES			0.65		Soft yellowish brown slightly gravelly silty CLAY. Gravel is rare brown, white and black fine to coarse angular to rounded chert. (0.81m)	1		
				1.46		Medium dense yellowish brown gravelly fine to coarse SAND. Gravel is brown, white and black fine to coarse angular to rounded chert with occasional white fine to coarse sub angular to rounded quartz.(0.34m)			
				1.80		Dense light yellowish brown fine to coarse SAND and brown, white and black fine to coarse angular to rounded chert GRAVEL with occasional white fine to coarse sub angular to rounded quartz. [River Terrace Deposits](1.20m)	2		
				3.00		Trial Pit Completed at 3.000m	3		
							4		
							5		

Pit Dimensions		Pit Stability and Comments			Water Strikes		Observations		
Pit Length (m)	Pit Width (m)	Pit Stability	Shoring Used	Remarks	Strike at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	0.60	Stable	None						No groundwater seepages encountered

Plant Used:
JCB 3CX

Remarks:

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Trial Pit Log

Project ID	Trial Pit No.
212945	TP3
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Excavated
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	25/02/2022
			Logged: TF
Easting:	Northing:	Level (mAOD):	Checked: RF

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.10 - 0.20	ES					MADE GROUND: Scrub over very dark grey/black sandy gravelly clay. Gravel is brown, black and white fine to coarse angular to sub rounded chert with occasional brick and concrete fragments. (0.20m)			
0.20 - 0.30	ES			0.20		MADE GROUND: Consisting of rubber matting, wood, plastic, electrical cable, metal, fabric, hydraulic pipes, timber, slate and decaying batteries with occasional pockets of yellowish brown gravelly clayey sand and ACM.(2.30m)			
						Hole continually collapsed during excavation.			
				2.50		Trial Pit Completed at 2.500m			

Pit Dimensions		Pit Stability and Comments			Water Strikes		Observations		
Pit Length (m)	Pit Width (m)	Pit Stability	Shoring Used	Remarks	Strike at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
11.00	0.60	Unstable	None						No groundwater seepages encountered

Plant Used:
JCB 3CX

Remarks:

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Trial Pit Log

Project ID	Trial Pit No.
212945	TP4
	Sheet 1 of 1
	Scale: 1:10

Project Title:	Location:	Client:	Date Excavated
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	25/02/2022
Easting:	Northing:	Level (mAOD):	Logged: TF / Checked: RF

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
				0.03		MADE GROUND: Asphalt(0.03m)			
						MADE GROUND: Concrete and brick of fine gravel to cobble size with occasional plastic, timber and metal in a yellowish brown clayey sand.(0.32m)			
						Concrete slab encountered (old bus wash) at 0.35m bgl - trial pit terminated			
				0.35		Trial Pit Completed at 0.350m	1		
							2		

Pit Dimensions		Pit Stability and Comments			Water Strikes		Observations		
Pit Length (m)	Pit Width (m)	Pit Stability	Shoring Used	Remarks	Strike at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
3.00	2.50	Stable	None						No groundwater seepages encountered

Plant Used:
JCB 3CX

Remarks:

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Trial Pit Log

Project ID	Trial Pit No.
212945	TP5
	Sheet 1 of 1
	Scale: 1:25

Project Title:	Location:	Client:	Date Excavated
Chambers Bus Depot	Chambers Bus Depot, Church Square, Bures, CO8 5AB	Rose Builders	25/02/2022
Easting:	Northing:	Level (mAOD):	Logged: TF / Checked: RF

Samples & In Situ Testing			Strata Details				Groundwater		
Depth (mBGL)	Sample / Test ID	Test Result	Level (mAOD)	Depth (mBGL)	Legend	Strata Description	Depth (mBGL)	Water Strike	Backfill/ Installation
0.30 - 0.40	ES			0.06		MADE GROUND: Asphalt planings(0.06m) MADE GROUND: Consisting of black brown and white fine to coarse angular to sub rounded chert with concrete and brick of fine gravel to boulder size with occasional asphalt, metal, electrical cable, fabric and plastic in occasionally infilled with greyish brown clay.(2.39m)	1		
1.00 - 1.10	ES								
							2		
						Hole continually collapsed during excavation.			
				2.45		Trial Pit Completed at 2.450m			
							3		
							4		
							5		

Pit Dimensions		Pit Stability and Comments			Water Strikes		Observations		
Pit Length (m)	Pit Width (m)	Pit Stability	Shoring Used	Remarks	Strike at (m)	Sealed at (m)	Time Mins	Rose to (m)	Remarks
2.20	0.60	Unstable	None						No groundwater seepages encountered

Plant Used:
JCB 3CX

Remarks:

Appendix (iv)
Groundwater Monitoring Results

Groundwater Monitoring

SITE	Former Chambers Bus Garage, Bures

Date	Position	Depth to Water (m bgl)	Total Depth (m bgl)	Comments
14.02.22	BHA	3.12	5.47	
	BHB	3.18	5.87	
	BHC	3.15	5.79	
	BHD	3.16	5.90	
	WS2	3.27	3.49	
23.02.22	BHA	2.79	5.47	
	BHB	2.85	5.84	
	BHC	2.83	5.78	
	BHD	2.84	5.90	
04.03.22	BHA	2.76	5.50	
	BHB	2.83	5.74	
	BHC	2.80	5.71	
	BHD	2.81	5.89	
	WS2	2.91	3.48	
06.07.22	BHA	3.53	5.56	
	BHB	3.62	5.81	
	BHC	3.59	5.76	
	BHD	3.61	5.96	
	WS2	-	3.54	40mm silt in base
01.08.22	BHE	4.67	6.44	
	BHG	3.89	6.95	
11.08.22	BHA	3.75	5.47	slight odour
	BHB	3.83	5.71	very slight odour
	BHC	3.80	5.69	
	BHD	3.81	5.88	
	BHE	4.69	6.38	
	BHG	3.89	6.83	

Appendix (v)
Laboratory Test Results – Material Properties

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

0998

Contract	**Bures**
Serial No.	**40225_1**

Client:

Compass Geotechnical Limited

13 Willow Park
Upton Lane
Stoke Golding
Nuneaton
Warwickshire
CV13 6EU

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way,
Stukeley Meadows, Huntingdon,
Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

Compass Geotechnical Limited

Samples Labelled:

Bures

Approved Signatories:

☑ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

Date Received: 28/07/2022

Samples Tested Between: 28/07/2022 **and** 11/08/2022

Remarks:

For the attention of Rachel Foord
Your Order No: 212945h

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

UKAS TESTING

0998

Contract	**Bures**		
Serial No.	**40225_1**	**Target Date**	11/08/2022
Scheduled By	Compass Geotechnical Limited		
Schedule Remarks			

Bore Hole No.	Type	Sample Ref.	Top Depth	Particle Size Distribution (BS1377)	Water Content (BSEN)	Liquid/Plastic Limits																Sample Remarks
BHE	B	2+3	1.80	1																		
BHE	B	4	6.50	1																		
BHE	D	5	7.00	1	1	1																
BHE	D	7	10.00	1	1	1																
BHF	B	2	3.00	1																		
BHF	D	8	8.50	1	1	1																
BHG	B	2	4.00	1																		
BHG	B	4	8.00	1																		
BHG	D	7	14.00	1	1	1																
Totals				**9**	**4**	**4**																**End of Schedule**

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

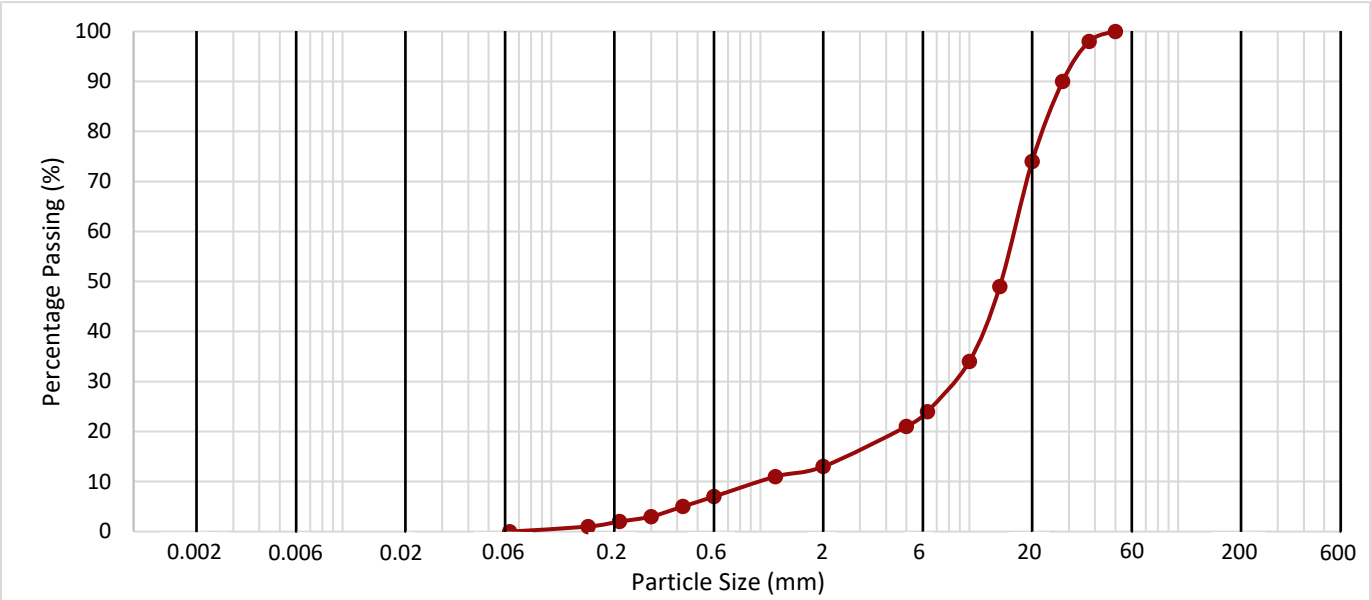
0998

Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHE	1.80 - 4.00	B	2+3	Brown, black and white angular to rounded chert and occasional white and brown subangular to rounded quartzite sandy GRAVEL. Sand is yellowish brown	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	13	13
1.18	11	
0.600	7	
0.425	5	
0.300	3	
0.212	2	
0.150	1	
0.063	0	

Fines By Dry Mass (%)	
<0.063mm	0

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		87
125		
90		
63		
50	100	
37.5	98	
28	90	
20	74	
14	49	
10	34	
6.3	24	
5	21	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

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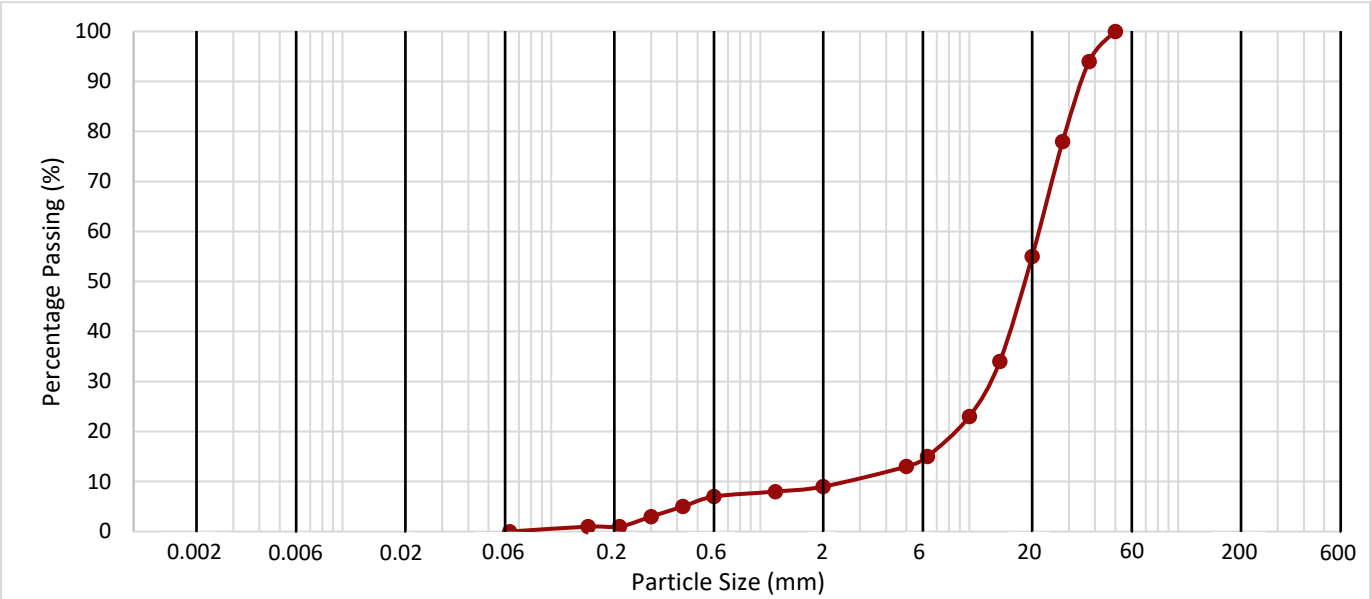
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHE	6.50 - 6.90	B	4	Brown, black and white angular to rounded chert and occasional white and brown subangular to rounded quartzite sandy GRAVEL. Sand is light brown	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	9	9
1.18	8	
0.600	7	
0.425	5	
0.300	3	
0.212	1	
0.150	1	
0.063	0	

