

Preliminary Factual Geotechnical Site Investigation Report - Draft

At:

Land Adjacent to Brandet House
Brenzett
Romney Marsh
TN29 9UG

For:

Graeme Smith

Private and Confidential

Ref: 3410 19 11 08 Rpt 01 Rev A NA GS

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Association of Geotechnical &
Geoenvironmental Specialists



Sevenoaks
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Quality Assurance Control Sheet

This report was produced in accordance with the Sevenoaks Environmental Consultancy Ltd Quality Assurance System			
Report Ref:	3410 19 11 08 Rpt 01 Rev A NA GS		
	Consultants Name	Consultants Signature	Date
Report written by:	Nick Anderson <i>Assistant Geo-Environmental Engineer</i>		19/11/2019
Report reviewed by:	Brendan Davis <i>Technical Director</i>		20/11/2019

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Figure 2	Existing Site Layout Plan
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1.0 Introduction

- 1.1 The work covered by this report has been undertaken by Sevenoaks Environmental Consultancy Limited (SEC).
- 1.2 The Client for this project is understood to be Graeme Smith.
- 1.3 The site under consideration is known as Land Adjacent to Brandet House, Millside Rhee Wall Road, Brenzett, Romney Marsh (See Appendix A Figure 1 for Site Location Plan).
- 1.4 The site comprised a vacant plot of land which formed a rectangular shaped plot see Appendix A Figure 2 for Existing Site Layout Plan). At the time of our investigation vegetation which previously covered the site had been removed. A temporary access road had also been constructed along the north eastern boundary of the site. The proposed development is understood to involve the construction of 6 no. residential properties with associated gardens and parking (see Appendix A Figure 3 for Proposed Site Layout Plan).
- 1.5 We understand that this Factual Geotechnical Report is required to help provide data for consideration in relation to foundation design for the proposed development.
- 1.6 A preliminary Combined Geo-Environmental Desk Study and Site Investigation Report (Ref: 3410 19 11 08 Rpt 02 Rev A NA GS) and Interpretive Geotechnical Report (3410 19 11 08 Rpt 03 Rev A NS GS) have also been produced by SEC under a separate covers. These reports should be read in conjunction with this report for a fuller understanding of the ground conditions on site.

2.0 Site Location and Description

- 2.1 The site was located immediately adjacent to the south west of the B2080. The site was centred approximately on Ordnance Survey (OS) National Grid Reference 600147, 127385 (See Appendix A, Figure 1 – Site Location plan).
- 2.2 The site comprised a vacant plot of land which formed a rectangular shaped plot. At the time of our investigation vegetation which previously covered the site had been removed which appeared to have resulted in the reduction of ground level across the site by ~100mm – 200mm below the original level. We note therefore that the ground level data presented on the existing topographic drawing (ref: 06918_XREF_TOPO_P00_1) dated Aug 2019 indicates a different ground level than that currently on site. A temporary access road consisting of imported MOT and road planning materials had also been constructed along the north eastern boundary of the site. A small stream was identified along the western boundary of the site. A small shed was identified in the south western corner of the site and was overgrown with vegetation. The vegetation scrape and removal across the site resulted in exposed ground which had become soft with deep ruts that appeared to have been caused by plan movements around the site. A former canal was noted to run direct through the middle of the site orientated southeast to northwest (see Appendix B for Site Photos).

3.0 Geology

- 3.1 Geological records for the site were obtained from the Geological Survey of Great Britain (England and Wales) Sheet 305 & 306 Solid and Drift Edition (1:50,000) and British Geological Survey (BGS) website, publicly available boreholes published on the BGS website and the local BGS Geological Memoir.
- 3.2 The BGS geological website map indicated that the site is underlain by a bedrock geology comprising the Hastings Beds (interbedded Clay, Silt, Siltstone, Sand and Sandstone) with overlying superficial deposits comprising Tidal Flat Deposits (unconsolidated sediment of Clay, Silt, Sand and Peat).
- 3.3 From a brief review of British Geological Survey borehole records a borehole ~2.75km to the south west of the site (BGS ref: TQ92NE2) that records surface alluvium up to 5.48m bgl, over light blue Sand up to 14.63m bgl, over dark blue clay up to 32.92m bgl, over light grey Sand up to 40.54m bgl, over blue clay up to 50.60m bgl, over rock up 52.43m bgl, over dark blue clay up to 55.17m bgl (see Appendix C for BGS Borehole Records).

4.0 Scope of Fieldwork

- 4.1 Fieldwork was conducted in general accordance with the British Standard 5930:2015, "Code of Practice for Ground Investigations" and Eurocode 7, BSEN ISO 1:2002 and 2:2004. No previous reports were made available to us prior to the Site Investigation work.
- 4.2 The scope of work proposed for the Site Investigation generally included the following:
- Full time site supervision by a suitably qualified and experienced Geo-Environmental Engineer to record ground conditions to BS5930 / Eurocode 7 and CIRIA 574, collect samples and document the investigation;
 - Conduct of 10 no. hand dug inspection pits to 1m bgl including the use of a CAT (Cable Avoidance Tool) prior to drilling to help reduce the risk/ damage to buried services and manage safety;
 - Conduct of 6no. mini boreholes (WS01 –WS06) up to 6m bgl using a Continuous Dynamic Sampler (CDS) drill rig with in-situ SPTs/CPTs at 1m intervals and dynamic probing up to 8m bgl;
 - Conduct of 1no. deep borehole (BH01) up to 20m bgl using a Cable Percussive drilling rig within in-situ SPTs/CPTs;
 - Conduct of 3no. trial pits up to 3m bgl using a mechanical excavator;
 - The installation of ground gas / water monitoring pipework (both standpipes and piezo meter pipes);
 - The conduct of 1 no. groundwater monitoring visit to record the groundwater level on site;
 - Geotechnical laboratory analysis of recovered samples for a range of tests suitable to the ground conditions encountered including (but not limited to); Natural Moisture Content, Plasticity Values, PSDs, Sulphates and pH;
 - Production of a Preliminary Factual Geotechnical Site Investigation Report and a Preliminary Interpretive Geotechnical Report (provided separately).
- 4.3 Approximate exploratory hole locations are shown on the appended Exploratory Hole Location Plan (see Appendix A Figure 4 for Exploratory Hole Location Plan).

5.0 Ground Conditions

- 5.1 SEC attended site on the 14th and 16th October 2019 to conduct the investigation fieldwork;
- 5.2 Approximate exploratory hole locations are shown on the appended Exploratory Hole Location Plan (see Appendix A Figure 4 for Exploratory Hole Location Plan).
- 5.3 Only 1no. of the mini boreholes (WS03) achieved the target depth of 6m bgl. The remainder of the mini boreholes (WS01, WS04 and WS06) were not drilled expect for WS02 which was terminated at 3.45m bgl. It was proposed to complete the mini boreholes in a single date however given the challenging ground conditions encountered on site and the casing became stuck in both mini boreholes drilled which hindered progress. The 1no. deep borehole however reached the target depth of 20m bgl. All hand dug trial pits achieved the target depth of 0.5m bgl
- 5.4 Full details of the ground conditions encountered are presented within the Exploratory Hole Records appended to this report (see Appendix D for Exploratory Hole Records). However, the strata encountered have been summarised below;
- 5.5 Made Ground:

Made Ground was only encountered in TP01 and was proven up to 0.5m bgl. The Made Ground generally comprised slightly sandy gravelly Clay with various inclusions of brick, concrete and cement bonded asbestos sheeting fragments.

Made Ground across the site appeared to have been removed at exploratory hole locations as a result of the vegetation clearance work conducted prior to our attendance.

- 5.6 Natural Strata:

Natural deposits beneath the Made Ground generally comprised a silty Clay / sandy Clay proven to a maximum depth of 3.3m bgl (WS03 and BH01).

Beneath the silty Clay / sandy Clay a Peat was identified and proven to a maximum depth of 4.7m bgl (WS03)

Beneath the Peat a Sand was identified and proven to a maximum depth of 20m bgl (BH01).

- 5.7 Groundwater was encountered within BH01 at 5.2m bgl during drilling and groundwater seepages were recorded in TP01 (N) and TP02 (S) at 2.7m and 3m bgl respectively during excavation of the exploratory holes.

Groundwater levels within the boreholes drilled were monitored on 6th November 2019 and 20th November 2019 and groundwater was recorded between 1.50m bgl (WS03) and 2.17 bgl (BH01b).

- 5.8 In-Situ standard penetration testing was undertaken within the exploratory holes drilled and shear vane testing was undertaken within excavated trial pits. The results are presented within a table in Appendix E together with the SPT and shear vane calibration certificates for the drill rigs and shear vane used.

DRAFT

6.0 Laboratory Test Results

Geotechnical Testing

6.1 The following geotechnical laboratory analysis was conducted at an independent geotechnical laboratory in accordance with British Standards Methods of Test for Soils for Civil Engineering Purposes, BS 1377 (1990) to determine engineering parameters (see Appendix F for Laboratory Data):

- 3 No. soil samples were analysed for Particle Size Distribution;
- 6 No. soil samples were analysed for 1 point Atterberg Limits;
- 1 No. soil sample was analysed for 4 point Atterberg Limits;
- 19 No. soil samples were analysed for Natural Moisture Content;
- 11 No. soil samples were analysed for Total Sulphates;
- 14 No. soil samples were analysed for pH; and
- 4 No. soil samples were analysed for 2:1 Water Soluble Sulphates

Particle Size Distribution

6.2

Exploratory Hole	Depth Range (m)	Cobble %	Gravel %	Sand %	Fine %	D60	D30	D10	Cu	Cc
BH01	4.5	0	4.2	18.6	77.2	-	-	-	-	-
BH01	7.0	0	0.8	89.3	9.9	0.167	0.105	0.0631	2.6	1
BH01	19.50	0	0.5	74.7	24.7	0.167	0.0791	-	-	-

Cu = Coefficient of Uniformity Cc = Coefficient of Curvature

Atterberg Limits and Moisture Contents

6.3 Moisture Contents were identified to range between 22% (TP03 (N) at 0.4m bgl) and 336% (WS03 at 3.5m bgl)

6.4 1 point Plasticity Indices were identified to range between 10% (BH01 at 18m bgl) and 35% (WS03 at 2.5m bgl).

6.5 4 point Plasticity Indices were identified up to 88% (BH01 at 3.5m bgl).

Concrete Aggressive Chemicals Tests and pHSoil

- 6.6 Total Sulphate results were recorded to range between 0.05% (WS06 at 0.7m bgl) and 0.32% (TP01 (N) at 0.3m bgl).
- 6.7 Water soluble sulphate concentrations were recorded to range between <0.01g/l (WS06 at 0.7m bgl) and 0.63g/l (WS03 at 3.8m bgl)
- 6.8 The pH of the soils were recorded to range between 7.5 (WS04 at 0.15m bgl) and 8.3 (WS06 at 0.7m bgl).

Groundwater

- 6.9 Sulphate as SO_4 was recorded between 49mg/l (BH01b) and 5780mg/l (WS03 and pH was recorded up to 7.7.

