

Date: January 2020

Appendix 16.2: Phase 2 Site Investigation Report

Environmental Impact Assessment

Environmental Statement

Volume 6

Appendix 16.2

Report Number: 4593/R01 Issue 1

Version: Final

Date: January 2020

This report is also downloadable from the Thurrock Flexible Generation Plant website at: http://www.thurrockpower.co.uk

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Summary

This appendix presents the results and discussion of the Phase 2 intrusive site investigation works undertaken in zone A, the main development site for Thurrock Flexible Generation Plant.

Appendix 16.2: Phase 2 Site Investigation Report Environmental Statement January 2020



TerraConsult Phase 2 Site Investigation Report 1.

Appendix 16.2: Phase 2 Site Investigation Report Environmental Statement January 2020



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DRAINAGE STONE

COLLIERY SHALL

October 2019 Report No 4593/R01 Issue 1

Tilbury

Phase 2 Site Investigation Report

Prepared for

Statera Energy Limited

TerraConsult

Tilbury

Phase 2 Site Investigation Report

October 2019

Carried Out For:

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DISCLAIM	ER				1

This report should be read with the Service Constraints Report Limitations & Planning Requirements set out in Appendix A.



Executive Summary

The client, Statera Energy Limited, commissioned TerraConsult Ltd to undertake a Phase 2 Site Investigation Report for a site at Station Road, Tilbury, which is being considered for development.

Development Proposals

Development proposals are understood to comprise construction of a power station.

Conclusions

When compared to the screening criteria for commercial end use, the chemical laboratory testing indicated no elevated concentrations of contaminants within the samples analysed. Asbestos was not detected in any of the samples analysed.

Recommendations

Recommendations are provided within the subsequent report.

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Tilbury

Phase 2 Site Investigation Report

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Appendix A	Service Constraints and Report Limitations
Appendix B	Environmental Risk Assessment Methodology and Terminology
Appendix C	Fieldwork Records
Appendix D	Laboratory Analysis Results

1. Introduction

1.1 Background Information

TerraConsult Limited (TerraConsult) was commissioned by Statera Energy Limited (Statera) to undertake a Phase 2 Site Investigation for the site known as Tilbury, off Station Road, RM18 8RA.

1.2 Development Proposals

It is understood that the development proposals comprise construction of a power station.

1.3 Purpose of Investigation

The purpose of the report is to provide information on the condition of the site prior to application for an Environmental Permit, and to provide information to guide any changes to the current proposed land use. The specific activities carried out are as follows:

- Carry out a site walk over;
- Carry out an intrusive investigation comprising cable percussive and dynamic sampler boreholes with associated sampling, and cone penetration tests;
- Ground gas and groundwater monitoring;
- Laboratory testing for potential contaminants and geotechnical purposes;
- Assess the general nature and extent of contamination at the site and carry out a contamination risk assessment to determine if the site poses a risk to potential receptors;
- To monitor the ground gas conditions at the site and undertake a ground gas risk assessment;
- Should the investigation indicate that remediation of contaminants be required, provide recommendations of feasible remedial measures to facilitate development of the site for commercial end use;
- Provide preliminary geotechnical information on the ground conditions for foundation and floor slab design.

This report has been devised to comply with the relevant principles and requirements of a range of guidance with regards to potentially contaminated land, including (but not limited to):

- Part IIA of the Environment Protection Act, 1990;
- Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, April 2012);
- National Planning Policy Framework (HCA, March 2012);
- BS5930:2015: "Code of practice for site investigations";
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites -Code of Practice";
- The Building Regulations 2010. Part C (HM Government 2013)

- DEFRA/Environment Agency (2004) Report CLR11 "Model Procedures for the Management of Land Contamination";
- Environment Agency (2011) Report GPLC1 "Guiding Principles for Land Contamination";
- Environment Agency (2017) "The Environment Agency's Approach to Groundwater Protection" November 2017 Version 1.1

1.4 **Previous Investigations**

It is understood that the site has not been subject to any previous investigations.

1.5 Limitations

TerraConsult's service constraints and report limitations are presented in Appendix A and a description of environmental risk assessment methodology and terminology is presented in Appendix B.

In preparation of this report, it is assumed that any information provided to TerraConsult by the client in connection with the commission is accurate, complete and not misleading. TerraConsult cannot guarantee the accuracy or validity of this information.

2. Fieldwork and Analysis (September 2019)

The works undertaken as part of the site investigation and subsequent analysis of selected samples is summarised below.

2.1 Site Investigation

The site work undertaken as part of this phase of investigation is detailed in the following section. The site investigation was undertaken in accordance with the scope of works agreed with the client and generally in accordance with industry guidance including BS10175: 2011 *Investigations into Potentially Contaminated Sites – Code of Practice* and BS5930: 2015 *Code of Practice for Site Investigations – Amendment 2.*

2.1.1 Site Work Rationale and Preparatory Works

The exploratory hole location plan and fieldwork records are presented in **Appendix C**. The investigative positions were selected based on the available access and to provide coverage of the proposed development plot.

Prior to boring a cable avoidance tool was used to confirm each location was clear of detectable services.

2.1.2 Cable Percussive Boreholes

Seven cable percussive boreholes, referenced CP01 to CP07, were undertaken between the 10th and 24th September 2019 and were completed at depths between 23.10mbgl and 25.00mbgl (5.00m into the underlying solid geology). The arisings were logged on site by an Environmental Consultant. Recovered soil samples were taken at regular intervals throughout the depth of the boreholes.

2.1.3 Dynamic Sampler Boreholes

A total of nine dynamic sampler boreholes, referenced WS01 to WS09, were undertaken on the 19th and 20th September 2019 and were completed at depths between 4.45mbgl and 5.45mbgl. The arisings were logged and sampled on site by an Environmental Consultant. The recovered soil samples were taken at regular intervals throughout the depth of the boreholes and environmental samples were placed in laboratory supplied sealed glass jars and plastic containers prior to being stored in cool boxes during transit to the laboratory.

2.1.4 Cone Penetration Tests

A total of ten Cone Penetration Tests (CPT) measuring cone end resistance and sleeve friction, were undertaken on the 17th and 18th September 2019 using the ISO 22476-1:2012 method.

2.1.5 Piezometer Installations and Monitoring

Single groundwater monitoring piezometer installations were placed in boreholes CP01 to CP07. Each installation comprised 16mm diameter HDPE piezometer casing with a ceramic piezometer tip at the base of each borehole. The depth to groundwater was measured using a dip-meter. Monitoring results are presented in Appendix C.

2.1.6 Standpipe Installations and Monitoring

Single standpipe installations were placed in boreholes WS01, WS02, WS04, WS06, WS07 and WS08. Each standpipe comprised 63mm diameter HDPE piping, slotted below 1.00mbgl; installed to depths of 5.00mbgl. Once installed, the slotted section was surrounded by suitable gravel pack, above which a sealing material (bentonite) was used. A rubber bung and gas tap were placed at the top of the pipework and a raised cover concreted at surface to protect the installation from damage. Flow was monitored for a period of up to two minutes, and the concentrations of ground gases including methane, carbon dioxide, oxygen, hydrogen sulphide and carbon monoxide were monitored for up to five minutes. The depth to groundwater was measured using a dip-meter. The monitoring results are presented in **Appendix C**.

2.2 Laboratory Analysis

The scheduled analysis and number of samples tested is summarised in **Error! Reference source not found.1** and **Table 2.2**. The laboratory certificates are presented in **Appendix D**.

Analysis	No. of Soil Samples Tested		
Metals	9		
Speciated polycyclic aromatic hydrocarbons (PAHs)	9		
Water Soluble Sulphate & Water Soluble Chloride	9		
Phenols – Total (monohydric)	9		
Mineral Oil, TPH C10-C40, TPH C10-C25	9		
Benzene, toluene, ethylbenzene and xylenes (BTEX)	9		
Asbestos screen	9		
рН	9		
Total Cyanide	9		
Moisture Content & Stone Content	9		
Analysis	No. of Water Samples Tested		
Metals	3		
General Inorganics	3		
Speciated polycyclic aromatic hydrocarbons (PAHs)	3		
Heavy Metals	3		
Monoaromatics and Oxygenates	3		
Mineral Oil, TPH C10-C40, TPH C10-C25	3		

Table 2.1	Summary of Scheduled Geotechnical Testing
	Caninary of Concalica Coolconniour recting

Analysis	No. of Soil Samples Tested		
Moisture Content	18		
Atterberg Limit (4 Point)	18		



Oedometer Consolidation	6
Quick Undrained Triaxial	16
BRE SD1	12

3. Ground Conditions

The encountered ground conditions, groundwater and other observations are summarised and discussed below.

3.1 Encountered Ground Conditions

The ground conditions encountered are summarised in Table 3.1 and discussed below.

Stratum	Location	Surface Depth (mbgl)	Proven Base Depth (mbgl)	Proven thickness (m)
Topsoil	CP01 to CP07. 0.00 0.10 to 0.95 WS03, WS09. 0.00 0.10 to 0.95		0.10 to 0.95	0.10 to 0.95
Made Ground	WS04, WS05, WS06, WS07, WS08.	0.00	0.00 0.50 to 1.82	
Alluvium	All locations	0.10 to 1.82	18.10 to 20.30	18.00 to 19.80
Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated)	CP01 to CP07	18.10 to 20.30	Base not proved	Thickness not proved

 Table 3.1
 Summary of Encountered Ground Conditions

3.1.1 Topsoil

Topsoil was encountered at all cable percussive locations, and dynamic sampling locations WS01, WS02, WS03 and WS09 from surface level to depths between 0.10mbgl and 0.95mbgl.

3.1.2 Made Ground

Made Ground was encountered at WS04 to WS08 from surface level to depths between 0.50mbgl and 1.82mbgl. The Made Ground comprised gravelly clay with gravel of brick fragments and chalk.

3.1.3 Alluvium

Alluvium was encountered underlying the topsoil and Made Ground at depths between 0.10mbgl and 1.82mbgl in all locations, to depths between 18.10mbgl and 20.30mbgl. This stratum comprised mainly very soft, silty clay, frequently peaty and with an occasional layer of peat typically 1.50m thick encountered at approximately 5.50mbgl to 6.00mbgl. Thinner, shallower bands of peat were also noted in WS03, WS04, WS05, CP03 and CP05 around 1.00mbgl. Coarse sand and gravel of sub-angular to sub-rounded flint was also encountered in boreholes CP01 to CP07 as a deeper component of this stratum, at depths between 11.20mbgl and 16.10mbgl, before encountering the underlying chalk.

3.1.4 Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated)

This stratum was encountered underlying the Alluvium at depths between 18.10mbgl and 20.30mbgl in boreholes CP01 to CP07. The stratum comprised primarily structureless chalk recovered as chalk gravel and putty chalk, occasionally with pockets of flint gravel. The base of the chalk was not proven. Boreholes CP01 to CP07 were completed at target depths between 23.10mbgl and 25.00mbgl (approximately 5 metres into the chalk).

3.1.5 Groundwater

During the site investigation, groundwater was encountered in CP01, CP03, CP05, CP06 and CP07 at depths between 11.20mbgl and 15.00mbgl, where the top of the sand and gravel component of the alluvium was encountered, and rose to depths between 2.40mbgl and 6.20mbgl over a period of 20 minutes.

During subsequent monitoring, groundwater levels in CP01 to CP07 rose to and stabilised at approximately 1.00mbgl. Groundwater was encountered in WS1, WS2, WS4, WS6, WS7 and WS8 at depths between 1.62mbgl and 2.67mbgl.

4. Summary of Laboratory Analysis

The results of the chemical laboratory testing and ground gas monitoring are detailed in the following section.

4.1 Geoenvironmental Soil Analysis

The samples were submitted to i2 Analytical Laboratories in Watford, Hertfordshire who are UKAS accredited in accordance with ISO17025 and are also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory carries out Quality Assurance and Quality Control in accordance with BS ISO 17025 and participates in external laboratory comparison and quality control schemes. Details of the accreditation and the methods of analysis are provided on the relevant test reports.

4.2 Geotechnical Soil Analysis

The samples were submitted to K4 Soils in Watford who are UKAS accredited in accordance with ISO17025.

4.3 Groundwater Analysis

Water samples were submitted to i2 Analytical in Watford for analysis. The laboratory carries out Quality Assurance and Quality Control in accordance with BS ISO 17025 and participates in external laboratory comparison and quality control schemes. Details of the accreditation and the methods of analysis are provided on the relevant test reports.

4.4 Ground Gas Analysis

Where applicable, the results of ground gas monitoring have been compared to CIRIA 665: Assessing risks posed by hazardous ground gases to buildings and BS 8485:2015: Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.



 Table 4.1
 Results of Laboratory Analysis for Metals

Determinand Metals	Concentra	ninand tion Range /kg)	with		No. of Samples with Elevated Concentrations	Samples with Elevated Concentrations
	Minimum	Maximum	S4ULs	C4SLs	Concentrations	
Arsenic	7.4	25	640	-	0	None elevated
Cadmium	<0.2	<0.2	190	-	0	None elevated
Chromium (III)	38	50	8,600	-	0	None elevated
Copper	4.9	24	68,000	-	0	None elevated
Lead	15	33	-	6,000	0	None elevated
Mercury	<0.3	<0.3	1,100	-	0	None elevated
Nickel	24	43	980	-	0	None elevated
Selenium	<1.0	<1.0	120,000	-	0	None elevated
Zinc	68	130	730,000	-	0	None elevated

Table 4.2 Results of Laboratory Analysis for Polycyclic Aromatic Hydrocarbons

Determinand Concentration Range Determinand (mg/kg)		Screening Values for Proposed Land Use (mg/kg)			No. of Samples with Elevated	Samples with Elevated	
PAHs	Minimaruma	Maximum		S4ULs		Concentrations	Concentrations
Minimum	waximum	1% som	2.5% som	6% som			
Acenaphthene	<0.05	<0.05	84,000	97,000	100,000	0	None elevated
Acenaphthylene	<0.05	<0.05	83,000	97,000	100,000	0	None elevated
Anthracene	<0.05	<0.05	520,000	540,000	540,000	0	None elevated
Benzo[a]anthracene	<0.05	<0.05	170	170	180	0	None elevated
Benzo[a]pyrene	<0.05	<0.05	76	76	76	0	None elevated

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Determinand	Determinand Concentration Range (mg/kg)		Screening Values for Proposed Land Use (mg/kg)			No. of Samples with Elevated	Samples with Elevated
PAHs	Minimum	Maximum		S4ULs		Concentrations	Concentrations
	winningin	Μαλιπιαπ	1% som	2.5% som	6% som		
Benzo[b]fluoranthene	<0.05	<0.05	44	44	45	0	None elevated
Benzo[ghi]perylene	<0.05	<0.05	3,900	4,000	4,000	0	None elevated
Benzo[k]fluoranthene	<0.05	<0.05	1,200	1,200	1,200	0	None elevated
Chrysene	<0.05	<0.05	350	350	350	0	None elevated
Dibenzo[ah]anthracene	<0.05	<0.05	3.5	3.6	3.6	0	None elevated
Fluoranthene	<0.05	<0.05	23,000	23,000	23,000	0	None elevated
Fluorene	<0.05	<0.05	63,000	68,000	71,000	0	None elevated
Indeno[123-cd]pyrene	<0.05	<0.05	500	510	510	0	None elevated
Naphthalene	<0.05	<0.05	190	460	1,100	0	None elevated
Phenanthrene	<0.05	<0.05	22,000	22,000	23,000	0	None elevated
Pyrene	<0.05	<0.05	54,000	54,000	54,000	0	None elevated
Total PAH	<0.9	<0.9	-	-	-	-	-

Table 4.3	Results of Laboratory	Analysis for Petroleum Hydrocarbons
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Determinand	Determ Concentrat (mg/	ion Range	Screening Values for Proposed Land Use (mg/kg)		No. of Samples with Elevated	Location of Samples with Elevated	
Petroleum Hydrocarbons		Minimum Maximum	S4ULs			Concentrations	Concentrations
Minimum	Maximum	1% som	2.5% som	6% som			
Mineral Oil (C10-C40)	<10	<10	-	-	-	-	_

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Determinand	Determ Concentrat (mg/	ion Range	Screening Values for Proposed Land Use (mg/kg)			No. of Samples with Elevated Concentrations	Location of Samples with Elevated Concentrations
Petroleum Hydrocarbons	Minimum	imum Maximum	S4ULs				
	WIITIITTUTTI		1% som	2.5% som	6% som		
TPH (C10-C40)	<10	<10	-	-	-	-	-
TPH (C10-C25)	<10	<10	-	-	-	-	-

Table 4.4 Results of Laboratory Analysis for BTEX and MTBE

Determinand Concentration Range (mg/kg)		ion Range	Screening Values for Proposed Land Use (mg/kg)			No. of Samples with Elevated	Location of Samples with Elevated
BTEX and MTBE	A dia ina una			S4ULs		Concentration	Concentrations
	wiminium	linimum Maximum	1% som	2.5% som	6% som		
Benzene	<0.001	<0.001	27	47	90	0	None elevated
Toluene	<0.001	<0.001	869	1920	4360	0	None elevated
Ethylbenzene	<0.001	<0.001	518	1220	2840	0	None elevated
o-xylene	<0.001	<0.001	478	1120	2620	0	None elevated
m-xylene	<0.001	<0.001	625	1470	3460	0	None elevated
p-xylene	<0.001	<0.001	576	1350	3170	0	None elevated

Table 4.5 Asbestos Screening

Determinand	Screening Result	Asbestos Matrix	Asbestos Type	No. of Samples with Asbestos	Location of Samples with Detected Asbestos
Asbestos	None detected	-	-	0	None detected

Table 4.6 Summary of Groundwater Analysis Results

Determinand	erminand Concentration Range		Threshold	Value (ug/l)	No. of Samples with Elevated	Location of Samples with Elevated
	Minimum	Maximum	UK	DWS	Concentrations	Concentrations
Arsenic	<0.15	1.40	10	10	0	None elevated
Cadmium	<0.02	<0.02	5	13	0	None elevated
Chromium	<0.2	0.2	50	50	0	None elevated
Copper	<0.5	<0.5	2,000	2,000	0	None elevated
Lead	<0.2	0.4	10	10	0	None elevated
Mercury	<0.05	<0.05	1	16	0	None elevated
Nickel	<0.5	9.2	20	70	0	None elevated
Selenium	U/S	14	10	40	0	None elevated
Zinc	<0.5	<0.5	5,000	-	0	None elevated
Benzo(a)pyrene	<0.01	<0.01	0.01	0.7	0	None elevated
Sum of PAHs (4no. congeners)	<0.01	<0.01	0.1 (sum of 4no. congeners)	0.7	0	None elevated
Total petroleum hydrocarbons	<140 (C5-C35)	<140 (C5-C35)	-	Taste and odour will in most cases be detectable at concentrations below those of health concern, particularly with short-term exposure.	-	No evidence to suggest fuel contamination.

*U/S unsufficient sample

4.5 Summary of Analysis and Monitoring Results

The results of the chemical laboratory analysis of selected soil samples is discussed in the following section.

4.5.1 Summary of Soil Sample Analysis and Screening Results

Analysis of selected soil samples did not indicate any elevated concentrations of contaminants when compared against their respective criteria for commercial end use.

Asbestos was not detected in any of the analysed soil samples.

4.5.2 Summary of Groundwater Sample Analysis and Screening Results

analysis of selected groundwater samples did not indicate any elevated concentrations of contaminants when compared to the UK Drinking Water Standards.

4.6 Discussion of Ground Gas Results and Gas Screening Value

The results of ground gas monitoring are summarised below.

4.6.1 Summary of Ground Gas Results

The recorded methane, carbon monoxide and hydrogen sulphide (H_2S) concentrations were below detection levels. Detected levels of carbon dioxide ranged between 0.3 and 2.7.

4.6.2 Recorded Flow Rate

No flow was detected at any of the monitoring points.

4.6.3 Gas Screening Value and Classification

The Gas Screening Value (GSV) for the site based on the recorded maximum concentrations of methane and carbon dioxide is provided in Table 4.6.

Table 4.6Gas Screening Values for Methane and Carbon Dioxide
--

Peak Flow Rate (l/hr)	Worst Case CO ₂ (%)	CO₂ GSV	Worst Case CH₄ (%)	CH₄ GSV
<0.1	2.7	<0.0027 l/hr CO ₂	<0.1	<0.0001 l/hr CH ₄

Characteristic Situation 1 is considered applicable to the site based on the gas screening value of <0.0027 l/hr and the recorded maximum concentrations of carbon dioxide and methane.

5. Conceptual Site Model

In accordance with BS 10175, a general schematic section has been developed for the site based on the previously presented data and contaminant linkage assessment for the proposed commercial end use. This is shown in **Figure 1**.

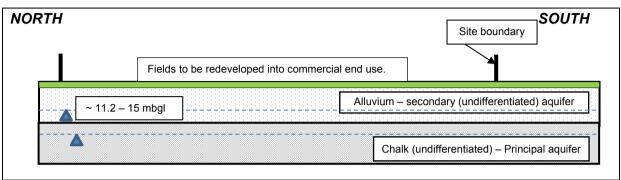


Figure 1 Conceptual Site Model based on the proposed development (not to scale).

The model for the site shows the geology, former site usage and vulnerable receptors. The information presented above represents the conceptual ground model that may need to be revised based on data obtained during any future investigation, either desk-based or intrusive. The conceptual site model and proposed end use described above should be considered very broadly representative of a commercial land use, as a worst case scenario, as defined in SR3 "Updated Technical Model to the CLEA Model" (SC050021/SR3, 2011) for the purpose of this report.

5.1 Updated Qualitative Risk Assessment

The contaminant linkages have been individually assessed and an updated summary of the potential geo-environmental risks associated with the site and in the context of the proposed development is provided in **Table 5.1**.

Issue	Risk Rating	Justification Comments
Contamination Potential		
Potential for significant on site contamination.	Low	No elevated concentrations of contaminants were detected in the samples analysed.
Potential for contaminants to migrate via soil/air/groundwater pathways to site.	Low to moderate	Secondary (undifferentiated) Aquifer within the Alluvium stratum.
Potential for contaminants to migrate via soil/air/groundwater pathways off-site.	Low	Contaminants on site could migrate off site due to the ground conditions. A Secondary (undifferentiated) Aquifer underlies the site within the Alluvium stratum.
Geo-environmental Risk		
Risk of harm to human health (end users) based on anticipated conditions.	Low	No elevated concentrations of contaminants were detected in the samples analysed.
Risk to site workers.	Low	No elevated concentrations of contaminants were detected in the samples analysed.
Risk of pollution to controlled water.	Low	A Secondary (undifferentiated) Aquifer lies within the Alluvium stratum underlying the site, and the River Thames lies less than 1km south of the site, however no elevated concentrations of contaminants were detected in the samples analysed.
Hazards to building structures and	Low	Contamination has not been identified that could affect

 Table 5.1
 Summary of Updated Qualitative Risk Assessment

Issue	Risk Rating	Justification Comments			
services – excluding ground gas.		building structures or services.			
Liabilities					
Likelihood of designation as Contaminated Land under Part 2A Negli of EPA 1990.		No elevated concentrations of contaminants were detected in the samples analysed.			
Liability issues for owner.	Low	No potential liability issues identified.			
Development Implications					
Possible requirement for remediation of soil.	Low	No elevated concentrations of contaminants were detected in the samples analysed.			
Possible requirement for remediation of groundwater.	Low	Groundwater was not encountered during monitoring.			
Possible requirement for gas protection.	Negligible	Based on the results of monitoring.			
Special requirements for water Low		No elevated concentrations of contaminants were detected in the samples analysed. Specialist pipework should not be required. The water provider, however, may require additional soil analysis.			
Potential limitations on foundation design.	Low	Laboratory analysis has classed the ground on site as DS-1 and AC-1.			
Risk of encountering materials classed as hazardous waste.	Low	No contamination was identified from the samples analysed.			

6. Geoenvironmental Conclusion and Recommendation

The following recommendations are based on the results of the conceptual site model and risk assessment.

6.1 Summary of Development Proposals and Ground Investigation Results

The proposals, encountered ground conditions and analysis results are summarised below.

6.1.1 Development Proposals

Proposals comprise the construction of a power station on site.

6.1.2 Summary of Encountered Ground Conditions and Groundwater

The encountered ground conditions comprised Made Ground or Topsoil to depths between 0.10mbgl and 1.82mbgl, overlying Alluvium to depths between 18.10mbgl and 20.30mbgl. The Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated) was encountered underlying the Alluvium at all Cable Percussive borehole locations. Cable Percussive boreholes were completed at depths approximately 5m into the chalk, or at 25mbgl – between 23.1mbgl and 25.0mbgl across the site.

Groundwater was encountered in CP1, CP3, CP5, CP6 and CP7 during site work at depths between 11.20mbgl and 15.00mbgl. During subsequent monitoring, groundwater was encountered at depths of approximately 1.00mbgl at these locations, and at depths between 1.62mbgl and 2.67mbgl at WS1, WS2, WS4, WS6, WS7 and WS8.

6.1.3 Summary of Laboratory Test Results and Monitoring

When compared to the screening criteria for commercial end use, the chemical laboratory testing indicated no elevated concentrations of contaminants within the samples analysed. Asbestos was not detected in any of the samples analysed.

The ground gas monitoring results indicated that the gassing regime falls into CIRIA C665 Characteristic Situation 1.

6.2 Conclusion

Based on the conceptual site model and risk assessment, low risk to end users and moderate risk to site workers has been identified.

6.3 Recommendations

Recommendations are provided below.

6.3.1 Watching Brief

It is recommended that a watching brief is maintained on site, particularly during the groundwork stage. During any ground works an appraisal of the exposed soils should be made by a competent person, this as an example could be the site manager. If any material is noted to show visual and/or olfactory signs of contamination it should be stockpiled separately and tested prior to its appropriate removal off-site or re-use. If soils suspected of

being contaminated are encountered, it is recommended that a contaminated land specialist is consulted.

6.3.2 Buried Services

Potable water pipework shall comply with the Water Supply Regulations, the agreement of the water provider and Local Authority should also be sought regarding the potable water pipework and fittings selected prior to commencement.

6.3.3 Importing and Re-Use of Soil and Materials Management Plan

Excavated soil that is to remain and be re-used on site, assuming it is suitable for the proposed use, may not be determined as waste and its re-use therefore may not require an Environmental Permit. It may be necessary to consult the Environment Agency or other statutory bodies regarding re-use of soils as part of the proposals and whether a Materials Management Plan or Environmental Permit is required. In any case, a site waste management plan or materials management plan may assist the design and cost assessment of the proposed development. This should be devised within the design phase of the scheme.

6.3.4 Soil Disposal

The client and contractors are advised to follow the process outlined in the Environment Agency's Technical Guidance Document WM3 '*Waste Classification – Guidance on the Classification and Assessment of Waste*', 1st edition 2015. Background information and the results of chemical laboratory analysis within this assessment may be used as part of an initial characterisation to determine the likely waste classification of waste soils.

6.3.5 Statutory Authority Consultation

It is recommended that this report is sent to the statutory authorities including the Local Authority Environmental Health and Planning Departments prior to remediation or development of the site commencing to seek their comments. Where necessary, they will consult the Environment Agency or other relevant statutory authorities. If applicable to this project, this report should also be provided to the relevant building warranty provider. Where remediation works are required, a verification report should be submitted to the relevant authorities for approval in accordance with relevant Planning Conditions.

6.3.6 Health and Safety

As outlined within the HSE publication "Successful Health and Safety Management – HSG65" this report should inform your development of safe systems of work and the information used as an input to the safety management system. The contents of this report may be used to supplement the contents of the Health and Safety File as required under the Construction Design and Management (CDM) Regulations 2015.

In accordance with the Construction Design and Management (CDM) Regulations 2015, TerraConsult has acted in the role of Principal Contractor and as Principal Designer for the works as described in this report. With issue of this report, TerraConsult has discharged and completed all contractual and legal requirements for these positions and has no further involvement with the project. It is the developer's duty, as required by the CDM Regulations, to appoint others to fill these roles for the further development of the site.

7. Geotechnical Assessment and Recommendation

7.1 Fieldwork and Laboratory Data Review

7.1.1 General Stratigraphy

The natural geology was identified in all of the intrusive locations and was found to comprise Alluvium overlying Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated). Groundwater was encountered within the sand and gravel component of the Alluvium at CP1, CP3, CP5, CP6 and CP7.

7.1.2 Made Ground

Made Ground was encountered at WS4, WS5, WS6, WS7 and WS8 from surface level to depths between 0.15mbgl and 0.65mbgl

7.1.3 Alluvial Clay

Twelve samples of the Alluvial Clay were submitted to a laboratory for plasticity analyses. The test results are summarised below:

Hole	Depth (m)	Moisture Content (%)	% passing 425um sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Modified Plasticity Index	Volume Change Potential	Liquidity Index
CP01	1.5	60	100	79	32	47	47	High	0.596
CP02	1.5	58	100	72	30	42	42	High	0.667
CP02	3.5	87	100	77	30	47	47	High	1.213
CP04	1.5	59	100	77	33	44	44	High	0.591
CP04	3.5	99	100	87	34	53	53	High	1.227
CP05	1.5	62	100	71	28	43	43	High	0.791
CP05	3.5	59	100	70	28	42	42	High	0.738
CP06	1.5	51	100	70	26	44	44	High	0.569
CP06	3.5	51	100	45	22	23	23	High	1.261
CP07	1.5	62	100	79	32	47	47	High	0.639
CP07	3.5	70	100	67	31	36	36	Medium	1.084
CP07	6.0	75	100	75	33	42	42	High	1.000
М	inimum	51	100	45	22	23	23	Medium	0.569
ŀ	Verage	66.08	100	72.42	29.92	42.50	42.50	High	0.865
Ma	aximum	99	100	87	34	53	53	High	1.261

 Table 7.1
 Summary of Geotechnical Laboratory Classification Testing Alluvial Clay

None of the results indicated any level of desiccation. They do, however, indicate a high volume change potential. It is therefore considered that, where present, these soils could pose a significant risk to shallow structures such as foundations from either heave or shrinkage, and foundation design will need to allow for the impact of volume change potential on such soils.