Fines By Dry Mass (%)	
<0.063mm	0

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		91
125		
90		
63		
50	100	
37.5	94	
28	78	
20	55	
14	34	
10	23	
6.3	15	
5	13	

Method of Preparation:	BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test:	BS1377: Part 2: 1990: 9.2
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

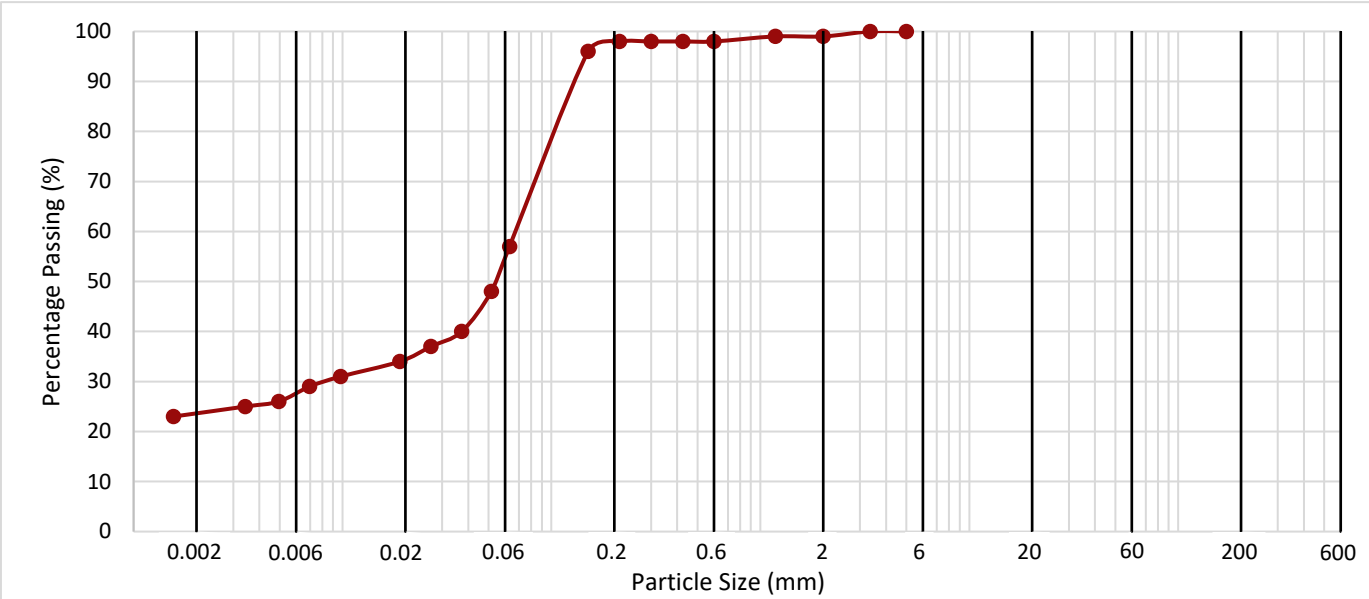
0998

Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHE	7.00	D	5	Olive sandy CLAY/SILT	

Method of Test:	Hydrometer + Pre-sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0516	48	33
	0.0372	40	
	0.0265	37	
	0.0188	34	Clay by Dry Mass (%)
	0.0098	31	
	0.0070	29	
	0.0050	26	24
	0.0034	25	
	0.0016	23	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	99	42
1.18	99	
0.600	98	
0.425	98	
0.300	98	
0.212	98	
0.150	96	
0.063	57	

Fines By Dry Mass (%)	
<0.063mm	57

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		1
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2,9.5
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

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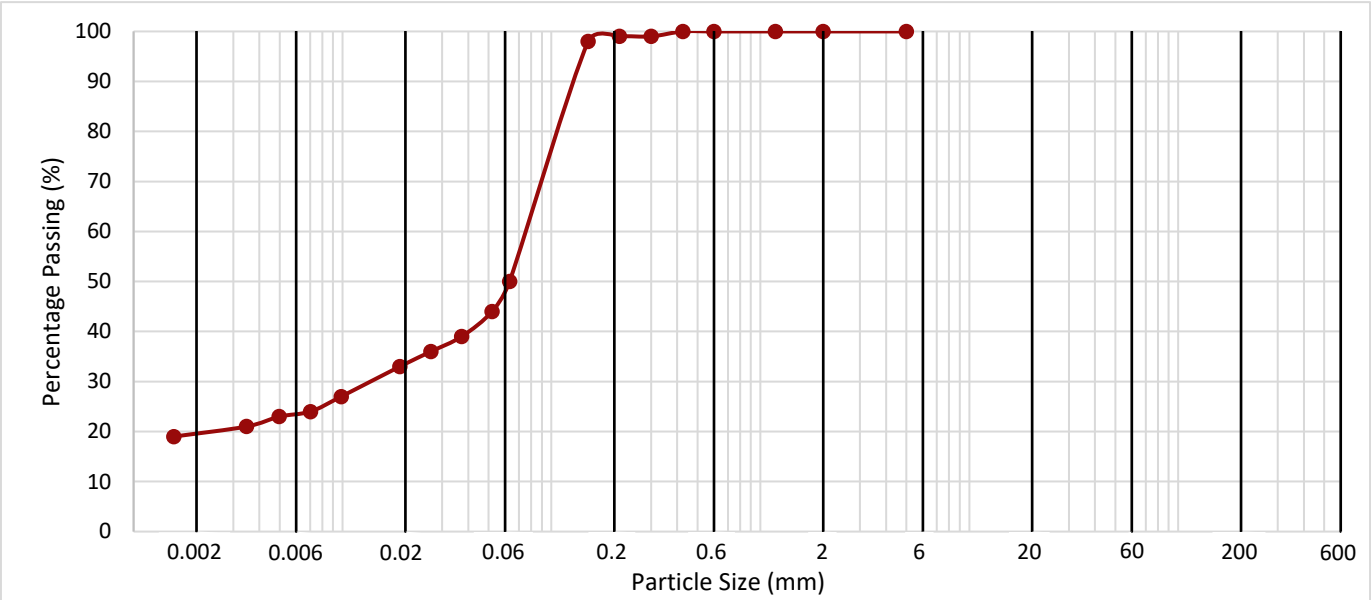
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHE	10.00	D	7	Olive sandy silty CLAY	

Method of Test:	Hydrometer + Pre-sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0520	44	31
	0.0372	39	
	0.0265	36	
	0.0188	33	Clay by Dry Mass (%)
	0.0099	27	
	0.0070	24	
	0.0050	23	19
	0.0035	21	
	0.0016	19	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	50
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	98	
0.063	50	

Fines By Dry Mass (%)	
<0.063mm	50

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2,9.5
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

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DATE ISSUED: 11/08/2022

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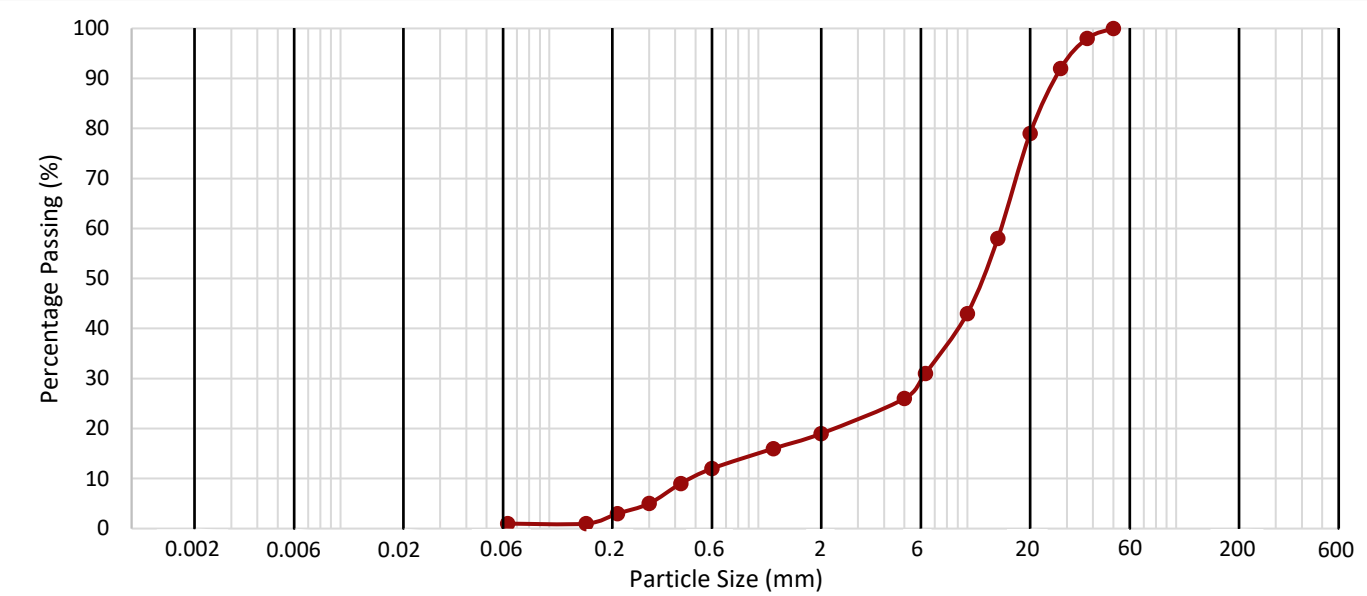
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHF	3.00 - 3.40	B	2	Brown, black and white angular to rounded chert and occasional white and brown subangular to rounded quartzite slightly silty sandy GRAVEL. Sand is brown	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	**Silt by Dry Mass (%)**
			Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	**Sand By Dry Mass (%)**
2.00	19	**18**
1.18	16	
0.600	12	
0.425	9	
0.300	5	
0.212	3	
0.150	1	
0.063	1	

Fines By Dry Mass (%)	
<0.063mm	**1**

Sieve Size (mm)	Passing (%)	**2mm+ By Dry Mass (%)**
300		**81**
125		
90		
63		
50	100	
37.5	98	
28	92	
20	79	
14	58	
10	43	
6.3	31	
5	26	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

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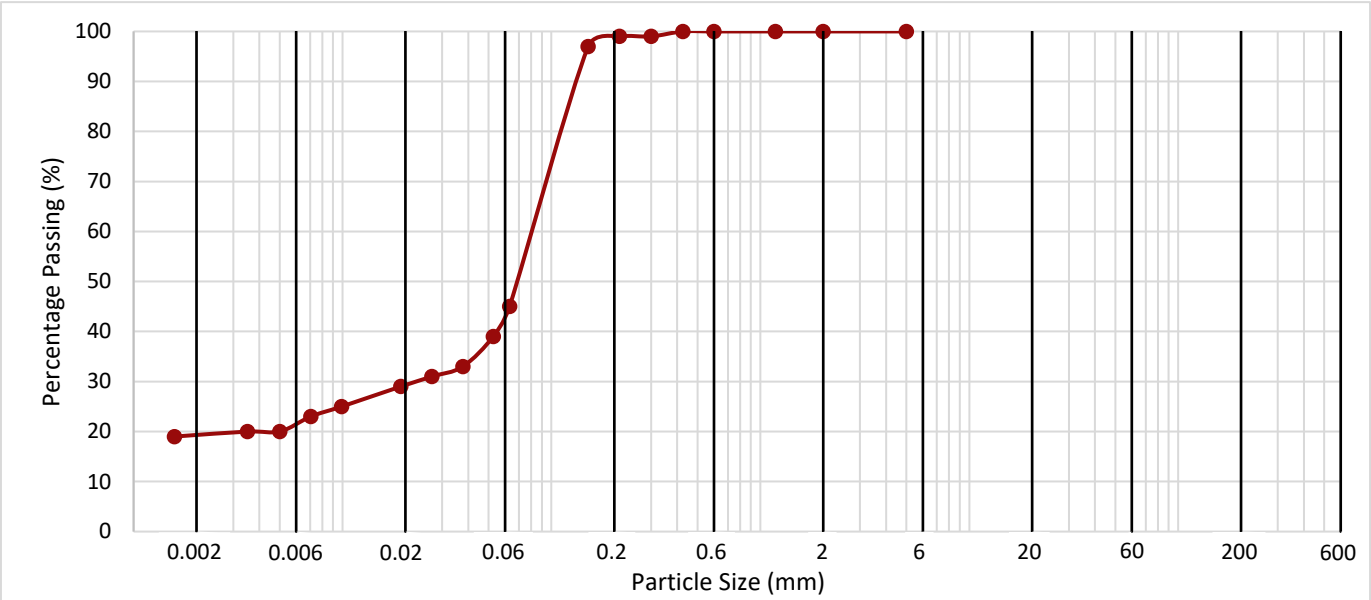
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHF	8.50	D	8	Olive sandy silty CLAY	