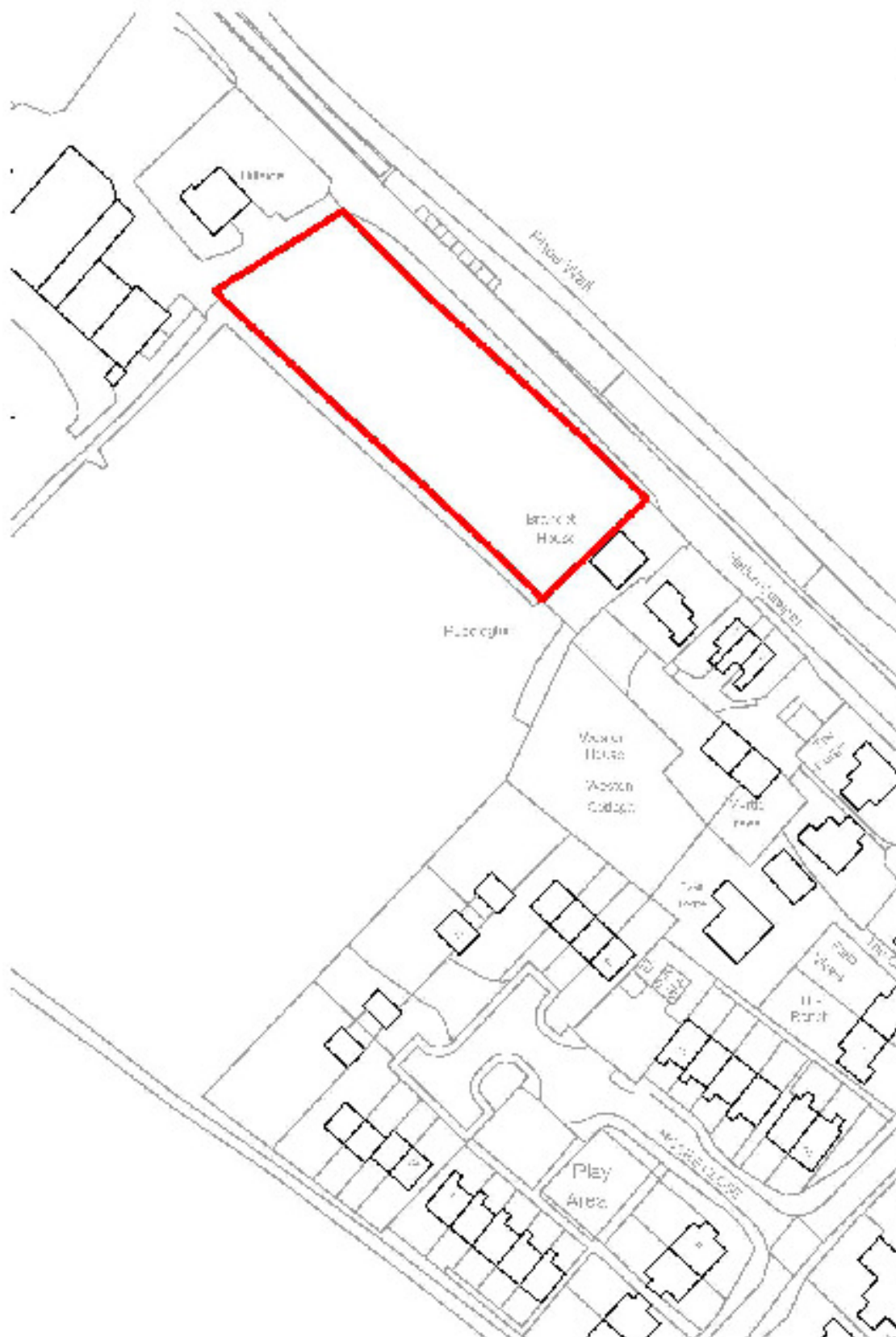
7.0 General Limitations and Exceptions

1. The advice given in this report with respect to contaminated land/pollution is based on the guidelines available at the time of writing.
2. This report does not include for an assessment of above-ground structures on site for the presence of potential asbestos containing materials.
3. The Client is advised that the conditions observed on site by SEC at the time of the investigation or assessment are subject to change. Certain indicators of the presence of hazardous substances may have been latent at the time of the most recent site reconnaissance or investigation and they may subsequently have become observable.
4. Comments made relating to land gas or groundwater conditions are based on observations made at the time of an investigation unless otherwise stated. However, land gas or groundwater conditions may vary as a result of seasonal or other effects. It would be prudent to conduct groundwater monitoring.
5. This assessment may be subject to amendment in light of additional information becoming available.
6. The findings and opinions conveyed in this report are based on information obtained from a variety of sources, including that from chemical testing laboratories, and which SEC has assumed are correct. Nevertheless, SEC cannot and does not guarantee the authenticity or reliability of the information it has relied upon. SEC can accept no responsibility for inaccuracies within the data supplied by other parties.
7. This report is written in the context of an agreed scope of work between SEC and the Client and should not be used in a different context. In light of additional information becoming available, improved practices and changes in legislation, amendment or re-interpretation of the assessment or report in whole or part may be necessary after its original submission.
8. This report is provided for sole use by the Client and is confidential to them. No responsibility whatsoever for the contents of the report will be accepted to anyone other than the Client.
9. SEC believes that providing information about limitations is essential to help the Client identify and thereby manage risks.
10. The copyright of written materials supplied shall remain the property of SEC but with a royalty free perpetual licence, granted to the Client on payment in full of any outstanding monies.
11. SEC does not provide legal advice and the advice of the Client's legal advisors may also be required.

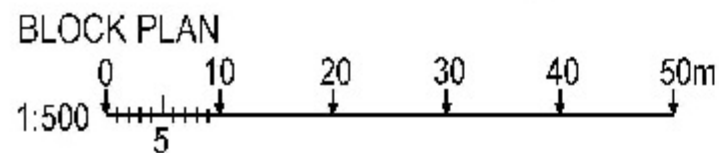
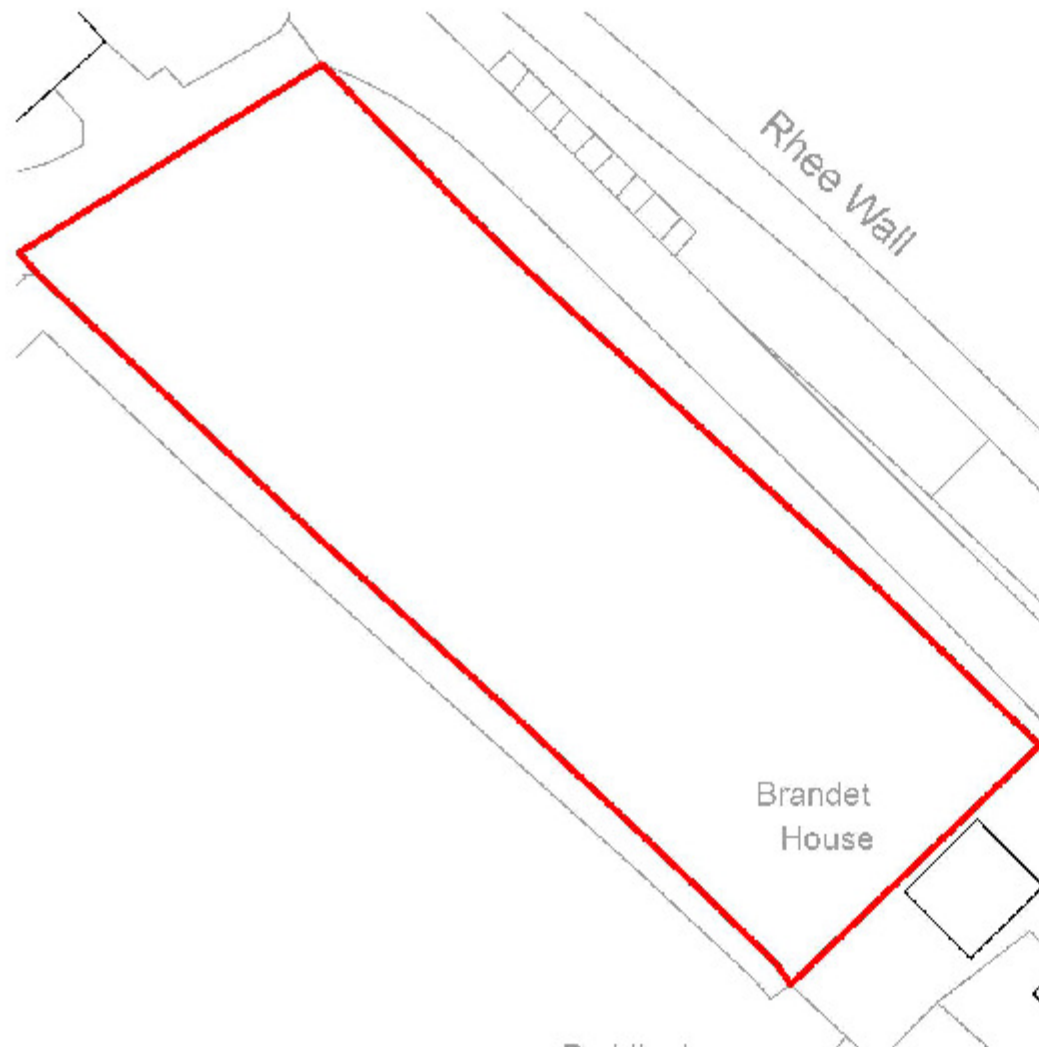
12. No allowance has been made in this report for testing which may be required for waste categorisation prior to the removal of any material from site for disposal.
13. The report is issued on the condition that SEC will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the boreholes or trial pits which have not been shown by the borehole, trial pits or other tests carried out during the investigation.
14. In addition, SEC will not be liable for any loss whatsoever arising directly or indirectly from any opinion given on the possible configuration of strata both between the borehole and/or trial pit positions and/or below the maximum depth of the investigation. Such opinions, where given, are for guidance only.
15. No person other than the client to whom this report is addressed, shall rely on it in any respect and no duty of care shall be owed to any such third party.
16. Copyright of this Report remains with SEC and in addition we will not accept any responsibility for the report and recommendations given until our invoice is settled in full.
17. It should be noted that the Made Ground depth recorded above is that encountered within the trial pits and exploratory holes undertaken during the phase of work to which this report pertains. Owing to the variable nature and unknown deposition criteria of Made Ground it is possible that deeper or more extensive areas of Made Ground may exist at this site which has not been revealed by the current work.

Appendix A

Figures



SITE: Land Adjacent to Brandet House, Brenzett, Romney Marsh, TN29 9UG	SCALE: NTS	JOB #: 3410	 SEVENOAKS ENVIRONMENTAL CONSULTANCY
FIGURE TITLE: Site Location Plan	REV: 01	FIGURE #: 01	



Crown Copyright. Licence Number 100040584. All rights reserved.
This map is not to be relied upon for accuracy and is for identification

SITE: Land Adjacent Brandet House, Brenzett, Romney Marsh, TN29
9UG

SCALE: NTS

JOB NO: 3410

FIGURE TITLE: Existing Site Layout Plan

REV: 01

FIGURE NO: 02

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Appendix B

Site Photographs



Photo 1 – View of site looking south



Photo 2 – View of the temporary access road looking north



Photo 3 – Soil arising from HP01 between 0 – 5m bgl



Photo 4 – Disturbed samples from WS03



Photo 5 – Soil core sample from WS02 between 1.0m and 2.0m bgl

Appendix C

BGS Borehole Records

Visited. C.D. + 8

Bore still in use for domestic supply of Poston Hall + adjacent farm + has been used by present owner since 1935

Water not brackish, though cloudy.

R.W.L. 2 ft above well-top.

Electric pump - capacity not known.

3-6-58 BH.

Alternative version given to Maj. J. R. Ainslie (owner) by Mullins over telephone:

surface alluvium	thickness (ft)	depth
light blue sand - brackish water	18	18
dark blue clay	30	48
light grey sand - brackish water	60	108
blue clay	25	133
rock - ample fresh water	33	166
dark blue clay	6	172
rock.	9	181
	10+	

"At 193* feet an ample supply of fresh water was struck; the water is very soft and is stated to have a hardness of 2.6 p.p.m. It is under sufficient pressure to bring it to about a foot above the surface." (WE/305/Romney Marsh. 8.1.49. Maj. J. R. Ainslie)

* this depth does not agree with log.

Appendix D

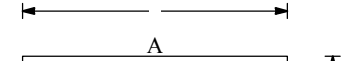
Exploratory Hole Records

TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No HP01
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

The figure shows a blank 4x4 grid. The columns are labeled A, B, C, and D from left to right. The rows are labeled 0, 1, 2, and 3 from top to bottom. To the right of the grid is a legend box containing a hatched pattern, which corresponds to the 'Hatched' category in the data table.

[illegible]

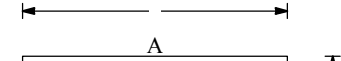
Shoring/Support: Stability: 	GENERAL REMARKS

TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No HP02
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

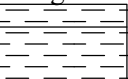
The figure shows a blank 4x4 grid. The columns are labeled A, B, C, and D from left to right. The rows are labeled 0, 1, 2, and 3 from top to bottom. To the right of the grid is a legend. The legend consists of a vertical rectangle divided into four horizontal sections. The top section is filled with a hatched pattern, corresponding to the top row of the grid. The other three sections are empty, corresponding to the other three rows of the grid.

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Soft brown slightly gravelly slightly sandy Clay with fine to coarse sub angular flint fragments and frequent rootlets	0.15	D	
0.25-0.50		Soft to firm light brown sandy CLAY	0.40	D	

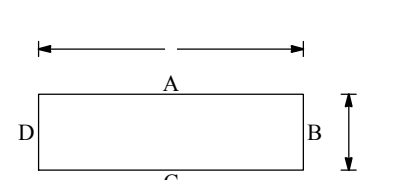
Shoring/Support: Stability: 	GENERAL REMARKS

TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No HP03
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

0	A	B	C	D	0	Legend 
1					1	
2					2	
3					3	
4					4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.15		Soft brown slightly gravelly slightly sandy Clay with fine to coarse sub angular flint fragments and frequent rootlets	0.10	D	
0.15-0.50			0.30	D	

Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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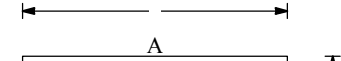
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Hand digging tools	Logged By NA
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No HP04
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

The figure shows a blank 4x4 grid. The columns are labeled A, B, C, and D from left to right. The rows are labeled 0, 1, 2, and 3 from top to bottom. To the right of the grid is a legend. The legend consists of a vertical rectangle divided into four horizontal sections. The top section is filled with a hatched pattern, corresponding to the top row of the grid. The other three sections are empty, corresponding to the other three rows of the grid.

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Soft brown slightly gravelly slightly sandy Clay with fine to coarse sub angular flint fragments and frequent rootlets	0.20	D	
0.25-0.50		Soft to firm light brown sandy CLAY			

Shoring/Support: Stability: 	GENERAL REMARKS

All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Hand digging tools	Logged By MB
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WINDOW SAMPLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				Window Sample No WS01
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

[illegible]

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
All dimensions in metres Scale 1:50		Client Graeme Smith				Method/ Plant Used Hand digging tools					Logged By NA

WINDOW SAMPLE LOG 3410 - LAND ADJACENT TO BRANDET HOUSE.GPJ AGS3 ALL.GDT 22/11/19

WINDOW SAMPLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				Window Sample No WS02
Job No 3410	Date 14-10-19 14-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

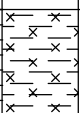
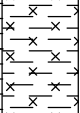
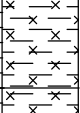
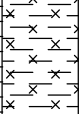
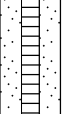
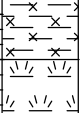
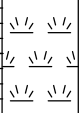
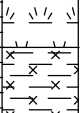
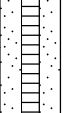
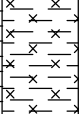
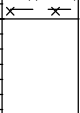
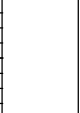
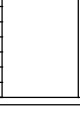
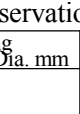
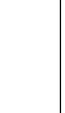
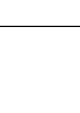
SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		
0.10	D	7 blows			0.25	Soft brown slightly gravelly slightly sandy CLAY with fine to coarse sub angular flint fragments and frequent rootlets		
0.60	D					(2.35)	Soft to firm light brown slightly sandy silty CLAY	
1.00	SPT							
1.50	D							
2.00	SPT	6 blows			2.60			
2.30	D							
2.80	D	4 blows			(0.40) 3.00	Firm grey slightly sandy silty CLAY with occasional inclusions of fibrous wood (organic matter)		
3.00	SPT					(0.45) 3.45	Soft dark grey PEAT	
						Borehole completed @ 3.45m bgl		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No groundwater encountered
All dimensions in metres Scale 1:50						Client Graeme Smith		Method/ Plant Used Hand digging tools & CDS Rig		Logged By NA	