SPT N-values were recorded throughout each borehole and are summarised below for the alluvial clay encountered. The listed N-values have been corrected to the standard Energy Ratio of 60% and are therefore reported below as N_{60} values:

Table 7.2 Summary o Hole No	f SPT N-Values Alluv Depth (m)	ial Clay Alluvium Clay
	2.50	0
	3.50	0
	4.50	0
CP1	6.00	0
	7.50	0
	9.00	0
	10.5	0
	2.50	0
	4.50	0
	7.50	0
	9.00	0
CP2	10.50	0
	12.00	0
	13.50	0
	15.00	2
	2.50	0
	3.50	0
	4.50	0
	7.50	0
CP3	9.00	0
	10.50	0
	12.00	0
	13.50	1
	2.50	0
	4.50	0
	7.50	0
CP4	9.00	0
	10.50	0
	12.00	0
	13.50	1
	2.50	0
CP5	4.50	0
	7.50	0

 Table 7.2
 Summary of SPT N-Values Alluvial Clay



9.00 0 10.50 0 12.00 0 13.50 2 2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.00 2 2.00 0 10.00 1 2.00 0 VS2 3.00 0 10.00 1 2 0 0 1 0 0	Hole No	Depth (m)	Alluvium Clay
12.00 0 13.50 2 2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 10.50 0 12.00 0 10.50 0 10.50 0 10.50 0 10.50 0 10.00 2 2.00 0 WS1 3.00 1.00 1 2.00 0 WS2 3.00 1.00 1 2.00 0 WS3 3.00 1.00 4 2.00 0 WS4 3.00 0		9.00	0
13.50 2 13.50 2 2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 4.50 0 7.50 0 4.50 0 7.50 0 12.00 0 10.50 0 10.50 0 11.00 2 2.00 0 13.00 0 10.00 2 2.00 0 WS1 3.00 1.00 0 2.00 0 WS2 3.00 1.00 1 2.00 0 WS3 3.00 1.00 1 2.00 0 WS4 3.00 0 0		10.50	0
2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 4.50 0 12.00 0 4.50 0 4.50 0 7.50 0 4.50 0 7.50 0 12.00 0 10.50 0 10.50 0 10.50 0 12.00 0 10.50 0 12.00 0 10.50 0 12.00 0 10.0 2 2.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 1.00 1 2.00 WS4 3.00 0 4.00 0 0		12.00	0
4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 2.50 0 4.50 0 7.50 0 7.50 0 7.50 0 7.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 12.00 0 12.00 0 WS1 3.00 0 WS2 3.00 0 WS2 3.00 0 WS3 3.00 0 WS4 1.00 4 WS4 3.00 0		13.50	2
CP6 7.50 0 9.00 0 10.50 0 12.00 0 2.50 0 4.50 0 7.50 0 7.50 0 7.50 0 7.50 0 7.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 12.00 0 12.00 0 WS1 3.00 0 WS2 3.00 0 WS2 3.00 0 WS3 3.00 0 WS4 1.00 4 2.00 0 0 WS4 3.00 0		2.50	0
CP6 9.00 0 10.50 0 12.00 0 2.50 0 4.50 0 7.50 0 7.50 0 10.50 0 10.50 0 7.50 0 10.50 0 10.50 0 10.50 0 10.50 0 12.00 0 12.00 0 12.00 0 WS1 3.00 0 4.00 0 0 WS2 3.00 0 WS3 3.00 0 WS4 3.00 0 WS4 3.00 0		4.50	0
9.00 0 10.50 0 12.00 0 2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 7.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.50 0 10.00 2 2.00 0 WS1 3.00 0 4.00 0 0 5.00 0 0 WS2 3.00 0 WS3 3.00 0 WS4 2.00 0 WS4 3.00 0	CP6	7.50	0
12.00 0 2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS2 3.00 0 WS3 3.00 0 WS4 1.00 4 2.00 0 0 WS4 3.00 0	CFU	9.00	0
2.50 0 4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 10.050 0 12.00 0 10.00 2 2.00 0 WS1 3.00 0 4.00 0 0 5.00 0 0 WS2 3.00 0 4.00 0 0 5.00 0 0 WS3 3.00 0 WS3 3.00 0 WS4 3.00 0		10.50	0
4.50 0 7.50 0 9.00 0 10.50 0 12.00 0 12.00 0 12.00 0 WS1 3.00 0 4.00 0 0 WS1 3.00 0 4.00 0 0 WS2 3.00 0 WS2 3.00 0 WS3 1.00 1 2.00 0 0 WS3 3.00 0 WS4 3.00 0 WS4 3.00 0		12.00	0
CP7 7.50 0 9.00 0 0 10.50 0 0 12.00 0 0 2.00 0 0 WS1 3.00 0 4.00 0 0 WS2 3.00 0 WS2 3.00 0 4.00 0 0 WS2 3.00 0 WS3 1.00 1 2.00 0 0 WS3 3.00 0 WS4 3.00 0 WS4 3.00 0		2.50	0
CP7 9.00 0 10.50 0 1 12.00 0 1 2.00 0 0 WS1 3.00 0 4.00 0 0 5.00 0 0 WS2 3.00 0 WS2 3.00 0 4.00 0 0 WS2 3.00 0 WS3 3.00 0 WS3 3.00 0 WS4 3.00 0 WS4 3.00 0		4.50	0
9.00 0 10.50 0 12.00 0 12.00 0 2.00 0 2.00 0 4.00 0 5.00 0 1.00 0 2.00 0 4.00 0 5.00 0 2.00 0 2.00 0 1.00 0 2.00 0 WS2 3.00 0 1 2.00 0 WS3 3.00 0 1 2.00 0 WS3 3.00 0 1 2.00 0 WS4 3.00 0 0	007	7.50	0
12.00 0 1.00 2 2.00 0 2.00 0 4.00 0 4.00 0 5.00 0 1.00 0 2.00 0 4.00 0 5.00 0 2.00 0 2.00 0 4.00 0 4.00 0 5.00 0 4.00 0 5.00 0 4.00 0 5.00 0 4.00 0 4.00 0 5.00 0 4.00 0 5.00 0 4.00 0 4.00 0 WS4 3.00 0 4.00 0 0	CP7	9.00	0
1.00 2 2.00 0 3.00 0 4.00 0 5.00 0 1.00 0 2.00 0 5.00 0 2.00 0 2.00 0 2.00 0 2.00 0 4.00 0 5.00 0 4.00 0 5.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 5.00 0 0 4.00 0 0 WS4 3.00 0 4.00 0 0		10.50	0
2.00 0 3.00 0 4.00 0 5.00 0 1.00 0 2.00 0 1.00 0 2.00 0 WS2 3.00 0 4.00 0 0 WS2 3.00 0 4.00 0 0 5.00 0 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 WS4 3.00 0		12.00	0
WS1 3.00 0 4.00 0 5.00 0 1.00 0 2.00 0 WS2 3.00 0 4.00 0 0 WS2 3.00 0 4.00 0 0 5.00 0 0 4.00 0 0 5.00 0 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 WS4 3.00 0		1.00	2
4.00 0 5.00 0 1.00 0 2.00 0 2.00 0 4.00 0 4.00 0 4.00 0 4.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 1 5.00 0 1 2.00 0 1 2.00 0 1 4.00 0 1 5.00 0 1 2.00 0 1 WS4 3.00 0		2.00	0
5.00 0 1.00 0 2.00 0 WS2 3.00 0 4.00 0 0 5.00 0 0 1.00 1 1 2.00 0 0 WS3 3.00 0 WS3 3.00 0 1.00 4 0 WS4 3.00 0	WS1	3.00	0
1.00 0 2.00 0 3.00 0 4.00 0 5.00 0 1.00 1 2.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 1.00 4 2.00 0 WS4 3.00 0		4.00	0
2.00 0 3.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 4.00 0 0 WS4 3.00 0 4.00 0 0		5.00	0
WS2 3.00 0 4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 4.00 0 0 WS3 3.00 0 WS4 3.00 0 4.00 0 0		1.00	0
4.00 0 5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 4.00 0 0 4.00 0 0 5.00 0 0 4.00 0 0 5.00 0 0 1.00 4 2.00 WS4 3.00 0		2.00	0
5.00 0 1.00 1 2.00 0 WS3 3.00 0 4.00 0 0 5.00 0 0 4.00 0 0 5.00 0 0 1.00 4 2.00 WS4 3.00 0 4.00 0 0	WS2	3.00	0
1.00 1 2.00 0 3.00 0 4.00 0 5.00 0 1.00 4 2.00 0 5.00 0 1.00 4 2.00 0 WS4 3.00 0 4.00 0 0		4.00	0
2.00 0 WS3 3.00 0 4.00 0 0 5.00 0 0 1.00 4 2.00 0 WS4 3.00 0 0		5.00	0
WS3 3.00 0 4.00 0 5.00 0 1.00 4 2.00 0 WS4 3.00 0 4.00 0		1.00	1
4.00 0 5.00 0 1.00 4 2.00 0 WS4 3.00 0 4.00 0 0		2.00	0
5.00 0 1.00 4 2.00 0 WS4 3.00 0 4.00 0 0	WS3	3.00	0
1.00 4 2.00 0 WS4 3.00 0 4.00 0 0		4.00	0
2.00 0 WS4 3.00 0 4.00 0 0		5.00	0
WS4 3.00 0 4.00 0		1.00	4
4.00 0		2.00	0
	WS4	3.00	0
5.00 0		4.00	0
		5.00	0

Hole No	Depth (m)	Alluvium Clay
	1.00	0
WS5	2.00	0
	3.00	0
	4.00	0
	1.00	2
	2.00	0
WS6	3.00	0
	4.00	0
	5.00	0
	1.00	3
	2.00	0
WS7	3.00	0
	4.00	0
	5.00	0
	1.00	4
	2.00	0
WS8	3.00	0
	4.00	0
	5.00	0
	1.00	4
	2.00	0
WS9	3.00	0
	4.00	0
	5.00	0
No of Tests		93
Range of Values		0 - 4
Mean		0.28

The average results indicate that the alluvial clay is of very low to extremely low strength. This was also confirmed within the triaxial test results.

7.1.4 Peat

Six samples of Peat were submitted to a laboratory for plasticity analyses. The classification test results on the clay strata are summarised below with the two lithologies separated out:

Hole	Depth (m)	Moisture Content (%)	% passing 425um sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Modified Plasticity Index	Volume Change Potential	Liquidity Index
CP02	6.0	380	100	473	335	138	138	High	0.326
CP03	1.5	127	100	150	50	100	100	High	0.77
CP03	6.0	421	100	508	400	108	108	High	0.195
CP04	6.0	469	100	679	429	250	250	High	0.16
CP05	6.0	341	100	495	384	111	111	High	-0.388
CP06	6.0	310	100	312	215	97	97	High	0.98
М	linimum	127	100	150	50	97	97	High	-0.388
4	Average	341	100	436	302	134	134	High	0.341
М	aximum	469	100	679	429	250	250	High	0.98

None of these results indicated any degree of desiccation with the exception of CP05, however this may be due to the presence of wood fragments. They also indicated a high volume change potential. This material was mainly found at depth across the site and is unlikely to have any direct effect on shallow structures. However, the high plasticity and presence of decaying wood fragments does indicate that the material will be subject to decay and movement over time which may affect both ground levels and structures penetrating through the strata such as piles. Significant movement may also occur is dewatering occurs either from engineering practices or drainage.

The average results indicate that the peat is of very low to extremely low strength.

7.1.5 Coarse Alluvium

SPT N-values were recorded throughout each borehole and are summarised below for the alluvial granular materials encountered. The listed N-values have been corrected to the standard Energy Ratio of 60% and are therefore reported below as N_{60} values:

Hole No	Depth (m)	Alluvium Granular
	12.00	8
	13.50	9
CP1	15.00	14
	16.50	33
	18.00	46
	19.50	23
CP2	16.50	8
	18.00	9
	15.00	13
CP3	16.50	9
	18.00	11
	19.50	11

Summary of SPT N-Values Granular Alluvial Table 7.4

Hole No	Depth (m)	Alluvium Granular
CP4	15.00	7
	16.50	10
	15.00	8
CP5	16.50	9
	18.00	13
	13.50	9
CP6	15.00	9
CFU	16.50	14
	18.00	21
	13.50	8
CP7	15.00	8
	16.50	11
	18.00	10
No of Tests		25
Range of Values		7 - 46
Mean		13.24

The SPT tests undertaken within the alluvial granular deposits indicated them being present from between 12m and 16.5m below ground level. The results identified them as commencing as a loose deposit generally becoming medium dense towds the base of the deposit.

7.1.6 Chalk

Chalk was located within all of the deep boreholes below the alluvial soils. The SPT data indicated it to be relatively consistent in strength although, due to the drilling method, it weas difficult to provide a qualitative description. Standpipe piezometers placed within the strata indicated the piezometric head in the chalk to be close to ground level.

SPT N-values were recorded throughout each borehole and are summarised below for the chalk encountered. The listed N-values have been corrected to the standard Energy Ratio of 60% and are therefore reported below as N_{60} values:

Hole No	Depth (m)	Chalk
	21.00	15
CP1	22.50	16
	24.00	31
	19.50	7
CP2	21.00	28
	22.50	7

 Table 7.5
 Summary of SPT N-Values Chalk

Hole No	Depth (m)	Chalk
	24.00	14
	21.00	3
CP3	22.50	10
	24.00	13
	18.00	11
CP4	19.50	5
014	21.00	5
	22.50	12
	19.50	6
CP5	21.00	11
61.5	22.50	6
	24.00	11
	19.50	16
CP6	21.00	10
	22.50	11
	19.50	10
CP7	21.00	8
	22.50	10
No of Tests		24
Range of Values		3 - 31
Mean		11.50

7.2 Foundation Recommendations

7.2.1 Shallow Foundations

It is understood that the site is to be used as a power station, storing and providing electricity to the Grid. As such the development will include for significant structures although the exact loads are unknown.

The investigation works has identified that the alluvial deposits (specifically the clay) will not be suitable for foundations for any significant structures. It may be possible to place lightly loaded structures onto the deposits either using rafts or ground improvement such as cement/lime stabilisation of the near surface soft materials. Should rafts be used we would recommend a safe allowable bearing pressure 25kN/m². However, any structures placed on this typs of foundation would need to be able to tolerate a significant amount of long term settlement, especially if any loadings are eccentric thus potentially leading to differential settlement.

Detailed design of foundations should be carried out in accordance with BSEN 19971 2007 + A1 2013, and BS8004:2015, by a suitably qualified structural enginer.

Any ground improvement should be designed by a specialist contractor.

7.2.2 Deep Foundations

It is recommended that any significant loads, or buildings which do not have a high tolerance for total and differential settlement, should be constructed on piled foundations.

A specialist piling contractor should be contacted with regards to the selection of appropriate pile design and construction method. Geotechnical information within this report should be provided to give design parameters although further, deeper information will likely be required.

Any piles would need to be taken to significant depth through all of the alluvial clay and peat and at least into the underlying alluvial granular deposits at depth. However, it is highly likely that, in order to have suitable loading capacity, the piles will need to be taken into the underlying chalk.

Due to the significant thickness of soft clays and peat and the presence of groundwater the type of pile should be considered. The effect of negative skin friction (downward force on the piles from settlement in the peat and clay) could be significant. Also, if a cast in-situ type pile is adopted, the presence of mobile groundwater could cause washout of the concrete fines leading to necking of the piles. Both of these scenarious could potentially lead to catastrophic loss of bearing capacity and thus failure of the pile. A solution to these effects such as sleeving of the piles through these deposits should be considered.

Driven precast piles taken to such a depth as to equalise the effect of potential negative skin friction could also be considered although such a solution could lead to extremely deep piles and would require the pile to be successfully driven through the granular depsoits abopve the chalk.

Detailed design of piledfoundations should be carried out in accordance with BSEN 19971 2007 + A1 2013, and BS8004:2015, by a suitably qualified structural enginer once the detailed layout and loading of the propsed foundations is known.

Whilst TerraConsult considers the risks to be low for piling, a risk assessment is likely to be necessary to show that the piling will not create additional risks to Controlled Water.

Any piling works undertaken from existing ground levels will require a suitable piling mat/platform constructed in accordance with BRE Report 470 (2004) or TWf2019:02. A geotextile may be incorporated into the platform to reduce the required thickness and the platform could be designed as part of the engineering fill required for any earthworks to alter final site levels. TerraConsult can assist in the design if required once the piling rig type is known.

7.3 Ground Floor Slab

Ground bearing floor slabs would not be recommended on the alluvial deposits. However, placement of slabs onto the underlying natural clay which has been treated with lime and/or cement may be suitable dependent on the proposed loading and its susceptibility to differential settlement.

Fo any heavily loaded structure or any structures which are susceptible to significant settlement, a suspended ground floow slab would be recommended.

7.4 Roads and Hard Standing Areas

No CBR testing was undertaken as part of the site investigation works. However, with regards to the natural strata for initial design purposes, we would recommend that a CBR value of <2.5% would be indicative of the site conditions. However, we would recommend that some in-situ testing is undertaken in areas of proposed hardstanding and this along with ground conditions are reviewed in line with the layout to provide more detailed information for design purposes.

Should the CBR be demonstrated to be <2.5% then engineering solutions such as localised removal and replacement with a suitable imported engineered fill, or stabilisation using lime and cement should be considered to provide a capping layer for pavement construction..

7.5 Groundwater and Excavations

Groundwater will likely be encountered across the site in excavations in excess of 2m depth. It is anticipated that any groundwater in excavations can be controlled by sump pumping due to the clayey nature of the shallow ground.

Excavations through the soils to a depth of about 2.0m should be stable in the short term (up to 3 to 4 hours). All excavations should be carried out in accordance with BSEN16907: 2018 Earthworks, CIRIA Report 97 "Trenching Practice" and BS6031: 2009: Code of Practice for Earthworks. Further guidance on this aspect of site works is given in the British Standards for "Workmanship on Building Sites", BS 8000, Parts 1 and 14, and in the Construction Industry Training Board's Site Safety Note 10.

Excavation depths should generally be readily achieved using conventional hydraulic plant (e.g. wheeled JCB or similar) although larger plant (tracked 360° or similar) will have higher excavation rates and generally lower ground bearing pressures.

7.6 Buried Concrete and Pipework

A total of 21 samples were analysed for pH and sulphate values. Therefore in accordance with BRE Digest 1, the mean of the highest 20% of the results should be taken into account for buried concrete classification. Therefore, for this site the highest five results have been used for classification. The results are as presented below:

Hole	Depth (m)	Water Soluble Sulphate Content (mg/l)	pH Level	Design Sulphate Class	ACEC Class
CP01	4.5	1,120	8.5	DS2	AC2
CP01	10.0	830	8.4	DS2	AC2
CP02	13.5	740	8.2	DS2	AC2
CP04	3.5	1,480	8.1	DS2	AC2
CP04	5.9	2,080	7.4	DS3	AC3
	Average	1,250	8.1	DS2	AC2

 Table 7.6
 Summary of Top 20% Sulphate and pH Analysis

The results of laboratory pH and sulphate content indicate that a Design Sulphate Class of DS-2 and ACEC Class AC-2 conditions prevail in accordance with BRE Special Digest 1, 2005 (the Design Concrete Class).

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APPENDICES

- Appendix A Service Constraints, Report Limitations and Planning Requirements
- Appendix B Environmental Risk Assessment Methodology and Terminology
- Appendix C Fieldwork Records
- Appendix D Laboratory Analysis Results

Appendix A

Service Constraints, Report Limitations

and Planning Requirements

Service Constraints, Report Limitations and Planning Requirements

This report (the "Services") was compiled and carried out by TerraConsult Limited (TCL) for the client named on the front of the report (the "client") in accordance with the terms of a contract between TCL and the "client". The Services were performed by TCL with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by TCL taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between TCL and the client.

Other than that expressly contained in the above paragraph, TCL provides no other representation or warranty whether express or implied, is made in relation to the Services. Unless otherwise agreed, this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of TCL. If a third party relies on this report, it does so wholly at its own and sole risk and TCL disclaims any liability to such parties.

It is TCL's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon, the report in those circumstances by the client without TCL 's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of TerraConsult Limited.

The report has been prepared at the date shown on the front page and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of TCL. In the absence of such written advice of TCL, reliance on the report in the future, TCL shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between TCL and the client.

The observations and conclusions described in this report are based solely upon the Services that were provided pursuant to the agreement between the client and TCL. TCL has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. TCL is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, TCL did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, radon gas or other radioactive or hazardous materials.

The Services are based upon TCL's observations of existing physical conditions at the site gained from existing documents, together with TCL's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst TerraConsult Limited has no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. Further, TCL was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. TCL is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to TCL and including the doing of any independent investigation of the information provided to TCL save as otherwise provided in the terms of the contract between the client and TCL.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and TCL] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geoenvironmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geoenvironmental sections are written in broad agreement with BS 10175:2011+A1 2013. For the geotechnical aspects of the report, the general requirements of Eurocode 7 (BS EN 1997-2:2007) providing a desk study assessment. This report shall not be considered as being a Ground Investigation Report (GIR).

Planning Requirements

The National Planning Policy Framework (NPPF, 2012) has twelve core land-use planning principles, two of which directly relate to the potential for pollution and contaminated land:

- Requirement to *"contribute to conserving and enhancing the natural environment and reducing pollution"* and setting out of a preference for developments to be on land of *"lesser environmental value"*; and
- "encourage the effective use of land by re-using land that has been previously developed (brownfield land), providing that it is not of high environmental value.".

In accordance with the core principles of NPPF, Paragraph 109 clarifies that enhancing the natural environment includes:

- "preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.".

Paragraph 121 of NPPF states that planning policies and decisions for developments should also ensure that:

- "the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;
- after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and
- adequate site investigation information, prepared by a competent person, is presented.".

This report has been prepared and authorised by staff that are competent as defined in the NPPF.

Unexploded Ordnance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA Report C681 (Stone et al 2009). A non-UXO specialist screening exercise has been carried out for the site by considering any evidence of UK defence activities on or near the site evident from the gathered desk study information and the unexploded aerial delivered bomb (UXB) regional risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced in the desk study, field investigation and clearance of UXO/UXB.

Appendix B

Environmental Risk Assessment Methodology & Terminology

ENVIRONMENTAL RISK ASSESSMENT

METHODOLOGY & TERMINOLOGY

Legislation Overview

This report includes hazard identification and environmental risk assessment in line with the riskbased methods referred to in relevant UK legislation and guidance. Government environmental policy is based upon a "suitable for use approach," which is relevant to both the current use of land and also to any proposed future use. The contaminated land regime is the statutory regime for remediation of contaminated land that causes an unacceptable level of risk and is set out in Part 2A of the Environmental Protection Act 1990 ("EPA 1990"). The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current use and circumstances of the land. Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

"any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:

(a) Significant harm is being caused or there is a significant possibility of such harm being caused;

or

(b) Pollution of controlled waters is being, or is likely to be, caused."

In order to assist in establishing if there is a "*significant possibility of significant harm*" there must be a "*contaminant linkage*" for potential harm to exist. That means there must be a source(s) of contamination, sensitive receptors present and a connection or pathway between the two. This combination of contaminant-pathway-receptor is termed a "contaminant linkage or CPR linkage."

Part IIA of The Environmental Protection Act 1990 is supported by a substantial quantity of guidance and other Regulations. Key implementing legislation of the Part 2A regime includes the Contaminated Land (England) Regulations 2006 (SI 2006/1380) as recently amended by the overarching legislation for the contaminated land regime, which implements the provisions of Part IIA of the Environmental Protection Act 1990 (as inserted by section 57 of the Environment Act 1995), came into force on 14th July 2000 together with recent amended regulations: Contaminated Land (England) (Amendment) Regulations 2012 (SI 2012/263). Revised and Contaminated Land Statutory Guidance was published by Defra in (Defra, April 2012). Part IIA defines the duties of Local Authorities in dealing with it. Part IIA places contaminated land responsibility as a part of planning and redevelopment process rather than Local Authority direct action except in situations of very high pollution risk.

In the planning process guidance is provided by National Planning Policy Framework (NPPF) of March 2012 which requires that a site which has been developed shall not be capable of being determined "contaminated land" under Part IIA. In practice, Planning Authorities require sites being developed to have a lower level of risk post development than the higher level of risk that is required in order to determine a site as being contaminated in accordance with Part IIA. This is to ensure that there is a suitable zone of safety below the level for Part IIA determination and prevent recently developed sites becoming reclassified as contaminated land if there are future legislative or technical changes (e.g. a substance is subsequently found to be more toxic than previously assessed this increases its hazard)..

The criteria for assessing levels of contaminants and hence determining whether a site represents a hazard are based on a range of techniques, models and guidance. Within this context it is relevant to note that Government objectives are:

- (a) to identify and remove unacceptable risks to human health and the environment;
- (b) to seek to bring damaged land back into beneficial use;
- (c) to seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

These three objectives underlie the "suitable for use" approach to remediation of contaminated land. The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore should be assessed on a site-by-site basis.

The "suitable for use" approach then consists of three elements:

- (a) ensuring that land is suitable for its current use in other words, identifying any land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land); the contaminated land regime provides the regulatory mechanisms to achieve this;
- (b) ensuring that land is made suitable for any new use, as planning permission is given for that new use - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risks to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes; and
- (c) limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought - in other words, recognising that the risks from contaminated land can be satisfactory assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby running the risk of distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

The mere presence of contaminants does not therefore necessarily warrant action, and consideration must be given to the scale of risk involved for the use that the site has, and will have in the future.

OVERALL METHODOLOGY

The work presented in this report has been carried out in general accordance with recognised best practice as detailed in guidance documents such as in the CLR 11 Model Procedures for the Management of Land Contamination (Environment Agency, 2004), and BS10175:2011+A2 20173. Important aspects of the risk assessment process are transparency and justification. The particular rationale behind the risk assessments presented is given in this appendix.

The first stage of a two-staged investigation and assessment of a site is the Preliminary Investigation (BS 10175:2011), often referred to as the Phase 1 Study, comprising desk study and walk-over survey, which culminates in the Preliminary Risk Assessment. A preliminary conceptual site model (CSM) is developed which identifies potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them. From the geo-environmental perspective, the Hazard Identification process uses professional judgement to evaluate all the hazards in terms of potential contaminant linkages (of contaminant source-pathway-receptor). Potential contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The scope of the Ground Investigation is based on the findings of the Preliminary Risk Assessment and is designed to reduce uncertainty in the geotechnical and geoenvironmental hazard identification. The Ground Investigation comprises fieldwork, laboratory testing and usually also on site monitoring. The Ground Investigation may include the Exploratory, Main and Supplementary Investigations described in BS 10175:2011+A1

2013. The result of the Ground Investigation reduces uncertainty in the geotechnical and geoenvironmental risks. Depending on the findings more detailed investigations or assessments may be required.

Preliminary Risk Assessment

Current practice recommends that the determination of potential liabilities that could arise from land contamination be carried out using the process of risk assessment, whereby "risk" is defined as:

- "(a) The probability, or frequency, or occurrence of a defined hazard; and
- (b) The magnitude (including the seriousness) of the consequences."

The UK's approach to the assessment of environmental risk is set out in by the Department of the Environment Transport and the Regions (2000) publication "A Guide to Risk Assessment and Risk Management for Environmental Protection" (also called Greenleaves II). This established an iterative, systematic staged process which comprises:

- (a) Hazard identification;
- (b) Hazard assessment;
- (c) Risk estimation;
- (d) Risk evaluation;
- (e) Risk assessment;

At each stage during the development process the above steps are repeated as more detailed information becomes available for the site.

For an environmental risk to be present, all three of the following elements must be present:

- Source/Contaminant: hazardous substance that has the potential to cause adverse impacts;
- Receptor: target that may be affected by contamination: examples include human occupants/users of site, water resources (rivers or groundwater), or structures;
- Pathway: a viable route whereby a hazardous substance may come into contact with the receptor.

The absence of one or more of each component (contaminant, pathway, receptor) would prevent a contaminant linkage being established and there would be no significant environmental risk.

The identification of potential contaminant linkages is based on a Conceptual Model of the site, which is subject to continual refinement as additional data becomes available. As part of a Phase I Investigation (Desk Study and site walk over) a Preliminary Conceptual Site Model (PCSM) is formed. Based on the PCSM, potential contaminant linkages can be assessed. If the PCSM and hazard assessment indicate that a pollution linkage is not of significance then no further assessment or action is required due to this linkage. For each significant and possible linkage a risk assessment is carried out. The linkages which potentially pose significant risks may require a variety of responses ranging from immediate remedial action or risk management or, more commonly, further investigation and risk assessment. This next stage is termed a Phase II Main Site Investigation and should provide additional data to allow refinement of the Conceptual Site Model and assess the level of risk from each contaminant linkage.

Definition of Risk Assessment Terminology

The criteria used for risk assessment are broadly based on those presented in DETR's "A Guide to Risk Assessment and Risk Management for Environmental Protection" (2000). The Severity of the risk is classified according to the criteria in Table B.1 below:

Table B.1 Severity/Consequence of Risk

Severe	Acute risks to human health. Catastrophic damage to buildings/property (e.g. by explosion). Direct pollution of sensitive water receptors or serious pollution of other controlled water (watercourses or groundwater) bodies.
Medium	Harm to human health from long-term exposure. Slight pollution of sensitive controlled waters (surface waters or aquifers) or pollution of other water bodies. Significant effects on sensitive ecosystems or species.
Mild	No significant harm to human health in either short or long term. No pollution of sensitive controlled waters, no more than slight pollution of non-sensitive waters. Significant damage to buildings or structures. Requirement for protective equipment during site works to mitigate health effects.
Negligible	Damage to non-sensitive ecosystems or species. Minor damage to buildings or structures. No harm or pollution of water.

The probability of the risk occurring is classified according to criteria given in Table B.2 below:

Table B.2: Probability	of Risk Occurring
High likelihood	Contaminant linkage may be present, and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Medium/Reasonably Foreseeable	Contaminant linkage may be present, and it is probable that the risk will occur over the long term.
Low/Unlikely	Contaminant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Negligible/ Not credible	Contaminant linkage may be present but the circumstances under which harm would occur are improbable.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table B.3 below:

Table B.3: C	Table B.3: Comparison of Severity and Probability											
		Severity										
		Severe	Medium	Mild	Negligible							
	High likelihood	Very High Risk	High Risk	Medium/Low Risk	Low Risk							
Drobobility	Medium/Reasonably Foreseeable	High Risk	Medium Risk	Low Risk	Near Zero							
Probability	Low/Unlikely	High/Medium Risk	Medium/Low Risk	Low Risk	Near Zero							
	Negligible/ Not credible	Medium/Low Risk	Low Risk	Low Risk	Near Zero							

The various risk rankings provide guidance for recommended actions, whether this is:

AR - Action Required, Remediation or mitigation or site investigation works required

- SIR Site Investigation Required, further assessment is required.
- NAR No Action Required.

A description of the evaluated risk is as follows:

Table B.4 – Dese	cription of the Classified Risks and Likely Action Required								
Evaluated Risk	Recommended Actions								
Very High Risk	AR: There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.								
High Risk	AR: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.								
Moderate Risk	SIR: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.								
Low Risk	NAR: It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.								
Near Zero	NAR: There is a negligible possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.								

Definition of Controlled Waters

The term 'controlled waters' is defined in Section 104 of the Water Resources Act 1991 as:

"Territorial Waters...which extend seawards for three miles..., coastal waters..., inland freshwaters, waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and ground waters, that is to say, any waters contained in underground strata."