Method of Test:	Hydrometer + Pre-sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0527	39	26
	0.0377	33	
	0.0268	31	
	0.0190	29	Clay by Dry Mass (%)
	0.0099	25	
	0.0070	23	
	0.0050	20	19
	0.0035	20	
	0.0016	19	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	55
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	97	
0.063	45	

Fines By Dry Mass (%)	
<0.063mm	45

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2,9.5
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

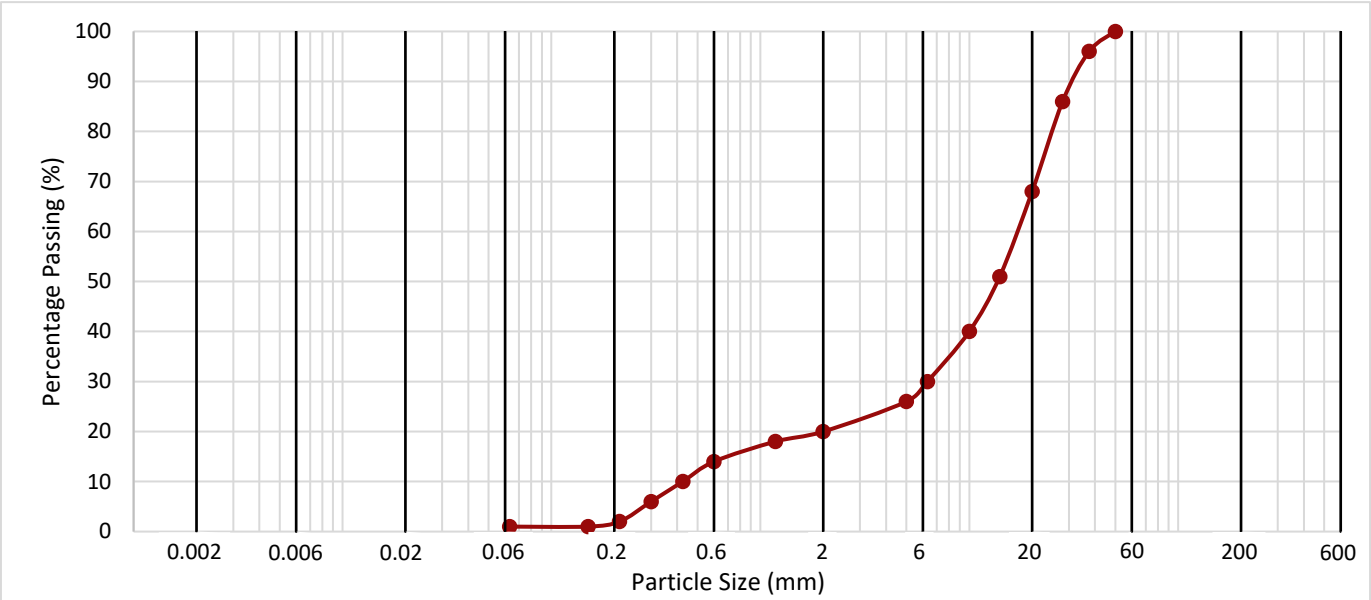
0998

Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHG	4.00 - 4.40	B	2	Brown, black and white angular to rounded chert and occasional white and brown subangular to rounded quartzite slightly silty sandy GRAVEL. Sand is orangish brown	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	20	19
1.18	18	
0.600	14	
0.425	10	
0.300	6	
0.212	2	
0.150	1	
0.063	1	

Fines By Dry Mass (%)	
<0.063mm	1

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		80
125		
90		
63		
50	100	
37.5	96	
28	86	
20	68	
14	51	
10	40	
6.3	30	
5	26	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

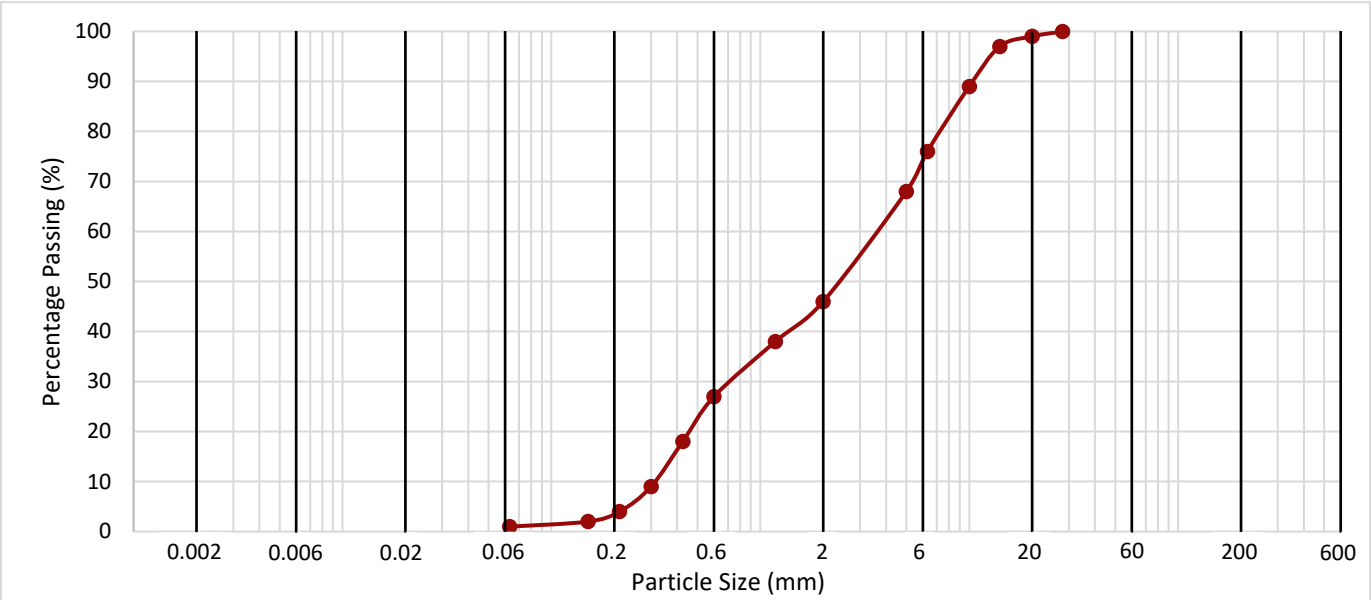
0998

Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHG	8.00 - 8.40	B	4	Light brown slightly silty SAND and brown, black and white angular to rounded chert and rare white and brown subangular to rounded quartzite GRAVEL	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	46	45
1.18	38	
0.600	27	
0.425	18	
0.300	9	
0.212	4	
0.150	2	
0.063	1	

Fines By Dry Mass (%)	
<0.063mm	1

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		54
125		
90		
63		
50		
37.5		
28	100	
20	99	
14	97	
10	89	
6.3	76	
5	68	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

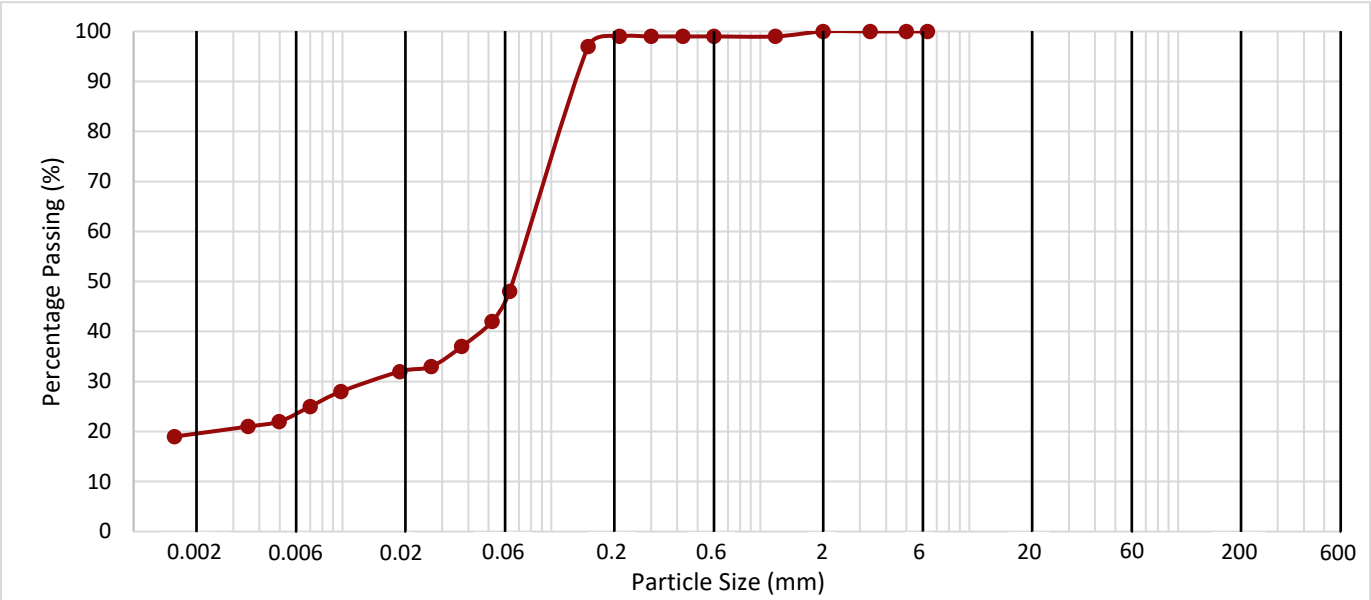
0998

Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
BHG	14.00	D	7	Olive sandy silty CLAY	

Method of Test:	Hydrometer + Pre-sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0520	42	29
	0.0372	37	
	0.0266	33	
	0.0188	32	Clay by Dry Mass (%)
	0.0098	28	
	0.0070	25	
	0.0050	22	19
	0.0035	21	
	0.0016	19	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	52
1.18	99	
0.600	99	
0.425	99	
0.300	99	
0.212	99	
0.150	97	
0.063	48	

Fines By Dry Mass (%)	
<0.063mm	48

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3	100	
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2,9.5
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

0998

Contract	**Bures**
Serial No.	**40225_1**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
BHE	7.00	D	5	**35.0**	44	30	14	0.36	From Natural	0 (A)		25	Olive sandy CLAY/SILT	MI
BHE	10.00	D	7	**31.0**	45	26	19	0.26	From Natural	0 (A)		24	Olive sandy silty CLAY	CI
BHF	8.50	D	8	**35.6**	45	24	21	0.55	From Natural	0 (A)		24	Olive sandy silty CLAY	CI
BHG	14.00	D	7	**32.6**	44	24	20	0.43	From Natural	0 (A)		25	Olive sandy silty CLAY	CI