WINDOW SAMPLE LOG 3410 - LAND ADJACENT TO BRANDET HOUSE GPJ AGS3 ALL GDT 22/11/19

WINDOW SAMPLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				Window Sample No WS03
Job No 3410	Date 14-10-19 14-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.20	D	10 blows				(2.00)	Soft to firm brown slightly sandy CLAY with frequent rootlets @ 0.8m bgl becomes organish brown and no rootlets identified		
0.70	D								
1.00	SPT								
1.50	D	2 blows				2.00	Firm grey silty CLAY with inclusions of fibrous wood (organic matter)		
2.00	SPT								
2.50	D								
3.00	SPT	2 blows				3.30	Soft dark grey PEAT @ 3.6 becomes reddish brown		
3.20	D								
3.50	D								
3.80	D	3 blows				(1.40)			
4.00	SPT								
4.40	D								
4.80	D	4 blows				(1.30)	Firm grey silty CLAY		
5.00	SPT								
5.50	D								
						6.00	Borehole completed @ 6m bgl		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To	
											No groundwater encountered
All dimensions in metres Scale 1:50			Client Graeme Smith			Method/ Plant Used Hand digging tools & CDS Rig			Logged By NA		

WINDOW SAMPLE LOG 3410 - LAND ADJACENT TO BRANDET HOUSE GPJ AGS3 ALL GDT 22/11/19

WINDOW SAMPLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				Window Sample No WS04
Job No 3410	Date 14-10-19 14-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

[illegible]

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No groundwater encountered Drilling was not conducted
All dimensions in metres Scale 1:50		Client Graeme Smith				Method/ Plant Used Hand digging tools					Logged By NA

WINDOW SAMPLE LOG 3410 - LAND ADJACENT TO BRANDT HOUSE.GPJ AGS3 ALL.GDT 22/11/19

WINDOW SAMPLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				Window Sample No WS06
Job No 3410	Date 14-10-19 14-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

[illegible]

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
All dimensions in metres Scale 1:50		Client Graeme Smith				Method/ Plant Used Hand digging tools					Logged By NA

BOREHOLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				BOREHOLE No BH01	
Job No 3410	Date 14-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.30 0.50	D D						Soft to firm brown slightly sandy silty CLAY with occasional fine to coarse sub angular flint fragments		
1.00 1.00	D SPT	4 blows			(2.70)				
1.50	D								
2.00 2.00	D SPT	4 blows				2.70	Soft grey sandy CLAY		
2.50	D								
3.00 3.00	D SPT	4 blows			(0.60) 3.30				
3.50	D				(0.60)	3.90	Soft dark brown sandy fibrous PEAT with abundant organic matter and a strong sulphurous odour		
4.00 4.00	D SPT	0 blows					Soft to firm bluish grey sandy CLAY with slight organic odour		
4.50	D								
5.00 5.00	D DBSVI	3.86 blows			(2.90)				
6.00	D						Loose to medium dense bluish grey slightly clayey SAND @18m bgl becomes very clayey SAND Borehole completed at 20m bgl		
6.50	DBSVI	2.98 blows				6.80			
7.00	D								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater encountered at 5.2m bgl Blowing sands were encountered at 6.5m bgl
All dimensions in metres Scale 1:50			Client Graeme Smith			Method/ Plant Used Hand digging tools & Cable Percussive Rig			Logged By NA / SDW		

BOREHOLE LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				BOREHOLE No BH01	
Job No 3410	Date 14-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 2 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
8.00 8.00	D SPT	10 blows					Loose to medium dense bluish grey slightly clayey SAND @18m bgl becomes very clayey SAND Borehole completed at 20m bgl (<i>continued</i>)		
9.00	D								
9.50	SPT	11 blows							
10.00	D								
11.00 11.00	D SPT	12 blows							
12.00	D								
12.50	SPT	14 blows							
13.00	D								
14.00 14.00	D SPT	11 blows							
15.00	D								
15.50	SPT	20 blows							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater encountered at 5.2m bgl Blowing sands were encountered at 6.5m bgl
All dimensions in metres Scale 1:50			Client Graeme Smith			Method/ Plant Used Hand digging tools & Cable Percussive Rig			Logged By NA / SDW		

BOREHOLE LOG

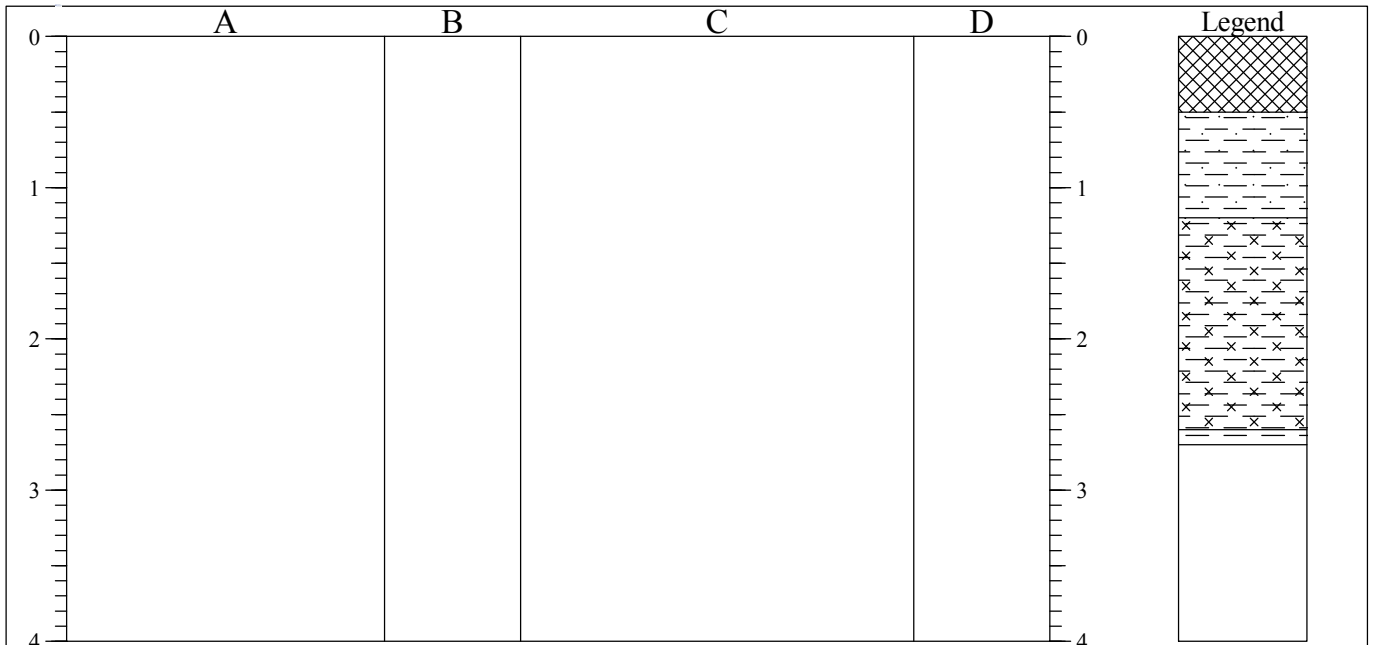
Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				BOREHOLE No BH01	
Job No 3410	Date 14-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 3 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
16.00	D						Loose to medium dense bluish grey slightly clayey SAND @18m bgl becomes very clayey SAND Borehole completed at 20m bgl (<i>continued</i>)		
17.00 17.00	D SPT	15 blows							
18.00	D								
18.50	SPT	8 blows							
19.00	D								
19.50	SPT	5 blows							
						20.00			

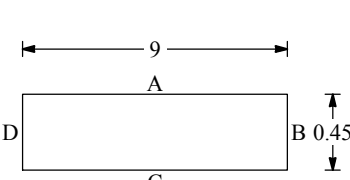
Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater encountered at 5.2m bgl Blowing sands were encountered at 6.5m bgl
All dimensions in metres Scale 1:50			Client Graeme Smith			Method/ Plant Used Hand digging tools & Cable Percussive Rig			Logged By NA / SDW		

TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP01 Central 1	
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd					Sheet 1 of 1



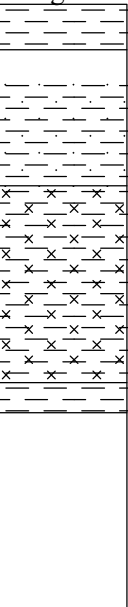
STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.50		MADE GROUND: Brownish grey gravelly fine to coarse Sand with adundant fine to cobble angular brick, concrete, glass and potential cement bonded asbestos sheeting fragments				
0.50-1.20		Firm to stiff light brown sandy CLAY				
1.20-2.60		Soft grey silty CLAY at 2.10m bgl becomes with frequent fine rounded shells discovered				
2.60-2.70		Soft blue CLAY with occasional pockets of organic material (peat)				

Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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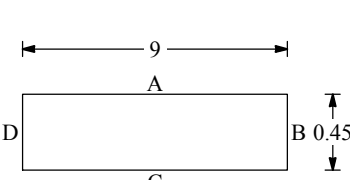
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP01 Central 2	
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1	

A		B		C		D		Legend	
0								0	
1								1	
2								2	
3								3	
4								4	

STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION		Depth	No	Remarks/Tests
0.00-0.30		Soft grey slightly sandy gravelly Clay with abundant fine to coarse rounded flint fragments and occasional rootlets				
0.50-1.20		Firm to stiff light brown sandy CLAY				
1.20-2.50		Soft grey silty CLAY at 2.10m bgl becomes with frequent fine rounded shells discovered				
2.50-2.70		Soft blue CLAY with occasional pockets of organic material (peat)				

Shoring/Support: Stability: 				GENERAL REMARKS No groundwater encountered	
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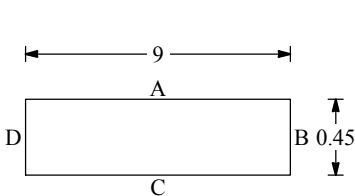
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP01 North
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

A	B	C	D	Legend
0				
1				
2				
3				
4				

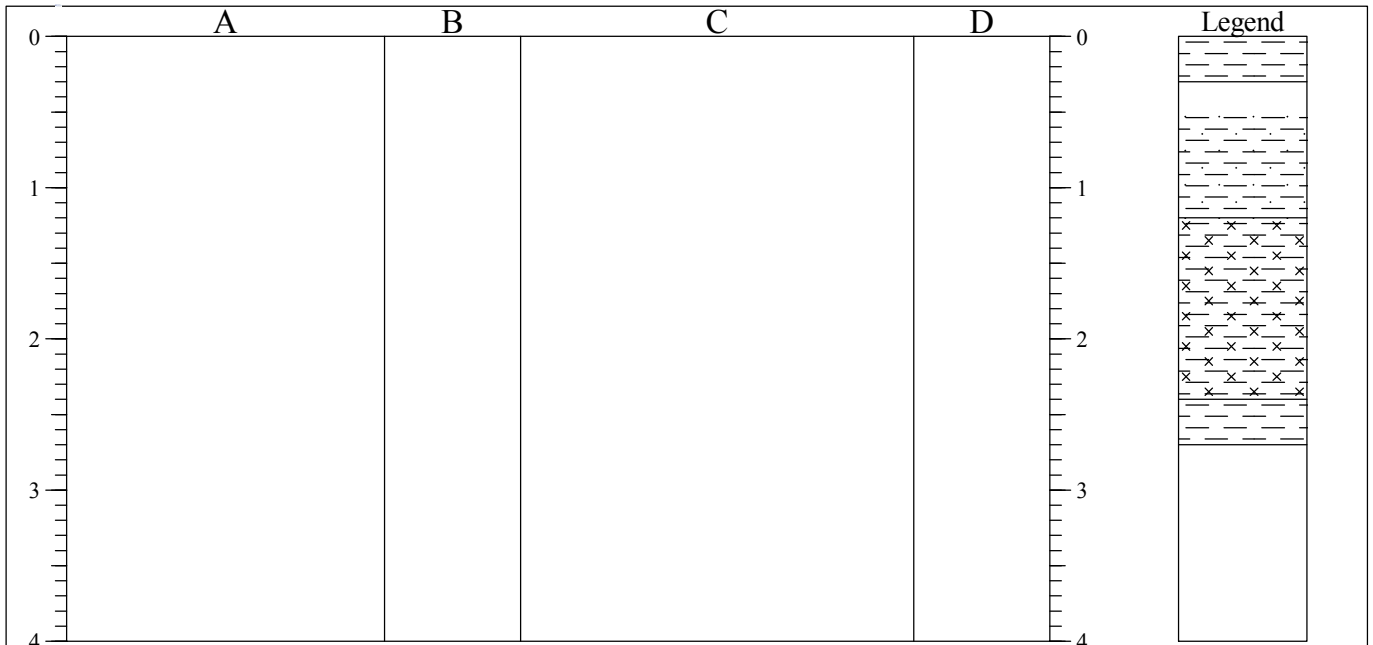
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Brownish grey gravelly fine to coarse Sand with adundant fine to cobble angular brick, concrete, glass and potential cement bonded asbestos sheeting fragments	0.10 0.30	P D	Potential Asbestos fragment
0.50-1.20		Firm to stiff light brown sandy CLAY			
1.20-2.60		Soft grey silty CLAY	1.50	D	
2.60-2.70		Soft blue slightly sandy silty CLAY with occasional pockets of organic material (peat) at 2.10m frequent shells discovered	2.65	D	

Shoring/Support: Stability: 				GENERAL REMARKS Groundwater seepage at 2.7m bgl	
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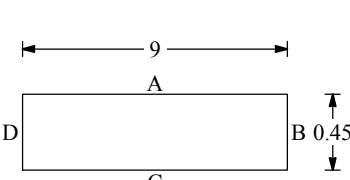
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP01 South	
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd					Sheet 1 of 1