Note that the definition of groundwater under the Water Resources Act 1991 includes all water within underground strata (including soil / pore water in the unsaturated zone). The definition of groundwater under the Groundwater Directive however is limited to water in the saturated zone. For the purposes of Part IIA of the Environmental Protection Act 1990, the Environment Agency recommends that the groundwater within the saturated zone only is considered as the receptor (rather than soil / pore water).

Environment Agency's Aquifer Designations

The Environment Agency have classified different types of aquifer from which groundwater can be extracted. The aquifer designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems. The aquifer designation data is based on geological mapping provided by the British Geological Survey.

The maps are split into two different types of aquifer designation:

- Superficial (Drift) permeable unconsolidated (loose) deposits.
- Bedrock (Solid) solid permeable formations e.g. sandstone, chalk, limestone.

The aquifer designations displayed on the Environment Agency maps are as follows:

- Principal Aquifers (formerly termed Major Aquifers) These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as a major aquifer.
- Secondary Aquifers (formerly termed Minor Aquifers) These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:
 - Secondary A permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers;
 - Secondary B predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
 - Secondary Undifferentiated has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- Unproductive Strata (formerly termed Non-Aquifer) These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

MANAGEMENT OF CONTAMINATED LAND

When risk assessment of the site has been completed and this indicates that remedial works are required, the main guidance in managing this process is set out in the Defra/EA publication CLR11 (2004) "Model Procedures for the Management of Land Contamination." The stages of managing remediation are as follows:

- (a) Options Appraisal and develop Remediation Strategy;
- (b) Develop Implementation Plan and Verification Plan;
- (c) Remediation, Verification and Monitoring.

The Remediation Strategy sets out the remediation targets, identifies technically feasible remedial solutions and presents an evaluation of the options so that these can be assessed enabling that the most suitable solution is adopted. An outline of the proposed remedial method should be presented. Agreement should be sought of the appropriate statutory bodies for the Remediation Strategy before proceeding to the next stage.

The Implementation Plan is a detailed method statement setting out how the remediation is to be carried out including stating how the site will be managed, welfare procedures, health and safety considerations together with practical measures such as details of temporary works, programme of works, waste management licences and regulatory consents required. Agreement should again be sought of the appropriate statutory bodies for this Plan.

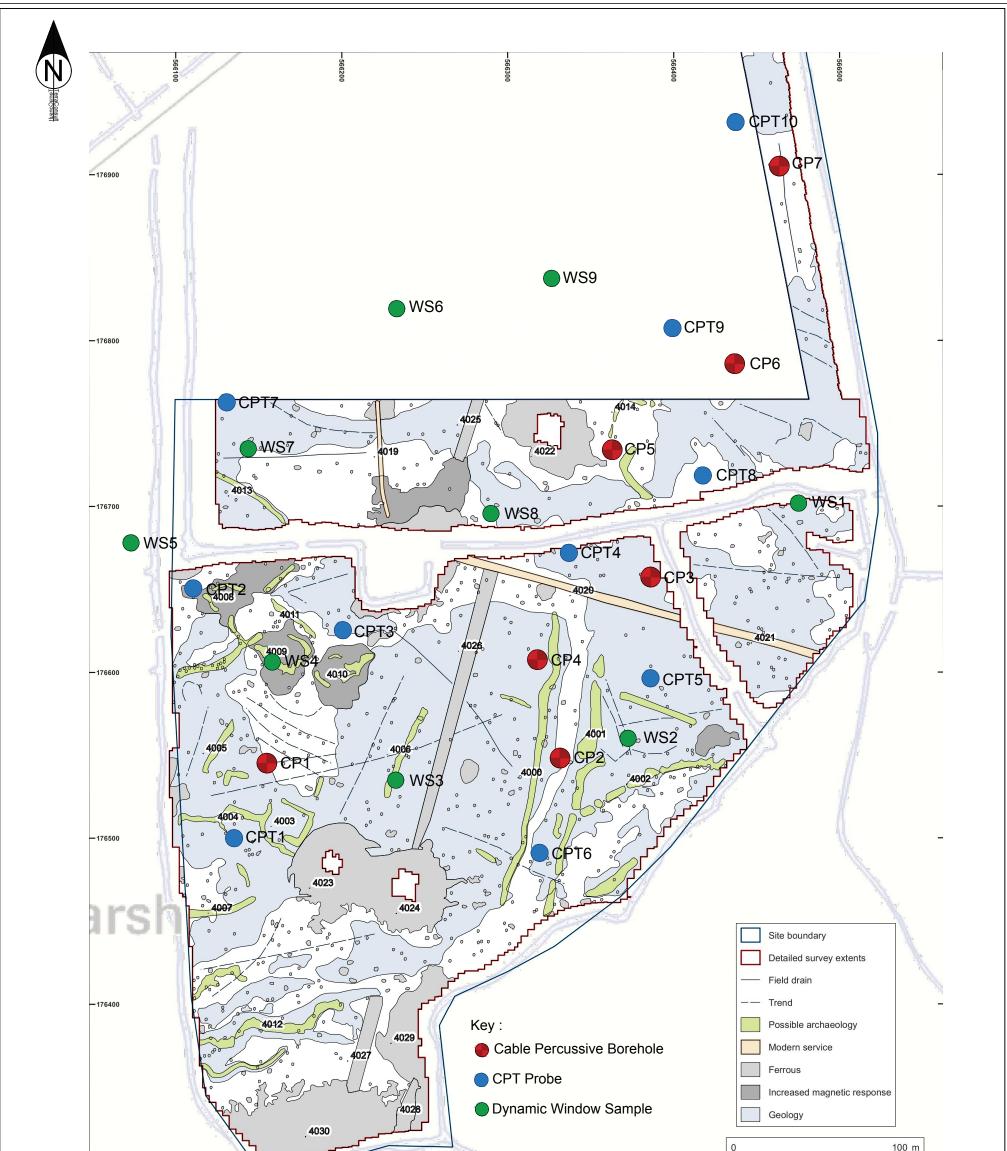
The Verification Plan sets out the requirements for gathering data to demonstrate that the remediation has met the required remediation objectives and criteria. The Verification Plan presents the requirements for a wide range of issues including the level of supervision, sampling and testing regimes for treated materials, waste and imported materials, required monitoring works during and post remediation, how compliance with all licenses and consents will be checked etc. Agreement should again be sought of the appropriate statutory bodies for the Verification Plan. On completion of the remediation a Verification Report should be produced to provide a complete record of all remediation activities on site and the data collected as required in the Verification Plan. The Verification Report should demonstrate that the remediation has met the remedial targets to show that the site is suitable for the proposed use.

GLOSSARY

TERMS		UNITS	
AST	Above Ground Storage Tank	m	Metres
BGS	British Geological Survey	km	Kilometres
BSI	British Standards Institute	%	Percent
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	%v/v	Percent volume in air
CIEH	Chartered Institute of Environmental Health	mb	Milli Bars
CIRIA	Construction Industry Research Association		(atmospheric pressure)
CLEA	Contaminated Land Exposure Assessment	l/hr	Litres per hour
CSM	Conceptual Site Model	ha	Hectare (10,000 m ²)
DNAPL PCB)	Dense Non-Aqueous Phase Liquid (chlorinated solvents,	µg/l	Micrograms per Litre (parts per billion)
DWS	Drinking Water Standard	ppb	Parts Per Billion
EA	Environment Agency	mg/kg	Milligrams per kilogram
EQS	Environmental Quality Standard		(parts per million)
GAC	General Assessment Criteria	ppm	Parts Per Million
GL	Ground Level	mg/m ³	Milligram per metre cubed
GSV	Gas Screening Value	Mg/m ³	Megagram per metre cubed
HCV	Health Criteria Value	µg/m ³	Microgram per metre cubed
	Light Non-Aqueous Phase Liquid (petrol, diesel)	m bgl	Metres Below Ground Level
ND	Not Detected	m bcl	Metre Below Cover Level
LMRL	Lower Method Reporting Limit	mOD	Metres Above Ordnance
NR	Not Recorded	0	Datum (sea level)
OD	Ordnance Datum	kN/m ²	Kilo Newtons per metre
PAH	Poly Aromatic Hydrocarbon		squared
PCB	Poly-Chlorinated Biphenyl	kPa	Kilo Pascal – same as kN/m ²
PID	Photo Ionisation Detector	μm	Micro metre
PCSM	Preliminary Conceptual Site Model		
SGV	Soil Guideline Value		
	VG) Total Petroleum Hydrocarbon (Criteria Working Group)		
SPT	Standard Penetration Test		
SVOC	Semi Volatile Organic Compound		
UST	Underground Storage Tank		
VCCs	Vibro Concrete Columns		
VSCs	Vibro Stone Columns		
VOC	Volatile Organic Compound		

Appendix C

Fieldwork Records



-176300		1				
	Site	Scale	e	Scale B	ar	@ A3
TerraConsult		Draw	ving No.	4693-1-	-001	
	Statera Tilbury	Rev Date		Description		
9 The Courtyard, Phoenix Square, Wyncolls Road COLCHESTER, CO4 9PE						
Client	Title					
Statera	Borehole Location	File	4593-1-00	-001 Borehole Location Plan.dwg		
	Plan	Date: 27		2-09-2019 Engine		r: TM
	FIAII	Draw	n: DF		Checked	d: AS

Exploratory Hole Key Sheet

TerraConsult

SAMPLES:			
Undisturbed:			
U	Driven tube sample		
UT	Thin wall driven tube sample		
TW	Pushed thin wall tube sample		
Р	Pushed piston sample		
L	Liner sample (from windowless or similar sampler), full recovery unless otherwise state	d	
CBR	CBR mould sample		
BLK C	Block sample Core sample (from rotary core) taken for laboratory testing		
C	Core sample (nom rotary core) taken for laboratory testing		
Disturbed:			
D	Small sample		
В	Bulk sample		
AMAL	Amalgamated sample		
Environmental:			
ES EW	Environmental soil sample Environmental water sample		
Comments:	Sample reference numbers are assigned to every sample taken. A sample reference of	f 'NR' indicat	es that an attempt was made
	to take a tube sample; however, there was no recovery. Sample recovery is given as a	percentage.	
ESTS:			
SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C)		
	The Standard Penetration Test is defined in BS EN ISO 22476-3 (2005). The incremen	tal blow cou	nts are given
	in the Field Records column; each increment is 75mm unless stated otherwise and any		
	weight in mm (SW) is noted. Where the full 300mm test drive is achieved the total num		
	drive is presented as N = ** in the Test column. Where the test drive blows reach 50 (e		or for a single
	increment) the total blow count beyond the seating drive is given (without the N = prefix	.).	
ICBR	In situ CBR		
IV	In situ CDR In situ vane shear strength, peak (p) and remoulded (r), kPa		
HV	Hand vane shear strength, peak (p) and remoulded (r), kha		
PP	Pocket penetrometer test, converted to shear strength, kPa		
	Variable head permeability tests (KFH = falling head test, KRH = rising head test, KPI =	packer test)), permeability value
KFH, KRH, KPI			
	Photo-ionisation detector/Flame-ionisation detector		
KFH, KRH, KPI PID/FID	Photo-ionisation detector/Flame-ionisation detector Test results provided in Field Records column		
PID/FID			
PID/FID			
PID/FID RILLING RECORDS:			
PID/FID RILLING RECORDS: he mechanical indices (1)	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006)		
PID/FID RILLING RECORDS: ne mechanical indices (1 TCR	Test results provided in Field Records column		
PID/FID RILLING RECORDS: ne mechanical indices (1 TCR SCR	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, %		
PID/FID RILLING RECORDS: he mechanical indices (1) TCR SCR RQD If	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, %		
PID/FID RILLING RECORDS: he mechanical indices (1) TCR SCR RQD If	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, %		
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented.		
PID/FID RILLING RECORDS: the mechanical indices (1) TCR SCR RQD If NI CRF	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run		
PID/FID RILLING RECORDS: the mechanical indices (1) TCR SCR RQD If NI CRF AZCL	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss		
PID/FID RILLING RECORDS: ne mechanical indices (T TCR SCR RQD f NI CRF AZCL	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run		
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss	DEPTH RI	EMARKS:
PID/FID RILLING RECORDS: the mechanical indices (1) TCR SCR RQD If NI CRF AZCL NR	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss		
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered	EoS	End of Shift
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER:	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss		
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER:	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered	EoS SoS	End of Shift Start of Shift
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD f VI CRF AZCL VR ROUNDWATER:	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike	EoS SoS	End of Shift Start of Shift
PID/FID RILLING RECORDS: The mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER:	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered	EoS SoS EoBH	End of Shift Start of Shift End of Borehole
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER:	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike	EoS SoS EoBH	End of Shift Start of Shift
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: TROUNDWATER: TSTRUMENTATION: retails of installations are	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike agiven on the Record. Legend column shows installed instrument depths including slotted	EoS SoS EoBH EXPLORA	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion
PID/FID RILLING RECORDS: he mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, I	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike a given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is	EoS SoS EoBH EXPLORA CP DP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe
PID/FID RILLING RECORDS: he mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, I	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike agiven on the Record. Legend column shows installed instrument depths including slotted	EoS SoS EoBH EXPLORA CP DP DCP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer
PID/FID RILLING RECORDS: ne mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, I dicated by a code adjac	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike a given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is	EoS SoS EoBH EXPLORA CP DP DCP HA	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: STRUMENTATION: etails of installations are pe section or tip depth, f dicated by a code adjac SP	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument.	EoS SoS EoBH EXPLORA CP DP DCP HA IP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit
PID/FID RILLING RECORDS: The mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, 1 dicated by a code adjac SP SPIE PPIE	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe Standpipe Standpipe Standpipe piezometer Pneumatic piezometer	EoS SoS EoBH EXPLORA CP DCP HA IP OP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench
PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: tetails of installations are pe section or tip depth, i dicated by a code adjac SP SPIE PPIE EPIE	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Stand	EoS SoS EoBH EXPLORA CP DP DCP HA IP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core
PID/FID RILLING RECORDS: The mechanical indices (T TCR SCR RQD f VI CRF AZCL VR ROUNDWATER: STRUMENTATION: etails of installations are be section or tip depth, i dicated by a code adjac SP SPIE PIE EIEI AP	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Electronic piezometer Electronic piezometer Access pipe	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench
PID/FID RILLING RECORDS: The mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: STRUMENTATION: etails of installations are pe section or tip depth, I dicated by a code adjac SP SPIE PPIE EPIE AP GMP	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe iszometer Pneumatic piezometer Electronic piezometer Electronic piezometer Access pipe Gas monitoring standpipe	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core
PID/FID RILLING RECORDS: The mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, r dicated by a code adjac SP SPIE PPIE EPIE AP GMP	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Electronic piezometer Electronic piezometer Access pipe	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance)
PID/FID RILLING RECORDS: ne mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: EV STRUMENTATION: etails of installations are pe section or tip depth, n dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx)	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Electronic piezometer Access pipe Gas monitoring standpipe Internal diameter (mm)	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary core Rotary core Rotary core Rotary core Rotary core Shaft Sonic (resonance) Trial pit/trench
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are ipe section or tip depth, i dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is sent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Electronic piezometer Electronic piezometer Case monitoring standpipe Internal diameter (mm) Biaxial inclinometer	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse
PID/FID RILLING RECORDS: he mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, 1 dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is tent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Electronic piezometer Access pipe Gas monitoring standpipe Internal diameter (mm)	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample
PID/FID RILLING RECORDS: he mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, r dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM SLIP	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is sent to the Legend column at the base of the instrument. Standpipe Standpipe Standpipe Gas monitoring standpipe Internal diameter (mm) Biaxial inclinometer Inclinometer Inclinometer tubing for use with probe Slip indicator	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: EV ISTRUMENTATION: etails of installations are pe section or tip depth, to dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM SLIP ESET	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is standpipe Standpipe piezometer Pneumatic piezometer Access pipe Gas monitoring standpipe Internal diameter (mm) Biaxial inclinometer Inclinometer (mm) Electronic settlement cell/gauge	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample
PID/FID RILLING RECORDS: ne mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: EXTRUMENTATION: etails of installations are pe section or tip depth, 1 dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM SLIP ESET ETM	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is sent to the Legend column at the base of the instrument. Standpipe Standpipe Standpipe Gas monitoring standpipe Internal diameter (mm) Biaxial inclinometer Inclinometer Inclinometer Inclinometer Slip indicator Electronic settlement cell/gauge Magnetic extensometer settlement point	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample
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PID/FID RILLING RECORDS: the mechanical indices (T TCR SCR RQD if NI CRF AZCL NR ROUNDWATER: STRUMENTATION: tatails of installations are pe section or tip depth, i dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM SLIP ESET ETM	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is zent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Record commeter tubing for use with probe Slip indicator Electronic settlement cell/gauge Magnetic extensometer settlement point Rod extensometer	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample
PID/FID RILLING RECORDS: he mechanical indices (1 TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: ISTRUMENTATION: etails of installations are pe section or tip depth, I dicated by a code adjac SP SPIE PPIE EPIE AP GMP (xx) ICE ICM SLIP ESET ETM	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is zent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Record commeter tubing for use with probe Slip indicator Electronic settlement cell/gauge Magnetic extensometer settlement point Rod extensometer Project: Tilbury Power	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS WS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample Window (dynamic) sample
PID/FID RILLING RECORDS: he mechanical indices (T TCR SCR RQD If NI CRF AZCL NR ROUNDWATER: NR ROUNDWATER: SROUNDWATER: PARTINENTATION: Petails of installations are ipe section or tip depth, i	Test results provided in Field Records column TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006) Total Core Recovery, % Solid Core Recovery, % Rock Quality Designation, % Fracture spacing, mm. Minimum, typical and maximum spacings are presented. Non intact is used where the core is fragmented. Core recovered (length in m) in the following run Assessed zone of core loss Not recovered Groundwater strike Groundwater level after standing period e given on the Record. Legend column shows installed instrument depths including slotted response zone filter material type and layers of backfill. The type of instrument installed is zent to the Legend column at the base of the instrument. Standpipe Standpipe piezometer Pneumatic piezometer Record commeter tubing for use with probe Slip indicator Electronic settlement cell/gauge Magnetic extensometer settlement point Rod extensometer	EoS SoS EoBH EXPLORA CP DP DCP HA IP OP PC RC RO SH SNC TP TRAV WLS WS	End of Shift Start of Shift End of Borehole ATORY HOLE TYPE: Cable percussion Dynamic probe Dynamic cone penetrometer Hand auger Inspection pit Observation pit/trench Pavement core Rotary core Rotary open hole Shaft Sonic (resonance) Trial pit/trench Traverse Windowless (dynamic) sample

Borehole Log TerraConsult Borehole formation details: Location details: Type: CP From: To Start date: End date: Crew: Plant[.] Barrel type: Drill Bit: Logged: Logger: Remarks: mE: 566123.80 Hammer ID: SI1 Er(%) 72 0.00 24.70 10-09-19 Dando 3000 13-09-19 13-09-19 KG/TM n/a n/a ТΜ mN: 176594.69 mAOD: 1.54 Grid: OSGB Depth (thick-ness) Backfill/ Instal'n Samples & In Situ Testing Water-strike Legend Stratum Description l evel Water Casing Type & No Depth Results/Remarks Greyish brown CLAY. Abundant rootlets. (TOPSOIL) (0.50)0.50 0.60 - 1.10 D1 B1 1.04 0.50 Grey mottled brown CLAY. Occasional pockets of dark brownish black organic matter. Occasional selenite crystal. Abundant rootlets. (ALLUVIUM) (0.90) 0.14 1.40 Very soft grey silty CLAY. (ALLUVIUM) 1.50 - 1.95 U1 8 (100%) > 1.95 - 2.00 D2 2.50 - 2.95 2.50 - 2.95 2.50 - 2.95 N=0 (0,0/0,0,0,0) Dry S B2 D3 Dry 3.00 3.50 - 3.95 3.50 - 3.95 N=0 (0,0/0,0,0,0) S D4 4.50 - 4.95 4.50 - 4.95 Dry 4.50 S N=0 (1,0/0,0,0,0) D5 5.50 D6 ▼ 6.00 - 6.45 6.00 - 6.45 S D7 Dry 6.00 N=0 (0,0/0,0,0,0) (9.80) 7.00 D8 Dry 7.50 7.50 - 7.95 N=0 (1,0/0,0,0,0) S 7.50 - 7.95 D9 8.00 - 8.50 В3 9.00 - 9.45 9.00 - 9.45 9.00 N=0 (1,0/0,0,0,0) Drv S D10 Water Casing Depth Type & No Results Inst (Ø) Groundwater entries: Diameter & casing: Depth related remarks: Chiselling details: Dia (mm): Depth: Remarks: Struck: Rose to: Casing: Sealed: Casing: From: To: From: to: Duration: Tool: 200 150 14 00 13.50 24.70 24.70 Notes: For explanation of symbols and abbreviations see Key Sheet. Project: Tilbury Power Exploratory position reference: AGS abbre All de are in metres Project No: 4593 CP1 FINAL Log issue:

Client:

Scale:

1:50

Statera Energy Ltd

Sheet 1 of 3

Borehole Log TerraConsult Borehole formation details: Location details: From Start date End date: Crew: Plant[.] Barrel type: Drill Bit: Logged: Logger: Remarks: Type: To 566123.80 mE: Hammer ID: SI1 Er(%) 72 CP 24.70 10-09-19 Dando 3000 0.00 13-09-19 KG/TM n/a n/a 13-09-19 ΤМ mN: 176594.69 mAOD: 1.54 Grid: OSGB Depth (thick-ness) Backfill/ Instal'n Samples & In Situ Testing Legend Water-strike l evel Stratum Description Type & No Results/Remarks Water Casing Depth 10.00 D11 Very soft grey silty CLAY. (ALLUVIUM) 10.50 - 10.95 10.50 - 10.95 Dry 10.50 s N=0 (0,0/0,0,0,0) B4 ∇ -9.66 11.20 Loose grey sandy silty GRAVEL of fine to medium subangular to subrounded flint. 11.40 D12 (ALLUVIUM) 5.84 12.00 12.00 - 12.45 N=8 (1,0/1,2,2,3) С 12.00 - 12.45 B5 (2.10) -11.76 D13 13.30 13.30 SIL. Plastic dark brownish black pseudo-fibrous PEAT. 13.50 - 13.95 N=9 (2.3/3.2.2.2) ste (0.40) (ALLUVIUM) 11.20 13.50 s 13.50 - 13.95 13.70 - 14.20 D14 <u>مار</u> -12.16 13.70 Loose grey sandy GRAVEL of subangular to subrounded flint. B6 (ALLUVIUM) (0.50) -12.66 14.20 14 20 - 15 00 B7 Very soft grey silty CLAY. (ALLUVIUM) (0.80) 15.00 - 15.45 15.00 -13.46 15.00 2.80 15.00 S N=14 (2,3/3,3,4,4) Medium dense becoming dense grey sandy GRAVEL of subangular to D15 subrounded flint. 15.00 - 15.50 B8 (ALLUVIUM) 3.00 16.50 16.50 - 16.95 N=33 (3,3/5,7,9,12) С 16.50 - 16.95 B9 (4.70) 3.00 18.00 18.00 - 18.45 N=46 (5,6/7,9,13,17) С 18.00 - 18.45 B10 3.00 19.50 19.50 - 19.95 S N=23 (3,4/6,6,5,6) 19.70 - 20.00 -18.16 19.70 B11 Recovered as: structureless CHALK composed of slightly silty GRAVEL. Gravel is weak medium density angular to subrounded white chalk and Water Casing Type & No Results Depth Inst (Ø) Groundwater entries: Diameter & casing: Depth related remarks: Chiselling details: Struck: Rose to: Casing: Sealed: Dia (mm): Depth: Casing: From: To: Remarks: From: to: Duration: Tool: 11.20 5.79 200 14 00 13 50 150 24.70 24.70 For explanation of symbols and iations see Key Sheet. Project: Tilbury Power Exploratory position reference: AGS abb All are in metres Project No: 4593 CP1 FINAL Log issue: Client: Statera Energy Ltd

Scale:

1:50

				details:												Locatio	on details:
ype: CP	Fror 0.0		To: 24.70	Start date: 10-09-19	End date: 13-09-19	Crew: KG/TM	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 13-09-19	Logg TN		Remarks Hammer	: ID: SI1 Er(%) 72	2	mE: mN: mAOD: Grid:	566123.80 176594.69 1.54 OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description						Samples &	esting	-	
	≤∽	ت ا		ness)	Recovered	as: stru	ctureless CHAI	K composed	of slightly	silty GRAV		Water	Casing	Depth	Type & No	Resu	Ilts/Remarks
]r -(are mediun LEWES NO	า subroเ)DULAF	lium density an unded flint. Ma R CHALK FORI NEWHAVEN C	trix is white. MATION, SEA	Grade Dc)			2.70	21.00	21.00 - 21.45 21.00 - 21.45	S D16	N=15	(1,2/4,4,3,4)
				(5.00)								2.70	22.50	22.50 - 22.95	S	N=16	(4,3/4,4,4,4)
														22.50 - 22.95	D17		
	(19)											2.70	24.00	24.00 - 24.45 24.00 - 24.45	S D18	N=31	(4,5/7,7,8,9)
	SPIE (19)	1	-23.16	24.70		В	orehole ends at :	24.70m (Targe	t depth)								
				- - - - - - - - - - - - - - - - - - -													
				-							-						
	Inst (Ø)			-								Water	Casing	Depth	Type & No		Results
		er ent se to:	tries: Casing	: Sealed:	Diameter Dia (mm): 200 150		Casing: .00 13.50	Depth related From:		narks:	'		C	From: to:	ils:	ation: Tool:	
GS Og iss	abbreviati All depths	ions see K and reduc	tion of symbo ley Sheet. ced levels and	ols and e in metres.	Project: Project No Client:	: 4593	ry Power era Energy Ltd						E	xploratory pos	ition refer		

Borehole Log
Borehole formation details:

TerraConsult

				LUĮ									Ien		
				details:											Location details
ype: CP	Fror 0.0		To: 24.45	Start date 10-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 11-09-19	Logger: TM	Remarks	3:		mE: 566343. mN: 176576. mAOD: 1.36 Grid: OSGB
al'n	er- ke	pue		Depth	1		Charter	Description				•	Samples	& In Situ Te	esting
Instal'n	Water- strike	Legend	Level	(thick- ness)			Stratum	Description			Wat	er Casing	Depth	Type & No	Results/Remarks
			1.26		Greyish brov (TOPSOIL)	wn CLA	Y. Abundant ro	otlets.			A		0.10 - 0.50	B1	
* * * * * * * *				-	Greyish brov Abundant ro (ALLUVIUM	otlets.	tly gravelly CL	AY. Gravel is t	fine subrou	nded flint.			0.50 0.50 - 1.00	D1 B2	
•			0.06		Very soft gre (ALLUVIUM		ed orangish br	own silty peat	y CLAY.				1.30 1.50	D3 U1	20 (66%)
• • • • • • • • • • •		916 × 916 × 916 × 916 × 18 ×		- - - - - - - - - - - - - - - - - - -	(,							1.50 - 2.00	B3	
		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		- - - - - - - - - - - - - - - - 							- Dņ -	/ 2.50	2.50 - 2.95 2.50 - 2.95	S D4	N=0 (0,0/0,0,0,0)
		× ala		(4.70)							-		3.50 3.50	D5 U2	11 (66%)
		× ala		(4.70)							-		3.90	D6	
• • • • • •		ala × ala	1										4.00 - 4.50	B4	
· · · · · · · · · · · · · · · · · · ·		ala × × ala ×		-							- Dņ	4.50	4.50 - 4.95 4.50 - 4.95	S D7	N=0 (0,0/0,0,0,0)
* * * * * *		× × × × × × × × × × × × ×	1	- 											
••••		316 × 8002 80 6 8368 8168 83	-4.64	-	plant remair	IS.	ownish black p	seudo-fibrous	PEAT. Lar	ninations o	f .		6.00	U3	40 (88%)
* • • • • • • • •		مالد م مالد م مالد م مالد م د مالد		(1.20)	(ALLUVIUM)							6.50 6.50 - 7.00	D8 B5	
		6 s)6. ×	-5.84	7.20	Very soft gre	ey mottle	ed orangish br	own peaty CL	AY.				7.20	D9	
· · · · · · · · · · · · · · · · · · ·		ala × 			(ALĹUVIŬM		Ū	. ,			- Dr <u>i</u>	7.50	7.50 - 7.95 7.50 - 7.95	S D10	N=0 (0,0/0,0,0,0
		ale ale ale		(1.80) -											
			-7.64		Very soft gre (ALLUVIUM		<u>.</u>				Dri	9.00	9.00 - 9.45 9.00 - 9.45	S D11	N=0 (0,0/0,0,0,0
	Inst (Ø)										- Wat	er Casing	Depth	Туре & No	Results
		er en	tries:		Diameter	& casir	ig:	Depth related	d remarks:				Chiselling det		
truck:	Ro	se to:	Casing	j: Sealed	Dia (mm): 200 150	Depth: 19. 24.		From:	To: Rer	narks:			From: to:	Dura	ation: Tool:
GS g iss ale:	abbreviat All depths	tions see K s and redu F	ition of symbo Key Sheet. INAL 150	ols and e in metres.	Project: Project No Client:	: 4593	y Power ra Energy Ltd					E	Exploratory pos	sition refere	