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

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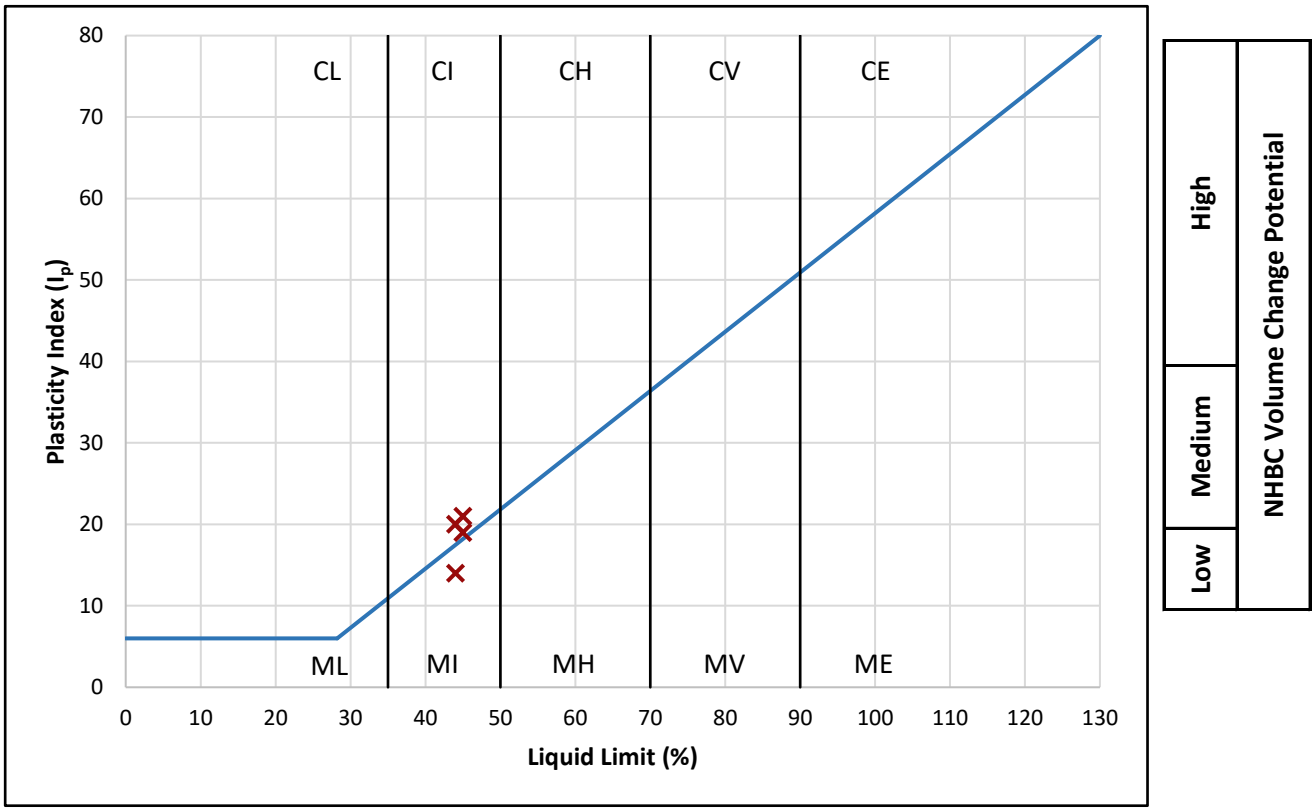
Contract	**Bures**
Serial No.	**40225_1**

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 11/08/2022

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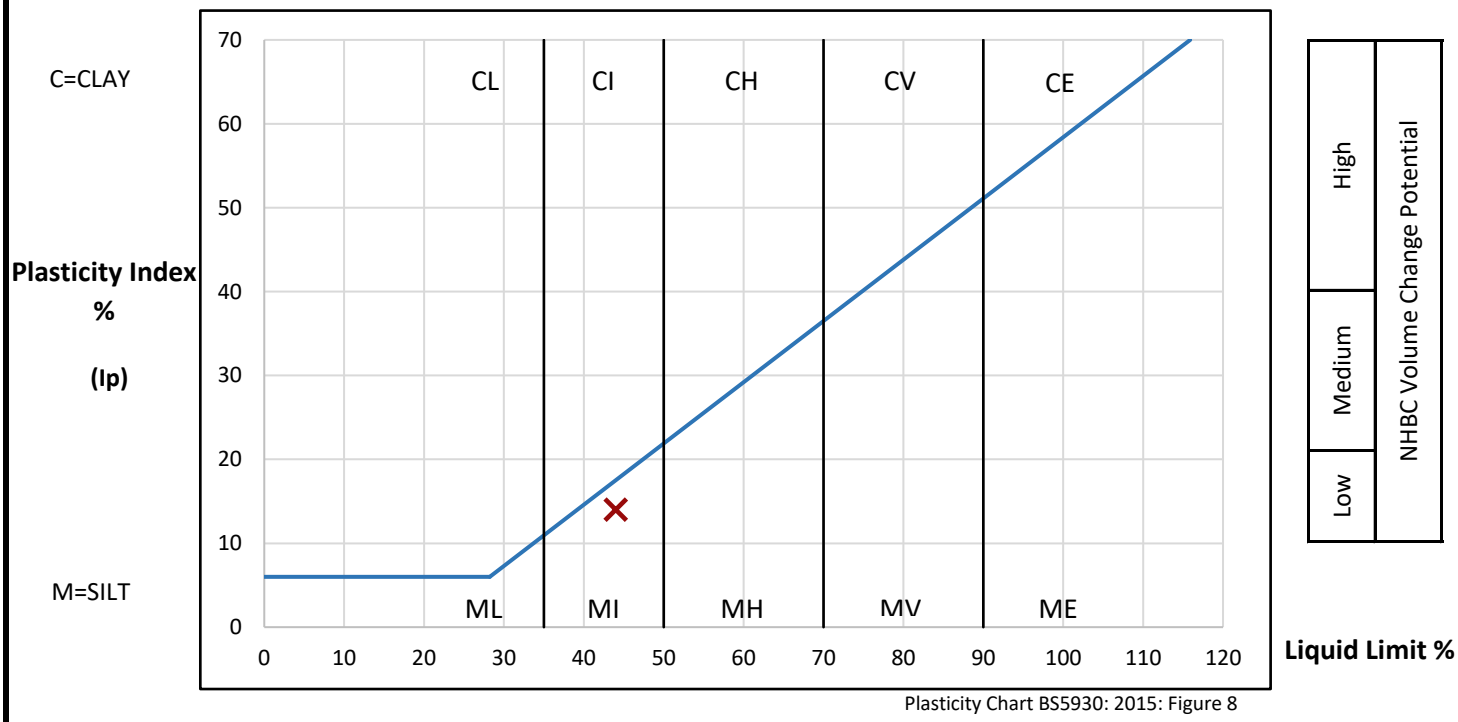
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BHE	7.00	D	5	35.0	Olive sandy CLAY/SILT	

PREPARATION				Liquid Limit	44 %
Method of preparation		From natural		Plastic Limit	30 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	14 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.36
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	25 hrs	Clay Content	24 %	Derived Activity	0.58



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

TEST REPORT

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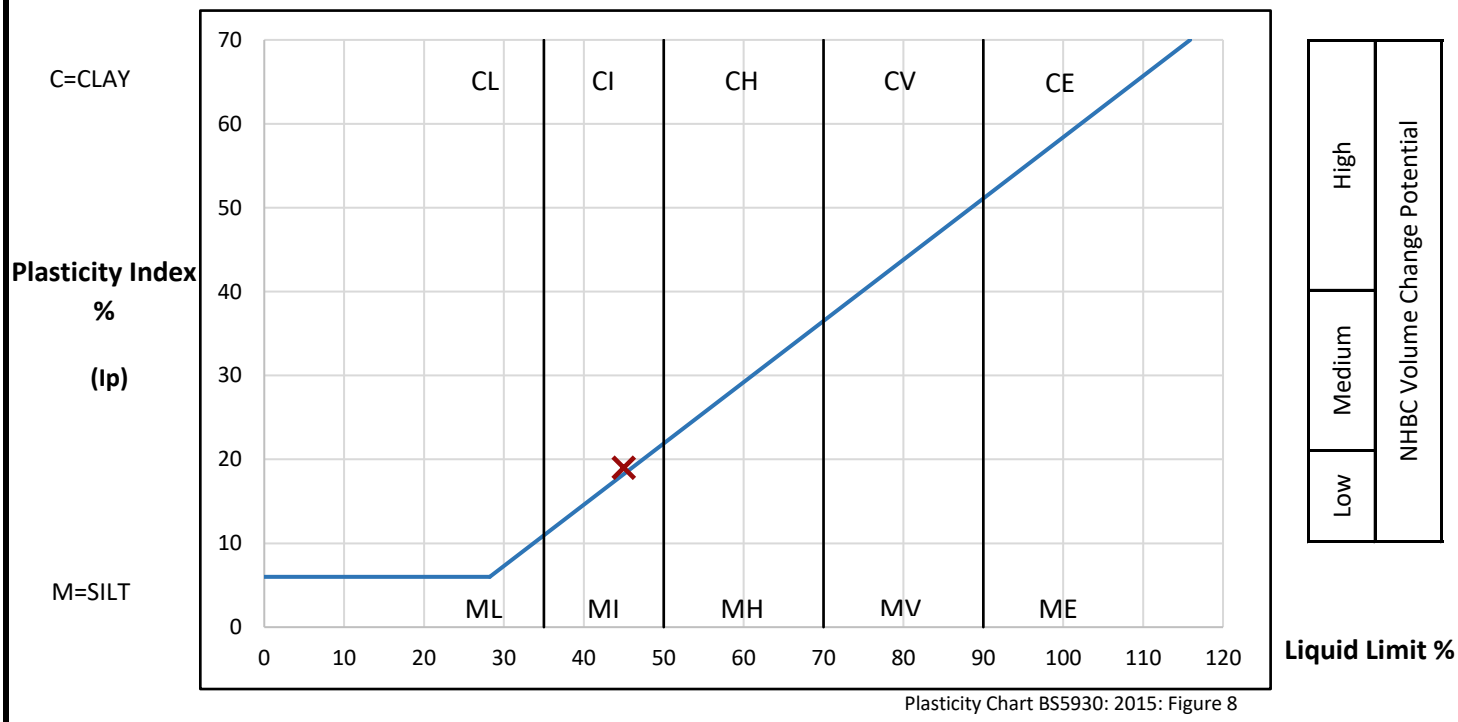
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BHE	10.00	D	7	31.0	Olive sandy silty CLAY	

PREPARATION				Liquid Limit	45 %
Method of preparation		From natural		Plastic Limit	26 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	19 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.26
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content	19 %	Derived Activity	1.00



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

TEST REPORT

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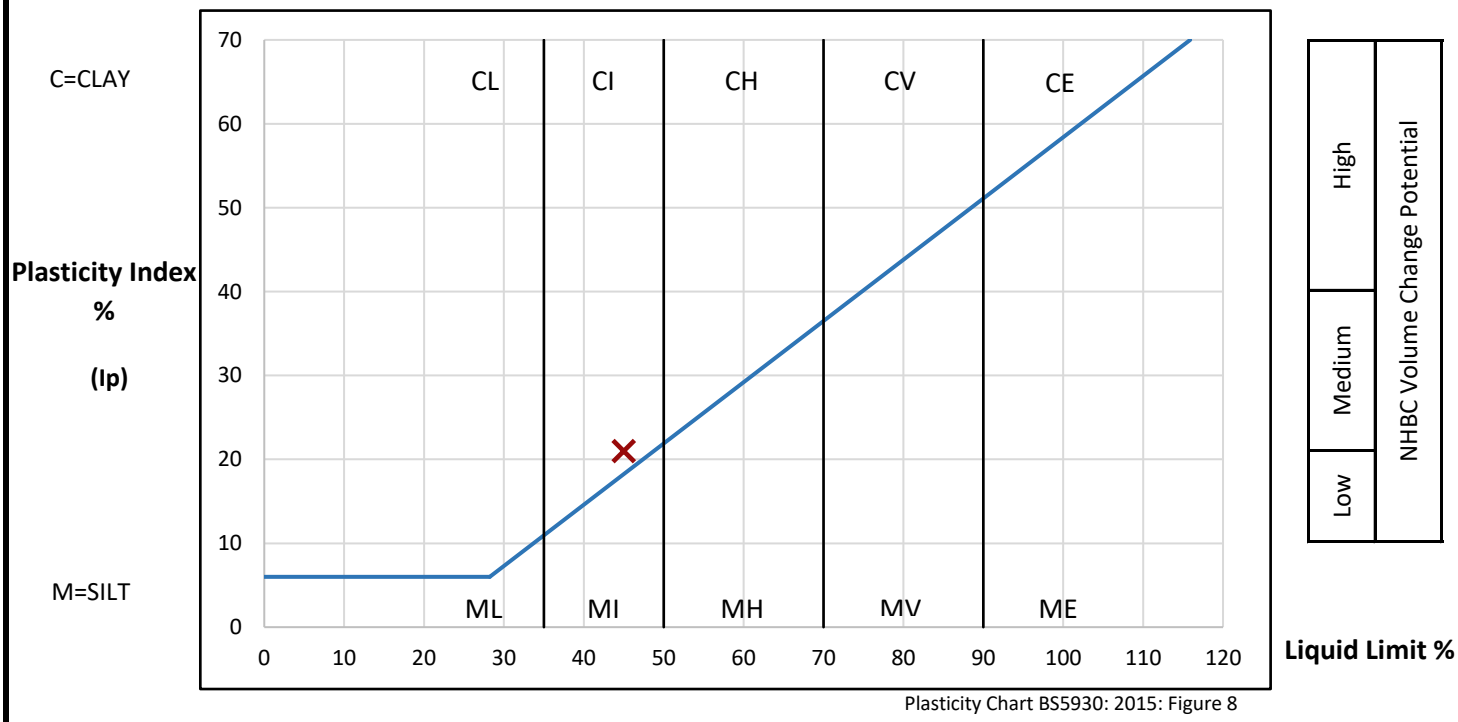
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BHF	8.50	D	8	35.6	Olive sandy silty CLAY	