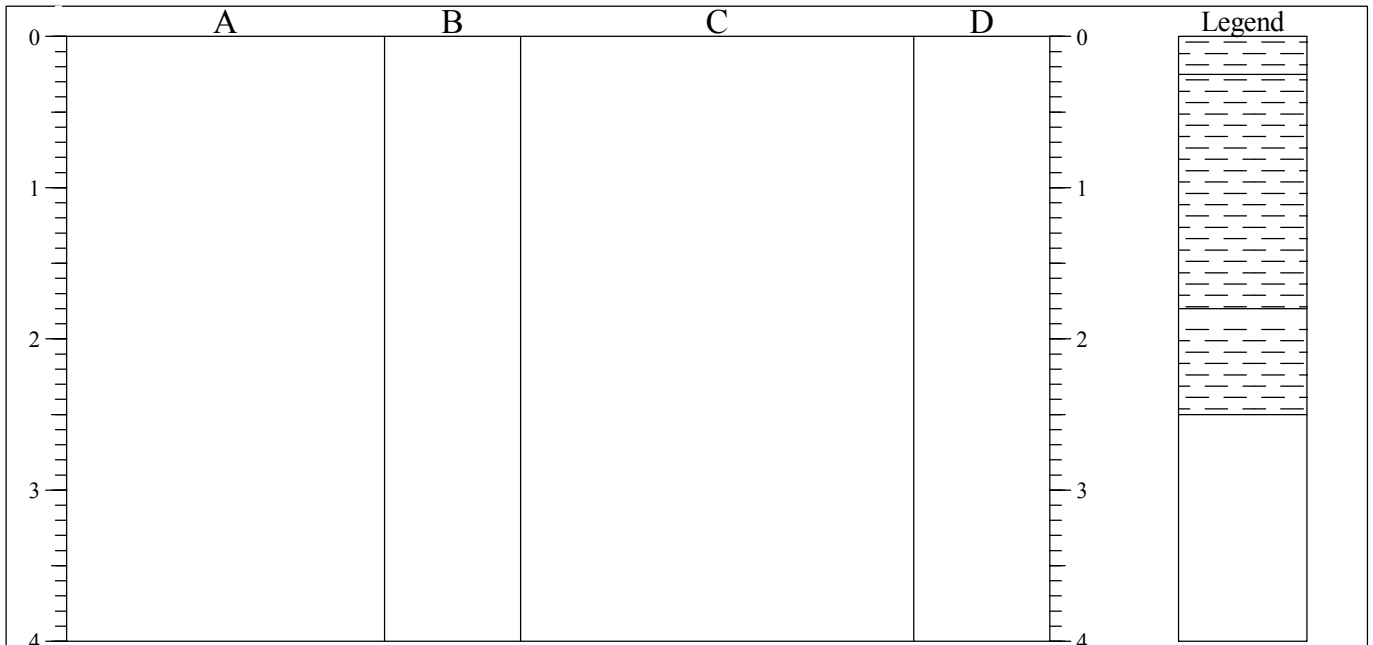
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Soft grey slightly sandy gravelly Clay with abundant fine to coarse rounded flint and occasional rootlets	0.20 0.60 0.90	D	
0.50-1.20		Firm to stiff light brown sandy CLAY		D	
1.20-2.40		Soft grey silty CLAY at 2.10m bgl becomes with frequent fine rounded shells discovered		D	
2.40-2.70		Soft blue CLAY with occasional pockets of organic material (peat)			

Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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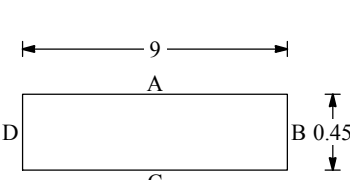
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP02 Central	
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd					Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Soft brown slightly sandy slightly gravelly CLAY with frequent rootlets	0.15 0.50	D	
0.25-1.80		Firm to stiff light brown sandy CLAY		D	
1.90-2.50		Soft grey silty CLAY	1.90	D	
		@2.3m bgl becomes with peat	2.30	D	

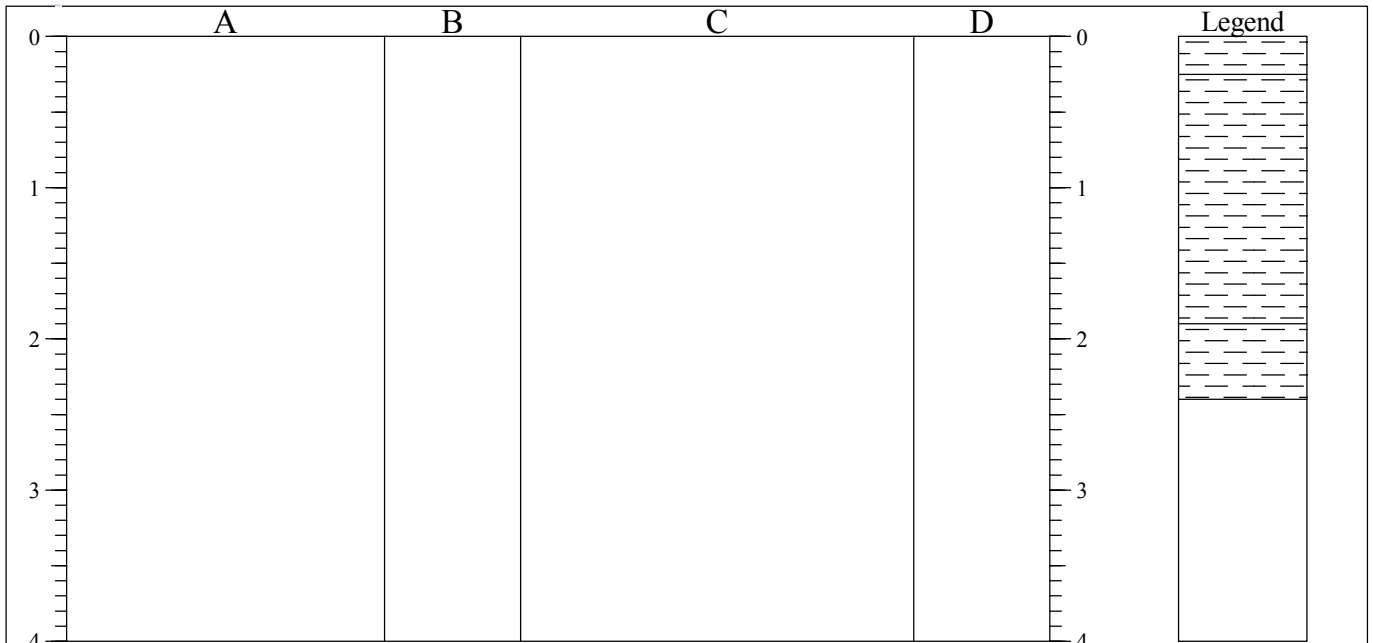
Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By NA
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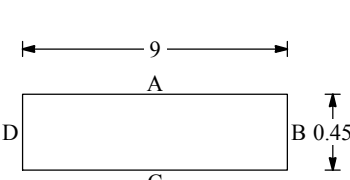
AGS3 UK TP 3410 - LAND ADJACENT TO BRANDET HOUSE.GPJ AGS3_ALL.GDT 22/11/19

TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP02 North	
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd					Sheet 1 of 1



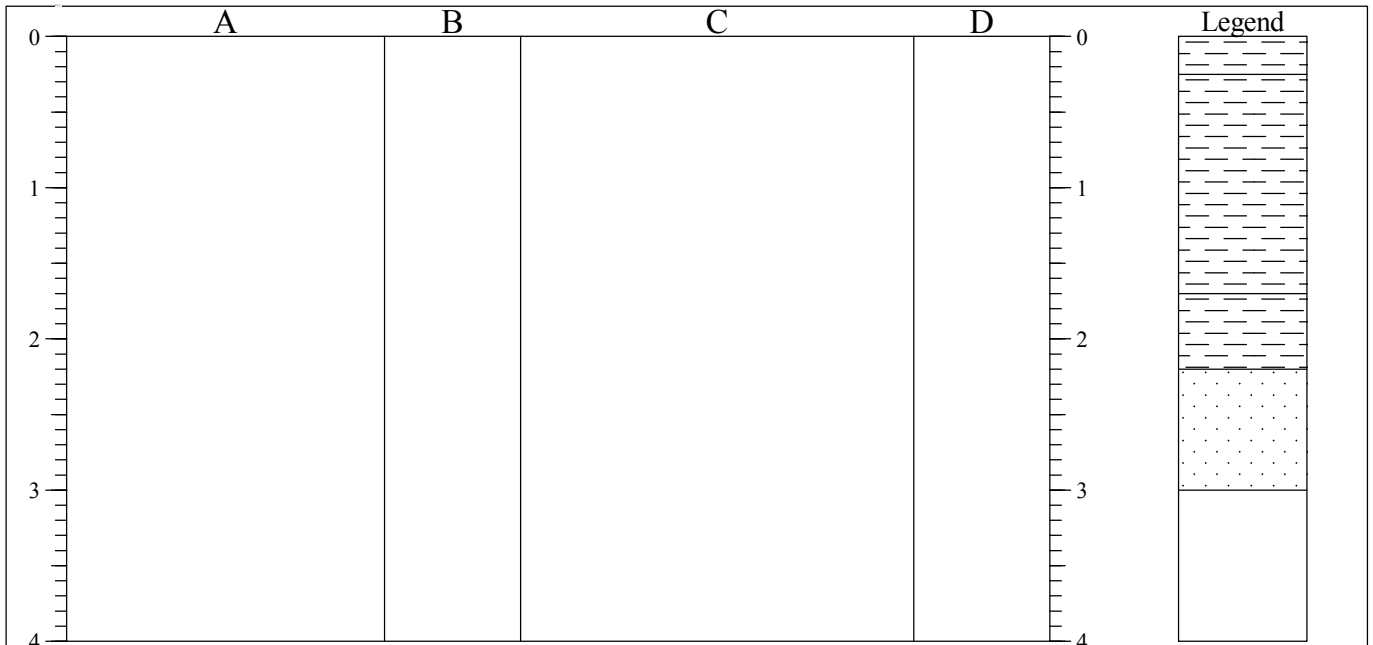
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Soft brown slightly sandy slightly gravelly CLAY with fine to coarse sub angular flint, frequent rootlets and some roots Firm to stiff light brown sandy CLAY	0.15	D	
0.25-1.90			0.50	D	
			1.20	D	
1.90-2.40		Soft grey silty CLAY	2.20	D	

Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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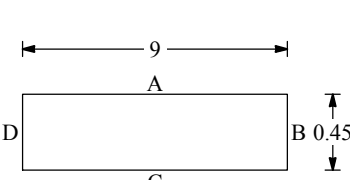
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By NA
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP02 South	
Job No 3410	Date 15-10-19 15-10-19	Ground Level (m)	Co-Ordinates ()		
Contractor Sevenoaks Environmental Consultancy Ltd					Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Soft brown slightly sandy slightly gravelly CLAY with fine to coarse fine to coarse sub angular flint fragments and frequent rootlets			
0.25-1.70		Firm to stiff light brown sandy CLAY			
1.70-2.20		Soft grey silty CLAY	2.00	D	
2.20-3.00		Loose grey slightly clayey SAND	2.40	D	
		@ 2.4m bgl fine rounded shells	2.85	D	
		@ 2.7m bgl becomes blue			

Shoring/Support: Stability: 	GENERAL REMARKS Groundwater seepage at 3m bgl
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All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By NA
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP03 Central
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Soft Grey slightly sandy slightly silty CLAY with frequent rootlets			
0.20-1.00		Firm to stiff light brown sandy CLAY			
1.00-2.25		Soft grey silty CLAY			
2.25-2.50		Soft blue CLAY with occasional pockets of organic material (peat)			

Shoring/Support: Stability: 		GENERAL REMARKS
		No groundwater encountered

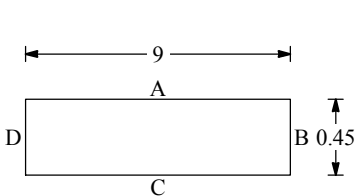
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP03 North
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

A		B		C		D		Legend	
0								0	
1								1	
2								2	
3								3	
4								4	

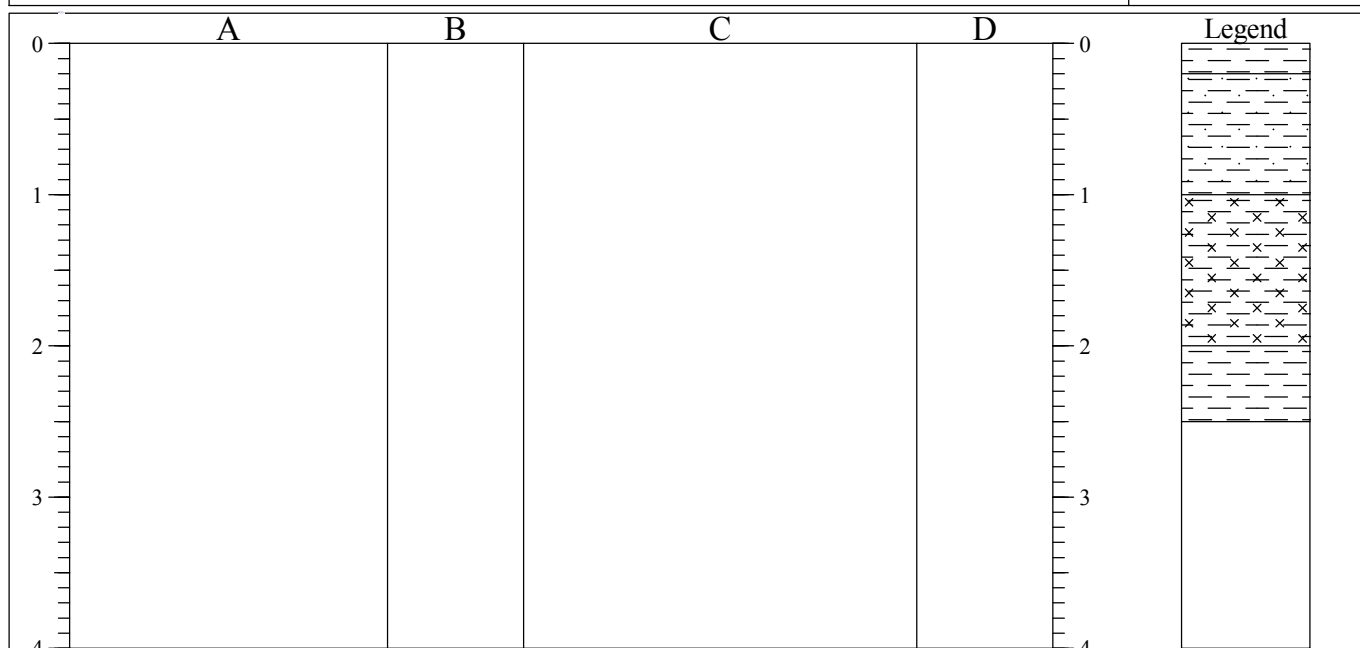
STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION		Depth	No	Remarks/Tests
0.00-0.20		Soft organish brown slightly sandy slightly silty CLAY with frequent rootlets		0.10	D	
0.20-1.00		Firm to stiff light brown silty CLAY		0.40	D	
				0.80	D	
1.00-2.25		Soft grey silty sandy silty CLAY		1.40	D	
				1.90	D	
2.25-2.70		Soft blue sandy silty CLAY with occasional pockets of organic material (peat)		2.30	D	