		-		details:					-						Location details:
/pe: CP	From 0.00		To: 24.45	Start date 10-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 11-09-19	Logger: TM	Remarks	:		mE: 566343.7 mN: 176576.8 mAOD: 1.36 Grid: OSGB
Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratur	n Description					Samples a	& In Situ To	esting
۳ <u>۳</u> ۱	ot K			ness)	Very soft gre	Y CLAY		•			Wate	r Casing	Depth	Type & No	Results/Remarks
• • • • • • • • • •	-				(ALLUVIUM)					- Dry	10.50	10.50 - 10.95	S	N=0 (1,0/0,0,0,0)
****			-9.64		Very soft gre (ALLUVIUM		y CLAY.								
* . * * * * * * * * * *											- 4.10	12.00	12.00 - 12.45 12.00 - 12.45 12.00 - 12.50	S D13 B6	N=0 (0,0/0,0,0,0)
				(5.10)							5.90	13.50	13.50 - 13.95 13.50 - 13.95	S D14	N=2 (1,0/0,1,0,1)
************	-			- - - - - - - - - - - - - - - - - - -							6.80	15.00	15.00 - 15.45 15.00 - 15.45	S D15	N=2 (1,0/0,1,1,0)
************			-14.74	-	Loose grey a occasional o (ALLUVIUM	obbles.		bangular to sub	prounded fl	int and	5.10	16.50	16.50 - 16.95 16.50 16.50 - 17.00	C D16 B7	N=8 (1,1/2,2,2,2)
*** *** *** *** ***	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			(2.90)							- 3.10	18.00	18.00 - 18.45 18.00 18.00 - 18.50	C D17 B8	N=9 (1,1/2,2,2,3)
• • • • • • • • • • • • • • • • • • • •	י י י ד ד ד ד ד ד ד ד ד ד ד ד ד ד ד ד ד		-17.64		and occasio angular to s to subround subangular	nal cob ubround ed flint. to subro	bles. Clasts a led white with Matrix is whit bunded flint. (C	ALK composed ire weak low ar occasional fine e. Occasional Grade Dc) RMATION, SEA	nd medium e to mediur gravel of fir	density n subangu ne to mediu	lar I	19.50	19.00 - 19.50 19.50 - 19.95 19.50 - 19.95	B9 S D18	N=7 (1,2/1,2,2,2)
	Inst (Ø)				Diamate	9'		Donth relat			Wate		Depth	Type & No	Results
	dwate Ros			: Sealed:	Diameter Dia (mm): 200 150		Casing: 50 19.50	Depth related		narks:			From: to:		ation: Tool:
GS g iss	abbreviatio All depths	ons see H and redu	tion of symbo fey Sheet. ced levels are	ols and e in metres.	Project: Project No		ry Power					E	xploratory pos	ition refere	

oreh	ole	form	ation	details:								-			Locatio	n details:
ype: CP	Fror 0.0	m:	To: 24.45	Start date: 10-09-19	End date: 11-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 11-09-19	Logger: TM	Remarks:			mE: mN: mAOD: Grid:	566343.77 176576.84 1.36 OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples &	& In Situ To	esting	
	st W	Ē		ness)	Pagevored	ac: otru		-	l of alightly	oilty grayo	Wate	r Casing	Depth	Type & No	Resu	ts/Remarks
	(19) SPIE (19)		-23.09	a - a - tu - s - (and occasio angular to s o subround subangular LEWES NO	nal cob ubround ed flint. to subro DULAF N AND	ctureless CHAL bles. Clasts and Matrix is white bunded flint. (Gr R CHALK FORN NEWHAVEN C	e weak low ar occasional fin . Occasional rade Dc) MATION, SEA HALK FORM	nd medium e to mediur gravel of fin FORD CH. ATION)	density n subangu ne to mediu	ar I	22.50	21.00 - 21.45 21.00 - 21.45 22.50 - 22.95 22.50 - 22.95 24.00 - 24.45 24.00 - 24.45	S D19 S D20 S D21	N=7 (2,4/13,5,5,5) 1,2/2,2,2,1) 3,3/3,3,4,4)
				-												
				-							- - -					
	Inst (Ø)				I						Wate		Depth	Type & No	F	Results
		er ent se to:	t ries: Casing	: Sealed:	Diameter Dia (mm): 200 150	Depth:	Casing: .50 19.50	Depth related From:		narks:			hiselling deta From: to:		ation: Tool:	
	Notes: F abbreviat	or explana	tion of symbo ley Sheet. ced levels are	ols and	Project:	Tilbu	ry Power					E	xploratory pos	ition refere	ence:	
GS	All depths	s and redu	ced levels are	e in metres.	Project No										22	

Зо	re	ho	ble	Log	3								Teri	raC	onsult
Soreh	ole f Fron		ation (To:	details: Start date	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks			Location details
CP	0.00		25.00	12-09-19	13-09-19	SH	Dando 3000	n/a	n/a	13-09-19	TM	Tremarks.			mE: 566394.7 mN: 176654.8 mAOD: 1.29 Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ To	esting
	str Wa		Level	ness)		(A h	dant rootlets.	Description			Wate	er Casing	Depth	Type & No	Results/Remarks
			0.79	(0.50)	(TOPSOIL)	sh brow	n mottled grey	CLAY. Occasi	onal rootle	t.			0.50 0.50 - 1.00	D1 B1	
***	-		0.09	(0.70)	very soft bro						-		1.20	D2	
		316 × × 316	-0.21 -0.51	(0.30)	ALLUVIUM) k and bi is.	rownish black p	seudo-fibrous	PEAT. Lar	ninations o			1.50 1.50	D3 U1	9 (66%)
· · · · · · · · · · · · · · · · · · ·	5	9년 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-0.01		ALLUVIUM Very soft, gr of black orga ALLUVIUM	éy lami anic CL	nated orangish AY. Occasional	brown slightly decayed woo	y silty peaty od and sele	CLAY. Bannite crystal	nd s		2.00 2.00 - 2.50	D4 B2	
· · · · · · · · · · · · · · · · · · ·		x ala x				,					- Dry	2.50	2.50 - 2.95 2.50 - 2.95	S D5	N=0 (0,0/0,0,0,0)
		аре – – – – – – – – – – – – – – – – – – –		(3.50)							- - - Dry -	3.50	3.50 - 3.95 3.50 - 3.95	S D6	N=0 (0,0/0,0,0,0)
		× × × × × × × × × ×		- - - - - - - - - - - - - 							- - - Dry	4.50	4.50 - 4.95 4.50 - 4.95	S D7	N=0 (0,0/0,0,0,0)
· · · · · · · · · · · · · · · · · · ·		για για για για για × − × × − × × × × × × × × × × × × × ×	-4.01	(0.50)	Very soft, gr of black orga Drier than a	anic CL	nated orangish AY. Occasional	brown slightly decayed woo	y silty peaty od and sele	v CLAY. Bai nite crystal			5.30	D8	
****		5 316 316 3 316 3 316 3 316 3	-4.51		(ALLUVIUM Plastic brow (ALLUVIUM	n pseu	do-fibrous PEA	T.					6.00 6.00	D9 U2	35 (88%)
*******	6 6	ی مالد مالد م مالد م مالد م مالد م		(1.70) - - - -									6.50	D10	
•		هاند م ماند م ماند م ماند × ماند ×	-6.21		Very soft gre (ALLUVIUM		y CLAY.				Dry	7.50	7.50 - 7.95 7.50 - 7.95	S D11	N=0 (0,0/0,0,0,0)
•	5	× ala × ala ×	-7.21	(1.00)	Very soft lig	ht arev							8.50 - 9.00	B3	
•					ALLUVIUM						- 8.50	9.00	9.00 - 9.45 9.00	S D12	N=0 (0,0/0,0,0,0)
* * * *				-											
	Inst (Ø)				Diamat	0		Denth and f	4		Wate	- ř	Depth	Type & No	Results
round Struck:			r ies: Casing	g: Sealed:	Diameter Dia (mm): 200 150	Depth: 21	ng: Casing: .00 21.00 .00 24.00	Depth related From:		narks:			hiselling det From: to:		ation: Tool:
GS g issi	abbreviatio All depths	ons see K and reduc F	tion of symbo ey Sheet. Sed levels an INAL 50	ols and e in metres.	Project: Project No Client:	: 4593	ry Power s era Energy Ltd					E	xploratory pos	sition refere	

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В	OI	re	hc	ole	Log	J								Terr	raC	onsult
Bor Type CP	e:	Fron 0.00	n:	ation (To: 25.00	details: Start date: 12-09-19	End date: 13-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 13-09-19	Logger: TM	Remarks	3:		Location details: mE: 566394.74 mN: 176654.51 mAOD: 1.29 Grid: OSGB
Backfill/ Instal'n		strike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ To	esting
\vdash	≝ ≩	st			ness)	/ery soft lig	ht arou					Wate	er Casing	Depth	Type & No	Results/Remarks
• • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	-			(4.50)	ALLUVIUM)	ULAI.				- 10.0 - 10.0	0 10.50	10.50 - 10.95 10.50	S D13	N=0 (0,0/0,0,0,0)
· • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	-										- - - - - - - - -	0 12.00	12.00 - 12.45 12.00 - 12.45	S D14	N=0 (1,0/0,0,0,0)
· • • • • • • • • • • • • •	• • • • • • • • • • • • • • • •		が×ボ×ボ×ボ×ボ× × × ×	-11.71		/ery soft gre ALLUVIUM		y CLAY.				- 12.8	0 13.50	13.00 13.50 - 13.95 13.50 - 13.95 13.50 - 14.00	D15 S D16 B4	N=1 (1,0/0,1,0,0)
	• • • • • • • • • • • • • • • • • • •	-	₩	-13.21 -13.71	(0.50) (15.00 - N	Soft grey ve ALLUVIUM Medium der subrounded ALLUVIUM) ise gre	y CLAY. y coarse SAND	and GRAVEL	of angular	to	9.10) 15.00	14.50 15.00 - 15.45 15.00 15.50 - 16.00	D17 S D18 B5	N=13 (1,2/2,2,4,5)
. *	· · · · · · · · · · · · · · · · · · ·											- 5.40) 16.50	16.00 16.50 - 16.95 16.50 - 17.00	D19 C B6	N=9 (1,1/2,2,2,3)
	****				(5.30)							3.60) 18.00	18.00 - 18.45 18.00 18.00 - 18.50	C D20 B7	N=11 (1,0/2,2,3,4)
	• • • • • • • • • • •	-										- 3.00		19.50 - 19.95 19.50 19.50 - 20.00	C D21 B8	N=11 (1,2/2,3,3,3)
Gro		^{st (Ø)} vate	er ent	ries:		Diameter	& casi	ng:	Depth related	d remarks:		Wate		Depth Chiselling deta	Type & No ails:	Results
Stru		Ros		Casing 15.0		Dia (mm): 200 150	Depth: 21	Casing: .00 21.00 .00 24.00	From:		narks:			From: to:		ation: Tool:
AG Log Scal	S All	breviati depths	ons see Ko and reduc Fl	ion of symbo ay Sheet. aed levels are NAL 50	Is and and a in metres.	Project: Project No Client:	: 4593	ry Power 3 era Energy Ltd					E	Exploratory pos	sition refere	

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Sheet 2 of 3

					•							_			Logatio	n details:
ype: CP	Fror 0.0	m:	To: 25.00	Start date: 12-09-19	End date: 13-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 13-09-19	Logger: TM	Remarks			mE: mN: mAOD: Grid:	566394.74 176654.5 ⁻ 1.29 OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ Te	esting	
Bac	Wa str	Ê.	Level	ness)				-			Wate	er Casing	Depth	Type & No	Resu	lts/Remarks
			-19.01		subrounded (ALLUVIUM Recovered a and occasio angular to s so subround subangular (LEWES NC	flint.) as: stru nal cobl ubrounc ed flint. to subro DDULAF	ctureless CHAl bles. Clasts ar ded white with o Matrix is white bunded flint. (G R CHALK FORI NEWHAVEN C	LK composed e weak low ar occasional fine e. Occasional rade Dc) MATION, SEA	d of slightly nd medium e to mediui gravel of fi	silty grave density m subangu ne to mediu	lar -		20.30 21.00 - 21.45 21.00 - 21.45 21.00 - 21.45 22.50 - 22.95 22.50 - 22.95	S D23 S D24		1,0/0,1,1,1) (3,2/2,2,3,3)
	(19) SPIE (19)		-23.71	25.00		Bo	orehole ends at	25.00m (Targe	t depth)		- 1.50	0 24.00	24.00 - 24.45 24.00 - 24.45 25.00	S D25 D26	N=13	(2,3/3,3,3,4)
roun			tries: Casing	g: Sealed:	. ,	Depth:	Casing:	Depth related From:		: narks:	- - - - - - - - - - - - - - - - - - -		Depth Chiselling deta From: to:		ation: Tool:	Results
AGS og iss	abbreviat All depths	ions see s and red	ation of symbo Key Sheet uced levels an FINAL :50	ols and e in metres.	200 150 Project: Project No Client:	: 4593	00 24.00 ry Power					E	Exploratory pos	ition refere	2	Sheet 3 of 3

Bc	ore	eho	ole	Lo	g									Ter	raC	onsult
orel	nole	form	ation	details:												Location details:
ype: CP	Frc 0.0		To: 23.10	Start date 16-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 17-09-19	Logge TM	er: I	Remarks:			mE: 566327.41 mN: 176621.19 mAOD: 1.41 Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description	1	1				Samples	& In Situ Te	esting
- Bac	Wa	Leg Leg	1.31	ness)	Drown CL A	Abus	dant roots and	·			W	/ater	Casing	Depth 0.00 - 0.50	Type & No B1	Results/Remarks
			-	0.10	(TOPSOIL)		CLAY. Abunda							0.00 - 0.30		
			-	(0.80) -	(ALLUVIUN			ni roolicis.			-			0.50 0.50 - 1.00	D1 B2	
			0.51	0.90	Soft arev m	ottled o	rangish brown I	aminated CL/	AY. Occasio	onal iron				1.00	D2	
		=				inations	s. Occasional ro				-			1.00		
		E-		(1.00)							-			1.50 1.50	D3 U1	14 (88%)
		<u> </u>	-0.49	1.90										1.50		
		×		-	(ALLUVIUN		slightly silty pe	aty CLAY.			-			2.00 2.00 - 2.50	D4 B3	
		ala -	-	- -	-						- [Dry	2.50	2.50 - 2.95	s	N=0 (0,0/0,0,0,0)
		ala									-			2.50 - 2.95	D5	
		×	<								-					
		ala -									-			3.50	D6	12 (88%)
		ala -> × ala ->		(3.60)							-			3.50	U2	12 (00 %)
		×	-	-							-			4.00	D7	
		ala -	-								-					
		ala									- [Dry	4.50	4.50 - 4.95 4.50 - 4.95	S D8	N=0 (0,0/0,0,0,0)
		×	-	- -							-					
		×	<								-					
		ale	-4.09	5.50 -			ntly silty very pe	aty CLAY.						5.50	D9	
9 .		×	-4.49	(0.40) 5.90	(ALLUVIUN	,	sh black pseud	o-fibrous PEA	J.					5.90	D10	42 (88%)
		ta silita silita s			(ALLUVIUN	l)					-			6.00	U3	42 (66 %)
		te silte silte : te silte		(1.30)							-			6.50	D11	
		ssite s te ssite	3								-					
		316 3 6 316 <u>xb</u>	-5.79	7.20				X			-					
		ala -		-	(ALLUVIUN	irk grey I)	silty peaty CLA	ι Υ .			- [Dry	7.50	7.50 - 7.95	s	N=0 (0,0/0,0,0,0)
		ale	-	(1.30)							-			7.50 7.50 - 8.00	D12 B4	
		×	1	_							-					
		ala -	-7.09	8.50 -							-					
		ale ->	<	0.00	Very soft da (ALLUVIUN		silty peaty CLA	Y.			-					
		×	<								- [Dry	9.00	9.00 - 9.45 9.00 - 9.45	S D13	N=0 (0,0/0,0,0,0)
•		ala -			•						-			0.00 0.70		
		ale		(2.50)	-						-					
	Inst (Ø	×		(2.00)							-	/ater	Casing	Depth	Type & No	Results
	dwa	ter en	tries:		Diameter		-	Depth relate					C	hiselling det	ails:	
Struck	:: Ro	ose to:	Casing	g: Sealed	I: Dia (mm): 200 150	12	Casing: 2.00 12.00 3.10 23.10	From:	To: Rer	marks:				From: to:	Dura	ation: Tool:
					150	23	, iu 20.10									

Notes: For exp abbreviations	planation of symbols and see Key Sheet. reduced levels are in metres.	Project:	Tilbury Power	Exploratory position reference:	
		Project No:	4593	CP4	
Log issue:	FINAL	Client:	Statera Energy Ltd		
Scale:	1:50	Cilent.	Statera Ellergy Llu		Sheet 1 of 3

B	ore	ehe	ole	Log)								Terr	raC	onsult
_				details:											Location details:
Туре СР		om: 00	To: 23.10	Start date: 16-09-19	End date: 17-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 17-09-19	Logger: TM	Remarks	::		mE: 566327.41 mN: 176621.19 mAOD: 1.41 Grid: OSGB
jili Lini	e	pue		Depth	1		011	Description					Samples a	& In Situ Te	esting
Backfill/ Instal'n	Water- strike	Legend	Level	(thick- ness)				Description			Wate	er Casing	Depth	Type & No	Results/Remarks
•••••	•				/ery soft da ALLUVIUM		silty peaty CLA	Y.			- - - Dry	10.50	10.50 - 10.95 10.50	S D14	N=0 (0,0/0,0,0,0)
**. **. **. **.	•	× ala ala	-9.59		/ery soft da ALLUVIUM		silty very peaty	CLAY.			-				
· • • • • • • • • • • • • • • • • • • •	•	ale , 		(1.00) -) 12.00	12.00 - 12.45	s	
		× × × × × × × × × ×		-1	/ery soft gre ALLUVIUM		y CLAY.					12.00	12.00	D15	N=0 (1,0/0,0,0,0)
	•			(2.50)							- 3.40) 13.50	13.50 - 13.95 13.50 - 13.95	S D16	N=1 (1,0/0,0,1,0)
	•	ala ala ala ala	-13.09		/ery soft gre		y peaty CLAY.						14.50 - 15.00	В5	
	•		-13.79	(0.70) 15.20		coarse	SAND and GR	AVEL of suba	ngular to su	ubrounded	2.40) 15.00	15.00 - 15.45 15.00 - 15.45	S D17	N=7 (1,1/1,1,2,3)
				(2.90)	ALLOVION)					- 2.50) 16.50	16.50 - 16.95 16.50 16.50 - 17.00	C D18 B6	N=10 (1,2/2,2,3,3)
			-16.69)- r _(Gravel is we are medium LEWES NC	ak med subro DULA	ictureless CHA dium density ar unded flint. Ma R CHALK FOR NEWHAVEN C	igular to subro itrix is white. MATION, SEA	ounded whi (Grade Dc) FORD CH	te chalk an	2.30) 18.00	18.00 - 18.45 18.00 18.10 18.10 - 18.60	C D19 D20 B7	N=11 (1,1/2,3,4,2)
			19.50	(1.90)							- 4.30) 19.50	19.50 - 19.95 19.50 - 19.95	S D21	N=5 (1,1/1,1,1,2)
Grou	Inst (Ø	n ter en	-18.59 tries:	20.00	Diameter	& casi	na:	Depth related	d remarks		Wate		Depth	Type & No	Results
			Casing	g: Sealed:	-	Depth: 12	Casing: .00 12.00 .10 23.10	From:		narks:			From: to:		ation: Tool:
AGS	Notes: abbrevi	For explanations see I	ation of symbo Key Sheet. uced levels an	ols and	Project:		ry Power					E	Exploratory pos		
_	ssue:	F	INAL :50		Project No Client:		era Energy Ltd							CF	Sheet 2 of 3

oreh	ole	form	ation	details:	9											Locatio	on details:
ype: CP	Fror 0.0	m:	To: 23.10	Start date: 16-09-19	End date: 17-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 17-09-19	Logge		Remarks:			mE: mN: mAOD: Grid:	566327.4 176621.1 1.41 OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description						Samples 8	k In Situ Te	esting	
g≝][:	≥ ĭs	Le L		ness)	Structureles	e CHAI	K recovered as		oarse grav	el of	v	Vater	Casing	Depth	Type & No	Resu	lts/Remarks
				s t (subangular o subround LEWES NC	white ch ed flint. DULAF	nalk. Occasiona (Grade Dc) R CHALK FORI NEWHAVEN C	al gravel of fin MATION, SEA	e to mediui	m subangu	-	4.70	21.00	21.00 - 21.45 21.00 - 21.45	S D22	N=5 (1,0/1,1,1,2)
				(3.10) -								3.00	22.50	22.50 - 22.95	S	N=12	(3,2/2,3,3,4)
	(19)			-										22.50 - 22.95	D23		
ļ	SPIE (19)		-21.69	23.10		Во	orehole ends at	23.10m (Targe	t depth)		-			23.10	D24		
roun	Inst (Ø) dwat	er en	tries:		Diameter	& casin	ng:	Depth related	d remarks:		v	Vater	Casing	Depth hiselling deta	Type & No ils:		Results
			Casing	g: Sealed:	Dia (mm): 200 150		Casing: 00 12.00	From:		narks:				From: to:		ation: Tool:	
GS	Notes: F abbreviat All depths	or explanations see H s and redu	tion of symbolic Key Sheet. Iced levels ar	ols and e in metres.	Project:		ry Power						E	xploratory posi			
	ue:		INAL		Project No	: 4593									CF	על	

Borehole Log TerraConsult Borehole formation details: Location details: Type: CP From Start date End date: Crew Plant[.] Barrel type: Drill Bit Logged: Logger: Remarks: To 566384.14 mE 24.45 18-09-19 Dando 3000 0.00 19-09-19 SH n/a n/a 19-09-19 ΤМ mN: 176752.40 mAOD: 1.22 Grid: OSGB Depth (thick-ness) Backfill/ Instal'n Samples & In Situ Testing Water-strike Legend Stratum Description l evel Type & No Casing Results/Remarks Water Depth Greyish brown mottled orangish brown slightly gravelly CLAY. Gravel is 1.02 0.20 fine to medium subangular to subrounded flint. Abundant roots and 0.20 - 1.00 B1 rootlets (TOPSOIL) 0.50 D1 Firm grey mottled dark orange and orangish brown CLAY. Lighter grey (1.10) and dark orange gleying. (ALLUVIUM) 1.00 D2 -0.08 1.30 Plastic brown pseudo-fibrous PEAT. 316 (0.30) 34 (ALLUVIUM) D3 11 (88%) 1.50 -0.38 1.60 1.50 Very soft grey silty peaty laminated CLAY. Laminations are orangish U1 ×_ alg brown, dark grey and light grey. (ALLUVIUM) 2.00 D4 2.00 - 2.50 R2 ▼ ale 2.50 - 2.95 Dry 2.50 s N=0 (0,0/0,0,0,0) 2.50 - 2.95 D5 (2.40) ыc > absle ~ 14 (88%) ale, 3.50 D6 3.50 U2 ale, ×. -2.78 4.00 4.00 D7 ale. Very soft dark grey silty peaty CLAY. ×_ al6 (ALLUVIUM) > ale, 4.50 - 4.95 4.50 - 4.95 Dry 4.50 S N=0 (0,0/0,0,0,0) D8 (1.80) 510 ~ ×_ alg ×. alg -4.58 5.80 5.80 D9 Firm black and dark brown pseudo-fibrous PEAT. Frequent laminations sle sle of plant remains. Occasional relic roots. 6.00 U3 65 (88%) sla (0.70) (ALLUVIUM) ste. 316 sЬ -5.28 6.50 D10 6.50 Spongy brown and orangish brown fibrous PEAT. Abundant small shells sle and shell fragments. Ste sle (ALLUVIUM) (0.70)SIL. slo 7.20 D11 -5.98 7.20 Very soft grey and dark grey peaty CLAY. (ALLUVIUM) sIC, 7.50 - 7.95 N=0 (0,0/0,0,0,0) Dry 7.50 S ыĸ 7.50 - 7.95 D12 (1.10) ale ыø -7.08 D13 8.30 8.30 Very soft grey silty CLAY. (ALLUVIUM) 9.00 - 9.45 N=0 (0.0/0.0.0.0) Drv 9 00 S 9.00 - 9.45 D14 (2.70)Water Casing Type & No Results Depth Inst (Ø) Groundwater entries: Diameter & casing: Depth related remarks: Chiselling details: Struck: Rose to: Casing: Sealed: Dia (mm): Depth: Casing: From: To: Remarks: From: to: Duration: Tool: 200 12 00 12 00 150 24.00 24.00 Notes: For explanation of symbols and abbreviations see Key Sheet. Project: Tilbury Power Exploratory position reference: AGS abb All e in metres Project No: 4593 CP5 FINAL Log issue: Client: Statera Energy Ltd

Scale:

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pe:	Fro	m:	To:	Start date 18-09-19		Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks	s:		Location detail mE: 566384
CP	0.0	U	24.45	10-09-19	19-09-19	SH	Dando 3000	n/a	n/a	19-09-19	ТМ				mN: 176752 mAOD: 1.22 Grid: OSGB
Backill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ To	esting
	st č	,		ness)	Very soft gro	ev eiltu					Wate	er Casing	Depth	Type & No	Results/Remarks
* * * * * *					(ALLUVIUM		ULAT.				- Drj	/ 10.50	10.50 - 10.95 10.50	S D15	N=0 (0,0/0,0,0,0
****		>> × × × ×	-9.78		Very soft gro (ALLUVIUM		peaty CLAY.						11.00 11.00 - 11.50	D16 B3	
* * * * * * * * * * * * * * * * * * *		918 × 18 × 18 × 18 × 18 × 18 × 18 × 18 ×										/ 12.00	12.00 - 12.45 12.00 - 12.45	S D17	N=0 (1,0/0,0,0,0
• • • • • • • • • •		N NN N N N N		(3.50)											
· · · · · · · · · · · · · · · · · · ·											- Dŋ	/ 13.50	13.50 - 13.95 13.50 - 13.95	S D18	N=2 (1,0/0,1,0,1
* * * * * * * * * * * *	V	× 316, 242	-13.28		rounded flin	t with o	n to coarse SAN ccasional cobbl	ND and GRAV le.	'EL of suba	ngular to	- 		14.50	D19	
					(ALLUVIUM	1)					2.4	0 15.00	15.00 - 15.45 15.00 15.00 - 15.50	C D20 B4	N=8 (1,1/1,2,3,2
				(4.50)							- 2.3	0 16.50	16.50 - 16.95 16.50	C D21	N=9 (1,0/1,2,3,3
											- 2.1	0 18.00	18.00 - 18.45 18.00 18.00 - 18.50	C D22 B5	N=13 (1,1/2,3,3,4
* * * * * * * * *			-17.78		Gravel is we	eak med	ictureless CHA lium density an	gular to subro	ounded whi	te chalk ar	nd -		19.00	D23	
				-	white. (Gra (LEWES NO	de Dc). DDULAI	unded flint. Flir R CHALK FORI NEWHAVEN C	MATION, SEA	FORD CH		- 2.4		19.50 - 19.95 19.50	S D24	N=6 (1,1/2,2,1,1
	Inst (Ø)	er en	tries:		Diameter	& casii	ng:	Depth relate	d remarks:		Wate	- ř	Depth Chiselling deta	Type & No ails:	Results
Struck: 14.50		se to: 2.40	Casing 14.5			Depth: 12	Casing: .00 12.00 .00 24.00	From:		narks:			From: to:		ation: Tool:
GS og iss cale:	abbreviat All depth:	tions see K s and redu F	tion of symbo (ey Sheet. ced levels are INAL :50	Is and in metres.	Project: Project No Client:	o: 4593	ry Power					E	Exploratory pos	sition refere	

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oreh	ole	form	ation o	details:												Locatio	n details:
ype: CP	Froi 0.0	m:	To: 24.45	Start date: 18-09-19	End date: 19-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 19-09-19	Logg TN		Remarks	:		mE: mN: mAOD: Grid:	566384.14 176752.40 1.22 OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description						Samples a	& In Situ Te	esting	
. —	st %	Ĕ		ness)	<u></u>		ictureless CHAL	-	- C - P - b (b)	- 14		Vater	Casing	Depth	Type & No	Resu	lts/Remarks
				-(-r -v -(Gravel is we are medium vhite. (Grad LEWES NC	eak meo n subro de Dc). DULAF	dium density ang unded flint. Flin	gular to subro it becomes ra MATION, SEA	unded whi re with dep FORD CH	te chalk an oth. Matrix	d -						
				-								2.50	21.00	21.00 - 21.45 21.00 - 21.45	S D25	N=11 (1,1/1,4,3,3)
				(5.45)										21.50 - 22.00	B6		
				-							-						
				- - - -								2.60	22.50	22.50 - 22.95 22.50 - 22.95	S D26	N=6 (1,1/1,1,2,2)
			-								-						
	(19) SPIE											2.40	24.00	24.00 - 24.45	s	N=11 ((1,1/2,2,3,4)
	(19)		-23.23	24.45		В	orehole ends at 2	24.45m (Targe	t depth)		- - - -		2	24.00 - 24.45	D27		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
				- - 													
											-						
				- 							- - - -						
				- - - - -													
				- - - - -													
				-							-						
	Inst (Ø)		t wic = -		Diametri	9'	I.	Doméh uni-t			V	Vater	Casing	Depth	Type & No	F	Results
			tries: Casing	: Sealed:	Diameter Dia (mm): 200 150	Depth: 12	ng: I Casing: .00 12.00 .00 24.00	Depth related From:		narks:				Hiselling deta From: to:		ation: Tool:	
00	abbreviat	ions see	ation of symbo Key Sheet. uced levels are		Project: Project No		ry Power						E	xploratory pos	ition refere		

В	0	re	hc	ble	Log	3								Ter	raC	onsult
Во	eh	ole fo	orma	ation	details:											Location details:
Typ CF		From: 0.00		To: 23.50	Start date 19-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 20-09-19	Logger TM	Remar	KS:		mE: 566453.65 mN: 176779.81 mAOD: 1.37 Grid: OSGB
Backfill/		ter- ike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ Te	esting
		Water- strike	Leg	Level	ness)				·			Wa	ter Casin	g Depth	Type & No	Results/Remarks
				1.17 0.37	0.20	fine to media rootlets. (TOPSOIL) Firm greyish (ALLUVIUM	um sub n brown)	tled orangish bi angular to subr mottled orangi rangish brown s	ounded flint. sh brown CLA	Abundant r Y.	oots and			0.50 0.50 - 1.50	D1 B1	
°	***	× Ia				roots. (ALLUVIUM)					-		1.50 1.50	D2 U1	12 (88%)
• •	**	al. × al.												2.00	D3	
°	* * *			-1.13		Very soft gre (ALLUVIUM		slightly peaty C	LAY.			D	ry 2.50	2.50 - 2.95	S D4	N=0 (0,0/0,0,0,0)
•	• • • • • • • •	al 	6 ×		-									3.00 - 3.50	B2 D5	14 (88%)
	* . * * . * * . * * . * *	al X X X X			(3.00)									3.50	U2	14 (00%)
	********	الع الح الح										- D	ry 4.50	4.50 - 4.95 4.50 - 4.95	S D6	N=0 (0,0/0,0,0,0)
•	*	1	ta x stita s stita s stita s	-4.13		Firm dark br (ALLUVIUM		black pseudo-	ibrous PEAT.	Occasiona	lly clayey.			5.50	D7	
•	* * * * * * *	6	یسی ماند <u>م</u> ماند م ماند		(1.00)							-		6.00	U3	61 (88%)
•••••••••••••••••••••••••••••••••••••••	••••••	4. 14. 14.	د مناد مناده مناده مناده	-5.13	(0.50)	Firm dark br (ALLUVIUM		black pseudo-	ibrous PEAT.					6.50	D8	
••••	• • • • • • • • •	ar Ar Ar	<u>\$46_3</u> 6 6	-5.63		Very soft gre (ALLUVIUM		sionally mottled	l dark grey sil	y peaty CL	.AY.		ry 7.50	7.00	D9 S	N=0 (0,0/0,0,0,0)
°	* *	24 	< <u> </u>		(1.30)								ry 7.50	7.50 - 7.95	D10	11-0 (0,0/0,0,0,0)
••••••	••••••	×		-6.93		Very soft gre (ALLUVIUM		CLAY.						8.30	D11	
	*****				(2.90)							- - D - - - -	ry 9.00	9.00 - 9.45 9.00	S D12	N=0 (0,0/0,0,0,0)
••.		Inst (Ø)			()							-	iter Casin	g Depth	Type & No	Results
-	unc	lwate				Diameter		_	Depth related			VVa		Chiselling det	ails:	1
Str	uck:	Rose	e to:	Casing	g: Sealed:	Dia (mm): 200 150	12	Casing: .00 12.00 .50 23.50	From:	To: Rer	narks:			From: to:	Dura	ttion: Tool:
Log Sca	S issi	abbreviation All depths ar	nd reduc	ion of symbol ay Sheet. ed levels ar NAL 50	ols and e in metres.	Project: Project No Client:	: 4593	ry Power era Energy Ltd						Exploratory po	sition refere CF	