PREPARATION				Liquid Limit	45 %
Method of preparation		From natural		Plastic Limit	24 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	21 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.55
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content	19 %	Derived Activity	1.11



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

TEST REPORT

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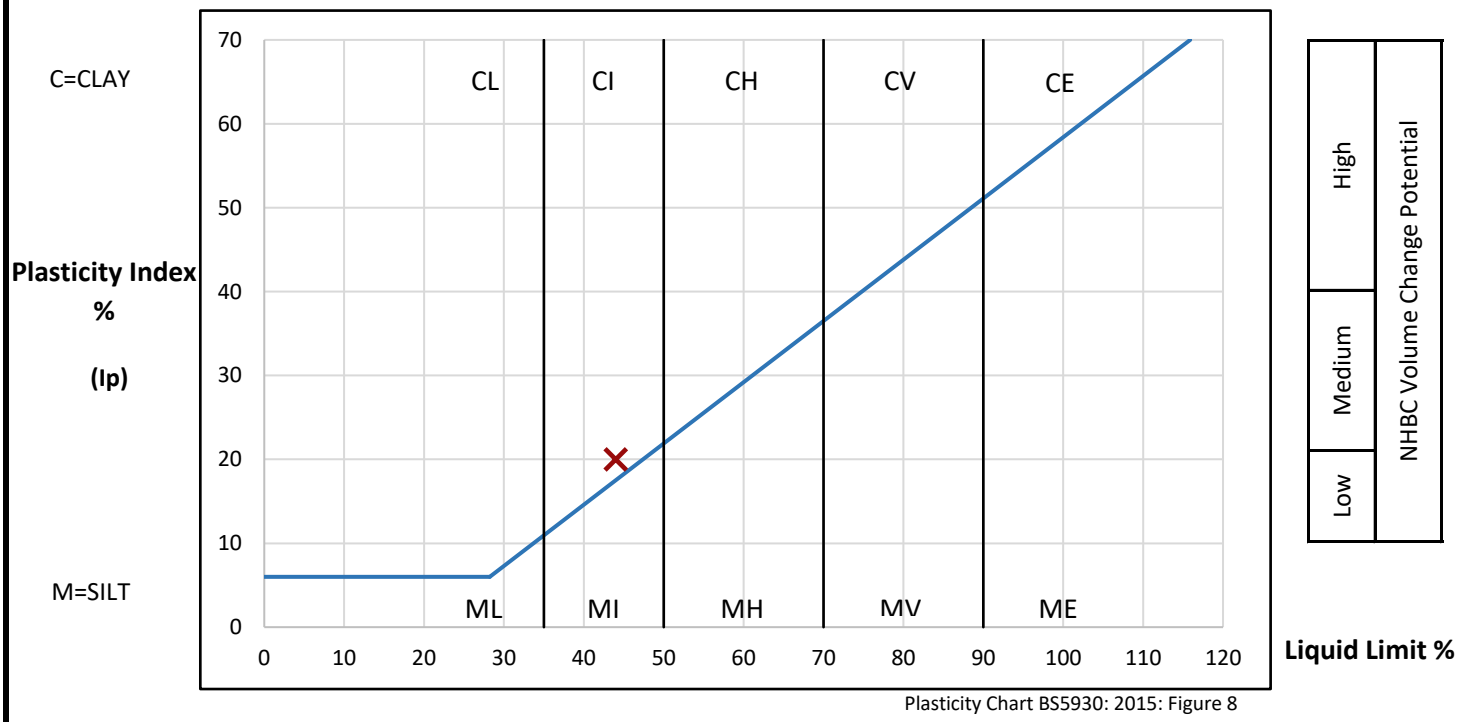
Contract	**Bures**
Serial No.	**40225_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
BHG	14.00	D	7	32.6	Olive sandy silty CLAY	

PREPARATION				Liquid Limit	44 %
Method of preparation		From natural		Plastic Limit	24 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	20 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.43
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	25 hrs	Clay Content	19 %	Derived Activity	1.05



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-29201-1
Initial Date of Issue:	05-Aug-2022
Client	Compass Geotechnical Limited
Client Address:	13 Willow Park, Upton Lane Stoke Golding Warwickshire CV13 6EU
Contact(s):	Rachel@compassgeotechnical.co.uk
Project	Bures

Quotation No.:	Q19-18078	**Date Received:**	02-Aug-2022
Order No.:	222945I	**Date Instructed:**	02-Aug-2022
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	08-Aug-2022
Date Approved:	05-Aug-2022		

Approved By:

Details:	Stuart Henderson, Technical Manager

Results - Soil

Project: Bures

Client: Compass Geotechnical Limited					**Chemtest Job No.:**	22-29201	22-29201	22-29201	22-29201	22-29201	22-29201
Quotation No.: Q19-18078					**Chemtest Sample ID.:**	1479647	1479648	1479649	1479650	1479651	1479652
					Client Sample ID.:	ES	ES	ES	ES	ES	ES
					Sample Location:	BHE	BHE	BHF	BHF	BHG	BHG
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	3.0	13.0	2.0	4.0	6.5	9.5
					Bottom Depth (m):		14.0	2.4		6.9	
					Date Sampled:	26-Jul-2022	26-Jul-2022	26-Jul-2022	26-Jul-2022	26-Jul-2022	26-Jul-2022
					Time Sampled:	0:00	0:00	0:00	0:00	0:00	0:00
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Moisture	N	2030	%	0.020		7.0	21	7.2	7.8	5.9	8.9
pH	U	2010		4.0		8.3	8.3	8.5	8.8	8.7	9.2
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		< 0.010	0.56	0.017	0.010	0.010	0.035

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

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

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

0998

Contract	**Bures**
Serial No.	**39688_1**

Client:

Compass Geotechnical Limited

13 Willow Park
Upton Lane
Stoke Golding
Nuneaton
Warwickshire
CV13 6EU

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way,
Stukeley Meadows, Huntingdon,
Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

Compass Geotechnical Limited

Samples Labelled:

Bures

Approved Signatories:

☐ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

☑ **D. Sabnis**
Operations Manager

Dinlar Sabnis

Date Received: 08/11/2021

Samples Tested Between: 08/11/2021 **and** 18/11/2021

Remarks:

For the attention of Rachel Foord
Your Reference No: 212945c

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

0998

Contract	**Bures**		
Serial No.	**39688_1**	**Target Date**	22/11/2021
Scheduled By	Compass Geotechnical Limited		
Schedule Remarks			

Bore Hole No.	Type	Sample Ref.	Top Depth	Particle Size Distribution (BS1377)	Water Content (BSEN)	Liquid/Plastic Limits	Wet Sieve Preparation															Sample Remarks
WS1	D	-	1.65	1																		
WS2	D	-	4.50	1																		
WS5	D	-	1.50		1	1	1															
WS6	D	-	1.35	1																		
WS8	D	-	1.40	1																		
WS8	D	-	2.30	1																		
Totals				**5**	**1**	**1**	**1**															**End of Schedule**

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

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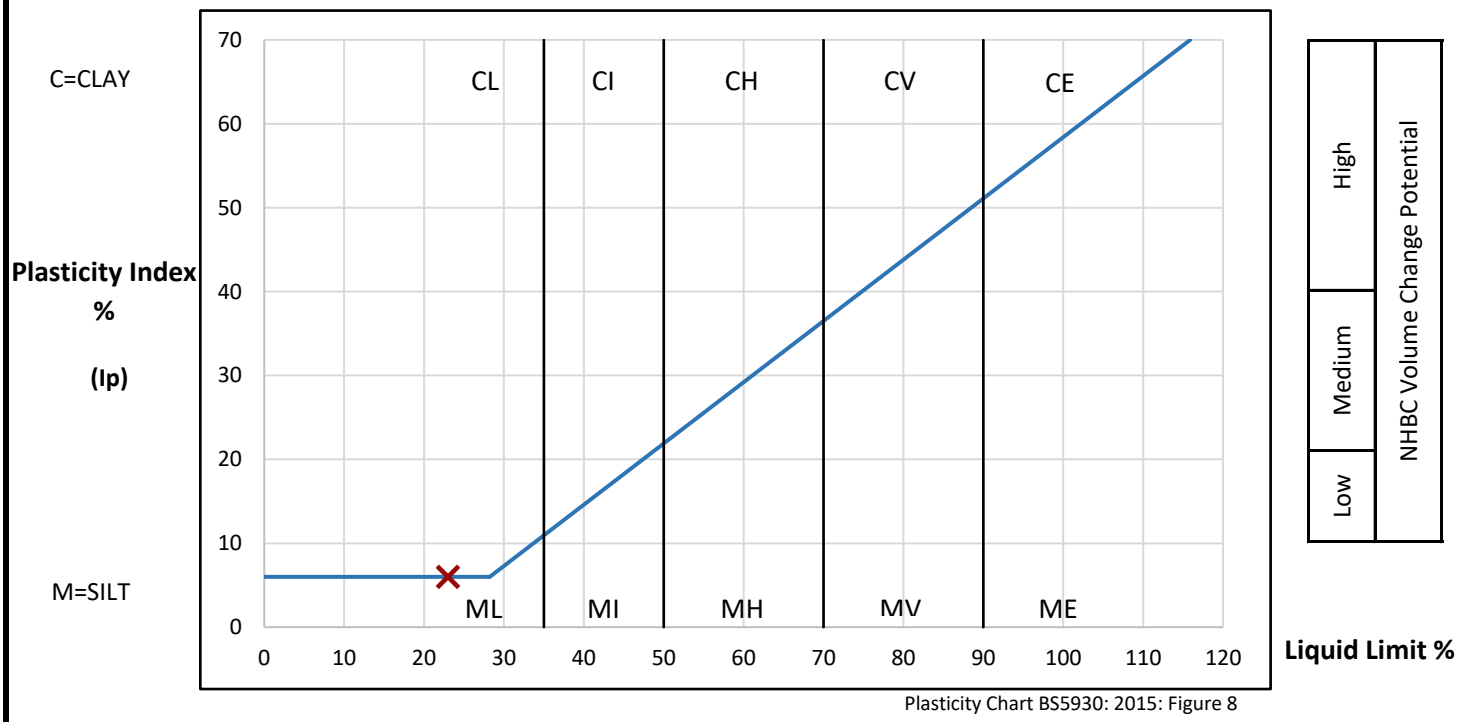
Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS5	1.50 - 2.00	D	-	18.7	Soft brown slightly gravelly sandy silty CLAY. Gravel is brown, black and white fine to medium angular to subrounded chert and quartzite.	

PREPARATION				Liquid Limit	23 %
Method of preparation	Wet sieved over 0.425mm sieve			Plastic Limit	17 %
Sample retained 0.425mm sieve	(Measured)	12 %		Plasticity Index	6 %
Corrected water content for material passing 0.425mm		21.3 %		Liquidity Index	0.29
Sample retained 2mm sieve	(Measured)	4 %		NHBC Modified (I'p)	5 %
Curing time	25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

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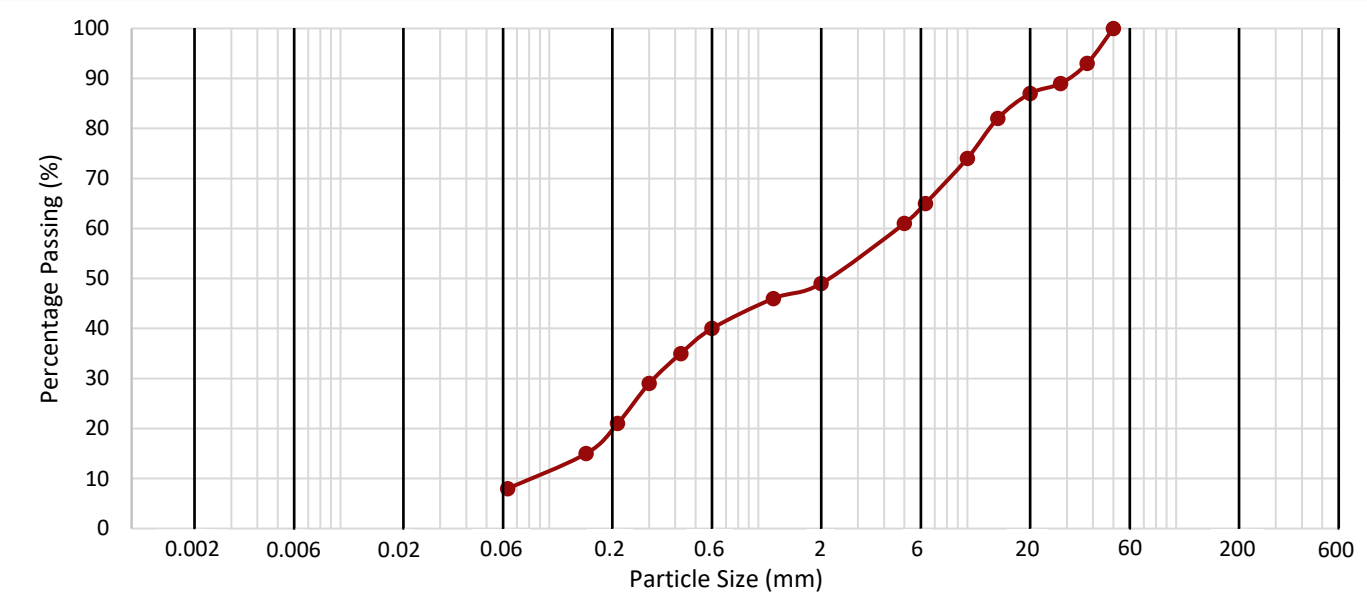
Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS1	1.65 - 2.00	D	-	Brown, black and white angular to rounded chert, and occasional white and brown subrounded to rounded quartzite very sandy slightly clayey GRAVEL. Sand and clay are brown.	Dry mass of sample required 6kg. Mass of sample submitted 2.577kg. Sample Unrepresentative BS1377:Part 2:1990 Table 3.