Shoring/Support: Stability: 				GENERAL REMARKS No groundwater encountered	
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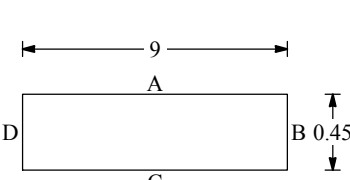
All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP03 South	
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()	Sheet 1 of 1	
Contractor Sevenoaks Environmental Consultancy Ltd					



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Soft Grey slightly sandy slightly silty CLAY with frequent rootlets			
0.20-1.00		Firm to stiff light brown sandy CLAY			
1.00-2.00		Soft grey silty CLAY			
2.00-2.50		Soft blue CLAY with occasional pockets of organic material (peat)			
		at 2.10m frequent shells discovered			

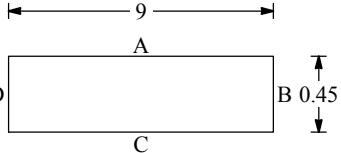
Shoring/Support: Stability: 	GENERAL REMARKS No groundwater encountered
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All dimensions in metres Scale 1:50	Client Graeme Smith	Method/ Plant Used Mechanical Excavator	Logged By SDW
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TRIAL PIT LOG

Project Geotech & GeoEnv Site Investigation at Land Adj Brandet House, Brenzett, Romney Marsh				TRIAL PIT No TP04
Job No 3410	Date 16-10-19 16-10-19	Ground Level (m)	Co-Ordinates ()	
Contractor Sevenoaks Environmental Consultancy Ltd				Sheet 1 of 1

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Soft Grey slightly sandy slightly silty CLAY with occasional rootlets	0.20	D	
0.30-1.20		Firm to stiff light brown sandy CLAY		0.70	
1.20-2.40		Soft grey silty CLAY	1.80	D	
2.40-3.00		Soft blue CLAY with occasional pockets of organic material (peat)	2.50	D	

Shoring/Support: Stability: 		GENERAL REMARKS
		Groundwater seepage at 3m bgl

Appendix E

In-situ Test Results

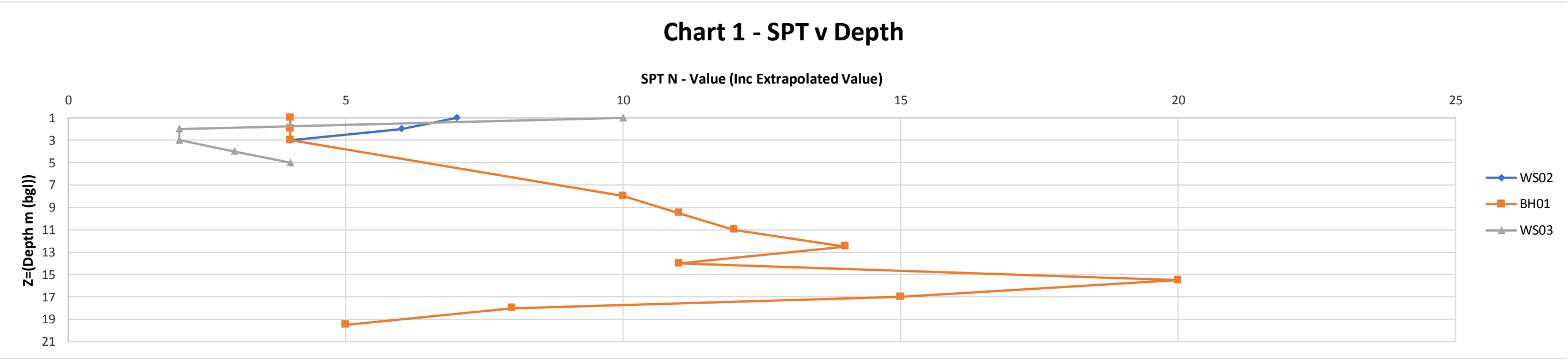


Results	Window Sample SPT/CPT Calibration:	Energy Ratio E/r (%)	71.47
3317			
Site: St Edmunds School, Hindhead			

Location: WS02		No. of blows						Penetration	Total blows (N value)	Extrapolated (N value)
Depth (m bgl)	Test	Seating		Test Drive						
1	SPT	2	3	2	1	2	2	-	7	-
2	SPT	1	1	2	1	2	1	-	6	-
3	SPT	1	1	1	1	1	1	-	4	-

Location: WS03		No. of blows						Penetration	Total blows (N value)	Extrapolated (N value)
Depth (m bgl)	Test	Seating		Test Drive						
1	SPT	1	2	3	2	3	2	-	10	-
2	SPT	1	0	1	0	0	1	-	2	-
3	SPT	1	0	1	0	1	0	-	2	-
4	SPT	0	1	1	1	0	1	-	3	-
5	SPT	1	1	1	1	1	1	-	4	-

Location: BH01		No. of blows						Penetration	Total blows (N value)	Extrapolated (N value)
Depth (m bgl)	Test	Seating		Test Drive						
1	SPT	1	1	1	1	1	1	-	4	-
2	SPT	1	1	1	0	1	2	-	4	-
3	SPT	1	1	1	1	1	1	-	4	-
8	SPT	1	2	3	2	3	2	-	10	-
9.5	SPT	1	2	2	3	3	3	-	11	-
11	SPT	1	1	2	3	4	3	-	12	-
12.5	SPT	1	0	4	2	4	4	-	14	-
14	SPT	1	1	2	3	3	3	-	11	-
15.5	SPT	2	3	4	5	5	6	-	20	-
17	SPT	2	3	4	3	4	4	-	15	-
18	SPT	2	2	3	2	1	2	-	8	-
19.5	SPT	1	1	1	2	1	1	-	5	-