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eho	ole f	orma	ation o	details:											Location details
e:	Fror 0.0	n:	To: 23.50	Start date: 19-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 20-09-19	Logger: TM	Remarks	:		mE: 566453.6 mN: 176779.8 mAOD: 1.37 Grid: OSGB
INSIALIN	Water- strike	Legend	Level	Depth (thick-			Stratum	Description		1			Samples	& In Situ Te	esting
	str str	Leg	Levei	ness)				Description			Water	Casing	Depth	Type & No	Results/Remarks
					Very soft gre (ALLUVIUM)		CLAY.				- Dry	10.50	10.50 - 10.95 10.50 - 10.95	S D13	N=0 (0,0/0,0,0,0)
**********			-9.83		Very soft gre (ALLUVIUM)		lightly sandy p	eaty CLAY.					11.20	D14	
		× SIG SIG SIG SIG		(1.30)							- Dry	12.00	12.00 - 12.45 12.00 - 12.45	S D15	N=0 (0,0/0,0,0,0)
· · · · · · · · · · · · · · · · · · ·			-11.13		Loose becor subangular t (ALLUVIUM)	o round	edium dense g ed flint.	rey coarse SA	ND and G	RAVEL of			12.50	D16	
*. * * * * * * * * *											- 2.70	13.50	13.50 - 13.95 13.50 13.50 - 14.00	C D17 B3	N=9 (1,0/1,2,3,3)
• • • • • • • • • • • • • • • • • • • •				(6.00)							2.40	15.00	15.00 - 15.45 15.00 15.00 - 15.50	C D18 B4	N=9 (1,1/2,2,3,2)
											2.70	16.50	16.50 - 16.95 16.50 16.50 - 17.00	C D19 B5	N=14 (2,2/2,3,4,5
· · · · · · · · · · · · · · · · · · ·			-17.13		Recovered a	s: strue	ctureless CHA	LK composed	of slightly	silty gravel.	2.30	18.00	18.00 - 18.45 18.00 18.00 - 18.50 18.50	C D20 B6 D21	N=21 (2,3/5,5,6,5
*******				-	subrounded (LEWES NC	flint. M DULAR	ium density su atrix is white. CHALK FORI NEWHAVEN C	(Grade Dc). MATION, SEA	FORD CH		um - - - 2.40	19.50	19.50 - 19.95 19.50	S D22	N=16 (1,0/2,3,4,7
•				-								0'	Deet	Ture Chi	D "
	nst (Ø) wate	er ent			Diameter		g:	Depth related			Water	Casing	Depth	Type & No ails:	Results
uck: 2.50		se to: 2.60	Casing 12.5		Dia (mm): 200 150	Depth: 12. 23.		From:	To: Rei	marks:			From: to:	Dura	ition: Tool:
S Å	bbreviati II depths	ons see K and reduc	ion of symbo ey Sheet. ed levels are NAL	Is and in metres.	Project: Project No Client:	4593	y Power ra Energy Ltd					E	xploratory pos	ition refere	

oreh	ole f	form	ation	details:											Location details:
/pe: CP	From 0.0	m:	To: 23.50	Start date: 19-09-19	End date: 20-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 20-09-19	Logger: TM	Remarks	5:		mE: 566453.6 mN: 176779.8 mAOD: 1.37 Grid: OSGB
Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples a	& In Situ T	esting
	st			ness) - F - C - S (4.00) - (Gravel is we subrounded LEWES NC	eak med flint. M DULAF	ctureless CHAL lium density sul latrix is white. (R CHALK FORM NEWHAVEN C	LK composed bangular white (Grade Dc). MATION, SEA	e chalk and FORD CH	d rare medi	Wate	r Casing	Depth	Type & No	Results/Remarks
••••											- 2.30	21.00	21.00 - 21.45 21.00 - 21.45	S D23	N=10 (1,2/2,2,3,3)
											-		21.50 - 22.00	B7	
*			01 10									22.50	22.50, 22.05	s	N=11 (2 2/2 2 2 4)
Ļ			-21.13	C	Gravel is we Grade Dc).	ak med	ctureless CHAL lium density sul	bangular white	e chalk. M	atrix is whi		22.50	22.50 - 22.95 22.50 - 22.95	D24	N=11 (2,2/2,2,3,4)
_	(19) SPIE		-22.13			N AND	NEWHAVEN C	HALK FORMA	ATION)	, , .	-		23.50	D25	
	(19)					В	orehole ends at :	23.50m (Targe	(depth)		-				
				-							-				
											-				
				-							-				
											-				
				-							-				
											-				
											-				
				-							-				
	Inst (Ø)			-	1						Wate			Type & No	Results
		er en se to:	tries: Casing	: Sealed:	Diameter Dia (mm): 200 150		Casing: .00 12.00	Depth related From:		narks:			From: to:		ation: Tool:
a a a	abbreviat	ions see H	tion of symbo Key Sheet. ced levels are		Project:	Tilbu	ry Power					E	Exploratory pos	ition refer	ence:

Borehole Log

orel		fo	otion	dotcil-:											Least	n detelle
oreh ype: CP	Froi 0.0	m:	To: 23.50	details: Start date: 23-09-19	End date: 24-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 24-09-19	Logger: TM	Remarks	:		Location mE: mN: mAOD: Grid:	on details: 566477.0 176884.0 1.32 OSGB
backill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples	& In Situ Te	esting	
89 1 [.	≥ ∞			ness)	Grewish brow	wn mot	led orangish bro	own slightly o	Iravelly CI	AV Gravel i	Water	Casing	Depth	Type & No	Resu	Ilts/Remarks
* * * * * * * * * *				0.20 -f -(-(-	ine to medi ootlets. (TOPSOIL) Firm grey m	um suba ottled o and occ	rangish brown s casional selenite	bunded flint.	Abundant	roots and	Å		0.50 0.50 - 1.50	D1 B1		
				- - - - - - -							- - - - - -		1.50 1.50	D2 U1	1	9 (88%)
		× ≥ ≤ ≥ ≤	 -0.58 	(a.a., 1	Soft grey mo ight grey sa ALLUVIUM	andy lan	rangish brown s ninations.	lightly silty pe	eaty CLAY.	Occasional			2.00 2.00 - 2.50	D3 B2		
********	.▼	ala -,	-1.18		/ery soft da ALLUVIUM		silty peaty CLA	Y.			Dry	2.50	2.50 - 2.95 2.50 - 2.95	S D4	N=0	(0,0/0,0,0,0)
		ala 	<	(1.50)									3.50	D5	1	1 (88%)
		ala	-2.68	4.00	/ery soft lig	ht grey	silty peaty CLAN	<i>.</i>					3.50 4.00	U2 D6		
*** ***		ala -> ala -> ala -> ala ->](- - - - -	ALLUVIUM	1)					- Dry	4.50	4.50 - 4.95 4.50 - 4.95	S D7	N=0	(0,0/0,0,0,0)
· · · · · · · · · · · · · · · · · · ·		alia											5.50	D8		
· · · · · · · · · · · ·		ala	~	(4.50)									6.00 6.50	U3 D9	1	9 (88%)
• • • • • • • • • •		ala -> ala -> ala -> ala -> ala ->											7.00 - 7.50	B3		
· · · · · · · · · · · · · · · · · · ·		×====================================									- Dry	7.50	7.50 - 7.95 7.50 - 7.95	S D10	N=0 ((0,0/0,0,0,0)
· · · · · · · · · · · · · · ·			-7.18		/ery soft gre ALLUVIUM		tly sandy peaty	CLAY.			 Dry	9.00	9.00 - 9.45	S	N=1	(0,0/0,0,1,0)
• • • • • • • • • •		× *** × **** × *** × *** * *** ***											9.00 - 9.45	D11		
<u></u>	Inst (Ø)	-X sile		-	T						Water		Depth	Type & No		Results
			tries: Casing	: Sealed:	Diameter Dia (mm): 200 150	Depth: 11	ng: [Casing: .00 10.50 .50 23.50	Depth related From:		: marks:			From: to:		ation: Tool:	
00	abbreviat All depths	tions see s and red	ation of symbo Key Sheet. uced levels are		Project: Project No Client:	o: 4593	ry Power					E	xploratory pos	sition refere		Sheet 1 of

Borehole Log

				LU	7										onsuit
				letails:	-			•							Location details
ype: CP	Froi 0.0		To: 23.50	Start date 23-09-19		Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 24-09-19	Logger: TM	Remarks	3:		mE: 566477.0 mN: 176884.0 mAOD: 1.32 Grid: OSGB
backill/ Instal'n	ter- ke	Legend	Level	Depth (thick-			Stratur	Description					Samples a	& In Situ Te	esting
Inst	Water- strike	Leg	Levei	ness)				·			Water	r Casing	Depth	Type & No	Results/Remarks
		-× MA			Very soft gre (ALLUVIUM		ly sandy peaty	CLAY.			-				
*****				- - - - - - - - - - - - - - - - - - -		,					- Dry	10.50	10.50 - 10.95 10.50 - 10.95	S D12	N=0 (0,0/0,0,0,0)
		-× sl6, <u>×</u> -	-10.48	11.80							-				
* * * * * *		। <u>अफ</u> । । । । । । । । । । । । । । । । । । ।	10.10		Firm dark br remains thro (ALLUVIUM	oughout	black fibrous s	lightly clayey	PEAT. Woo	d and plan	t - Dry	12.00	12.00 - 12.45 12.00 - 12.45	S D13	N=4 (1,1/1,1,1,1)
•		shta si ta shta shta si	1	(1.70)							-				
· · · · · · · · · · · · · · · · · · ·		en solen solen so en solen so en solen so		_											
	V	6. 316. 316. 3	-12.18	13.50	Loose grey	sandy G	RAVEL of sub	angular to rou	nded flint.		2.80	13.50	13.50 - 13.95 13.50	C D14	N=8 (1,0/1,1,2,4)
		0			(ALLUVIUM			Ū					13.50 - 14.00	B4	
				(3.00)							- 2.40	15.00	15.00 - 15.45 15.00	C D15	N=8 (1,2/2,2,2,2)
• • • • • •			-15.18				sandy GRAVE	EL of subangu	lar to round	led flint and	2.30	16.50	16.50 - 16.95 16.50	C D16	N=11 (1,0/2,3,2,4)
••••••					COBBLES ((ALLUVIUM		ngular flint.						16.50 - 17.00	B5	
				(1.50)											
			-16.68	18.00	000- k	niak	v arously as	lium te ester		avol :-	2.10	18.00	18.00 - 18.45	с	N=10 (1,2/2,3,2,3
••••				(0.50)	subangular	to subro	y gravelly med ounded flint and			avei 15			18.00 18.00 - 18.50	D17 B6	
:			-17.18	18.50		as: stru	ctureless CHA density white v						18.50	D18	
***				(1.00)	subangular (LEWES NC	flint. Ma DDULAF	atrix is white. (R CHALK FOR NEWHAVEN C	Grade Dc). MATION, SEA	FORD CH						
			-18.18		Gravel is we	eak low	cureless CHAI density white. R CHALK FOR	Matrix is white	e. (Grade I	Dc).	2.40	19.50	19.50 - 19.95 19.50 - 19.95	S D19	N=10 (1,1/2,3,3,2)
	nst (Ø)					• •	1	Dent			Water		Depth	Type & No	Results
	Ro	se to: 3.00			Diameter Dia (mm): 200 150		Casing: .00 10.50	Depth related From:		narks:			Chiselling deta From: to:		tion: Tool:
GS Å	Notes: F Ibbreviat	tions see H s and redu	ation of symbol Key Sheet. Iced levels are	s and in metres.	Project: Project No		ry Power					E	Exploratory pos	ition refere	

reh	ole	form	ation	details:								-			Locatio	on details:
pe: P	From 0.0	n:	To: 23.50	Start date: 23-09-19	End date: 24-09-19	Crew: SH	Plant: Dando 3000	Barrel type: n/a	Drill Bit: n/a	Logged: 24-09-19	Logger: TM	Remarks			mE: mN: mAOD: Grid:	566477.0 176884.0 1.32 OSGB
Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Description					Samples &	& In Situ 1	Testing	
Ë •	st S	Le		ness)	2000vorod	an otru	cureless CHAL		of oubong	lor grovol	Wate	r Casing	Depth	Type & No	Resu	ilts/Remarks
				- C - (Bravel is we	eak low	density white. R CHALK FORI NEWHAVEN C	Matrix is white MATION, SEA	e. (Grade l FORD CH	Dc).	2.50	21.00	21.00 - 21.45 21.00 - 21.45	S D20	N=8 ((1,1/1,2,3,2)
				(4.00) -												
	(19)										- 2.30 	22.50	22.50 - 22.95 22.50 - 22.95	S D21	N=10	(1,1/2,2,2,4)
	(19) SPIE (19)		-22.18	23.50		R	orehole ends at :	23.50m (Targe	t depth)				23.50	D22		
	(19)			-				_0.0011 (10.90	(dopuly		-					
				-												
				-							-					
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				-							-					
	Inst (Ø)			-							Wate		Depth	Type & No)	Results
		er ent se to:	t ries: Casing	: Sealed:	Diameter Dia (mm): 200 150		Casing: .00 10.50	Depth related From:		narks:			Chiselling deta From: to:		ration: Tool:	
	abbreviat	ions see K	tion of symbo ey Sheet. ced levels are		Project: Project No		ry Power					E	Exploratory pos		rence: P7	

Boreh	ole fo	ormat	ion det	ails:								-			Location details:
Type: WLS	Fro 0.0	m:	To: 5.45	Start date: 19-09-19	End date: 19-09-19	Crew: HD	Plant: Dando Terrier 2002	Logger: TM	Logged: 19-09-19	Remarks:					mE: 566475.91 mN: 176704.22 mAOD: 1.53
j≣ 5	r ə	P		Depth									Samples	& In Situ Te	Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	(thick- ness)			Stratum	Descripti	on		Water	Casing	Depth	Type & No	Results
			1.13	(0.40) 0.40	Abundant ro (TOPSOIL) Greyish bro	wn mot aminat	d rootlets.	rown fissu	ired CLAY.	subangular flint.			0.30	ES1	
	(50)			(1.40)	~	,				-	Dry		1.00 - 1.45 1.50	S D1	N=2 (0,0/0,0,1,1)
			-0.27	1.80	Soft grey sil (ALLUVIUM	ty CLA	Y. Abundant pla	nt matter.			- - - - - - - - - - - - -		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
				(3.65)						-	- - - - - - -		3.00 - 3.45	S	N=0 (0,0/0,0,0,0)
				(3.03)						-	Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
	SP (50)		-3.92	5.45 -		Dyna	mic sample end	s at 5.45 n	n (Target de	- pth)	Dry		5.00 - 5.45	S	N=1 (0,0/0,0,0,1)
										-					
										-	-				
										-	-				
										-					
	Inst (Ø)										- - - Water	Casing	Depth	Type & No	Results
Groun Struck	dwat	er en		: Sealed:	Casing: Cased to:	Dia	imeter (mm):	Depth rel From	ated remai to: Rer	rks: narks		R	From: to:	Duratio	·
AGS Log iss Scale:		F	ation of symbo Key Sheet. Joed levels ar INAL :50	ols and re in metres.	Project: Project No Client:	: 4593	Iry Power 3 era Energy Ltd					E	xploratory pos	sition refere	

Boreh				tails:											Location details:
Type: WLS	Fro 0.0		To: 5.45	Start date 19-09-19		Crew: HD	Plant: Dando Terrier 2002	Logger: TM	Logged: 19-09-19	Remarks:					mE: 566373.84 mN: 176598.87 mAOD: 1.33
≥ c	1.0	p		Depth									Samplas	& In Situ Te	Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	(thick- ness)			Stratum	Descripti	on		Water	Casing	Depth	Type & No	Results
			1.13	0.20	Brown mottl Abundant ro	ed grey	yish brown and	orangish	brown fissu	ured CLAY.	-		0.20	ES1	
				(0.45)	(TOPSOIL)			and valle	wich brown	n fissured CLAY.	4		0.50	D1	
			0.68	0.65	Abundant ro (ALLUVIUM	otlets a	and occasional	relic roots	s.	TIISSUIEU CLAT.	7		0.00		
•	(50)		0.33		1		0.48 -	0.53 m: Occa	asional small w	white shell fragments.	Dry		1.00 - 1.45	s	N=0 (0,0/0,0,0,0)
					Abundant ro	otlets a	and occasional	relic roots	S.		A				
			-0.33			ottled o	rangish brown	and yellow	wish brown	fissured CLAY.	-				
		×	-0.40	1.73	ALLUVIUM)	k very peaty C				Â				
			-0.67	2.00	ALLUVIUM)	gish brown silty				Dry		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
					(ALLUVIUM)	Y. Abundant pla								
		×			(ALLUVIUM)	r. Abunuani pia	ni mailer.			-				
										-	Dry		3.00 - 3.45	s	N=0 (0,0/0,0,0,0)
]				
		×									-				
				(3.45)									4.00 4.45		
										=	Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
		× ×									-				
										-	Dry		5.00 - 5.45	S	N=0 (0,0/0,0,0,0)
			4.40	5.45											
	SP (50)		-4.12	5.45		Dyna	mic sample end	s at 5.45 n	n (Target de	pth)					
										-	-				
											-				
											-				
										-	-				
											-				
										-	-				
											-				
											-				
										-					
											-				
										-	-				
	Inst (Ø)										Water	Casing	Depth	Type & No	Results
Groun Struck			tries: Casing	g: Sealed	Casing: Cased to:	Dia	meter (mm):	Depth rel From	ated rema to: Rer	rks: marks			Run details: From: to:	Duratio	n: Recovery:
							· ···/·								-
AGS	Notes: I abbrevia All depth	For explanations see H to and redu	ition of symb Key Sheet. Iced levels a	ols and re in metres.	Project: Project No		ry Power					E	xploratory pos		
Log iss Scale:	sue:		INAL 50		Client:		era Energy Ltd							WS	Sheet 1 of 1

Boreh	ole fo	ormat	tion de	tails:	_		-								Location details:
Type: WLS	Fror 0.0	n:	To: 5.45	Start date 19-09-19		Crew: HD	Plant: Dando Terrier 2002	Logger: TM	Logged: 19-09-19	Remarks:					mE: 566252.44 mN: 176544.19 mAOD: 1.56
≧c	4.0	Ţ		Depth									Samples	& In Situ Te	Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	(thick- ness)			Stratum	Descripti	on		Water	Casing	Depth	Type & No	Results
			0.61	(0.95)	rootlets. (TOPSOIL)		tled orangish br	rown fissu	red CLAY.	Abundant			0.40	ES1	
			0.56	1.00 (0.80)	Firm black a (ALLUVIUM Grey mottle peaty CLAY (ALLUVIUM) d orang Abung		vn and ye	llowish bro	wn slightly silty	Dry		1.00 - 1.45	S	N=1 (0,0/0,0,0,1)
			-0.24 -0.44	2.00	peaty CLAY	Rare i	jish brown, brov ootlets. Y. Abundant pla			wn very silty	Dry		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
				(3.45)							Dry		3.00 - 3.45	S	N=1 (0,0/0,0,1,0)
				(3.43)						-	Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
			-3.89	5.45		Dyna	mic sample ends	s at 5.45 n	n (Target de	- pth)	Dry		5.00 - 5.45	S	N=0 (0,0/0,0,0,0)
										-					
										-					
Grown	Inst (Ø)	or e=	triaci		Capinar			Jonth!	atod rom-	rke	Water	Casing	Depth	Type & No	Results
	: Ros	se to:	Casing		Casing: Cased to:		meter (mm):	From	ated rema to: Rer	rks: narks			Run details: From: to:	Duratio	on: Recovery:
100	abbreviat All depth:	tions see s and red F	ation of symb Key Sheet. luced levels a		Project: Project No Client:	: 4593	ry Power 3 era Energy Ltd					E	xploratory pos		

Danah			امرام مرما	-!!	-		•								Lesstion detailer
Boreh Type: WLS	Fro 0.0	m:	ion det To: 5.45	ails: Start date 19-09-19		Crew: HD	Plant: Dando Terrier 2002	Logger: TM	Logged: 19-09-19	Remarks:					Location details: mE: 566131.12 mN: 176637.90 mAOD: 1.77
2.5															Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick- ness)			Stratum	Descripti	on		Water	Casing		& In Situ Te	-
				(0.65)		e to me	htly gravelly CL edium subangu		dant roots a	and rootlets.	Water	Casing	Depth 0.40	Type & No ES1	Results
	(50)	x	 1.12 0.77 0.23 	(0.35) 1.00 (0.54)	rootlets. (<u>ALLUVIUM</u> Grey mottle peaty CLAY. (ALLUVIUM) d orang Abung)	ttled orangish b gish brown, bro dant rootlets. ous PEAT. Frec	wn and ye	llowish bro	wn slightly silty	Dry		1.00 - 1.45	S	N=4 (1,1/1,1,1,1)
		× × ×	0.17 -0.33	(0.50) 2.10	ALLUVIUM) d dark iron sp) ey silty	grey, orangish I ot and dark gre	prown and	l yellowish Occasiona	brown silty CLAY al selenite crystal.	Dry		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
					(,				-	Dry		3.00 - 3.45	s	N=0 (0,0/0,0,0,0)
				(3.35)							Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
	SP (50)	×_× × ×	-3.68	5.45		Dyna	mic sample end	s at 5.45 n	n (Target de	pth)	Dry		5.00 - 5.45	S	N=0 (0,0/0,0,0,0)
											-				
										-					
										- -	-				
	Inst (Ø)										Water	Casing	Depth	Type & No	Results
Grour Struck	: Ro	se to:	Casing	: Sealed	Casing: Cased to:		imeter (mm):	Depth rel From	ated rema to: Rei	rks: marks			Run details: From: to:	Duratio	
AGS Log is:		F	ition of symbolic Key Sheet. Iced levels an	ols and e in metres.	Project: Project No Client:	: 4593	iry Power 3 era Energy Ltd					E	Exploratory pos	sition refere	64
Scale:		1	50		1										Sheet 1 of 1

Dy	'nar	nic	San	nple	Lo	g			
Boreh	ole form	ation de	tails:						
True	English	Ter	Otent deter	End date:	0	Disate	1.000000	L a a a a di	Densedue

Boreh	ole fo	rmat	ion de	tails:											Location details:
Type: WLS	From		To:	Start date		Crew:	Plant:	Logger: TM	Logged: 19-09-19	Remarks:					mE: 566093.32
VVL5	0.00		4.45	19-09-19	19-09-19	HD	Dando Terrier 2002		19-09-19						mN: 176692.57
															mAOD: 1.27
				<u> </u>							1				Grid: OSGB
Backfill/ Instal'n	Water- strike	Legend	Level	Depth (thick-			Stratum	Descripti	on				Samples	& In Situ Te	esting
en en	≥∞	Ľ		ness)	<u> </u>						Water	Casing	Depth	Type & No	Results
				(0.30)	Greyish bro Gravel is fin	wn slig ie to co	htly gravelly CL	AY. Abund r to round	dant roots a led flint and	and rootlets. d occasional brick	-		0.20	ES1	
		<u> </u>	0.97	0.30	fragments.						Ā				
		× MG	0.77		MADE GR	arev cla	ayey GRAVEL o	f subangu	lar to subr	ounded flint.	ł				
		×	0.34	(0.10)	(MADE GR	OUND)				wn slightly silty					
		× <u> </u>	0.27				dant rootlets.	wii anu ye			Dry		1.00 - 1.45	S	N=0 (0,0/0,0,0,0)
		×		(0.50)	ALLUVIUM	l) rownist	hlack neeudo-	fibrous PF		dant iron spots.	ţ.				
		<u>×</u>	-0.23	1.50	Abundant ro	otlets.				dant iron spots.					
		×			ALLUVIUM	l) d orano	gish brown and	vellowish	brown ver	v silty CLAY					
		×			Occasional	rootlet	and relic roots.	<i>y</i> enemen		, only 01, 11	Dry		2.00 - 2.45	s	N=0 (0,0/0,0,0,0)
		×			(ALLUVIUM Very soft gr	l) ev siltv	CLAY.				-				
		××			(ALĹUVIŬM	I)				-	-				
		××									-				
		×_×		(2.95)							Dry		3.00 - 3.45	S	N=0 (0,0/0,0,0,0)
		<u>×</u>		(_			0.00 - 0.40		
		×									-				
		×								-]				
		_ ×									-				
		~ ×								-	Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
		×									-				
		^	-3.18	4.45		Dyna	mic sample end	s at 4.45 n	n (Target de	epth) -					
											-				
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											1				
										-					
Groun	Inst (Ø)	ar 02	tries		Casing:			Denth rol	ated rema	rks [.]	Water	Casing	Depth Run details:	Type & No	Results
				g: Sealed	Casing.	Dia	ameter (mm):	From		marks			From: to:	Duratio	on: Recovery:
.	Notes: Fr	or explans	ation of symb	ools and	Droiget	TUL							voloreterre	ition f-	
AGS	abbreviati	ons see H	Key Sheet.	re in metres.	Project: Project No		iry Power					E	Exploratory pos		
Log iss	sue:		INAL		Client:		era Energy Ltd							WS	
Scale:		1:	:50				- 57 - 50								Sheet 1 of 1

oreho	ole fr	ormat	ion de	tails:											Location	n details:
ype: VLS	Froi 0.0	m:	To: 5.45	Start date 20-09-19		Crew: HD	Plant: Dando Terrier 2002	Logger: TM	Logged: 20-09-19	Remarks:					mE: mN: mAOD: Grid:	566233.7 176814.7 1.26 OSGB
aľn	ter- ike	Legend	Level	Depth (thick-			Stratum	Descripti	on				Samples	& In Situ Te	esting	
Instal'n	Water- strike	Leg	Level	ness)							Water	Casing	Depth	Type & No		Results
			0.86	(0.40) 0.40	brick and cl (MADE GR Grevish bro	nalk. Ab OUND) wn mot	slightly gravell undant rootlets tled orangish br sandy laminatio	rown and	grey fissur	ed CLAY.	· · · / · ·		0.30	ES1		
	(50)	× al <i>a</i> ,	0.26	1.00	flecks. Abu (TOPSOIL) Soft grey m light grey sa	ottled o	ootlets.	slightly sil	ty peaty Cl	AY. Occasional	Dry		1.00 - 1.45	s	N=2 (0,0/0,0,1,1)
		ala × × × × ×		(1.00)	(ÁLLÚVIUN	1)										
			-0.74		Very soft gr (ALLUVIUN		CLAY. Occasion	nal Iamina	ation of ree	ds.	Dry 		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
		× × ×									- Dry		2.90 3.00 - 3.45	D1 S	N=0 (0,0/0,0,0,0)
				(3.45)							- - - - Dry		4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
											- - - - Dry		5.00 - 5.45	S	N=0 (0,0/0,0,0,0)
	SP (50)		-4.19	5.45		Dyna	mic sample ends	s at 5.45 n	n (Target de	pth)	-					
											-					
											-					
	Inst (Ø)			,							- 	Casing	Depth	Туре & No		Results
ound	dwat	er en	tries:		Casing:			-	ated rema		water	R	un details:			
ruck:	Ro	se to:	Casin	g: Sealed	Cased to:	Dia	meter (mm):	From	to: Rer	marks			From: to:	Duratio	on: Rec	overy:
GS	abbrevia	itions see I ns and redu	ation of sym Key Sheet. uced levels a	bols and are in metres.	Project: Project No Client:		ry Power					E	xploratory pos	sition refere		

					npie		•							onsuit
pe: 6	e fo Fron		on de	tails: Start date:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:				Location details:
	0.00		5.45	20-09-19	20-09-19	HD	Dando Terrier 2002	TM	20-09-19	incinaino.				mE: 566146.2 mN: 176744.2 mAOD: 1.68 Grid: OSGB
al'n ter-	e a	Legend	Laural	Depth			Stratum	Descripti		I		Samples &	& In Situ T	esting
Instal'n Water-	strike	Leg	Level	(thick- ness)				Descripti			Water Ca	asing Depth	Type & No	Results
	50)		1.43	0.25	Subrounded MADE GRO Greyish bro	l flint an <u>OUND)</u> wn mot sandy l	a slightly gravell ad brick. Abunda tled orangish bi aminations. Oc	ant rootlet	s. grey fissur	ed CLAY.	Dry	0.15	ES1 S	N=3 (1,1/1,1,1,0)
	,		-0.14	(1.57)								1.80	D1	N=0 (1, 111, 1, 1, 1)
		™ × × × × × × × × × × × × × × × × × × ×	-0.32	2.00	ight grey sa ALLUVIUM	andy lar I) ey silty	rangish brown s ninations. Occa CLAY. Occasion	isional se	lenite cryst	als.		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)
		<pre>4 × × × × × × × × × </pre>		(3.45)							- Dry	3.00 - 3.45	S	N=0 (0,0/0,0,0,0)
		× × × × × × × × × × × ×									- Dry - Dry 	4.00 - 4.45	S	N=0 (0,0/0,0,0,0)
	SP 50)		-3.77	5.45 -		Dyna	mic sample end	s at 5.45 n	n (Target de	pth)	- Dry - Dry 	5.00 - 5.45	S	N=0 (0,0/0,0,0,0)
Inst	st (Ø)										- Water Ca	asing Depth	Type & No	Results
oundv	wate			-	Casing:			-	ated rema			Run details:		
uck:	Ros	e to:	Casin	g: Sealed:	Cased to:	Dia	meter (mm):	From	to: Rei	narks		From: to:	Duratio	on: Recovery:
abb	es: For explanation of symbols and reviations see Key Sheet. epths and reduced levels are in metres. e: FINAL LIFO Client: Statera Energy Ltd										Exploratory pos	ition refer		