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	**Silt by Dry Mass (%)**
			Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	**Sand By Dry Mass (%)**
2.00	49	**41**
1.18	46	
0.600	40	
0.425	35	
0.300	29	
0.212	21	
0.150	15	
0.063	8	

Fines By Dry Mass (%)	
<0.063mm	**8**

Sieve Size (mm)	Passing (%)	**2mm+ By Dry Mass (%)**
300		**51**
125		
90		
63		
50	100	
37.5	93	
28	89	
20	87	
14	82	
10	74	
6.3	65	
5	61	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

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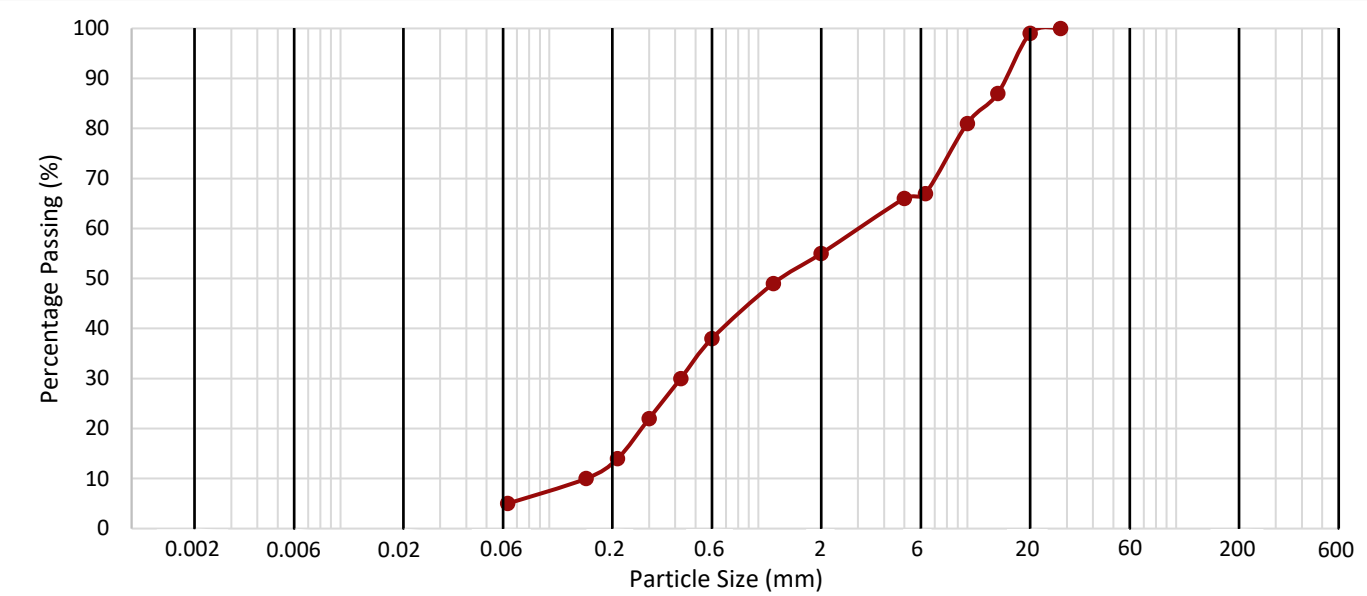
Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS2	4.50 - 5.00	D	-	Yellowish brown silty SAND and black, white and brown angular to rounded chert, and occasional white and brown subrounded to rounded quartzite GRAVEL.	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	55	50
1.18	49	
0.600	38	
0.425	30	
0.300	22	
0.212	14	
0.150	10	
0.063	5	

Fines By Dry Mass (%)	
<0.063mm	5

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		45
125		
90		
63		
50		
37.5		
28	100	
20	99	
14	87	
10	81	
6.3	67	
5	66	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

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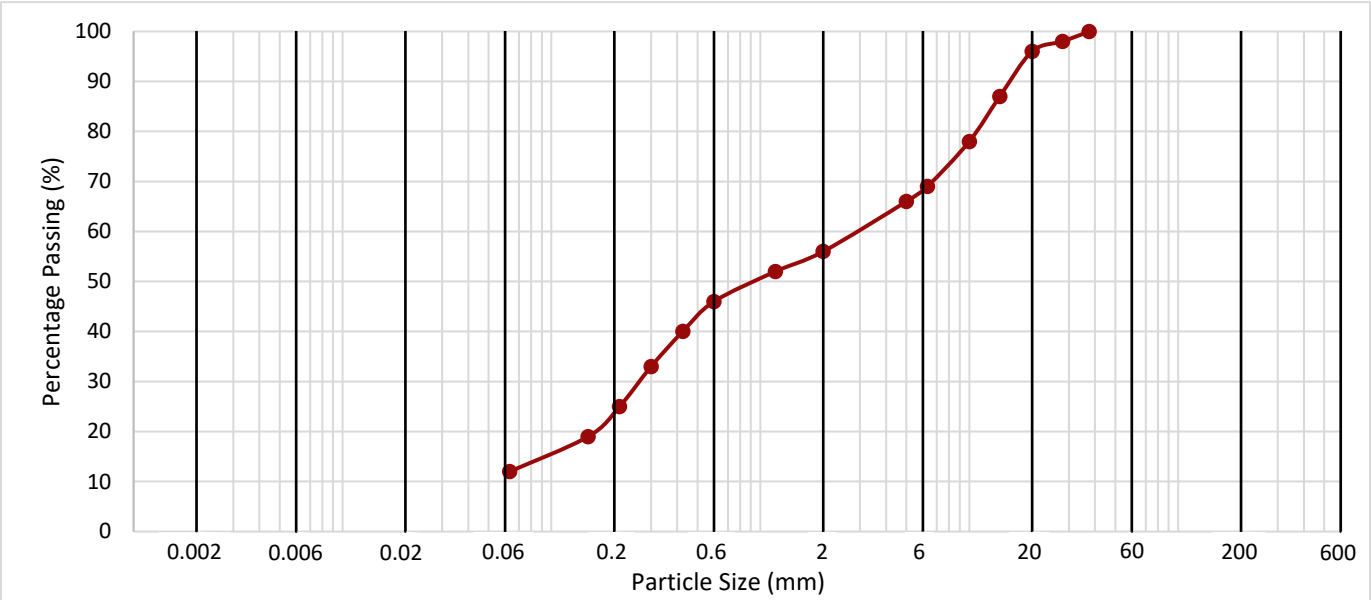
Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS6	1.35 - 1.70	D	-	Brown clayey SAND and black, brown and white angular to subrounded chert, and rare white rounded quartzite GRAVEL.	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	56	44
1.18	52	
0.600	46	
0.425	40	
0.300	33	
0.212	25	
0.150	19	
0.063	12	

Fines By Dry Mass (%)	
<0.063mm	12

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		44
125		
90		
63		
50		
37.5	100	
28	98	
20	96	
14	87	
10	78	
6.3	69	
5	66	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

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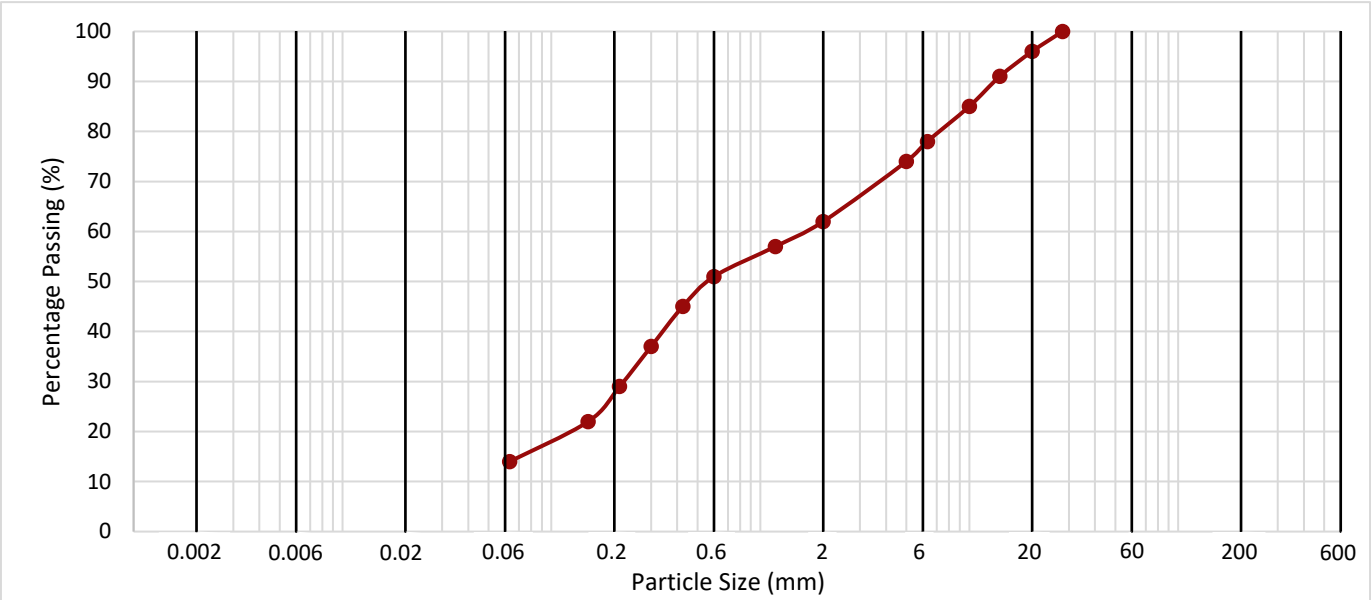
Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS8	1.40 - 1.80	D	-	Brown very gravelly clayey SAND. Gravel is brown, black and white chert, and occasional white and brown subrounded to rounded quartzite.	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	**Silt by Dry Mass (%)**
			Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	**Sand By Dry Mass (%)**
2.00	62	**48**
1.18	57	
0.600	51	
0.425	45	
0.300	37	
0.212	29	
0.150	22	
0.063	14	

Fines By Dry Mass (%)	
<0.063mm	**14**

Sieve Size (mm)	Passing (%)	**2mm+ By Dry Mass (%)**
300		**38**
125		
90		
63		
50		
37.5		
28	100	
20	96	
14	91	
10	85	
6.3	78	
5	74	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 18/11/2021