SPT Calibration Report

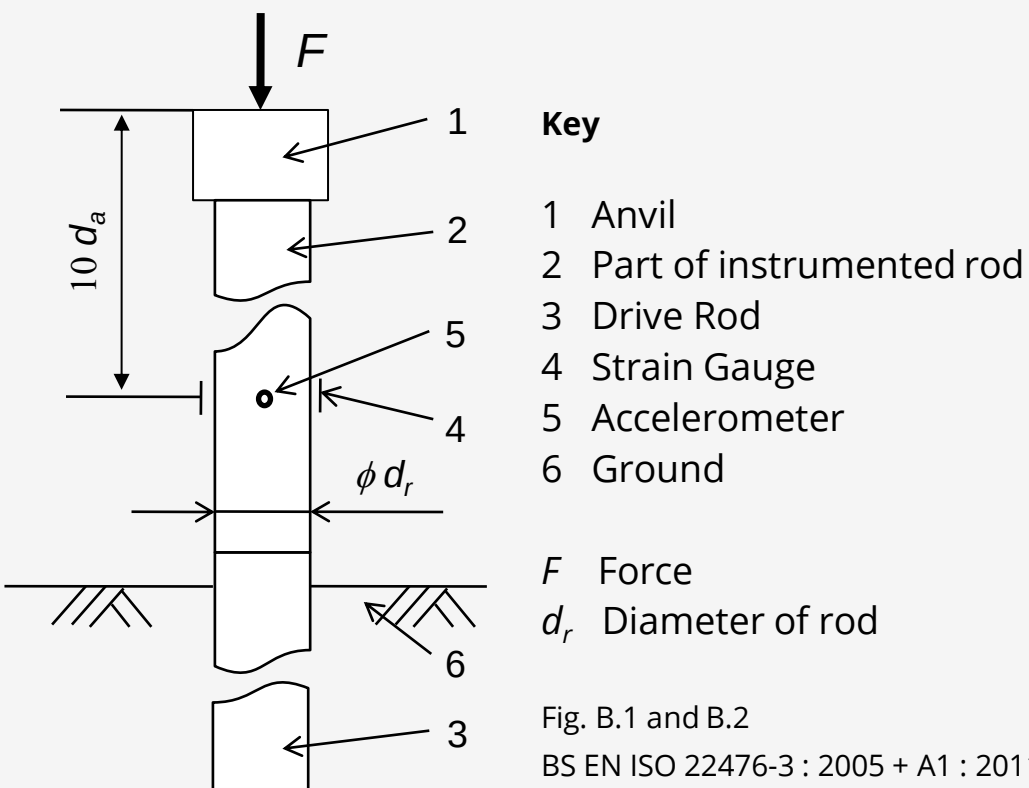
Hammer Energy Measurement Report

Type of Hammer DART
Client JACKSON DRILLING
Test No EQU2198

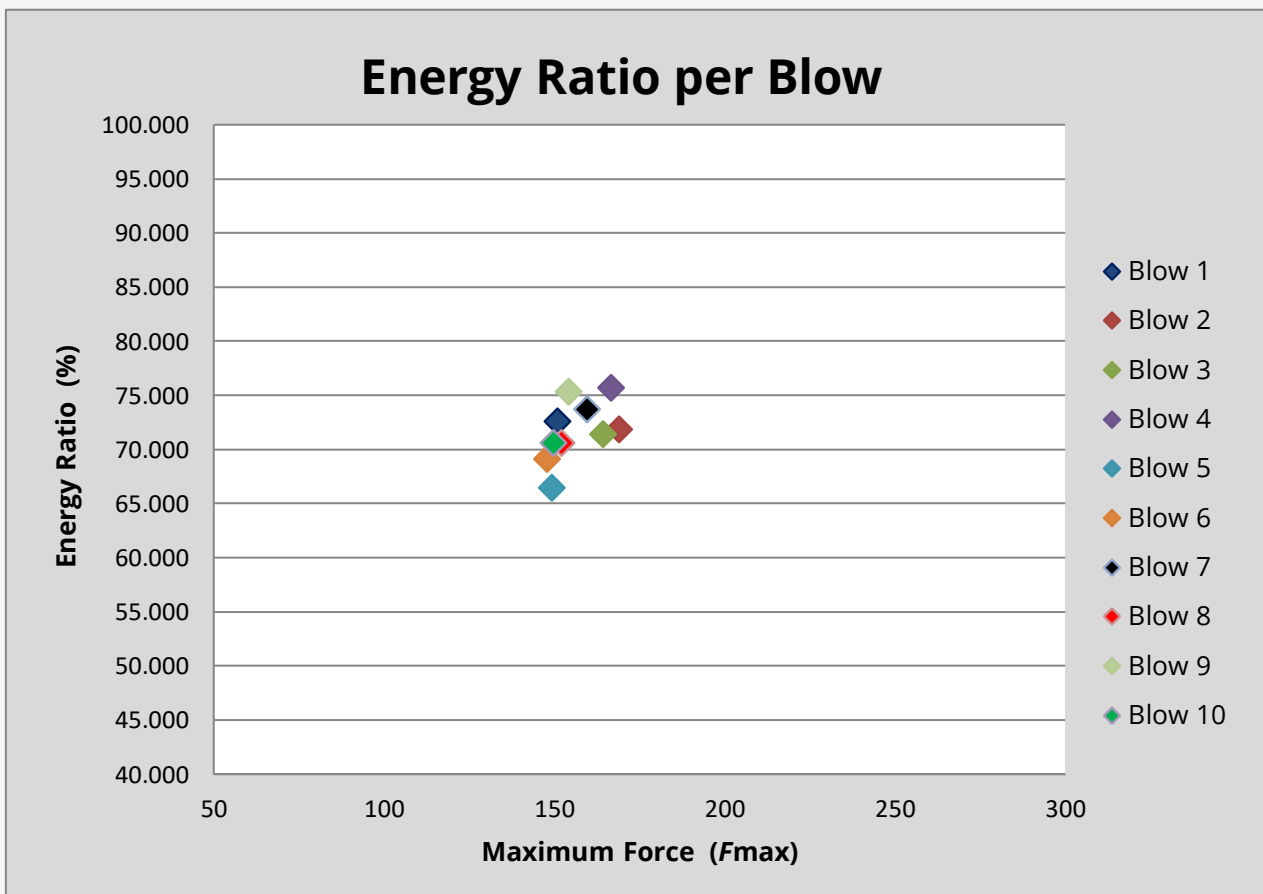
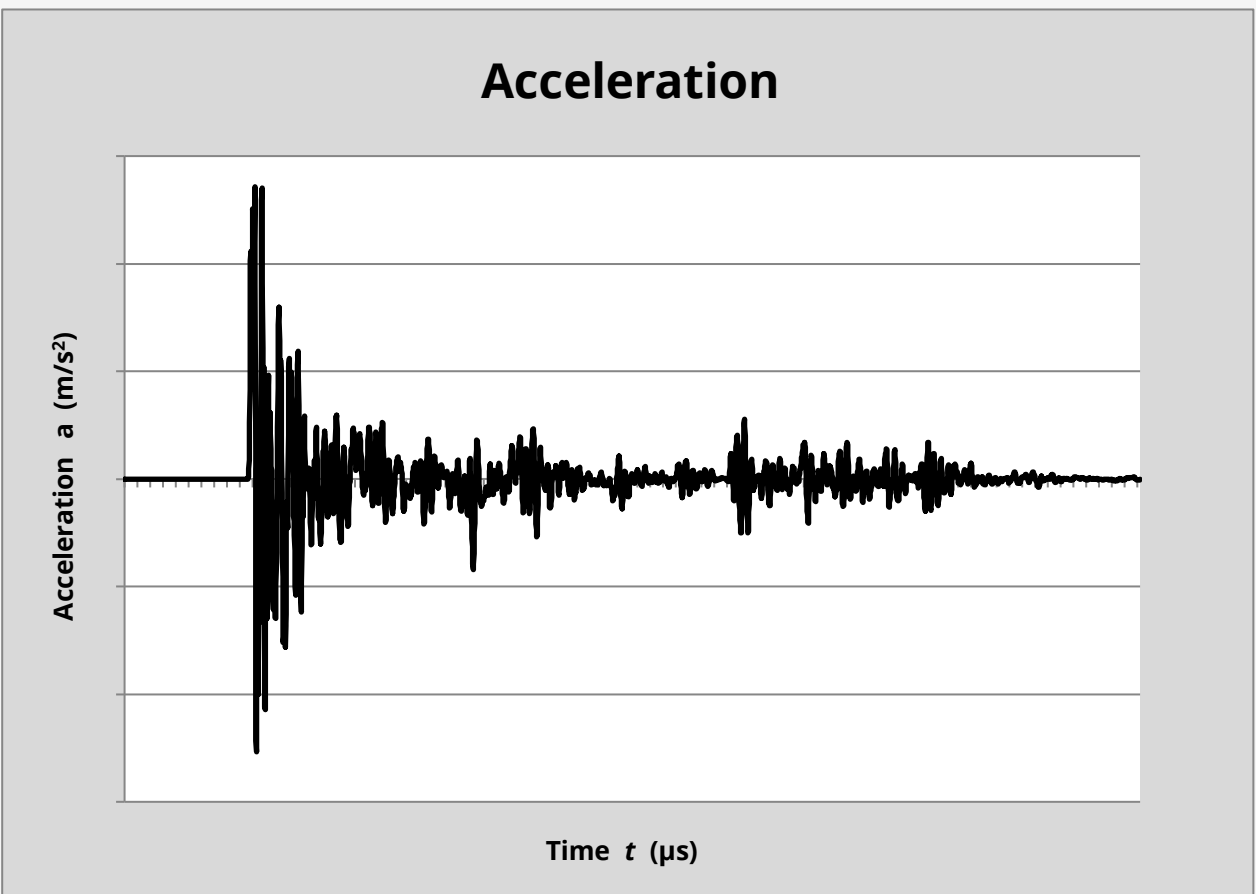
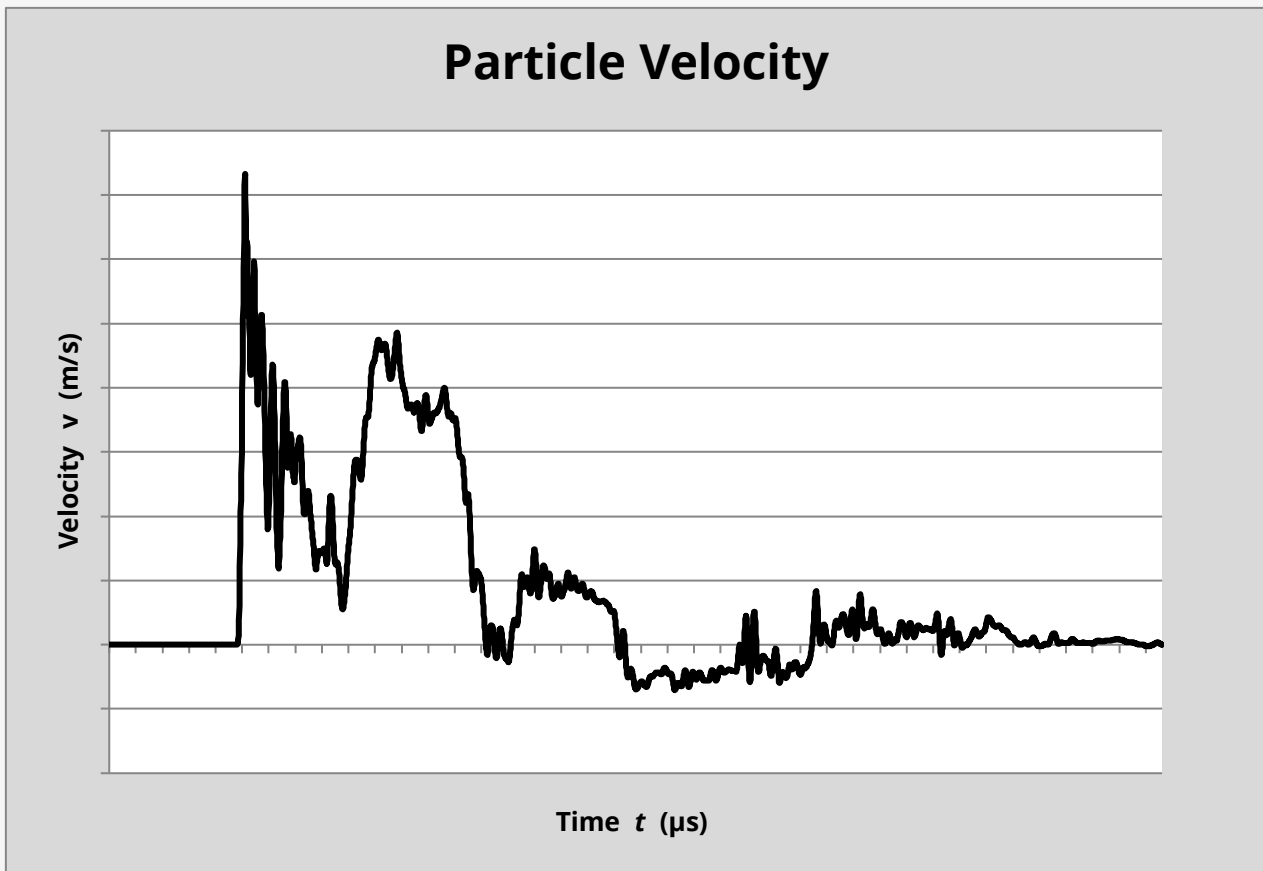
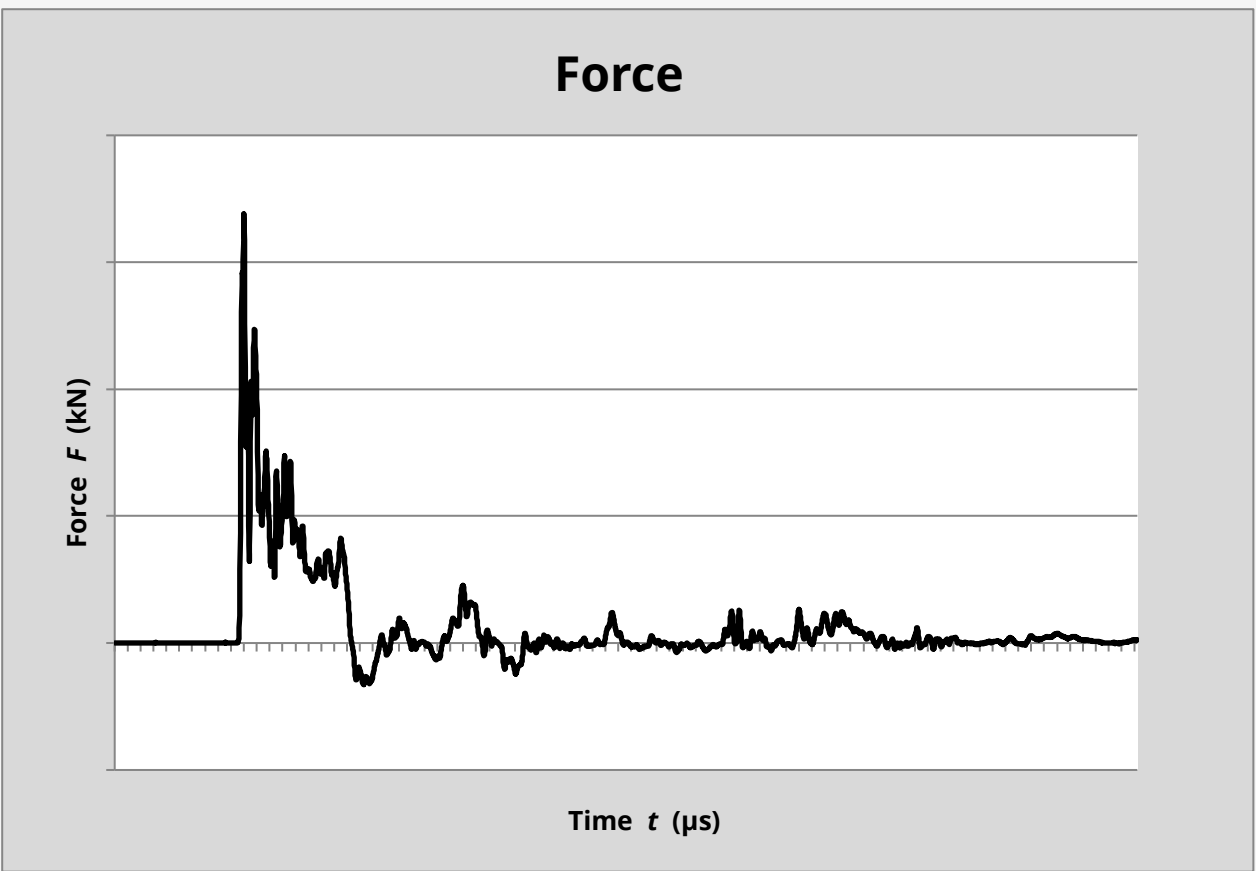
Test Depth (m) 8.40
Mass of hammer $m = 63.5\text{kg}$
Falling height $h = 0.76\text{m}$
 $E_{\text{theor}} = m \times g \times h = 473\text{J}$

Characteristics of the instrumented rod

Diameter $d_r = 0.052\text{ m}$
Length of instrumented rod 0.558 m
Area $A = 11.61\text{ cm}^2$
Modulus $E_a = 206843\text{ MPa}$



DATE OF TEST	VALID UNTIL	HAMMER ID
19/12/2018	19/12/2019	18R



Observations:

1.

$E_{\text{meas}} = 0.338\text{ kN-m}$
 $E_{\text{theor}} = 0.473\text{ kN-m}$

Energy Ratio = $\frac{E_{\text{meas}}}{E_{\text{theor}}}$ **71.47%**

Equipe SPT Analyzer Operators: AF

Prepared by:

[Signature]
20/12/2018

Checked by:

[Signature]
20/12/2018

Date:

20/12/2018

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

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

SPT Hammer Ref: AR2524
Test Date: 27/11/2018
Report Date: 27/11/2018
File Name: AR2524.spt
Test Operator: SH

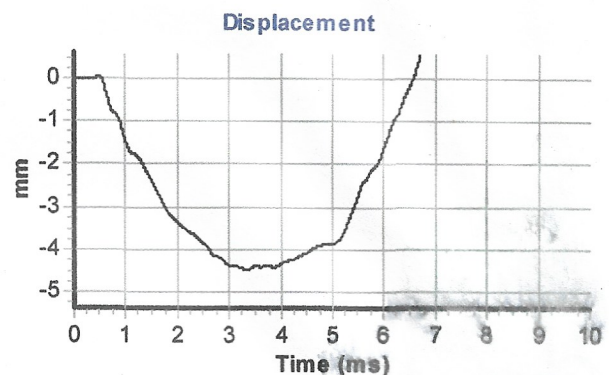
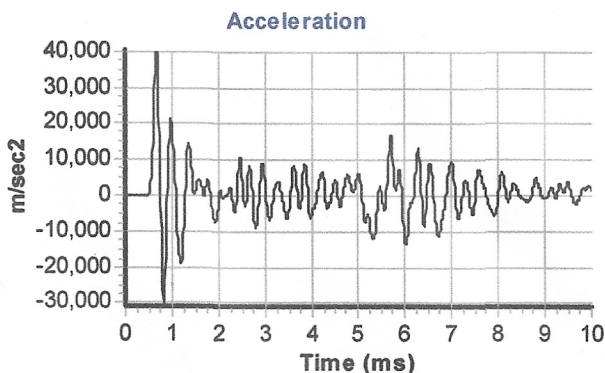
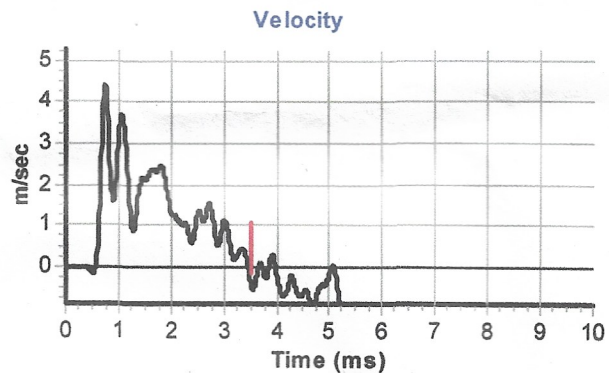
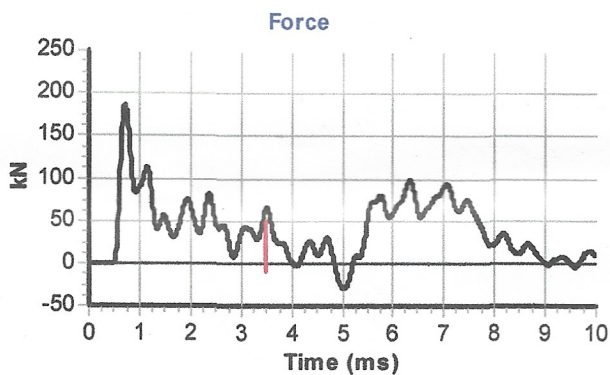
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