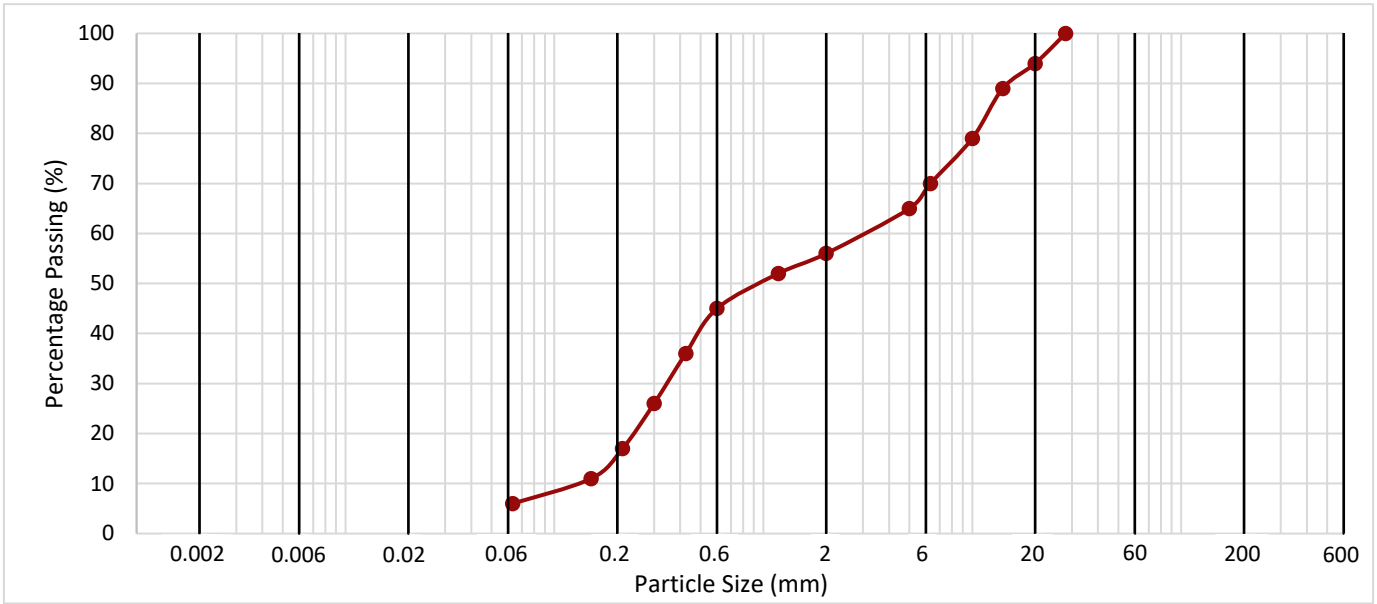
0998

Contract	**Bures**
Serial No.	**39688_1**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS8	2.30 - 2.65	D	-	Brown very gravelly slightly clayey SAND. Gravel is brown, black, and white angular to rounded chert, and occasional white and brown subrounded to rounded quartzite.	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	56	50
1.18	52	
0.600	45	
0.425	36	
0.300	26	
0.212	17	
0.150	11	
0.063	6	

Fines By Dry Mass (%)	
<0.063mm	6

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		44
125		
90		
63		
50		
37.5		
28	100	
20	94	
14	89	
10	79	
6.3	70	
5	65	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

0998

Contract	**Bures**
Serial No.	**39688_2**

Client:

Compass Geotechnical Limited

13 Willow Park
Upton Lane
Stoke Golding
Nuneaton
Warwickshire
CV13 6EU

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way,
Stukeley Meadows, Huntingdon,
Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

Compass Geotechnical Limited

Samples Labelled:

Bures

Approved Signatories:

☐ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

☑ **D. Sabnis**
Operations Manager

Dinlar Sabnis

Date Received: 08/11/2021

Samples Tested Between: 08/11/2021 **and** 29/11/2021

Remarks:

For the attention of Rachel Foord
Your Reference No: 212945g

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

0998

Contract	**Bures**		
Serial No.	**39688_2**	**Target Date**	26/11/2021
Scheduled By	Compass Geotechnical Limited		
Schedule Remarks			

Bore Hole No.	Type	Sample Ref.	Top Depth	Particle Size Distribution (BS1377)	Water Content (BSEN)	Liquid/Plastic Limits	Wet Sieve Preparation															Sample Remarks
WS10	D	-	2.50	1																		
WS11	D	-	1.40		1	1	1															
WS13	D	-	1.50		1	1	1															
Totals				**1**	**2**	**2**	**2**															**End of Schedule**

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

0998

Contract	**Bures**
Serial No.	**39688_2**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS11	1.40 - 1.75	D	-	**11.1**	28	14	14	-0.21	Wet Sieved	69 (M)	N/R*	24	Brown, black and white fine to coarse angular to subrounded chert GRAVEL in a very soft yellowish brown sandy silty clay matrix	CL
WS13	1.50 - 2.00	D	-	**7.7**	23	16	7	-1.19	Wet Sieved	69 (M)	N/R*	25	Brown, black and white fine to coarse angular to subrounded chert GRAVEL in a very soft yellowish brown sandy silty clay/very clayey sand matrix	CL

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1. Where N/R, corrected water content is not reported due to material type.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

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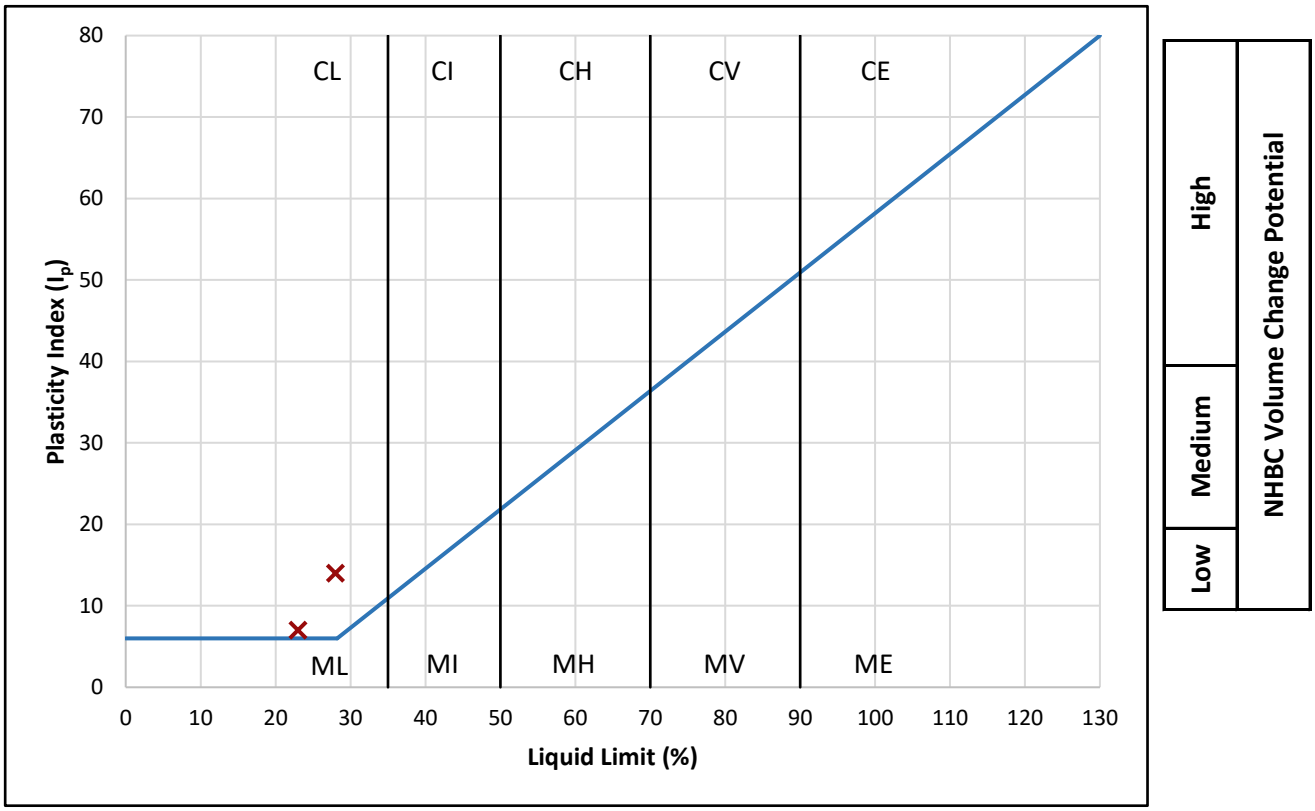
Contract	**Bures**
Serial No.	**39688_2**

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

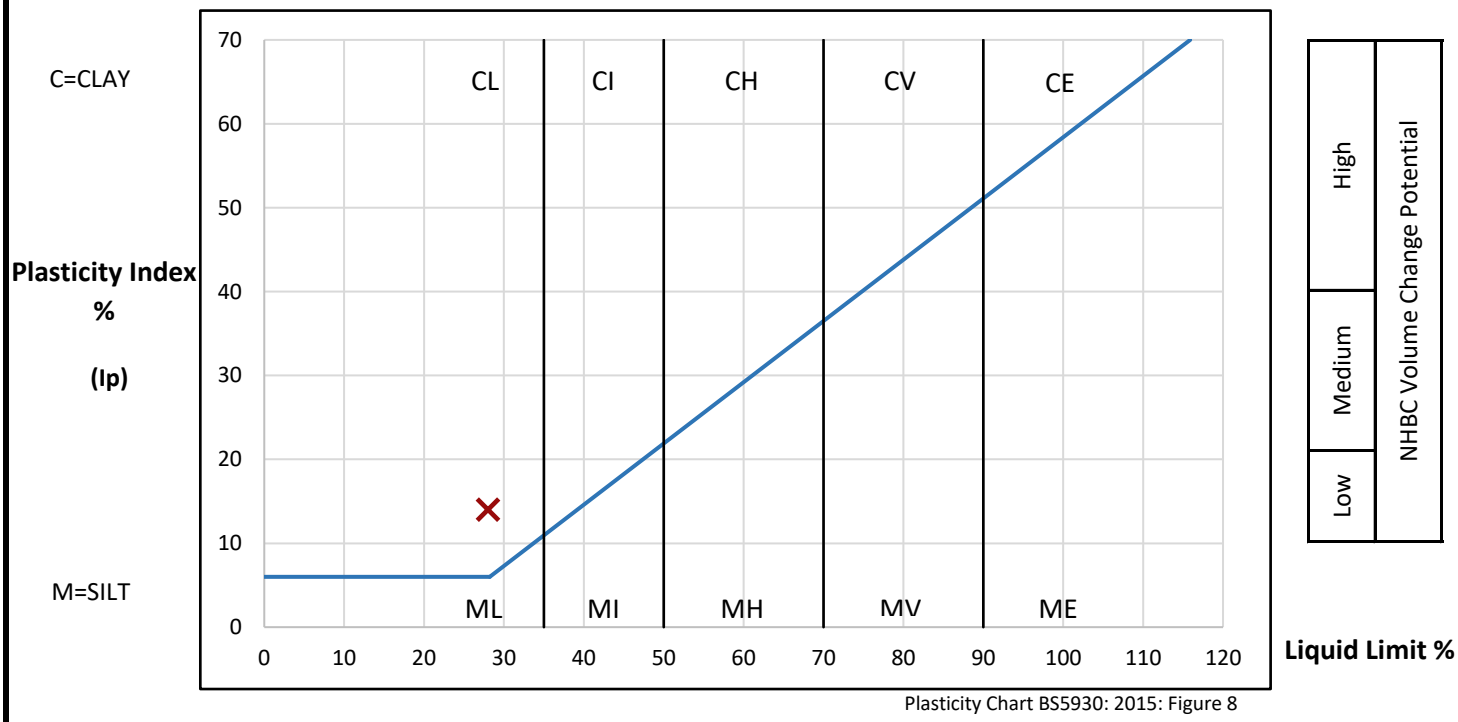
0998

Contract	**Bures**
Serial No.	**39688_2**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS11	1.40 - 1.75	D	-	11.1	Brown, black and white fine to coarse angular to subrounded chert GRAVEL in a very soft yellowish brown sandy silty clay matrix	

PREPARATION				Liquid Limit	28 %
Method of preparation	Wet sieved over 0.425mm sieve			Plastic Limit	14 %
Sample retained 0.425mm sieve	(Measured)	69 %		Plasticity Index	14 %
Corrected water content for material passing 0.425mm	Not reported			Liquidity Index	-0.21
Sample retained 2mm sieve	(Measured)	51 %		NHBC Modified (I'p)	4 %
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

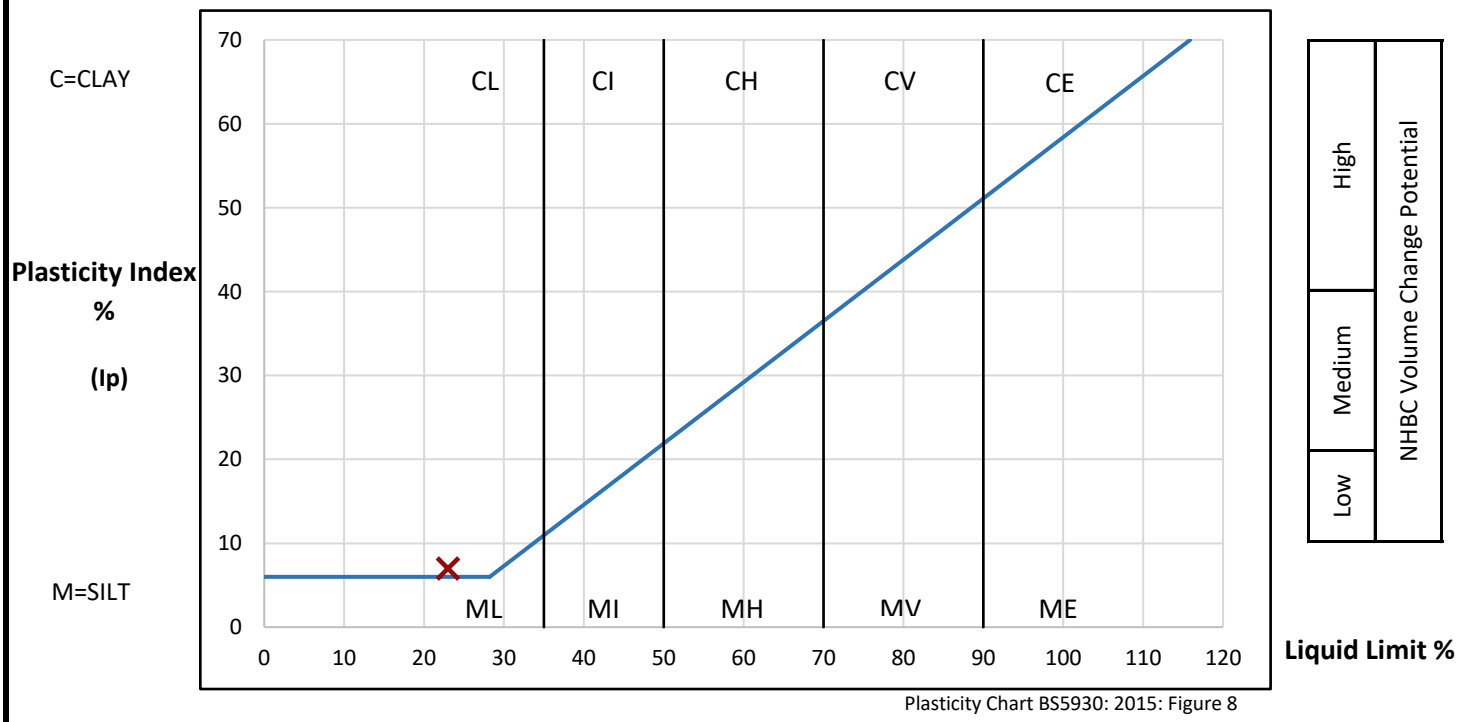
0998

Contract	**Bures**
Serial No.	**39688_2**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS13	1.50 - 2.00	D	-	7.7	Brown, black and white fine to coarse angular to subrounded chert GRAVEL in a very soft yellowish brown sandy silty clay/very clayey sand matrix	

PREPARATION				Liquid Limit	23 %
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	16 %
Sample retained 0.425mm sieve	(Measured)	69 %		Plasticity Index	7 %
Corrected water content for material passing 0.425mm		Not reported		Liquidity Index	-1.19
Sample retained 2mm sieve	(Measured)	52 %		NHBC Modified (I'p)	2 %
Curing time	25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/11/2021

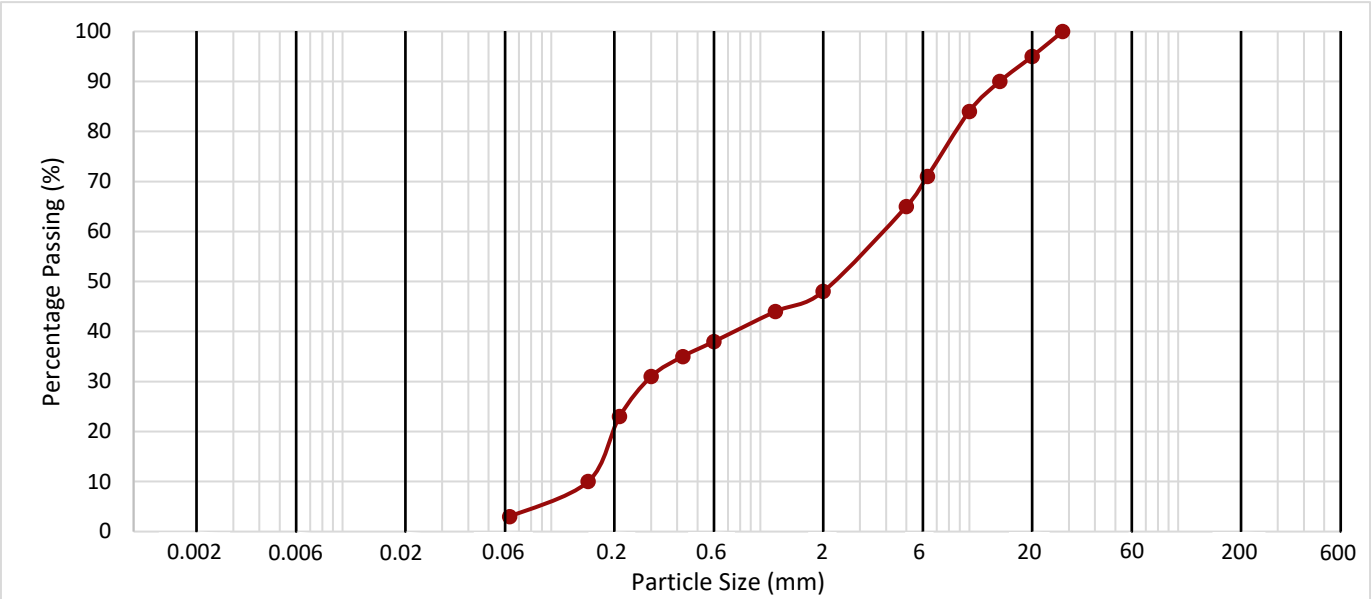
0998

Contract	**Bures**
Serial No.	**39688_2**

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS10	2.50 - 3.00	D	-	Yellowish brown slightly silty SAND and black, brown and white angular to subrounded chert, occasional yellowish brown quartzite and rare yellowish brown sandstone GRAVEL	

Method of Test:	Wet Sieve	Method of Pretreatment:	Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)	Clay by Dry Mass (%)

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	48	45
1.18	44	
0.600	38	
0.425	35	
0.300	31	
0.212	23	
0.150	10	
0.063	3	

Fines By Dry Mass (%)	
<0.063mm	3

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		52
125		
90		
63		
50		
37.5		
28	100	
20	95	
14	90	
10	84	
6.3	71	
5	65	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
Method of test: BS1377: Part 2: 1990: 9.2
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-39171-1
Initial Date of Issue:	15-Nov-2021
Client	Compass Geotechnical Limited
Client Address:	13 Willow Park, Upton Lane Stoke Golding Warwickshire CV13 6EU
Contact(s):	Rachel@compassgeotechnical.co.uk
Project	Bures

Quotation No.:	Q19-18078	**Date Received:**	09-Nov-2021
Order No.:	212945B	**Date Instructed:**	09-Nov-2021
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	15-Nov-2021
Date Approved:	15-Nov-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: Bures

Client: Compass Geotechnical Limited			**Chemtest Job No.:**		21-39171	21-39171	21-39171	21-39171	21-39171	21-39171
Quotation No.: Q19-18078			**Chemtest Sample ID.:**		1315668	1315669	1315670	1315671	1315672	1315673
			Client Sample ID.:		ES	ES	ES	ES	ES	ES
			Sample Location:		WS1	WS2	WS5	WS6	WS7	WS8
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.65	2.0	1.5	1.35	1.3	1.4
			Bottom Depth (m):		2.0	3.0	2.0	1.70	1.7	1.8
			Date Sampled:		05-Nov-2021	05-Nov-2021	05-Nov-2021	05-Nov-2021	05-Nov-2021	05-Nov-2021
			Time Sampled:		0:00	0:00	0:00	0:00	0:00	0:00
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Moisture	N	2030	%	0.020	5.8	5.4	16	6.1	6.9	9.1
pH	U	2010		4.0	8.9	9.1	8.0	8.6	9.0	7.9
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.013	< 0.010	0.092	< 0.010	< 0.010	< 0.010

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

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

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-39705-1
Initial Date of Issue:	18-Nov-2021
Client	Compass Geotechnical Limited
Client Address:	13 Willow Park, Upton Lane Stoke Golding Warwickshire CV13 6EU
Contact(s):	Rachel@compassgeotechnical.co.uk
Project	Bures

Quotation No.:	Q19-18078	**Date Received:**	12-Nov-2021
Order No.:	212945F	**Date Instructed:**	12-Nov-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	18-Nov-2021
Date Approved:	18-Nov-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: Bures

Client: Compass Geotechnical Limited			**Chemtest Job No.:**		21-39705
Quotation No.: Q19-18078			**Chemtest Sample ID.:**		1318298
			Client Sample ID.:		ES
			Sample Location:		WS9
			Sample Type:		SOIL
			Top Depth (m):		1.0
			Bottom Depth (m):		1.5
			Date Sampled:		10-Nov-2021
			Time Sampled:		12:00
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture	N	2030	%	0.020	7.5
pH	U	2010		4.0	8.7
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.17

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

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

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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

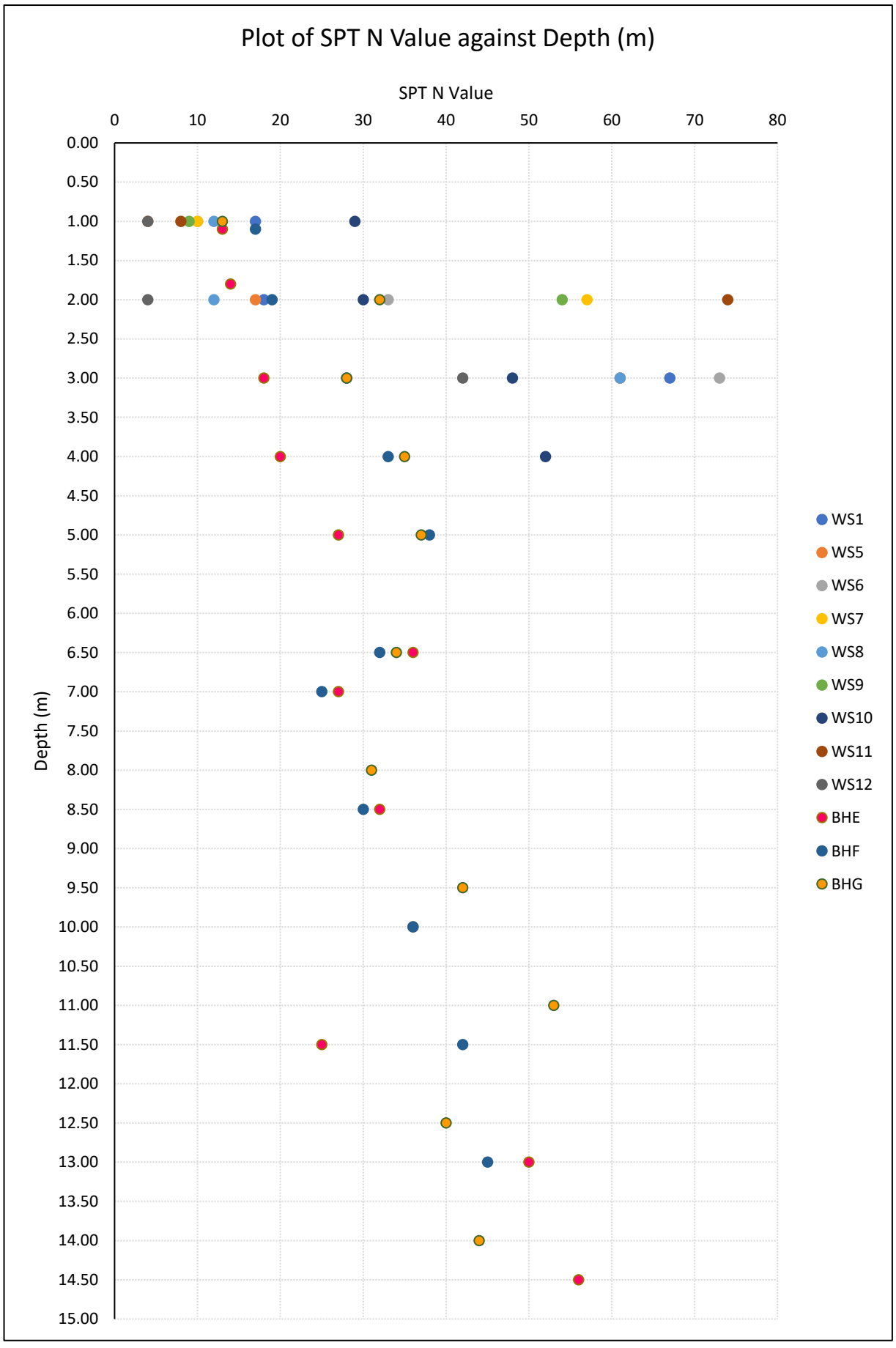
A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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 (vi)
Plots


Plot of SPT N Value against Depth (m)
SPT N Value
0
10
20
30
40
50
60
70
80
Depth (m)
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
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14.00
14.50
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WS1
WS5
WS6
WS7
WS8
WS9
WS10
WS11
WS12
BHE
BHF
BHG

Compass Geotechnical
Geotechnical, Geoenvironmental and Civil Engineering Consultants
13 Willow Park, Upton Lane, Stoke Golding, Warwickshire, CV13 6EU
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www.compassgeotechnical.co.uk