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

Comments / Location



Calculations

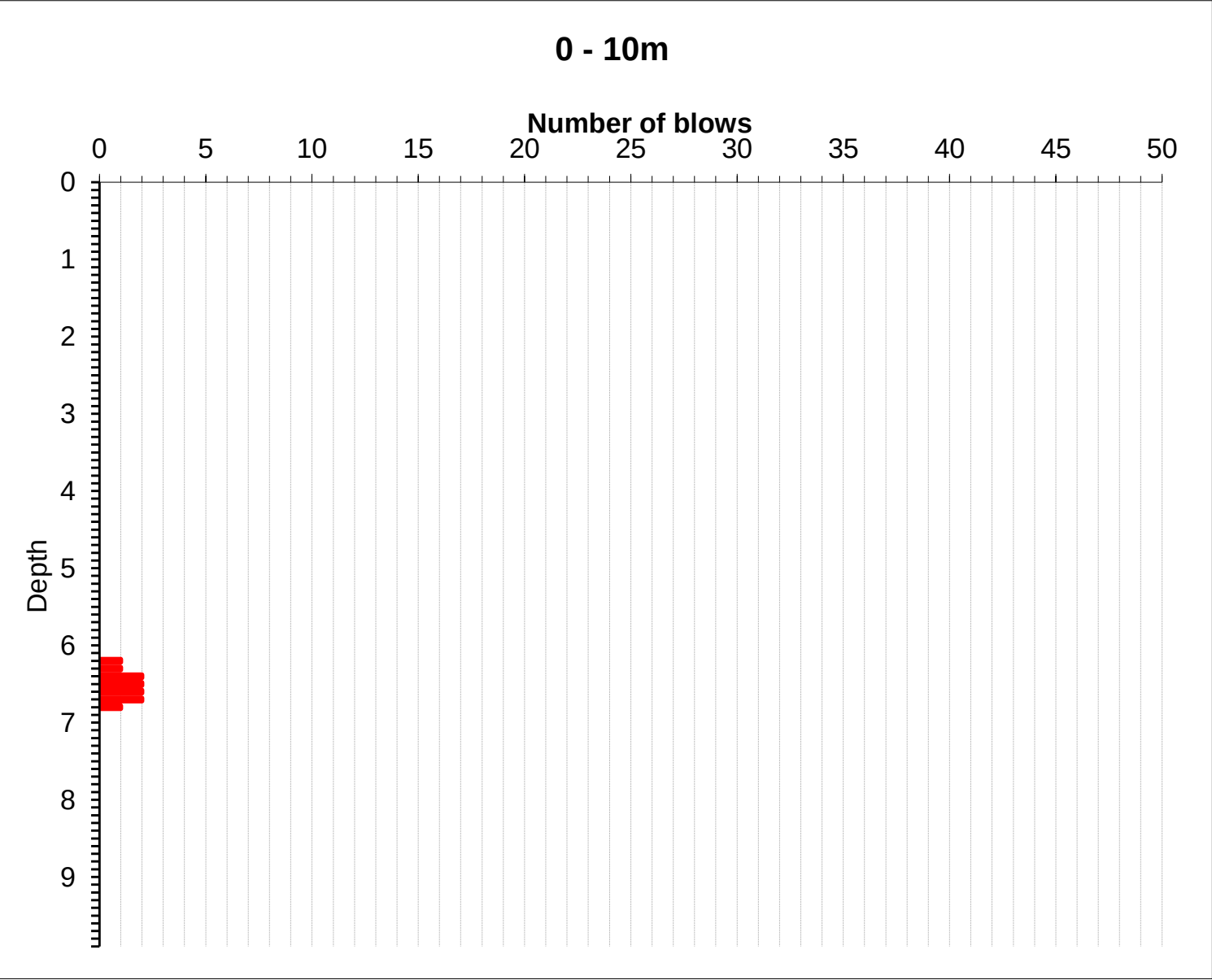
Area of Rod A (mm^2): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 388

Energy Ratio E_r (%): **82**

M. Gardner

Signed: M.GARDNER

Title: FITTER



HHSV Readings (19mm)																	
Location	0.40m			Average	0.60m			Average	0.80m			Average	1.0m			Average	Override average if more than 3 tests
Zone 1 TP01	62	44	56	54	80	76	100	85.3333333	106	130	124	120	130	118	124	124	
Zone 2 TP01	38	68	64	56.66667	130	112	130	124	130	104	108	114	86	98	102	95.33333	
Zone 3 TP01	52	70	84	68.66667	88	68	130	95.3333333	130	112	118	120	92	110	90	97.33333	
Zone 4 TP01	72	46	58	58.66667	90	82	62	78	58	64	56	59.333333	72	88	76	78.66667	
Zone 5 TP01	82	68	72	74	130	130	130	130	130	112	92	111.33333	104	76	96	92	
Zone 6 TP01	92	100	100	97.33333	130	130	130	130	130	130	98	119.33333	116	100	72	96	
Zone 7 TP01	88	68	46	67.33333	76	88	94	86	114	98	112	108	114	116	84	104.6667	
Zone 1 TP02	63	62	58	61	120	130	130	126.66667	88	76	88	84					106.5 at 0.80m
Zone 2 TP02	60	76	69	68.33333	120	120	120	120	120	120	120	120					
Zone 3 TP02	88	76	40	68	60	86	48	64.666667	98	120	110	109.33333					
Zone 4 TP02	100	122	120	114	120	122	92	111.333333	130	130	130	130	120	120	130	123.3333	73 at 0.60m and 69 at 0.80m
Zone 5 TP02	78	104	84	88.66667	94	92	104	96.666667	120	120	124	121.33333	114	80	80	91.33333	
Zone 6 TP02	74	74	70	72.66667	84	50	66	66.666667	78	68	68	71.333333	112	94	96	100.6667	
Zone 1 TP03	40	28	32	33.33333	72	68	118	86	130	92	124	115.33333	92	104	106	100.6667	78.5 at 0.80m 90.5 at 0.6
Zone 2 TP03	28	46	50	41.33333	72	72	70	71.3333333	104	96	108	102.66667	90	116	70	92	
Zone 3 TP03	48	46	38	44	80	78	68	75.3333333	60	54	102	72	104	122	130	118.6667	
Zone 4 TP03	46	70	72	62.66667	128	112	60	100	128	130	88	115.33333	118	106	108	110.6667	
Zone 5 TP03	50	62	64	58.66667	70	50	46	55.3333333	106	128	122	118.66667	92	92	118	100.6667	
Zone 6 TP03	66	60	72	66	72	106	108	95.3333333	128	130	130	129.33333	88	62	96	82	
TP04	54	50	70	58	62	52	68	60.666667	62	56	68	62	116	112	100	109.3333	

Location	1.60m			Average	2.0m			Average	2.2m			Average	2.30m			Average	
TP01 N	36	48	46	43.33333	52	42	56	50									
TP01 C1	62	62	64	62.66667	60	56	32	49.3333333									
TP01 C2	54	84	82	73.33333	48	36	54	46									
TP01 S	60	84	62	68.66667	66	36	58	53.3333333									
TP02 N	60	60	69	63							44	32	38	38	52544851.33333		
TP02 C	74	80	84	79.33333							50	60	56	55.333333			
TP02 S	86	84	68	79.33333							58	58	54	56.666667			
TP03 N	52	62	60	58	58	62	54	58									
TP03 C	126	116	92	111.3333	46	62	68	58.666667									
TP03 S	94	90	88	90.66667	72	68	62	67.333333									
TP04					48	56	52	52									

Location		2.40m		Average	2.75m		Average	
TP01 N	50	38	44	44				
TP01 C1	20	26	24	23.33333				
TP01 C2	50	52	42	48				
TP01 S	56	60	66	60.66667				
TP02 N								
TP02 C								
TP02 S								
TP03 N	36	28	38	34	20	24	20	21.3333333
TP03 C	44	40	38	40.66667				
TP03 S	26	28	32	28.66667				

TP04 In Borehole Shear Vane (small)			
Depth	1.0m	2.0m	3.0m
Vane Reading	935	280	350
Shear Strength (kpas)	189.8985	56.868	71.085

BH01 In Borehole Shear Vane (large)		
Depth	5m	6.5m
Vane Reading	235	220
Shear Strength (kpas)	13.86	12.98

Site Borehole Shear Vane

Calibrated By: NPB

Date: 7-Feb-16

Hand Vane: Site Vane

Ave. Reading on Vane	Reading on Torqueleader Master			
	R1	R2	R3	Average
559.0	10.00			10.00
657.0	20.00			20.00
769.0	30.00			30.00
882.0	40.00			40.00
991.0	50.00			50.00
1104.0	60.00			60.00
1214.0	70.00			70.00
1320.0	80.00			80.00

Calibration Factor from Graph - N.mm per division (F): 90.85

Large Vane

Diameter (D) in mm	75.0
Height (H) in mm	149.4
Constant K mm ³ ($\pi D^2(H/2+D/6)$)	1540949.9

Shear Strength (1xFx1000/K) 0.0590 KPa/Div

(KN/m².)**Medium Vane**

Diameter (D) in mm	
Height (H) in mm	
Constant K mm ³ ($\pi D^2(H/2+D/6)$)	

Shear Strength (1xFx1000/K) KPa/Div

Small Vane

Diameter (D) in mm	49.6
Height (H) in mm	99.2
Constant K mm ³ ($\pi D^2(H/2+D/6)$)	447240.7

Shear Strength (1xFx1000/K) 0.2031 KPa/Div

CALIBRATED

07 FEB 2016

Appendix F

Geotechnical Laboratory Data

					Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results						
Job No.		Project Name					Programme				
27342		3410					Samples received		23/10/2019		
Project No.		Client					Schedule received		23/10/2019		
3410		Sevenoaks					Project started		24/10/2019		
							Testing Started		05/11/2019		
Hole No.	Sample				Soil Description	NMC %	Passing 425µm %	LL %	PL %	PI %	Remarks
	Ref	Top m	Base m	Type							
WS02	-	1.00	-	D	Orangish brown slightly mottled dark grey and light grey slightly gravelly silty CLAY (gravel is fm and sub-angular to rounded)	25	97	43	22	21	
WS02	-	2.30	-	D	Orangish brown slightly mottled grey slightly sandy silty CLAY with traces of fine rootlets and carbonaceous deposits	41					
WS02	-	2.80	-	D	Light grey slightly mottled light brown slightly sandy silty CLAY with occasional decayed rootlets	59					
WS02	-	3.00	-	D	Dark grey PEAT	296					
WS03	-	0.70	-	D	Light orangish brown slightly mottled grey silty CLAY with traces of fine rootlets and roots	23	100	46	22	24	
WS03	-	1.50	-	D	Soft orangish brown slightly mottled grey sandy silty CLAY	34					
WS03	-	2.50	-	D	Dark grey silty CLAY with occasional decayed wood fragments	56	100	65	30	35	
WS03	-	3.50	-	D	Dark grey PEAT	336					
WS03	-	4.40	-	D	Dark grey PEAT with orangish brown pockets of clay	317					
WS03	-	4.80	-	D	Light grey slightly mottled light orangish brown silty CLAY with dark grey pockets of peat	60	100	46	24	22	
BH01	-	1.00	-	D	Orangish brown slightly mottled grey silty CLAY	28	100	26	15	11	
BH01	-	2.00	-	D	Orangish brown slightly mottled grey silty CLAY	39	100	45	24	21	

	Test Methods: BS1377: Part 2: 1990: Natural Moisture Content : clause 3.2 Atterberg Limits: clause 4.3 and 5.0	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com	Checked and Approved Initials J.P Date: 14/11/2019
	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)		MSF-5-R1(b)
	2519		



Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No. 27342	Project Name 3410	Programme	
		Samples received	23/10/2019
		Schedule received	23/10/2019
Project No. 3410	Client Sevenoaks	Project started	24/10/2019
		Testing Started	05/11/2019

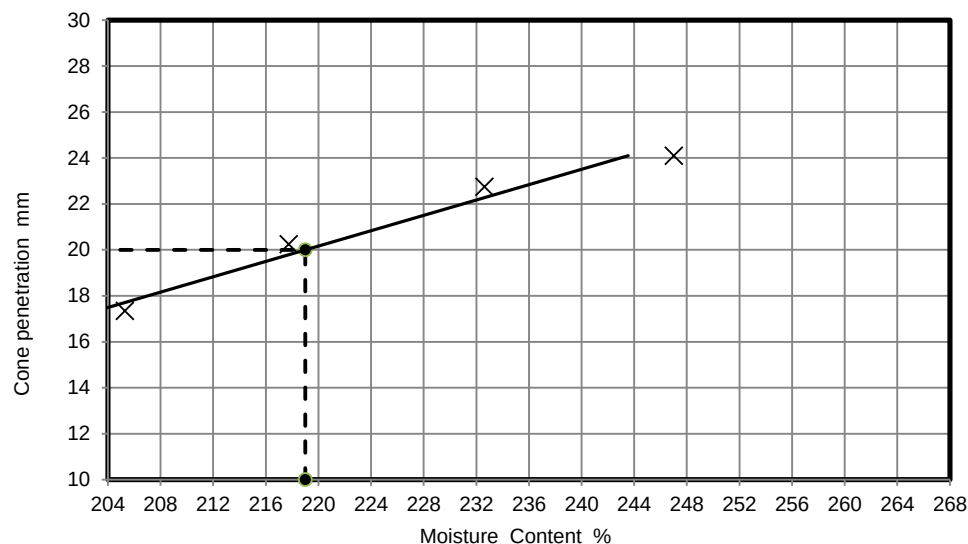
Hole No.	Sample				Soil Description	NMC %	Passing 425µm %	LL %	PL %	PI %	Remarks
	Ref	Top m	Base m	Type							
BH01	-	18.00	-	D	Greyish brown slightly mottled orangish brown sandy silty CLAY	28	100	26	16	10	
TPO1 (N)	-	1.50	-	D	Light orangish brown slightly mottled grey slightly sandy silty CLAY with traces of fine rootlets	24					
TPO1 (N)	-	2.65	-	D	Grey slightly mottled orangish brown slightly sandy silty CLAY with traces of fine rootlets	47					
TP03 (N)	-	0.40	-	D	Orangish brown slightly mottled grey silty CLAY with traces of fine rootlets	22					
TP03 (N)	-	0.80	-	D	Orangish brown slightly mottled grey silty CLAY with traces of fine rootlets	27					
TP03 (N)	-	1.40	-	D	Orangish brown slightly mottled grey sandy silty CLAY	26					
TP03 (N)	-	1.90	-	D	Orangish brown slightly mottled grey sandy silty CLAY	40					
TP03 (N)	-	2.30	-	D	Grey slightly mottled orangish brown sandy silty CLAY with traces of fine rootlets	36					

 UKAS TESTING	Test Methods: BS1377: Part 2: 1990: Natural Moisture Content : clause 3.2 Atterberg Limits: clause 4.3 and 5.0	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com	Checked and Approved Initials J.P Date: 14/11/2019
	2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R1(b)		



LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

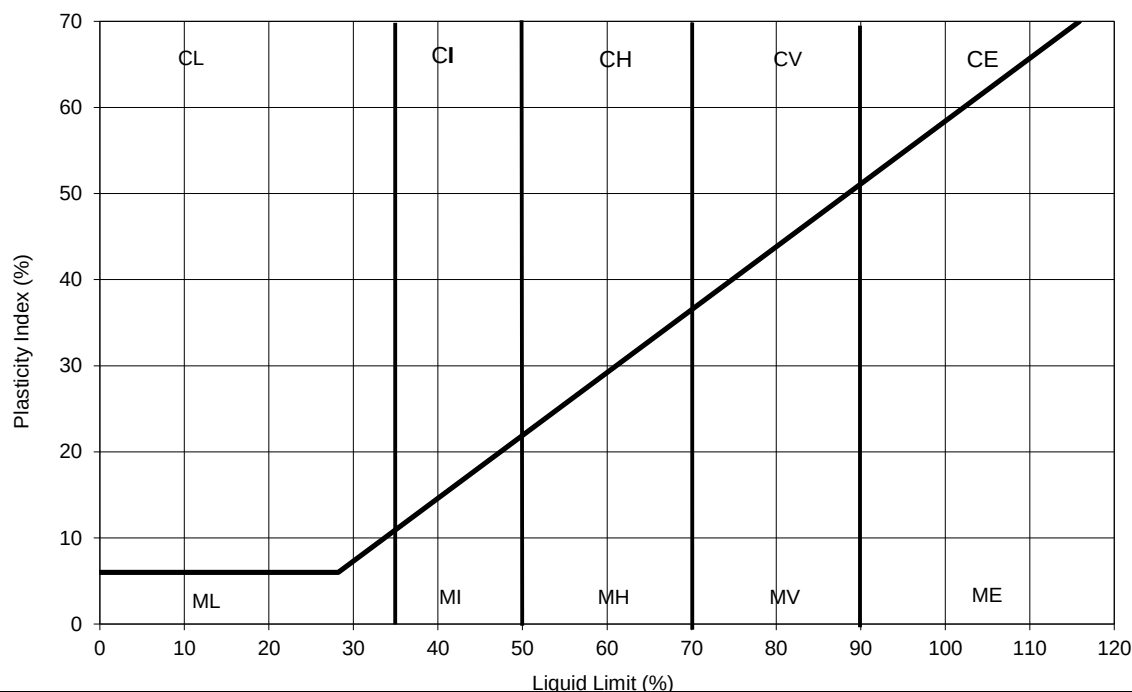
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	27342
				Borehole/Pit No.	BH01
Site Name	3410			Sample No.	-
Project No.	3410	Client	Sevenoaks	Depth Top	3.50 m
Soil Description	Dark grey PEAT with light grey silty clay pockets and traces of wood fragments			Depth Base	- m
				Sample Type	D
				Samples received	23/10/2019
				Schedules received	23/10/2019
				Project Started	24/10/2019
				Date Tested	05/11/2019



NATURAL MOISTURE CONTENT	156	%
% PASSING 425µm SIEVE	100	%
LIQUID LIMIT	219	%
PLASTIC LIMIT	131	%
PLASTICITY INDEX	88	%

Remarks

PLASTICITY INDEX



TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method

BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index

BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying method

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Tel: 01923 711 288 Email: James@k4soils.com

Checked and Approved

Initials: J.P

Date: 08/11/2019

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5 R2



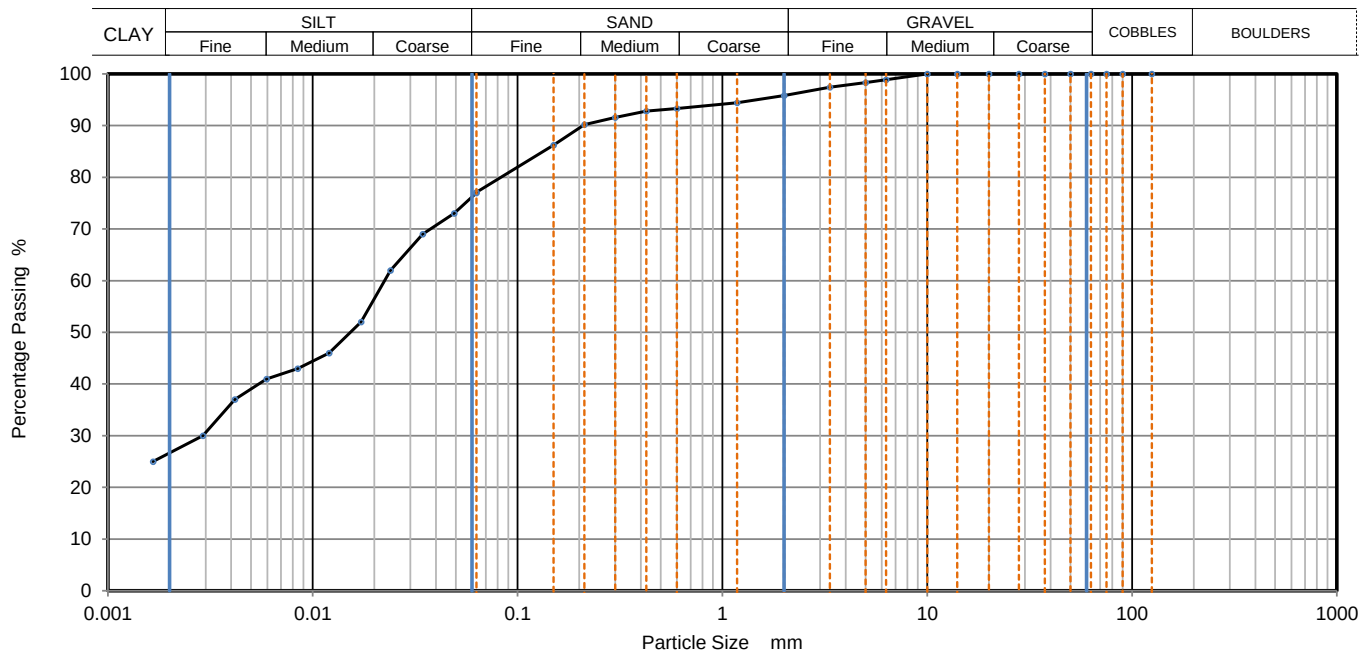
2519



PARTICLE SIZE DISTRIBUTION

Job Ref	27342
Borehole/Pit No.	BH01
Sample No.	-
Depth Top	4.50 m
Depth Base	- m
Sample Type	D
Samples received	23/10/2019
Schedules received	23/10/2019
Project started	24/10/2019
Date tested	07/11/2019

Site Name	3410		
Project No.	3410	Client	Sevenoaks
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular)		
Test Method	BS1377:Part 2: 1990, clause 9.0		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	77
90	100	0.0490	73
75	100	0.0344	69
63	100	0.0240	62
50	100	0.0172	52
37.5	100	0.0120	46
28	100	0.0084	43
20	100	0.0059	41
14	100	0.0042	37
10	100	0.0029	30
6.3	99	0.0017	25
5	98		
3.35	97		
2	96		
1.18	94		
0.6	93	Particle density (assumed) 2.70 Mg/m ³	
0.425	93		
0.3	92		
0.212	90		
0.15	86		
0.063	77		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	4.2
Sand	18.6
Silt	50.7
Clay	26.5

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

Remarks
Preparation and testing in accordance with BS1377 unless noted below



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Unit 8, Olds Close, Watford, Herts, WD18 9RU
Email: james@k4soils.com
Tel: 01923 711288

Checked and Approved

Initials: J.P
Date: 14/11/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

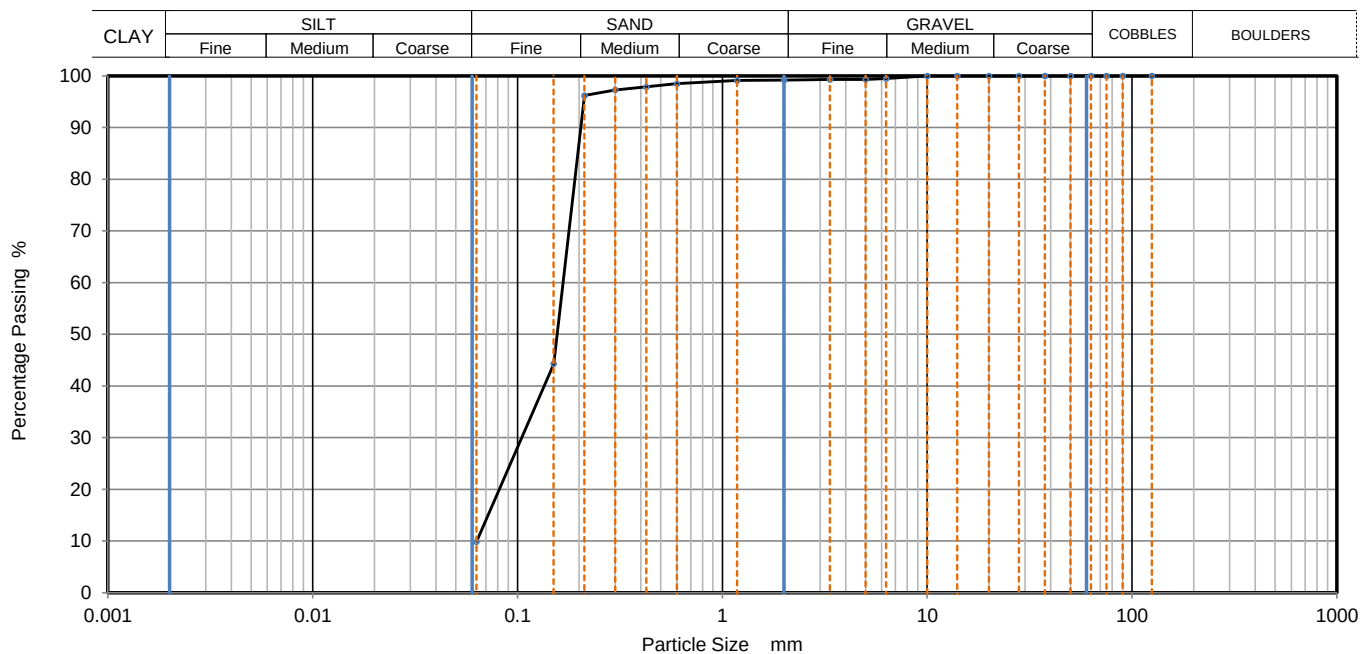
MSF-5-R3



PARTICLE SIZE DISTRIBUTION

Job Ref	27342
Borehole/Pit No.	BH01
Sample No.	-
Depth Top	7.00 m
Depth Base	- m
Sample Type	D
Samples received	23/10/2019
Schedules received	23/10/2019
Project started	24/10/2019
Date tested	07/11/2019

Site Name	3410		
Project No.	3410	Client	Sevenoaks
Soil Description	Grey clayey SAND with rare fm shell fragments		
Test Method	BS1377:Part 2: 1990, clause 9.0		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	96		
0.15	44		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.8
Sand	89.3
Fines <0.063mm	9.9

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	2.6
Curvature Coefficient	1

Remarks
Preparation and testing in accordance with BS1377 unless noted below



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Checked and Approved

Initials: J.P
Date: 14/11/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

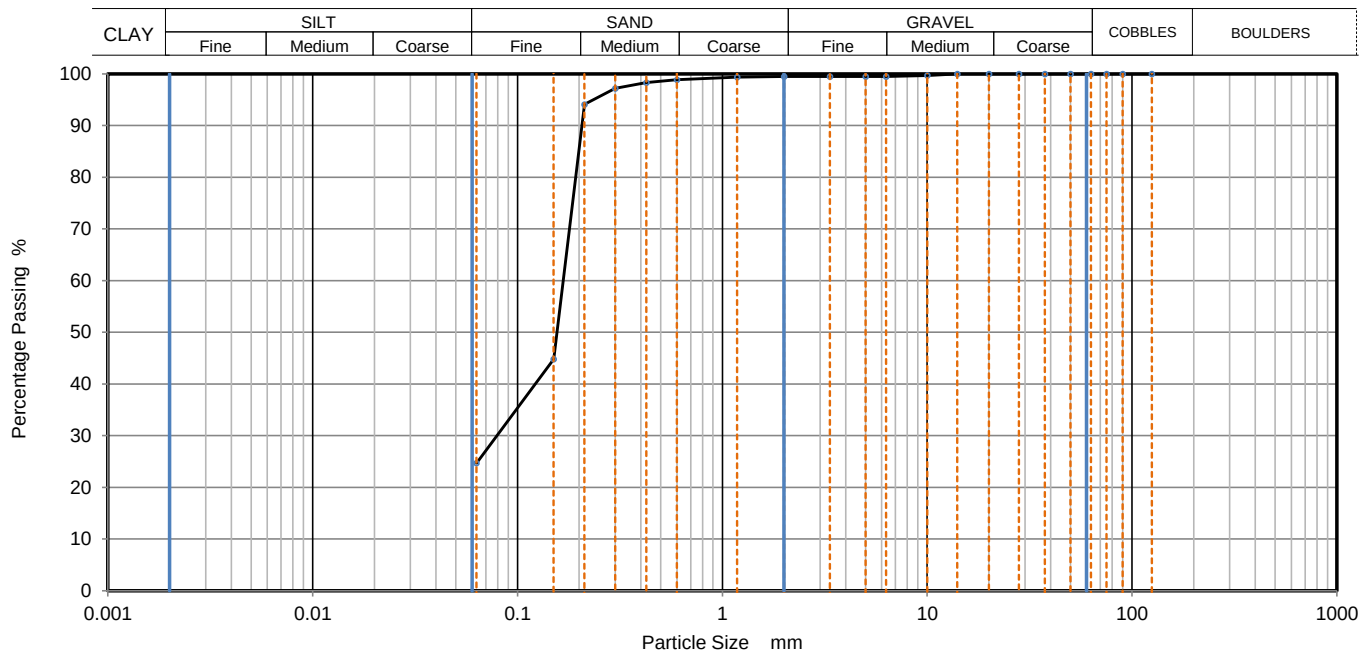
MSF-5-R3



PARTICLE SIZE DISTRIBUTION

Job Ref	27342
Borehole/Pit No.	BH01
Sample No.	-
Depth Top	19.50 m
Depth Base	- m
Sample Type	D
Samples received	23/10/2019
Schedules received	23/10/2019
Project started	24/10/2019
Date tested	07/11/2019

Site Name	3410		
Project No.	3410	Client	Sevenoaks
Soil Description	Grey very clayey SAND with rare fine shell fragments		
Test Method	BS1377:Part 2: 1990, clause 9.0		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	94		
0.15	45		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.5
Sand	74.7
Fines <0.063mm	24.7

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

Remarks
Preparation and testing in accordance with BS1377 unless noted below



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Unit 8, Olds Close, Watford, Herts, WD18 9RU
Email: james@k4soils.com
Tel: 01923 711288

Checked and Approved

Initials: J.P
Date: 14/11/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3