_							J									
oreho	Froi		tion de To:	stails:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:					Location details: mE: 566273.7	
NLS	0.0		5.45	20-09-19		HD	Dando Terrier 2002	TM	20-09-19						mN: 176686.6 mAOD: 1.53 Grid: OSGB	
Backtill/ Instal'n	Water- strike	Legend	Level	Depth (thick-	Stratum Description								Samples	& In Situ Te	Testing	
g≝⊑ I⊩∵	st V	È.		ness)	Eirm and del	brown		-			Water	Casing	Depth 0.10	Type & No ES1	Results	
			1.38	0.15	brick and ch	alk. Ab	slightly gravel undant rootlets	IY CLAY. (sravel is fir	ie subangular	Å		0.10	E51		
					Greyish bro Occasional	wn mot sandv l	tled orangish b aminations. Oc	rown and casional v	grey fissur white and b	red CLAY. black flecks.	1					
	(50)			(1.13)	Abundant ro (TOPSOIL)	otlets.					Dry		1.00 - 1.45	s	N=4 (0,0/1,1,1,1)	
			0.23	1.30	Grevish bro	wn mot	tled orangish b	rown and	arev fissur	red CLAY						
					Occasional root and pla	sandy l	aminations and	selenite	crystals. O	ccasional relic	-					
			-0.17	1.70	ALLUVIUM)	led orangish br			acional plant	A					
		×			remains. (ALLUVIUM		ieu orangish bi	Own Silly	CLAT. OCC	asional plant	- Dry		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)	
			-0.97	2.50			CLAY. Occasio	nal lamina	ation of ree	eds.						
					(ALLUVIUM)					-					
											- Dry		3.00 - 3.45	S	N=0 (0,0/0,0,0,0)	
				(2.95)							Dry		4.00 - 4.45	s	N=0 (0,0/0,0,0,0)	
		×_×														
											- Dry		5.00 - 5.45	s	N=0 (0,0/0,0,0,0)	
		×											0.00 - 0.40		N=0 (0,0/0,0,0,0,0)	
	SP (50)	×	-3.92	5.45		Dyna	mic sample end	s at 5.45 n	n (Target de	epth)						
											-					
											-					
											-					
											-					
											-					
											-					
											-					
											-					
											-					
											-					
											-					
	Inst (Ø)										Water	Casing	Depth	Type & No	Results	
roundwater entries: truck: Rose to: Casing: Sealed:					Casing: 1: Cased to:	Dia	meter (mm):	From	to: Re	marks			Run details: From: to:	Duratio	on: Recovery:	
Notes: For explanation of symbols and abbreviations see Key Sheet. Ail depths and reduced levels are in metres.					Project:								Exploratory position reference:			
og issi				ard in metres.	Project No Client:	Project No: 4593								WS	58	
ale:		1	:50			Jiait	era Energy Ltd								Sheet 1 of	

					iihie		' 9								onsare	
Soreho	ble fo From		tion de To:	tails: Start date	End date:	Crew:	Plant:	Long	1000-1	Remarks:					Location details:	
ype: WLS	0.0		10: 5.45	20-09-19		HD	Dando Terrier 2002	Logger: TM	Logged: 20-09-19	Remarks:					mE: 566306.6 mN: 176821.1 mAOD: 1.23 Grid: OSGB	
<u>€</u>	r e	P		Depth									Samples	& In Situ Te		
Backfill/ Instal'n	Water- strike	Legend	Level	(thick- ness)			Stratum	Descripti	on		Water	Casing	Depth	Type & No	Results	
					Brown and g gravel of fin (TOPSOIL)	greyish e chalk	brown mottled Abundant roo	orangish tlets.	brown fissi	ured CLAY. Rare	-		0.25	ES1		
		[] []	0.33	0.90	Greyish bro	Greyish brown mottled orangish brown fissured CLAY. Occasional light							1.00 - 1.45	s	N=4 (0,0/1,1,1,1)	
		Grey sandy lamination. Occasional rootlets.														
			-0.57				led dark grey ar	nd orangi	sh brown s	ilty CLAY.						
			-1.17	(0.60)	Occasional (ALLUVIUM)	emains. led dark grey si		Para plant	romaina	Dry		2.00 - 2.45	S	N=0 (0,0/0,0,0,0)	
		× × ×			(ALLUVIUM		ieu daik grey si	ily CLAT.	Rare plant	Temains.			2 00 2 45	s		
										-	Dry		3.00 - 3.45	5	N=0 (0,0/0,0,0,0)	
		× ×		(3.05)						-	- Dry		4.00 - 4.45	s	N=0 (0,0/0,0,0,0)	
		×_×														
		××								-	Dry		5.00 - 5.45	s	N=0 (0,0/0,0,0,0)	
		<u>×_</u>	-4.22	5.45		Dyna	mic sample ends	s at 5.45 r	n (Target de	pth)						
										-	-					
										-	-					
										-	-					
										-						
											-					
	Inst (Ø)									-	-	Casing	Danth	Turo 8 No	Desuite	
iroun	dwat	er en		L	Casing:			-	ated rema		Water	Casing	Depth aun details:	Type & No	Results	
Struck	Ro	se to:	Casino	g: Sealec	Cased to:	Dia	imeter (mm):	From	to: Rei	narks			From: to:	Duratio	on: Recovery:	
100	abbrevia All depth	tions see I is and redu	ation of symb Key Sheet. uced levels a		Project: Project No Client:	Project No: 4593						E	Exploratory position reference:			

IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 STATUS : Final NORTHING Test refused on tip resistance. **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) ion 100 200 300 400 - 500 Sleeve Friction Resistance, f_s (kPa) ЭЩ (300 600 900 -5 0 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 5 0.4 1.4 Medium strength locally high strength sandy SILT to clayey SILT (6) 1.00 Low strength CLAY (3) locally organic 2---2 Low strength sensitive fine grained (1) 3---3 4. --4 Į Medium strength locally high strength . CLAY to silty ČLAY (4) --5 5. Ĩ x E -6 x_ --7 x 7 60 Low strength clayey SILT to silty CLAY (5)--8 8-9---9 Ł METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 293 mV 0.011 MPa Tip 294 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 01 Pore Pressure 2 273 mV 286 mV 0.004 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2351 mV 2470 mV

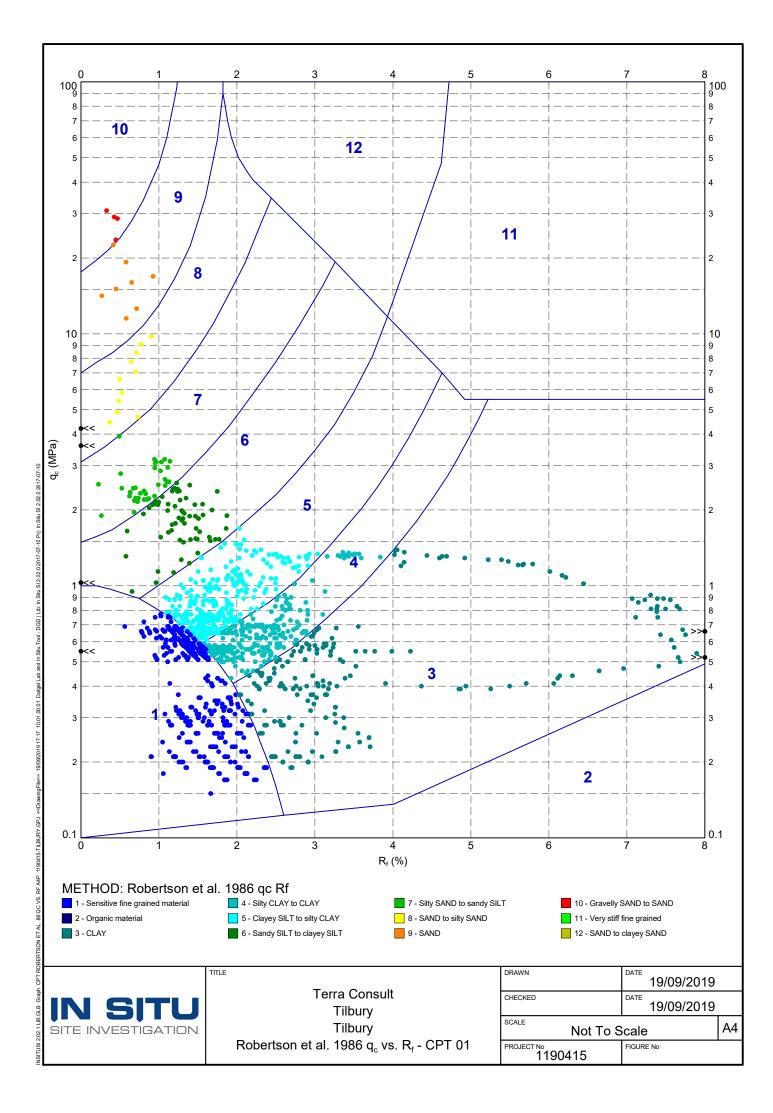
IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, f_s (kPa) 300 10 15 -0.6 0.9 -300 0 600 900 -5 0 5 -0.1 04 14 1 2 3 4 5 6 7 8 9 10 11 Low strength clayey SILT to silty CLAY (5) (continued) 11-K ¥ 12---12 13--1: | | | | | | |14--1 14.60 Medium dense becoming very dense 15.06 gravelly SAND to SAND (10) 15 Terminated at 15.06 m Refusal 16-17---1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG 0.011 MPa CPT 007 Tip 293 mV 294 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 01 Pore Pressure 2 273 mV 286 mV 0.004 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER WEATHER : Sunnv & Mild : None X-Y Inclinometer 2351 mV 2470 mV

CPT LOG 02 IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 X × × × ïх _ 0 Clay siltv 2---2 ____ ő -sp _ _ _ - -Sa Silt ž 3---3 Ŧ ž _ _ ____ 4---4 MAN I + = ____ --5 > 5-+ ___ -6 --7 _____ \times × --8 8-- Mar × 9---9 × X \times × × Х X × CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.011 MPa : 0.79 CPT 007 Tip 293 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 01 Pore Pressure 2 273 mV 286 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2351 mV 2470 mV

IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 шex ш Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 Λ 5 0 5 10 15 25 50 75 100 0 60 80 ××× silt P ě ¥ `× <u>×</u>, silty silty ≧ ≧ $\times \times \times \times$ 11 ---1 × Clay 2 50 × ž X silty ×× Clay 12---12 Х ő ┢ × -sp XtL Х Sa × Silt × × 13---13 $\hat{\mathbf{x}}$ 2 × . x ŀ≻ Х 14---14 X Ī∕× $\times \frac{1}{\times}$ × 1 15. Terminated at 15.06 m Refusal 16--16 17---1 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.011 MPa : 0.79 CPT 007 Tip 293 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa Dissipation : 1190415-CPT 01 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 273 mV 286 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2351 mV 2470 mV

IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{uo})/N_{ut}$, where $N_{ut} = 20$ BE. $s_u = (q_t - \sigma_{uo})/N_{ut}$, where $N_{ut} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 25 37.5 12 16 25 50 75 100 0 50 8 20 24 X × X 2---2 3---3 $\frac{1}{2}$ 4---4 The Person T --5 5. SAM S - × -6 × × × --8 8-Х X \times × X \times 9---9 X Х Sec. X X İ≻ × CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 0.011 MPa Tip 293 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 01 Pore Pressure 2 273 mV 286 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2351 mV 2470 mV

IN SITU PointID **CPT 01** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury : 0.000 m OD TEST DATE : 17/09/2019 ELEVATION LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 1. R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 12 16 25 50 75 100 0 25 50 8 20 24 ₩ T ××× iah Þ ×× ×× 11 ---1 \geq -Х X X Х 12---12 Х × रेरे ₩ Х Х Х 13---13 ××× X k $\times \frac{1}{\overline{X}}$ Х 14---14 Х ×<u>×</u> Т о. О -----15. Terminated at 15.06 m Refusal 16--16 17---1 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG 0.011 MPa CPT 007 Tip 293 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 299 mV 302 mV 0.002 kPa Dissipation : 1190415-CPT 01 페 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 273 mV 286 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2351 mV 2470 mV



IN SITU PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) ion 100 200 300 400 - 500 ЭЩ (Sleeve Friction Resistance, fs (kPa) 300 10 15 -0.6 -0.1 0.4 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 600 900 -5 0 5 14 High strength sandy SILT to clayey SILT Medium strength CLAY (3) locally organic 2---2 Low strength sensitive fine grained (1) 3---3 4. --5 5. -6 11 7. ---7 8---8 8 80 Medium strength locally low strength clayey SILT to silty CLAY (5) --9 9-METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG CPT 007 293 mV 0.055 MPa Tip 298 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation : 1190415-CPT 02 FILTER TYPE HDPE FILE NAME Pore Pressure 2 283 mV 308 mV 0.007 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2513 mV 2479 mV X-Y Inclinometer

IN SITU PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 STATUS : Final NORTHING Test refused on tip resistance. **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Sleeve Friction Resistance, f_s (kPa) ЭЩ (300 10 15 -0.1 04 0.9 -300 0 600 900 -5 0 5 -0.6 14 1 2 3 4 5 6 7 8 9 10 11 2 Medium strength locally low strength clayey SILT to silty CLAY (5) (continued) 11-5 12---12 13-13.20 x_ Medium strength locally high strength CLAY to silty CLAY (4) <u>x</u>_ 14. 15---1 x— 16.00 16. 1 Dense becoming very dense gravelly SAND to SAND (10) Ø 16 54 Terminated at 16.54 m Refusal 17---17 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG 0.055 MPa CPT 007 Tip 293 mV 298 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 02 Pore Pressure 2 283 mV 308 mV 0.007 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER WEATHER : Sunnv & Mild 2513 mV 2479 mV : None X-Y Inclinometer

IN SITU PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 ЭЩ (Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 3 Λ 5 0 5 10 15 25 50 75 100 0 40 60 20 X × clav × × Clay - siltv 2---2 Z ő Sa Silt 3---3 ____ ٤ Ŧ ____ N N > 4---4 ____ 2 ____ _ _ 5-5 + _ _ \leq -6 _ _ + ___ 7----7 ____ کے ≱ 8---8 ____ man --9 9- \times ^× ×× Z ¥ ł× ×́ CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO 0.055 MPa : 0.79 RIG CPT 007 Tip 293 mV 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa Dissipation : 1190415-CPT 02 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 308 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2513 mV 2479 mV

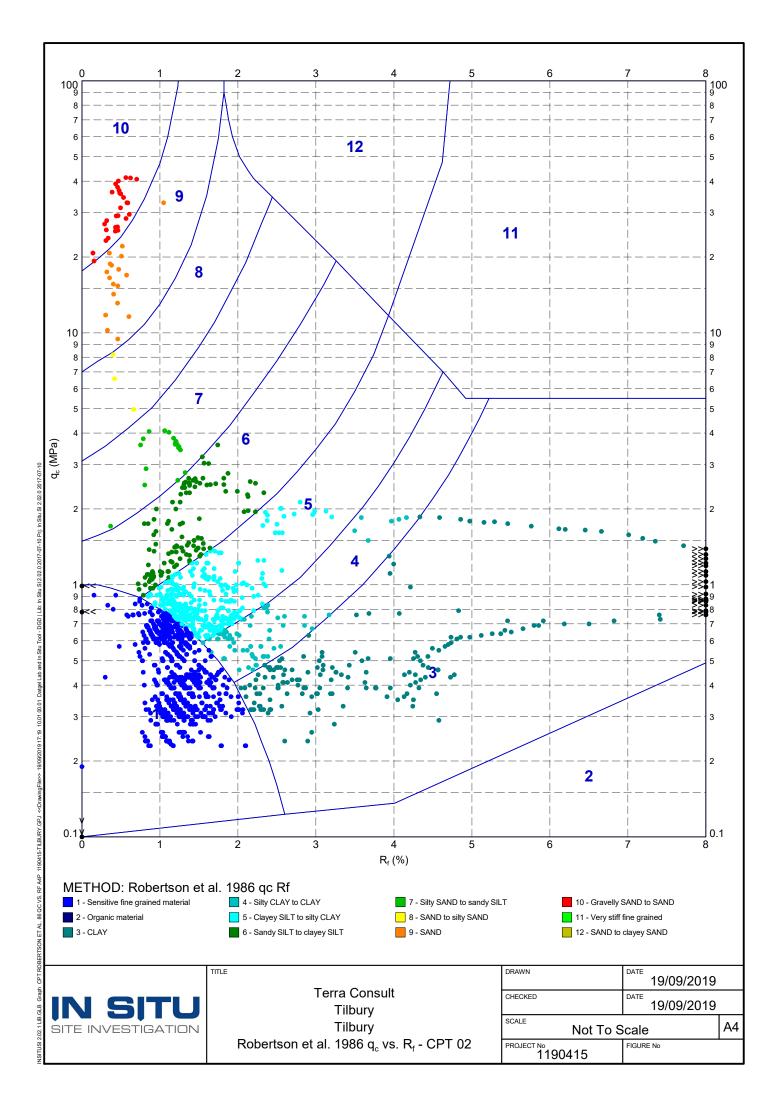
PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mavne (1990) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 3 5 0 5 10 15 25 50 75 100 0 40 60 80 ××× iit s clav ¥ `×<u>×</u> siltv silty ≧ $\times \times \times \times$ 11 -_ 1 clav × Clay 0 × claye × siltv ×× 3 Clav 12---12 Х ő × -sp ₩ mixtu × Silt Sa Х Х × 13--10 ح $\mathbf{\vee}$ ×____ ____× ~~ ___ 14-_____ ____ \checkmark ١<u>ڳ</u> Z ___ 15---14 _____ 16ю. О Terminated at 16.54 m Refusal 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.055 MPa : 0.79 CPT 007 Tip 293 mV 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa Dissipation : 1190415-CPT 02 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 308 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2513 mV 2479 mV

CPT LOG 02

IN SITU

IN SITU PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014 tion 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 200 300 12.5 25 37.5 50 8 12 25 50 75 100 0 100 16 20 24 X 2---2 And Phylophyle 3---3 \$ 5 4-_/ Paryan 55 5-+ 5 -6 7----7 8---8 --9 9- \times Say North × × × 11 × CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 293 mV 0.055 MPa Tip 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa Dissipation : 1190415-CPT 02 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 308 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2513 mV 2479 mV

IN SITU PointID **CPT 02** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 1. R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 50 8 12 16 25 50 75 100 0 25 20 24 $\times \frac{\times}{\times}$ Х \times \times 11 -- 1 Mun × Х X Х × 12---12 × × Х Х × 13--10 × 5 - × 14-× × 15---14 _____ 16. 0 Terminated at 16.54 m Refusal 17-18---1: 19---19 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.055 MPa Tip 293 mV 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 301 mV 307 mV 0.004 kPa Dissipation : 1190415-CPT 02 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 308 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2513 mV 2479 mV



IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 NORTHING STATUS : Final Test refused on tip resistance. **PROJECT:** Tilbury ELEVATION TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 ЭЩ (Sleeve Friction Resistance, fs (kPa) 300 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 600 900 -5 0 5 04 1.4 High strength sandy SILT to clayey SILT Very low strength to low strength CLAY (3) locally organic ∇ 2---2 3---3 4. High strength to very high strength sandy SILT to clayey SILT (6) --5 5. -6 --7 Loose to medium dense silty SAND to -_8 sandy SILT (7) with a layer of clay 9 È ٠×. 0 70 X Medium strength CLAY to silty CLAY (4) METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG CPT 007 294 mV 0.044 MPa Tip 298 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 03 Pore Pressure 2 275 mV 299 mV 0.007 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2401 mV X-Y Inclinometer 2431 mV

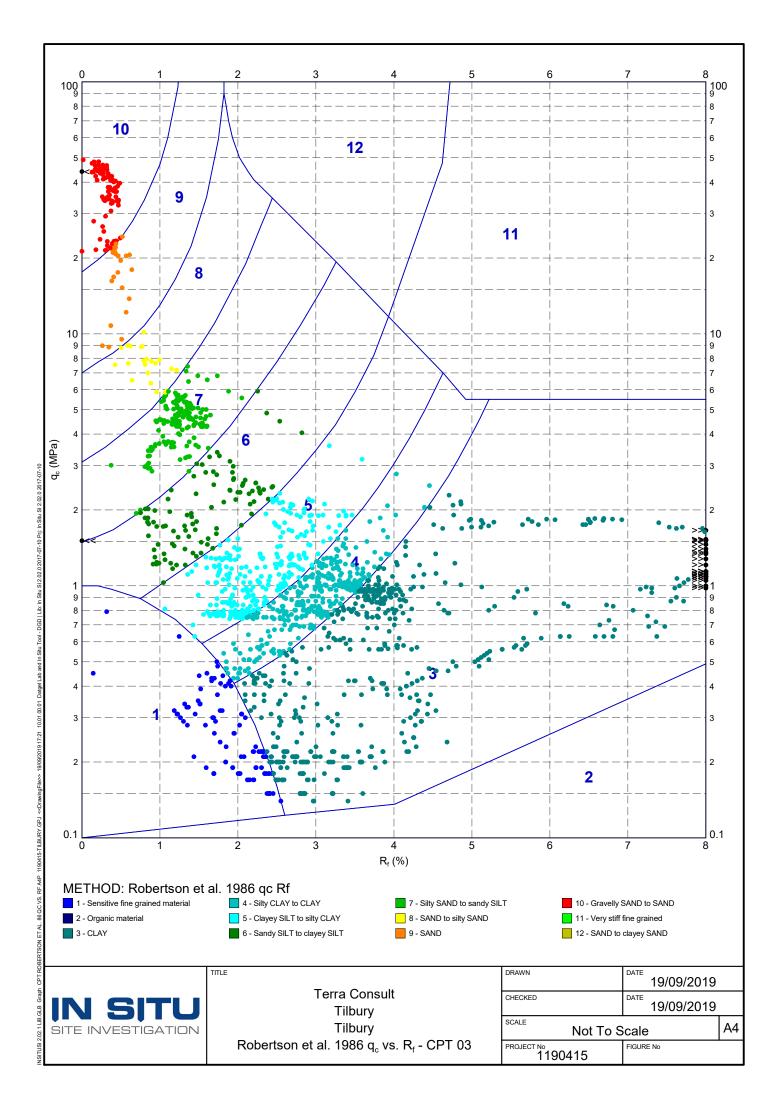
IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 STATUS : Final NORTHING Test refused on tip resistance. **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) ion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, f_s (kPa) 300 600 900 -5 10 15 -0.6 -01 04 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 0 5 14 J~~~~ $\overline{\mathbf{x}}$ Medium strength CLAY to silty CLAY (4) N N (continued) x \leq 11-Z x 12--12 AMA 13-X Low strength locally medium strength clayey SILT to silty CLAY (5) with a layer of sand 14-15---1 \times 15.40 Very dense gravelly SAND to SAND (10) Ó 16-16.59 Terminated at 16.59 m Refusal 17---17 -1-+ 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE CPTU ZERO VALUES : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 294 mV 0.044 MPa RIG CPT 007 Tip 298 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 03 Pore Pressure 2 275 mV 299 mV 0.007 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2401 mV X-Y Inclinometer 2431 mV

IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 35 40 45 50 20 50 5 10 15 20 25 30 25 50 75 100 0 40 60 20 X silt × Clay siltv 2---2 ő -sp nixtu - -Sal Silt 3---3 + 4. Z M ___ + --5 5. + × ïх _ × X -6 Χ N-X × X × X --7 × 'Х × 8--_8 × 2 × 9 ·× x___ ≥ CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 294 mV 0.044 MPa Tip 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa Dissipation : 1190415-CPT 03 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 275 mV 299 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2401 mV 2431 mV

IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 x___ N iit s ____ July. ≧ - <u>×</u> 11-. 1 2 2 Clay 52 siltv ____ 12---12 Ş ő 2 Sa Z ____ 13--13 Z -N ξ X × $\hat{\mathbf{x}}$ 14--1. × \times Х 15---14 X 7 Х :0. Ö. 0 16-.o. Terminated at 16.59 m Refusal 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.044 MPa : 0.79 CPT 007 Tip 294 mV 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa Dissipation : 1190415-CPT 03 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 275 mV 299 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2401 mV 2431 mV

IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{uo})/N_{ut}$, where $N_{ut} = 20$ BE. $s_u = (q_t - \sigma_{uo})/N_{ut}$, where $N_{ut} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014 ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 200 300 12.5 37.5 50 8 12 25 50 75 100 0 100 25 16 20 24 X 2---2 3---3 $\frac{1}{2}$ 4. Ź --5 5. -6 X --7 × -_8 × 11 × ≤ ·× 5 x___ CONE ID : S15-CFIP.1486 TEST TYPE CPTU ZERO VALUES : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 294 mV 0.044 MPa Tip 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa Dissipation : 1190415-CPT 03 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 275 mV 299 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2401 mV 2431 mV

IN SITU PointID **CPT 03** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 1. R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 50 8 12 16 25 50 75 100 0 25 20 24 x____ - × × 11-. 1 - <u>×</u> 12---12 - × ____ 13--13 <u>×</u> 3 Х Х Х 14--1 Х X \times X Х 15---14 X \times :0. Ö. 16-0 o. Terminated at 16.59 m Refusal 17-18---1: 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.044 MPa Tip 294 mV 298 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 306 mV 0.002 kPa Dissipation : 1190415-CPT 03 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 275 mV 299 mV 0.007 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2401 mV 2431 mV



IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, fs (kPa) 300 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 600 900 -5 0 5 04 1.4 High strength becoming very high strength CLAY to silty CLAY (4) x 1_{0.85} Low strength organic material (2) 20 Very low strength to low strength CLAY ∇ 2---2 3---3 4. --4 --5 5--6 $\langle 1 \rangle$ Low strength organic material (2) 7.00 7. ---7 +Very low strength CLAY (3) locally organic 8---8 り --9 9-11 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG CPT 007 294 mV 0.011 MPa Tip 295 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 04 Pore Pressure 2 283 mV 285 mV 0.001 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2391 mV 2499 mV X-Y Inclinometer

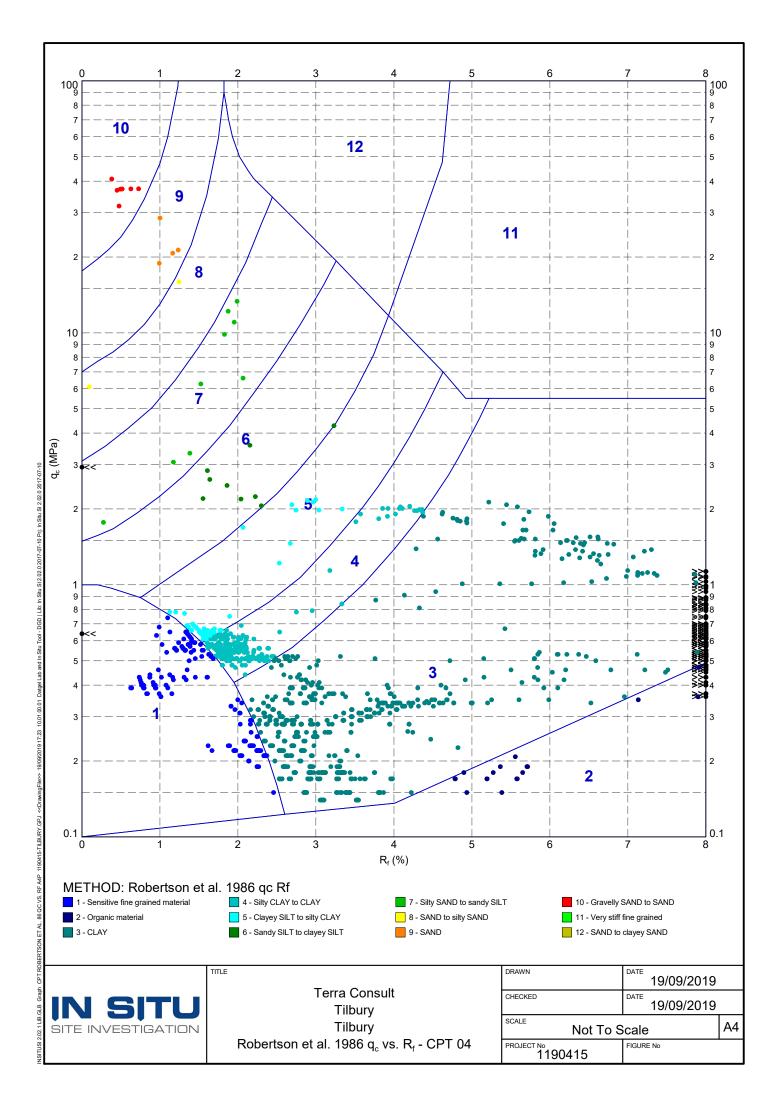
IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 • STATUS NORTHING Test refused on tip resistance. : Final 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) 10 Pore Pressure Ratio, B 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, f_s (kPa) 300 10 15 -0.1 0.9 -300 0 600 900 -5 0 5 -0.6 04 1.4 1 2 3 4 5 6 7 8 9 10 11 2 Very low strength CLAY (3) locally organic (continued) 11-- 1 1.40 Low strength locally medium strength CLAY to silty CLAY (4) $\overline{\mathbf{x}}$ 12---12 +++x Т X 13---13 Т x_ 14---14 X 15---15 \top \top \top x_ 15.80 Medium dense becoming very dense 16--16 16.24 gravelly SAND to SAND (10) Terminated at 16.24 m Refusal 17----1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG 294 mV 0.011 MPa CPT 007 Tip 295 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 04 Pore Pressure 2 283 mV 285 mV 0.001 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER WEATHER : Sunnv & Mild 2391 mV 2499 mV : None X-Y Inclinometer

IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 ____ X silt Ş andv Ity sa **₹**≧ È PIN _ 2 Clay silty Clay 2---2 ő ds: mixtu _ _ _ _ Sal l iii l 3---3 ___ Ŧ 4---4 _ _ + --5 ____ 5-____ + ____ -6 <u>\\</u> 7. ---7 1/ 1 ____ ____ _ _ 8---8 -9---9 ž CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.011 MPa : 0.79 CPT 007 Tip 294 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 04 Pore Pressure 2 283 mV 285 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2391 mV 2499 mV

CPT LOG 02 IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 Www ____ silt P silty ≧ PIN ≥ ____ 11---1 ____ 2 Clay silty 12---12 ő -sp ixtu Sa Silt 13---13 15 14 ---14 Ī 15-× ____. 2 16--16 0 Terminated at 16.24 m Refusal 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0.011 MPa : 0.79 CPT 007 Tip 294 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 04 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 285 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2391 mV 2499 mV

IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. s_u = (q_t - σ_{vo})/N_{tt}, where N_{tt} = 20 BE. s_u = (q_t - σ_{vo})/N_{tt}, where N_{tt} = 17.5 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 12 16 25 50 75 100 0 25 50 8 20 24 $\overline{\mathbf{x}}$ 2---2 3---3 Ŧ 4---4 3 3 --5 5-+ 5 -6 Ŵ 11 7----7 ____ 8---8 AMA, 9---9 ____ \leq CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 0.011 MPa Tip 294 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 04 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 285 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2391 mV 2499 mV

IN SITU PointID **CPT 04** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Unit Weight, y (kN/m³) Fines Content, FC (%) Undrained Shear Strength, s_u (kPa) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 12 25 50 75 100 0 25 50 8 16 20 24 _ iah ____ 11---1 1 12---12 13---13 14---14 15-_____ 16--16 0 3 Terminated at 16.24 m Refusal 18---1: 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.011 MPa Tip 294 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 04 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 285 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2391 mV 2499 mV



IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 0 10 15 -0.6 -01 04 0.9 1 2 3 4 5 6 7 8 9 10 11 6 -300 0 5 1.4 Medium strength locally low strength CLAY to silty CLAY (4) x 0.80 Very low strength CLAY (3) locally organic ∇ 2---2 3---3 ₹ 4. --4 -----5 5. 1 - 5.60 Т 14 Low strength organic material (2) -6 11 11 11 Very low strength sensitive fine grained (1) 7. --7 +L 8---8 Į 9---9 5 CPTU ZERO VALUES METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 295 mV 0 MPa Tip 295 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 05 Pore Pressure 2 277 mV 292 mV 0.004 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2414 mV X-Y Inclinometer 2598 mV

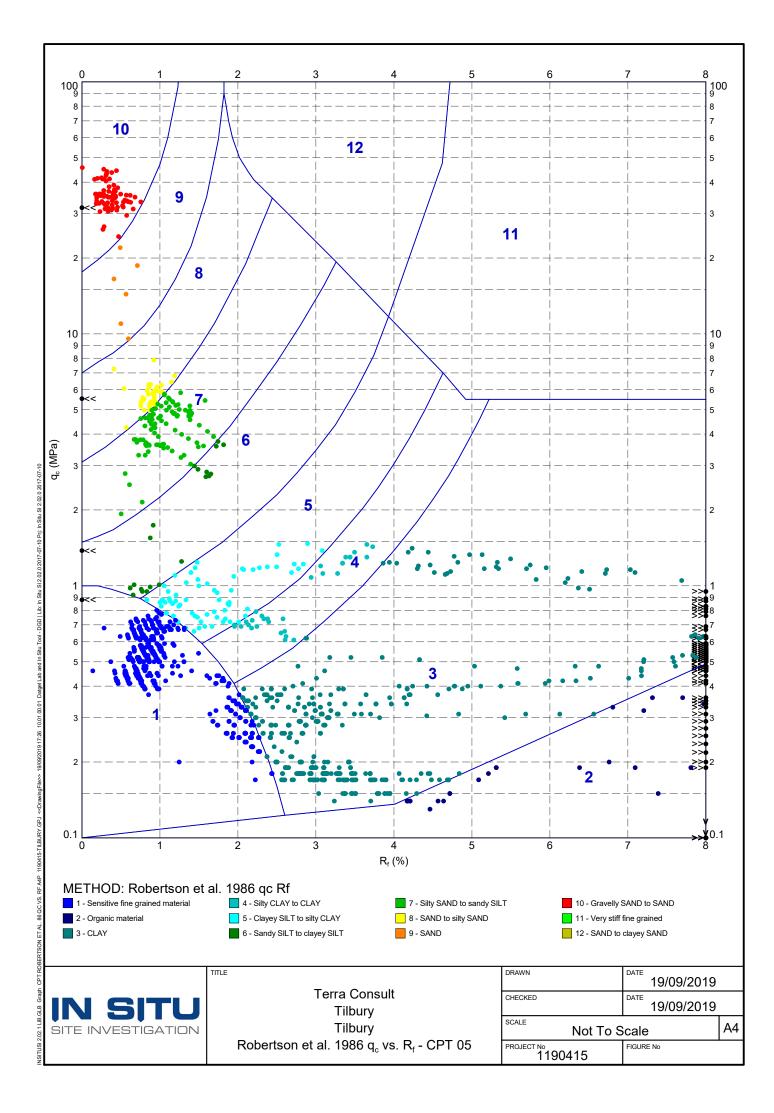
IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 STATUS : Final NORTHING Test refused on tip resistance. **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) 10 Pore Pressure Ratio, B 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Sleeve Friction Resistance, f_s (kPa) ЭЩ (300 10 15 -0.6 -0.1 04 0.9 -300 0 600 900 -5 0 5 14 1 2 3 4 5 6 7 8 9 10 11 Very low strength sensitive fine grained (1) (continued) 11 -12---12 1 3 13---13 Low strength locally medium strength clayey SILT to silty CLAY (5) 14. 1 1 1 1 15---14 \times 15.40 Loose becoming medium dense silty SAND to sandy SILT (7)with layers of clav 16. × 16.80 Very dense gravelly SAND to SAND (10) 17---1 Ò - L I 17.72 Terminated at 17.72 m 18-Refusal 19---19 1 1 1 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG 0 MPa CPT 007 Tip 295 mV 295 mV 2 - Organic material 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 05 Pore Pressure 2 277 mV 292 mV 0.004 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2414 mV X-Y Inclinometer 2598 mV

CPT LOG 02 IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, ISBT 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Robertson (2010) Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 40 3 50 5 10 15 20 25 30 35 40 45 50 25 50 75 100 0 60 R۵ ____ $\overline{\mathbf{x}}$ silt ____ ě È PIP ≧ _ _ 2 Clay ____ silty 1 2---2 ____ ő nixtu ds: Sal Silt 3---3 _ _ Ŧ _ _ 4. --4 ----+ ____ -----5 5-+ -6 <u>1, \1, \</u> <u> \ // \ //</u> _ _ 7. ---7 Ξ M ____ _ _ 8---8 ____ 9---9 _ _ ş ___ CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO 0 MPa : 0.79 RIG CPT 007 Tip 295 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 05 Pore Pressure 2 277 mV 292 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2598 mV 2414 mV

IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500) Elexa Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 silt 2 Ξ ≧ ____ 11 -Ξ clav Clay 2 siltv Clay - -12---12 ____ ő Sa _ _ 13---13 ş X × ×× ×× 14--1. Ś × X Х 15---15 X Ż \times × 2 16--16 .∙× \mathbb{Z} 5 17----1 0 Ö MVM. .0. Terminated at 17.72 m 18-Refusal 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0 MPa : 0.79 CPT 007 Tip 295 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa Dissipation : 1190415-CPT 05 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 277 mV 292 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2598 mV 2414 mV

IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014 ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 200 300 0 12.5 37.5 12 25 50 75 100 0 100 25 50 8 16 20 24 $\overline{\mathbf{x}}$ 2---2 3---3 Ŧ 4---4 + --5 5-____ Ę + -6 <u>1, \1, \</u> 2 <u> \ // \ //</u> 7. ---7 8---8 Ξ 9---9 _ _ ___ CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 0 MPa Tip 295 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa Dissipation : 1190415-CPT 05 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 277 mV 292 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2598 mV 2414 mV

IN SITU PointID **CPT 05** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- 7 bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 25 37.5 50 8 12 25 50 100 0 16 20 24 -11 -Ξ 12---12 13---13 Х 3 × Х 14--1 Х X \times × Х 15---15 X Х 5 × 16-.∙× 17---1 :0 Ö ö. Terminated at 17.72 m 18-Refusal 19---19 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level 0 MPa CONE AREA RATIO : 0.79 RIG CPT 007 Tip 295 mV 295 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 304 mV 303 mV -0.001 kPa Dissipation : 1190415-CPT 05 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 277 mV 292 mV 0.004 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2598 mV 2414 mV



IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 ЭЩ (Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 0 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 5 04 1.4 Medium strength locally high strength CLAY to silty CLAY (4) locally organic x Low strength locally very low strength CLAY (3) ∇ 2---2 3---3 4. -_/ -----5 5. 5.20 $\langle V_{i} \rangle$ Low strength organic material (2) -6 Low strength CLAY (3) 7-----7 +8---8 Very low strength sensitive fine grained (1) 11 9---9 Z 1 CPTU ZERO VALUES METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 294 mV 0 MPa Tip 294 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 06 Pore Pressure 2 288 mV 290 mV 0.001 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2382 mV 2441 mV X-Y Inclinometer

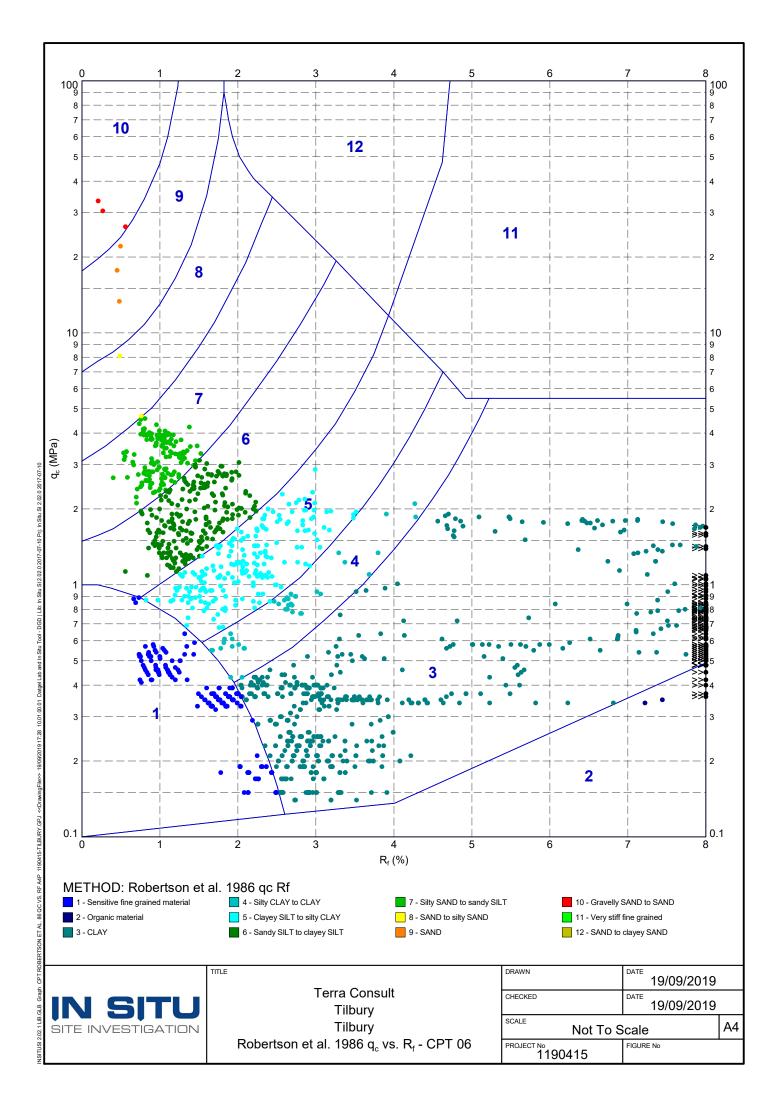
IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 17/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, f_s (kPa) 300 10 15 -01 0.9 1.4 1 2 3 4 5 6 7 8 9 10 11 -300 0 600 900 -5 0 5 -0.6 04 < 10.20 X 2 Meidum strength to high strength locally very high strength sandy SILT to clayey SILT (6) 11 | | | |₹ <u>x</u> Z 12-13 x 1 | | x <u>x</u> 15. 15.20 Medium strength locally high strength clayey SILT to silty CLAY (5) 16 16 20 16.42 Dense becoming very dense gravelly SAND to SAND (10) Terminated at 16.42 m Refusal 17----1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE CPTU ZERO VALUES : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 Tip 294 mV 294 mV 0 MPa 2 - Organic material 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 06 Pore Pressure 2 288 mV 290 mV 0.001 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2382 mV 2441 mV X-Y Inclinometer

IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 ____ X silt __<u>×</u>___ ě 11tv ≧ ≧ 2 Clay _ _ silty Cla 2---2 ő nixtu ____ ds: Sai Silt _ _ ____ 3---3 ╞ ____ ____ 4---4 + ____ ____ -----5 5-<u>____</u> 14 -6 ____ 7----7 ____ 8---8 ____ 9---9 _ _ ____ 3 CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO 0 MPa : 0.79 RIG CPT 007 Tip 294 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 06 Pore Pressure 2 288 mV 290 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2382 mV 2441 mV

IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 5 0 5 10 15 25 50 75 100 0 60 R۵ J~Y Silt S ð x___ -_<u>×</u> Ś _ 11 __× \leq 0 Clay Veve <u> ×</u> Clav -12-ő s, _____ 13-Þ ×__-___× <u> ×</u> 15. X Х × \times 16. $\underline{\times}$ Terminated at 16.42 m Refusal 17---17 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level 0 MPa CONE AREA RATIO : 0.79 RIG CPT 007 294 mV Tip 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa Dissipation : 1190415-CPT 06 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 288 mV 290 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2382 mV 2441 mV

CPT LOG 03 IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 200 300 12.5 37.5 50 8 12 25 50 75 100 0 100 25 16 20 24 X ____ 2---2 3---3 Ŧ S 4---4 ____ ____ ____ -----5 5-11 11 14 -6 ____ ł 7----7 -War War 8---8 9---9 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 294 mV 0 MPa Tip 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa Dissipation : 1190415-CPT 06 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 288 mV 290 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2382 mV 2441 mV

IN SITU PointID **CPT 06** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 17/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 50 8 12 16 25 100 25 20 24 x___ - × 2 11 × <u>×</u> 12-MM -_<u>×</u> - ×-13-____ × 15. X 16. \times Terminated at 16.42 m Refusal 17---17 18---1: 19---19 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0 MPa Tip 294 mV 294 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 305 mV 0.002 kPa Dissipation : 1190415-CPT 06 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 288 mV 290 mV 0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2382 mV 2441 mV



IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 0 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 5 0.4 1.4 High strength sandy SILT to clayey SILT (6) 0.60 Medium strength becoming low strength CLAY (3) ∇ 2---2 Low strength locally very low strength sensitive fine grained (1) 3---3 4---5 5--6 7. --7 8---8 z 11 2 M 9---9 11 CPTU ZERO VALUES METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 0.044 MPa Tip 289 mV 293 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 07 Pore Pressure 2 280 mV 274 mV -0.002 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2301 mV 2437 mV X-Y Inclinometer

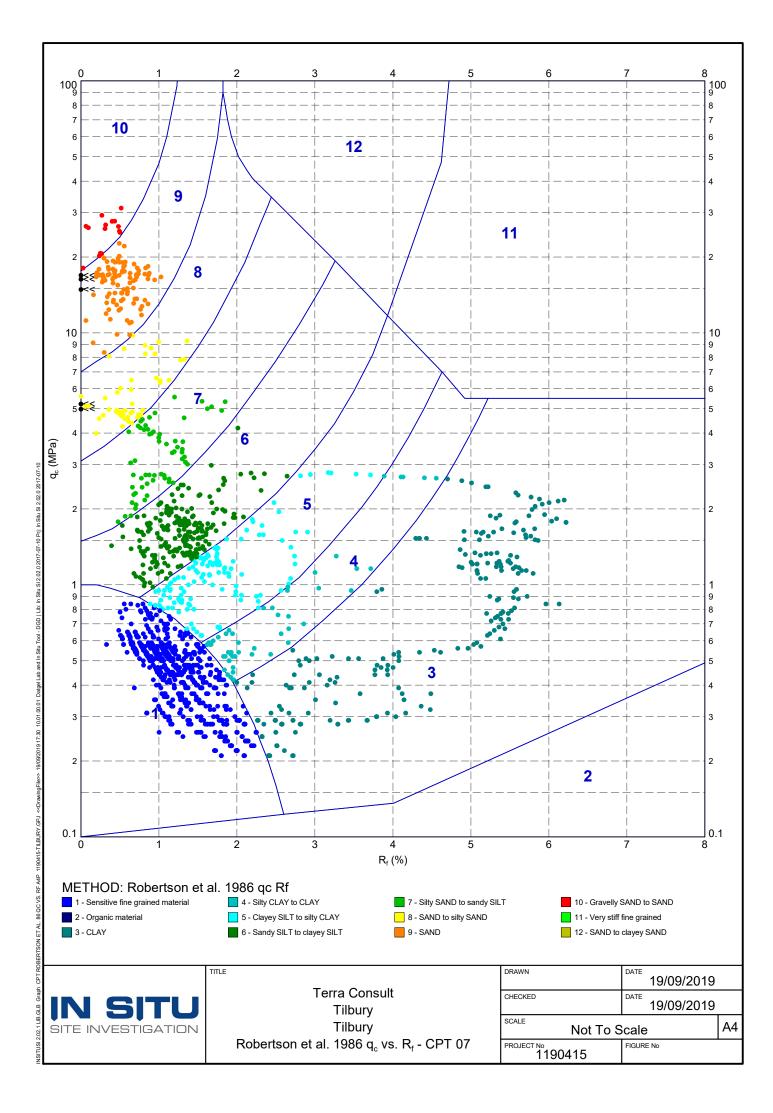
IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. **PROJECT:** Tilbury **ELEVATION** TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 10 15 -01 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 0 5 -0.6 04 14 10 20 X Medium strength to high strength CLAY to silty CLAY (4) 5 X 12-1 1 13 13.40 Loose SAND to silty SAND (8) with a 13.80 layer of clav Medium strength clayey SILT to silty CLAY (5) 14 X 14.20 Medium dense to dense gravelly SAND to SAND (10) with a layer of clay Ó 15-15 50 15.82 Very dense gravelly SAND to SAND (10) -Terminated at 15.82 m 16--16 Refusal 17---1 18---1: 19---1 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG 0.044 MPa CPT 007 Tip 289 mV 293 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 07 Pore Pressure 2 280 mV 274 mV -0.002 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2301 mV 2437 mV X-Y Inclinometer

CPT LOG 02 IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 10 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 10 15 20 25 30 35 40 45 50 20 40 3 5 0 5 25 50 75 100 0 60 80 X × × 2 Clay siltv 2---2 _ ő -sp ixtu Sal Silt 3---3 Ŧ _ _ 4---4 _ Ž 5-Z, + _ _ ક્ ≩ _ -6 ट्रे 5 \geq 7. --7 ____ ş 8---8 ____ --9 9-_ _ -CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO 0.044 MPa : 0.79 RIG CPT 007 Tip 289 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 07 Pore Pressure 2 280 mV 274 mV -0.002 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2301 mV 2437 mV

IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 25 30 35 40 45 50 20 40 3 5 0 5 10 15 20 25 50 75 100 0 60 80 5 silt Se 2 x___ 5 -_<u>×</u> ~ _ 11 ____ ____ b clay \leq Clay 0 Clavs: ___ 12-_____ ő _ × 13 -____ 7)) × × 14 0 Ö. o. 15-.o. :0 .0 -Terminated at 15.82 m 16---16 Refusal 17---1 18---1: 19---19 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.044 MPa Tip 289 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa Dissipation : 1190415-CPT 07 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 280 mV 274 mV -0.002 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2301 mV 2437 mV

IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 100 200 300 0 12.5 37.5 50 8 12 16 25 50 75 100 0 25 20 24 X × × 2---2 3---3 4---4 đ ----5 5-Ł + -6 7. --7 8---8 9---9 4 -CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 0.044 MPa Tip 289 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa Dissipation : 1190415-CPT 07 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 280 mV 274 mV -0.002 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2301 mV 2437 mV

IN SITU PointID **CPT 07** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Unit Weight, y (kN/m³) Fines Content, FC (%) Undrained Shear Strength, s_u (kPa) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 1. R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 37.5 50 8 12 16 25 50 75 100 25 20 24 x___ - × 11. - × Ł 12-- × 13 - x-×Ā 14 :0 Ó o. 15-.o. :0 -Terminated at 15.82 m 16---16 Refusal 17---1 18---1: 19---19 CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.044 MPa Tip 289 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 303 mV 305 mV 0.001 kPa Dissipation : 1190415-CPT 07 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 280 mV 274 mV -0.002 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2301 mV 2437 mV



IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 ЭЩ (Sleeve Friction Resistance, fs (kPa) 300 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 600 900 -5 0 5 04 1.4 High strength CLAY (3) 1.00 Very low strength to low strength CLAY (3) ∇ 2---2 3---3 4. --4 --5 5. 5.40 $\langle 1 \rangle$ Low strength organic material (2) -6 11 2 11 Low strength CLAY (3) 7. --7 8---8 18.80 Low strength sensitive fine grained (1) 9---9 MM why CPTU ZERO VALUES METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 291 mV 297 mV 0.066 MPa Tip 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 08 Pore Pressure 2 274 mV 274 mV 0 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2450 mV X-Y Inclinometer 2374 mV

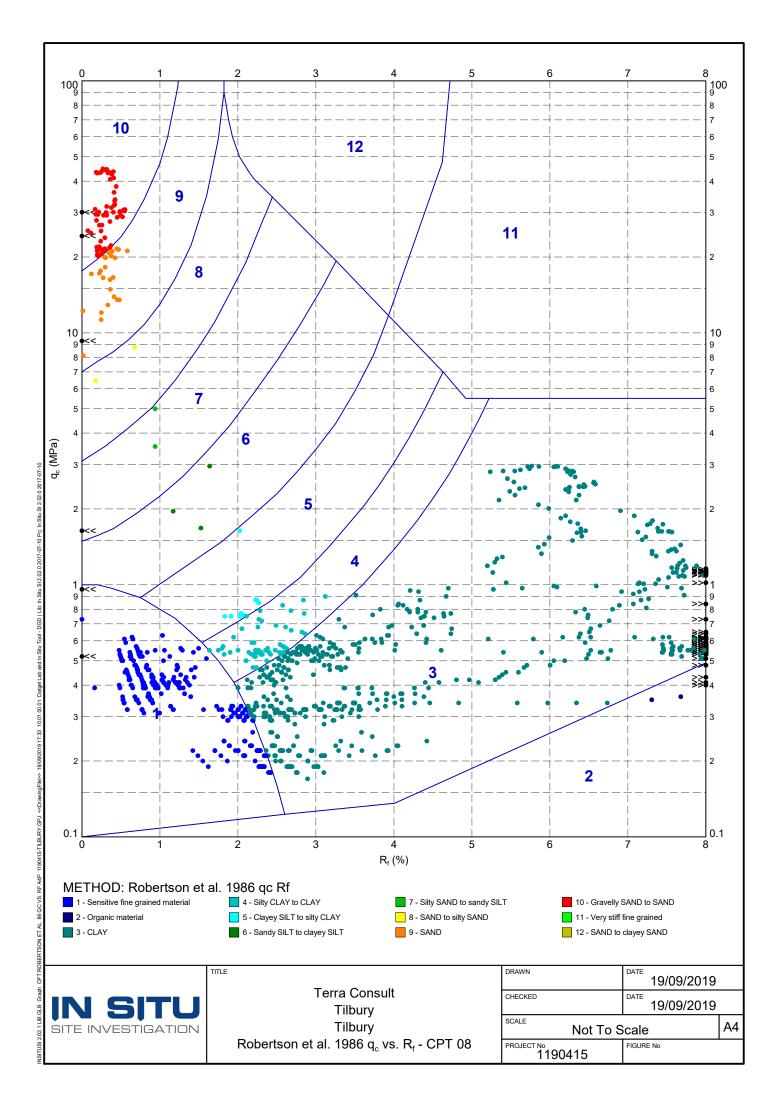
IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Sleeve Friction Resistance, f_s (kPa) ЭЩ (300 10 15 -0.1 -300 0 600 900 -5 0 5 -0.6 04 0.9 1.4 1 2 3 4 5 6 7 8 9 10 11 Low strength sensitive fine grained (1) (continued) 10.70 Low strength CLAY (3) locally organic 11-- 1 x x 12.00 12--1 - - - + - +--12 + + +Medium dense becoming very dense gravelly SAND to SAND (10) Ó ۲. 13---13 13.16 Terminated at 13.16 m Refusal 14---14 11 15---1 16-17---1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG 297 mV 0.066 MPa CPT 007 Tip 291 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 08 Pore Pressure 2 274 mV 274 mV 0 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER WEATHER : Sunnv & Mild 2450 mV : None X-Y Inclinometer 2374 mV

IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, ISBT 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Robertson (2010) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 10 15 20 25 30 35 40 45 50 20 40 3 1 5 0 5 25 50 75 100 0 60 R۵ ;jjt ___ 15 ____ 0 Clay siltv 2---2 ____ ő nixtu ds: ____ Sal Sit 3---3 _ _ Ŧ 4. --4 _ _ ___ --5 5-____ _ <u> 11 11</u> 14 -6 <u> 11 11</u> ‡ 11 7. ---7 ____ ____ ____ _ _ 8---8 ____ 9---9 MMM WWW ____ ___ CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO 297 mV 0.066 MPa : 0.79 RIG CPT 007 Tip 291 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 08 Pore Pressure 2 274 mV 274 mV 0 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2374 mV 2450 mV

IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 шex ш Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 ____ silt 11 ---1 - × Clay ____ - × _ 12---12 ŏ 0 Ó .0. Silt o. Terminated at 13.16 m Refusal 14 --14 15----18 16--1 17----1 18---18 19---19 CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 291 mV 297 mV 0.066 MPa Tip FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa Dissipation : 1190415-CPT 08 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 274 mV 274 mV 0 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2374 mV 2450 mV

IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 37.5 12 16 25 50 75 100 0 25 50 8 20 24 2---2 3---3 Ŧ 4. --4 --5 5. <u> 11 11</u> 14 -6 <u> 11 11</u> 11 7. ---7 8---8 9---9 ____ 7 ____ CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 297 mV 0.066 MPa Tip 291 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa Dissipation : 1190415-CPT 08 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 274 mV 274 mV 0 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2374 mV 2450 mV

IN SITU PointID **CPT 08** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **Y** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 5 15 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 37.5 12 16 25 50 75 100 0 25 50 8 20 24 iah dh. 11 ---1 × × _ 12---12 0 Ó . *o*. o. Terminated at 13.16 m Refusal 14 --14 15----18 16--1 17----1 18---18 19---19 : S15-CFIP.1486 CPTU ZERO VALUES CONE ID TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 297 mV 0.066 MPa Tip 291 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 308 mV 0.004 kPa Dissipation : 1190415-CPT 08 페 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 274 mV 274 mV 0 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2374 mV 2450 mV



IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 10 15 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 0 5 -0.6 04 14 Loose gravelly SAND to SAND (10) with layers of clay D 0.80 Very low strength to low strength CLAY 13 ∇ 2---2 3---3 4. --4 -----5 5. .40 11 Low strength organic material (2) -6 11 <u>, т</u> 8 60 Low strength locally very low strength CLAY (3) 7. ---7 +11 8---8 Very low strength sensitive fine grained (1) 11 9---9 ₹ 11 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 291 mV 0.022 MPa Tip 293 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 09 Pore Pressure 2 269 mV 287 mV 0.005 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2604 mV 2460 mV X-Y Inclinometer

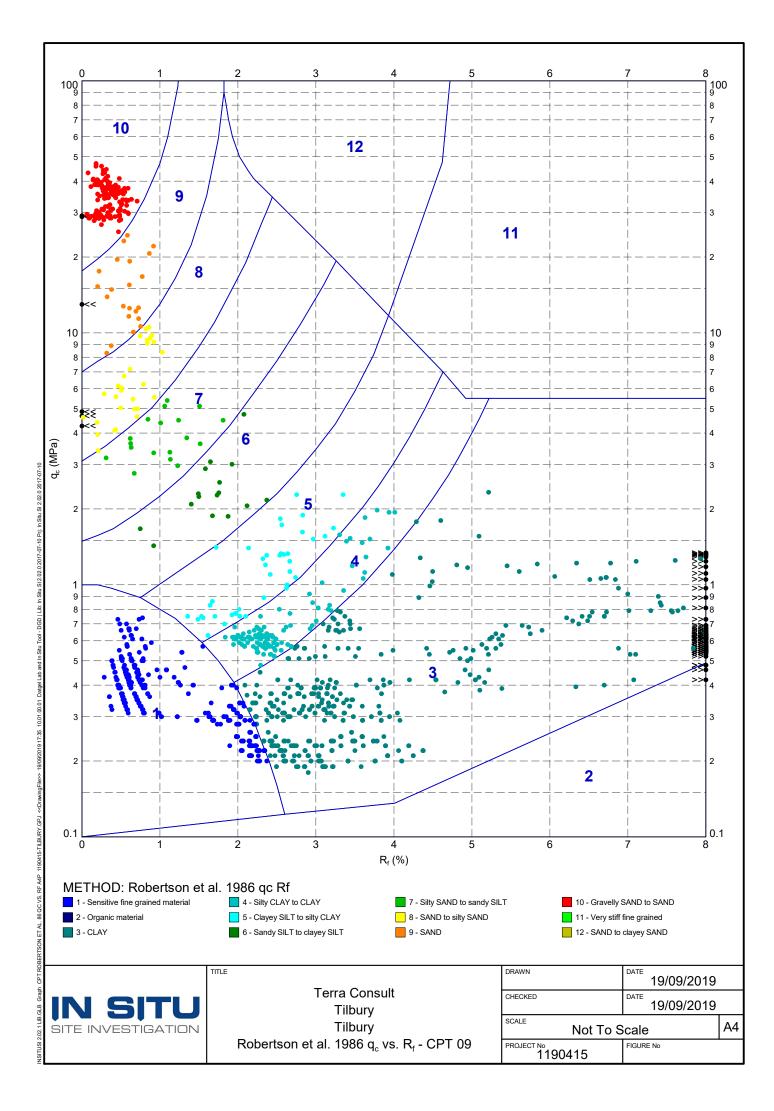
IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury **ELEVATION** TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500 Sleeve Friction Resistance, f_s (kPa) ЭЩ (300 10 15 -300 0 600 900 -5 0 5 -0.6 -0.1 04 0.9 14 1 2 3 4 5 6 7 8 9 10 11 Very low strength sensitive fine grained ≤ (1) (continued) 10.80 Medium strength organic material (2) 11-- 1 x Low strength to medium strength CLAY to silty CLAY (4) X 12---12 ++++ x x 13-13 10 Medium dense becoming very dense gravelly SAND to SAND (10) Ò 14č Ó .•. _{15.11} Terminated at 15.11 m Refusal 16--1 17---1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG 0.022 MPa CPT 007 Tip 291 mV 293 mV 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation : 1190415-CPT 09 FILTER TYPE HDPE FILE NAME Pore Pressure 2 269 mV 287 mV 0.005 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER WEATHER : Sunnv & Mild 2604 mV 2460 mV : None X-Y Inclinometer

IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006 - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Robertson & Campanella (Kulhawy & Mayne (1990) Depth (m) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 10 15 20 25 30 35 40 45 50 40 3 5 25 50 75 100 0 20 60 80 0 > Ó. 0 _ _ _ _ 2 Clay ____ siltv 2---2 ő nixtu _ _ ds: Sal Silt 3---3 Ŧ 4---4 + _ _ -----5 5-____ + <u>_____</u> 11/ -6 <u> 11 11</u> _ 7-----7 ____ ____ 8---8 9---9 Mylow ____ ----CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG 0.022 MPa CPT 007 Tip 291 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 09 Pore Pressure 2 269 mV 287 mV 0.005 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2604 mV 2460 mV

IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 5 0 5 10 15 25 50 75 100 0 60 80 ____ iit s ŝ 11 -Clay 0 siltv ___ 12---12 ŏ _____ 13--10 0 Ö 0 .0. 14---1 :ø. 0 .0. o. Terminated at 15.11 m Refusal 16--16 17---1 18---18 19---19 CPTU ZERO VALUES CONE ID : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.022 MPa Tip 291 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa Dissipation : 1190415-CPT 09 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 269 mV 287 mV 0.005 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2604 mV 2460 mV

IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- **7** bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{tc}$, where $N_{tc} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014 ation 100 200 300 400 - 500 Elev Elev Sleeve Friction Resistance, fs (kPa) 100 200 300 12.5 37.5 50 8 12 25 50 75 100 0 25 16 20 24 0 D. 0. 2---2 3---3 $\frac{1}{2}$ 4---4 -----5 5. ____ 11 -6 <u> 11 11</u> 7----7 8---8 9---9 ___ CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG : CPT 007 291 mV 0.022 MPa Tip 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa Dissipation : 1190415-CPT 09 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 269 mV 287 mV 0.005 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2604 mV 2460 mV

IN SITU PointID **CPT 09** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 · NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury : 0.000 m OD TEST DATE : 18/09/2019 ELEVATION LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- 7 bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014) 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 100 200 300 37.5 12 25 50 75 100 0 12.5 25 50 8 16 20 24 Ξ 3 11 ---1 _ <u>×</u> 12---12 × ____ __<u>×</u>_ 13--1: 0 Ó 0 .0. 14-:ø. 0 .0. o. Terminated at 15.11 m Refusal 16--16 17---1 18---1: 19---19 : S15-CFIP.1486 CPTU ZERO VALUES CONE ID TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0.022 MPa Tip 291 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 302 mV 0 kPa Dissipation : 1190415-CPT 09 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 269 mV 287 mV 0.005 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2604 mV 2460 mV



IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 • STATUS : Final NORTHING Test refused on tip resistance. 1 **PROJECT:** Tilbury ELEVATION TEST DATE : 18/09/2019 : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Cone Resistance, q_c (MPa) Inclination (°) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) Pore Pressure Ratio, B 10 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, fs (kPa) 300 600 900 -5 0 10 15 -0.6 -0.1 0.9 1 2 3 4 5 6 7 8 9 10 11 -300 0 5 04 1.4 X Medium strength CLAY to silty CLAY (4) locally organic x 0.80 Medium strength becoming low strength CLAY (3) ∇ 2---2 Very low strength locally low strength sensitive fine grained (1) 3---3 4---4 --5 5-Т --6 11 П 7----7 +1 8---8 Ì 1 --9 9-3 ž Z L METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE : TE2 CPTU ZERO VALUES ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY 9 - SAND Level CONE AREA RATIO : 0.79 RIG CPT 007 0 MPa Tip 293 mV 293 mV 2 - Organic material 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa 3 - CLAY 7 - Silty SAND to sandy SILT 11 - Very stiff fine grained Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 10 Pore Pressure 2 283 mV 280 mV -0.001 kPa Test 4 - Silty CLAY to CLAY 8 - SAND to silty SAND 12 - SAND to clayey SAND FRICTION REDUCER : None WEATHER : Sunnv & Mild 2479 mV X-Y Inclinometer 2479 mV

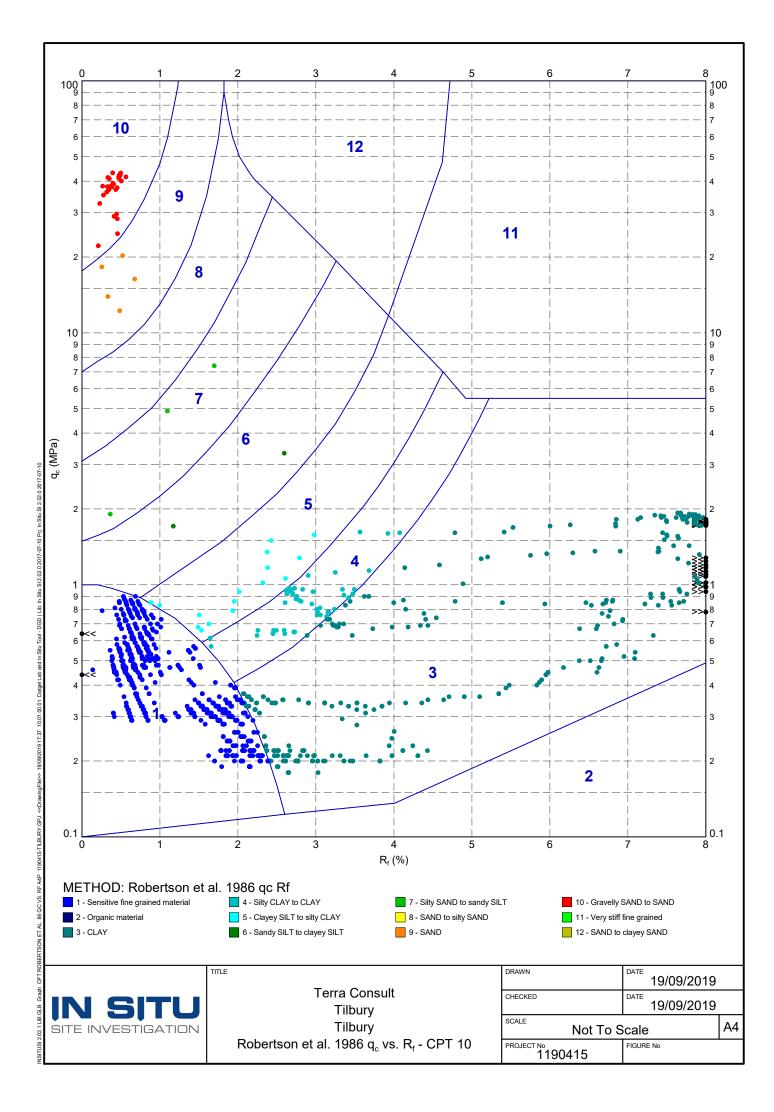
IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING SHEET : 2 OF 2 Remark: • STATUS NORTHING Test refused on tip resistance. : Final 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 **ELEVATION** : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Inclination (°) Cone Resistance, q_c (MPa) Graphic Log In Situ Pore Pressure, u₀ (kPa) Friction Ratio, Rr (%) 10 Pore Pressure Ratio, B 5 15 Soil Behaviour Type: Material Description Depth (m) Robertson et al. 1986 qc Rf Porewater Pressure, u₂ (kPa) tion 100 200 300 400 - 500) Elec Sleeve Friction Resistance, f_s (kPa) 300 10 15 -0.6 -0.1 0.4 0.9 -300 0 600 900 -5 0 5 1.4 1 2 3 4 5 6 7 8 9 10 11 Very low strength locally low strength sensitive fine grained (1) (continued) ځ 11-11.40 Medium strength locally low strength CLAY to silty CLAY (4) locally organic 12---12 ++++++12 50 Dense becoming very dense gravelly SAND to SAND (10) 0 13.03 13-Terminated at 13.03 m Refusal 14---1 11 15---14 16-17---1 18---1: 19---19 METHOD: Robertson et al. 1986 qc Rf CONE ID : S15-CFIP.1486 TEST TYPE CPTU ZERO VALUES : TE2 ____ Groundwater 9 - SAND CONE AREA : 15cm² APPLICATION CLASS 2 Transducer Pre Post Difference 1 - Sensitive fine grained material 5 - Clayey SILT to silty CLAY Level CONE AREA RATIO : 0.79 RIG CPT 007 Tip 293 mV 293 mV 0 MPa 6 - Sandy SILT to clavey SILT 10 - Gravelly SAND to SAND 2 - Organic material FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa 11 - Very stiff fine grained 3 - CLAY 7 - Silty SAND to sandy SILT Dissipation FILTER TYPE HDPE FILE NAME : 1190415-CPT 10 Pore Pressure 2 283 mV 280 mV -0.001 kPa Test 4 - Silty CLAY to CLAY 12 - SAND to clayey SAND 8 - SAND to silty SAND FRICTION REDUCER WEATHER : Sunnv & Mild 2479 mV : None X-Y Inclinometer 2479 mV

IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · STATUS : Final NORTHING : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD : Tilbury LOCATION CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, ISBT 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 Robertson (2010) Depth (m) 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) 3. Kulhawy & Mayne (1990) ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 10 15 20 25 30 35 40 45 50 20 40 3 5 0 5 25 50 75 100 0 60 80 ____ $\overline{\mathbf{x}}$ silt clay ____ 1 andv silty S. Silt 1 ≧ PIN ≧ _ _ Clay 2 ____ silty Cla 2---2 ő nixtu ____ ds: ____ Sal Sit 3---3 ____ ╞ ____ 4---4 ____ + ____ -----5 5-___ + --6 _ _ + ____ ____ 7-----7 ____ 8---8 ____ <u></u> --9 9-Mum _ _ ₹ ____ 7 CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO RIG 0 MPa : 0.79 CPT 007 Tip 293 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation FILTER TYPE : HDPE FILE NAME : 1190415-CPT 10 Pore Pressure 2 283 mV 280 mV -0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2479 mV 2479 mV

IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY PLOT DATE : 19/09/2019 ·ID PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 SPT N₆₀ Relative Density, Dr (%) Friction Angle, **\equiv '** (deg) Corrected Cone Resistance, qt (MPa) Graphic Log Non-normalized Soil Behaviour Type Index, I_{SBT} Robertson (2010) 10 1. Rob. & Wride 98 . Baldi et al. (1986); Al-Homoud & Wehr (2006) - 1. Senneset et al. (1988 & 1989); Mayne & Campanella (2005) 5 15 2. Robertson & Campanella (3. Kulhawy & Mayne (1990) Depth (m) ation 3. Kulhawy & Mayne (1990) 100 200 300 400 - 500) Elexa Sleeve Friction Resistance, fs (kPa) 20 25 30 35 40 45 50 20 40 3 50 5 10 15 25 50 75 100 0 60 80 ____ iit s ě silty cl silty ≧ ____ 11 -___ Clay 2 12---12 ő 0.0 Sar 13-Terminated at 13.03 m Refusal 14---14 15---15 16--1 17----1 18-19---19 CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level CONE AREA RATIO : 0.79 RIG CPT 007 0 MPa Tip 293 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 10 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 280 mV -0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2479 mV 2479 mV

IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 1 OF 2 · NORTHING STATUS : Final Test refused on tip resistance. 1 **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log ----- 7 bulk 1. Schmertmann78; R&L86 2. Mayne (2007) 10 . R&W 98 and NCEER 2001 5 15 LB. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{v_0})/N_{st}$, where $N_{st} = 17.5$ 1. Mayne (2007) 1. Mayne (2007) Depth (m) 3. Boulanger and Idriss (2014 ation 100 200 300 400 - 500 m) Eleva Sleeve Friction Resistance, fs (kPa) 200 300 12.5 37.5 50 8 12 16 25 50 75 100 0 100 25 20 24 $\overline{\mathbf{x}}$ ____ ۰. . 2---2 \$ 3---3 Ŧ a 4---4 5-+ 6. --6 7-----7 8---8 9---9 M CONE ID CPTU ZERO VALUES : S15-CFIP.1486 TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level 0 MPa CONE AREA RATIO : 0.79 RIG : CPT 007 Tip 293 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 10 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 280 mV -0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2479 mV 2479 mV

IN SITU PointID **CPT 10** SITE INVESTIGATION Working with: CLIENT : Terra Consult EASTING Remark: SHEET : 2 OF 2 : NORTHING STATUS : Final : Test refused on tip resistance. **PROJECT:** Tilbury TEST DATE : 18/09/2019 ELEVATION : 0.000 m OD LOCATION : Tilbury CHECKED BY ·ID PLOT DATE : 19/09/2019 PROJECT No. : 1190415 **TERMINATION REASON: Refusal** METHOD : ISO 22476-1:2012 Undrained Shear Strength, s_u (kPa) Unit Weight, y (kN/m³) Fines Content, FC (%) Sensitivity, St Corrected Cone Resistance, qt (MPa) Graphic Log 1. Schmertmann78; R&L86 2. Mayne (2007) ----- **Y** bulk 10 . R&W 98 and NCEER 2001 LB. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 20$ BE. $s_u = (q_t - \sigma_{vo})/N_{st}$, where $N_{st} = 17.5$ 5 15 1. Mayne (2007) 1. Mayne (2007) 2. Mayne (2007) Depth (m) ation 3. Boulanger and Idriss (2014 100 200 300 400 - 500) Elexa Sleeve Friction Resistance, fs (kPa) 100 200 300 25 37.5 50 8 12 16 25 50 75 100 0 12.5 20 24 ___ 11 -_ 1 12---12 ____ . 0 13-Terminated at 13.03 m Refusal 14---14 15----18 16--1 17----1 18---18 19---19 CONE ID : S15-CFIP.1486 CPTU ZERO VALUES TEST TYPE : TE2 ____ Groundwater CONE AREA : 15cm² APPLICATION CLASS : 2 Transducer Pre Post Difference Level 0 MPa CONE AREA RATIO : 0.79 RIG : CPT 007 Tip 293 mV 293 mV FILTER POSITION : u2 OPERATOR : AC Sleeve 302 mV 304 mV 0.001 kPa Dissipation : 1190415-CPT 10 FILTER TYPE : HDPE FILE NAME Pore Pressure 2 283 mV 280 mV -0.001 kPa Test FRICTION REDUCER : None WEATHER : Sunnv & Mild X-Y Inclinometer 2479 mV 2479 mV



Gas	as & Groundwater Monito							ecor	d					٦	erra	aConsult
Project No:		4593	Project:	Statera - Til	bury											
Date:		25/09/2019						State of Grou	nd:					Dry		
Operator:		ТМ						Wind :						Light bree	eze	
								Wind directior	1:					-		
								Cloud cover:		Light clouds						
Equipment Dipmeter & GFM435 s/n 11378				Precipitation:						None						
ised:					Pressure tren	d:					Steady	,				
											,					
							D	etection limits:	0.1% vol	0.1%	0.1% vol	0.1% vol	0.1 ppm	1.0 ppm	NA	
Borehole ID	Inst ID	Barometric Pressure (mbars)	Air temp (₀C)	Depth of Installation (m BGL)	Time of Reading hh:mm	Depth to Groundwater (m BGL)	Differential Pressure (Pa)	FlowRate (I/hr)	CH4 (% vol)	CH4 (% LEL)	O2 (% vol)	CO2 (% vol)	CO (ppm)	H2S (ppm)	Nitrogen (% vol)	Remarks
WS1	1	1000	18	4.84	11:44	2.40	0	0.0	0.0	0.0	18.8	1.9	0.0	0	NM	
WS2	1	1000	18	4.48	11:35	1.62	0	0.0	0.0	0.0	18.1	2.7	0.0	0	NM	
WS4	1	1001	18	4.12	11:13	2.49	0	0.0	0.0	0.0	20.2	0.3	0.0	0	NM	
WS6	1	1001	18	4.50	12:36	2.67	0	0.0	0.0	0.0	19.8	0.9	0.0	0	NM	
WS7	1	1000	18	4.20	12:29	2.19	0	0.0	0.0	0.0	19.8	1.0	0.0	0	NM	
WS8	1	1000	18	4.07	13:06	2.07	0	0.0	0.0	0.0	19.6	0.8	0.0	0	NM	
Piezometer b	oreho	oles						•								
CP1	1		18	25.02		1.12										
CP2	1		18	23.88		1.19										
CP3	1		18	23.95		0.94										
CP4	1	NA	18	23.15	NM	1.29	NM	NM				NM				
CP5	1	4	18	23.92		0.77										
CP6	1	4	18	23.70		0.99										
CP7	1		18	23.74		0.86										

Gas	&	Grou	Ind	wate	r Mo	nitori	ng R	ecor	d					٦	erra	aConsult
Project No:		4593	Project:	Statera - Til	bury											
Date:		04/10/2019						State of Grou	nd:					Dry		
Operator:		ТМ						Wind :						Light bree	eze	
								Wind directior	ו:					-		
								Cloud cover:						100%		
Equipment Dipmeter & GFM435 s/n 11378					Precipitation:						Light show	/ers				
used:					Pressure tren	d:					Steady	,				
	-		•				D	etection limits:	0.1% vol	0.1%	0.1% vol	0.1% vol	0.1 ppm	1.0 ppm	NA	
Borehole ID	Inst ID	Barometric Pressure (mbars)	Air temp (oC)	Depth of Installation (m BGL)	Time of Reading hh:mm	Depth to Groundwater (m BGL)	Differential Pressure (Pa)	FlowRate (l/hr)	CH4 (% vol)	CH4 (% LEL)	O2 (% vol)	CO2 (% vol)	CO (ppm)	H2S (ppm)	Nitrogen (% vol)	Remarks
WS1	1	1004	16	4.85	11:33	2.56	0	0.0	0.0	0.0	18.4	2.0	0.0	0	NM	
WS2	1	1004	16	4.45	11:25	1.69	0	0.0	0.0	0.0	18.0	2.2	0.0	0	NM	
WS4	1	1004	16	4.10	11:05	2.55	0	0.0	0.0	0.0	17.2	2.2	0.0	0	NM	
WS6	1	1004	16	4.50	12:00	2.16	0	0.0	0.0	0.0	19.5	0.7	0.0	0	NM	
WS7	1	1004	16	4.20	11:54	2.23	0	0.0	0.0	0.0	19.1	0.9	0.0	0	NM	
WS8	1	1004	16	4.04	12:22	2.03	0	0.0	0.0	0.0	18.5	0.8	0.0	0	NM	
Piezometer b	oreho	oles														
CP1	1		16	25.03		1.07										
CP2	1		16	23.91		0.98										
CP3	1		16	23.85		0.84										
CP4	1	NA	16	23.16	NM	1.05	NM	NM				NM				
CP5	1	-	16	23.92		0.74										
CP6 CP7	1	4	16 16	23.70 23.75		0.91 0.82										

&	Grou	Ind	wate	r Mo	nitori	ng R	ecor	d						erra	aConsult
	4593	Project:	Statera - Til	bury											
	09/10/2019						State of Grou	nd:					Dry		
	тм														
							Wind directior	ו:					-		
							Cloud cover:						Light clou	ds	
equipment sed: Dipmeter & GFM435 s/n 11378					Precipitation:						None				
					Pressure tren	d:					Steady	,			
						D	etection limits:	0.1% vol	0.1%	0.1% vol	0.1% vol	0.1 ppm	1.0 ppm	NA	
Inst ID	Barometric Pressure (mbars)	Air temp (oC)	Depth of Installation (m BGL)	Time of Reading hh:mm	Depth to Groundwater (m BGL)	Differential Pressure (Pa)	FlowRate (I/hr)	CH4 (% vol)	CH4 (% LEL)	O2 (% vol)	CO2 (% vol)	CO (ppm)	H2S (ppm)	Nitrogen (% vol)	Remarks
1	1004	14	4.84	12:43	2.60	0	0.0	0.0	0.0	17.8	2.3	0.0	0	NM	
1	1003	14	4.45	12:33	1.71	0	0.0	0.0	0.0	17.7	2.2	0.0	0	NM	
1	1004	14	4.10	12:15	2.5	0	0.0	0.0	0.0	18.4	2.2	0.0	0	NM	
1	1004	15	4.49	14:44	2.12	0	0.0	0.0	0.0	19.3	0.7	0.0	0	NM	
1	1005	15	4.20	14:25	2.23	0	0.0	0.0	0.0	18.9	0.9	0.0	0	NM	
1	1004	15	4.07	15:11	2.02	0	0.0	0.0	0.0	18.2	0.8	0.0	0	NM	
oreho	les				1		1	1						1	
1		14	25.03		1.08										
1		14	23.91		0.95										
1		-													
	NA	14		NM		NM	NM				NM				
	_	-			-										
	<u>с</u> <u>т</u> 1 1 1 1 1 1 0 огено 1	4593 09/10/2019 TM Dipmeter & 0 0/10/2019 1	4593 Project: 09/10/2019 TM TM Dipmeter & GFM435 s Dipmeter & GFM435 s Air temp (°C) 1 1004 14 1 1004 14 1 1004 14 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 1004 15 1 104 15 1 104 15 1 104 15 1 105 15 1 105 15 1 105 15	4593 Project: Statera - Til 09/10/2019 TM TM Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Air temp (°C) Depth of Installation (m BGL) 1 1004 14 4.84 1 1004 14 4.45 1 1004 14 4.49 1 1004 15 4.49 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.20 1 1004 15 4.07 oreholes 14 23.85 14 1 14 23.85 14 1 14 23.91 15 1 14 23.92 15 <	4593 Project: Statera - Tilbury 09/10/2019 TM TM Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Time of Reading hh:mm 1 1004 14 4.84 12:43 1 1004 14 4.45 12:33 1 1004 14 4.10 12:15 1 1004 15 4.49 14:44 1 1005 15 4.20 14:25 1 1004 15 4.07 15:11 oreholes 14 23.03 14 23.91 1 104 15 23.92 15 23.71	4593 Project: Statera - Tilbury 09/10/2019 TM TM Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Depth of Installation (m BGL) Time of Reading hh:mm Depth to Groundwater (m BGL) 1 1004 14 4.84 12:43 2.60 1 1003 14 4.45 12:33 1.71 1 1004 14 4.49 14:44 2.12 1 1004 15 4.49 14:25 2.23 1 1004 15 4.07 15:11 2.02 oreholes 14 23.91 0.95 0.97 1 NA 14 23.17 NM 1.08 1 104 15 23.71 NM 0.93	4593 Project: Statera - Tilbury 09/10/2019 TM TM Dipmeter & GFM435 s/n 11378 Dipmeter & GFM435 s/n 11378 Depth of Installation (m BGL) Time of Reading hh:mm Depth to Groundwater (m BGL) Differential Pressure (Pa) 1 1004 14 4.45 12:33 1.71 0 1 1004 14 4.49 14:44 2.12 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1004 15 4.07 15:11 2.02 0 1 1005	4593 Project: Statera - Tilbury 09/10/2019 TM State of Grout TM TM Wind direction Dipmeter & GFM435 s/n 11378 Pressure Precipitation: Tessure Air temp (noc) Depth of (noc) Time of Reading httmm Depth to Groundwater (m) Differential Pressure (Pa) 1 1004 14 4.45 12:33 1.71 0 0.0 1 1004 14 4.45 12:33 1.71 0 0.0 1 1004 15 4.49 14:44 2.12 0 0.0 1 1004 15 4.07 15:11 2.02 0 0.0 1 1004 15 4.07 15:11 2.02 0 0.0 1 1004 15 4.07 15:11 2.02 0 0.0 1 1004 15 4.07 15:11 2.02 0 0.0 1 1004 15 0.95 </td <td>State of Ground: Wind i: Wind i: Wind i: Dipmeter & GFM435 s/n 11378 Differential Pressure Precipitation: Pressure from time of Installation (m BGL) Dipferential Pressure FlowRate (l/h) CH4 (% vol) 1 1004 14 4.84 12:43 2.60 0 0.0 0.0 1 1003 14 4.45 12:33 1.71 0 0.00 0.0 1 1004 15 4.49 14:42 2.12 0 0.00 0.0 1 14 25.03 1.08 0.97 NM NM</td> <td>4593 Project: Statera - Tilbury 09/10/2019 TM State of Ground: Wind : TM Wind direction: Cloud cover: Precipitation: Dipmeter & GFM435 s/n 11378 Pressure trend: Dipmeters: 0.1% vol 0/10/2019 Time of Pressure trend: Detection limits: 0.1% vol 0.1% 0 Barometric Pressure (mbars) Air temp (oC) Depth of Installation (m BGL) Time of Reading h::mm Depth to BGL) Differential Pressure (Pa) FlowRate (l/hr) CH4 (% ULEL) 1 1004 14 4.84 12:43 2.60 0 0.0 0.0 1 1004 14 4.45 12:33 1.71 0 0.0 0.0 1 1004 14 4.40 12:15 2.5 0 0.0 0.0 1 1004 15 4.49 14:25 2.23 0 0.0 0.0 1 1004 15 4.20 14:25 2.23 0 0.0 0.0<</td> <td>4593 Project: Statera - Tilbury 09/10/2019 TM State of Ground: Wind : TM Wind direction: Cloud cover: Precipitation: Dipmeter & GFM435 s/n 11378 Pressure trend: Precipitation: Precipitation: 0 Air temp (sC) Depth of installation (m BGL) Time of Reading hh.mm Depth to Groundwater (m BGL) Differential Pressure (Pa) CH4 (% vol) <td< td=""><td>4593 Project: Statera - Tilbury 09/10/2019 </td><td>4593 Project: Statera - Tilbury 09/10/2019 </td><td>4593 Project: Statera - Tilbury 09/10/2019 State of Ground: Wind i: Differential State of Ground: Wind i: Bluster TM Dipmeter & GFM435 s/n 11378 State of Ground: Wind i: Uind i: Ui</td><td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td></td<></td>	State of Ground: Wind i: Wind i: Wind i: Dipmeter & GFM435 s/n 11378 Differential Pressure Precipitation: Pressure from time of Installation (m BGL) Dipferential Pressure FlowRate (l/h) CH4 (% vol) 1 1004 14 4.84 12:43 2.60 0 0.0 0.0 1 1003 14 4.45 12:33 1.71 0 0.00 0.0 1 1004 15 4.49 14:42 2.12 0 0.00 0.0 1 14 25.03 1.08 0.97 NM NM	4593 Project: Statera - Tilbury 09/10/2019 TM State of Ground: Wind : TM Wind direction: Cloud cover: Precipitation: Dipmeter & GFM435 s/n 11378 Pressure trend: Dipmeters: 0.1% vol 0/10/2019 Time of Pressure trend: Detection limits: 0.1% vol 0.1% 0 Barometric Pressure (mbars) Air temp (oC) Depth of Installation (m BGL) Time of Reading h::mm Depth to BGL) Differential Pressure (Pa) FlowRate (l/hr) CH4 (% ULEL) 1 1004 14 4.84 12:43 2.60 0 0.0 0.0 1 1004 14 4.45 12:33 1.71 0 0.0 0.0 1 1004 14 4.40 12:15 2.5 0 0.0 0.0 1 1004 15 4.49 14:25 2.23 0 0.0 0.0 1 1004 15 4.20 14:25 2.23 0 0.0 0.0<	4593 Project: Statera - Tilbury 09/10/2019 TM State of Ground: Wind : TM Wind direction: Cloud cover: Precipitation: Dipmeter & GFM435 s/n 11378 Pressure trend: Precipitation: Precipitation: 0 Air temp (sC) Depth of installation (m BGL) Time of Reading hh.mm Depth to Groundwater (m BGL) Differential Pressure (Pa) CH4 (% vol) CH4 (% vol) <td< td=""><td>4593 Project: Statera - Tilbury 09/10/2019 </td><td>4593 Project: Statera - Tilbury 09/10/2019 </td><td>4593 Project: Statera - Tilbury 09/10/2019 State of Ground: Wind i: Differential State of Ground: Wind i: Bluster TM Dipmeter & GFM435 s/n 11378 State of Ground: Wind i: Uind i: Ui</td><td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td></td<>	4593 Project: Statera - Tilbury 09/10/2019	4593 Project: Statera - Tilbury 09/10/2019	4593 Project: Statera - Tilbury 09/10/2019 State of Ground: Wind i: Differential State of Ground: Wind i: Bluster TM Dipmeter & GFM435 s/n 11378 State of Ground: Wind i: Uind i: Ui	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

Gas	&	Grou	nd	vate	r Mo	nitori	ng R	ecor	d						erra	aConsult
Project No:		4593	Project:	Statera - Til	bury											
Date:		15/10/2019						State of Grour	nd:					Damp		
Operator:		ТМ					Wind :			Light breeze						
								Wind direction	1:					-		
								Cloud cover:					Clou	dy with sun	ny spells	
Equipment	t Dipmeter & GFM435 s/n 11378					Precipitation:						None				
used:	sed:				Pressure trend	d:					Falling					
														0		
							D	etection limits:	0.1% vol	0.1%	0.1% vol	0.1% vol	0.1 ppm	1.0 ppm	NA	
Borehole ID	Inst ID	Barometric Pressure (mbars)	Air temp (oC)	Depth of Installation (m BGL)	Time of Reading hh:mm	Depth to Groundwater (m BGL)	Differential Pressure (Pa)	FlowRate (l/hr)	CH4 (% vol)	CH4 (% LEL)	O2 (% vol)	CO2 (% vol)	CO (ppm)	H2S (ppm)	Nitrogen (% vol)	Remarks
WS1	1	1004	15	4.86	13:03	2.60	0	0.0	0.0	0.0	17.5	1.7	0.0	0	NM	
WS2	1	1006	15	4.48	12:54	1.71	0	0.0	0.0	0.0	17.2	2.3	0.0	0	NM	
WS4	1	1006	15	4.14	12:37	2.50	0	0.0	0.0	0.0	16.8	2.2	0.0	0	NM	
NS6	1	1004	15	4.53	13:40	2.12	0	0.0	0.0	0.0	18.5	0.8	0.0	0	NM	
WS7	1	1004	15	4.20	14:09	2.23	0	0.0	0.0	0.0	18.5	0.9	0.0	0	NM	
NS8	1	1004	15	4.05	14:03	2.02	0	0.0	0.0	0.0	17.1	0.9	0.0	0	NM	
Piezometer b	oreho	les														
CP1	1		15	25.03		1.09										
CP2	1	4	15	23.91		0.93										
CP3 CP4	1	NA	15	23.82	NM	1.09	NM	NM				NM				
CP4 CP5	1	INA	15 15	23.08 23.93	INIVI	1.06 0.72	INIVI	INIVI				INIVI				
CP6	1	4	15	23.93		0.72										
CP6 CP7	1	1	15	23.76		0.8										

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Appendix D

Laboratory Analysis Results



Unit A2 Windmill Road Ponswood Industrial Estate St Leonards on Sea East Sussex TN38 9BY Telephone: (01424) 718618

> cs@elab-uk.co.uk info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	19-25079
Issue:	1
Date of Issue:	04/10/2019
Contact:	Jason Tilley
Customer Details:	TerraConsult Ltd Bold Business Centre Unit 34, Bold Lane St Helens MersevsideWA9 4TX
Quotation No:	Q19-01619
Order No:	PO-005865
Customer Reference:	4593
Date Received:	01/10/2019
Date Approved:	04/10/2019
Details:	Tilbury
Approved by:	e Na

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 19-25079, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
185495	CP1 4.50	24/09/2019	01/10/2019	Loamy sand	
185496	CP1 10.00	24/09/2019	01/10/2019	Loamy sand	
185497	CP2 7.50	24/09/2019	01/10/2019	Clayey loam	
185498	CP2 13.50	24/09/2019	01/10/2019	Loamy sand	
185499	CP3 9.00	24/09/2019	01/10/2019	Silty clayey loam	
185500	CP3 14.50	24/09/2019	01/10/2019	Silty clayey loam	
185501	CP4 3.50	24/09/2019	01/10/2019	Silty clayey loam	
185502	CP4 5.90	24/09/2019	01/10/2019	Silty loam	
185503	CP5 5.80	24/09/2019	01/10/2019	Silty loam	
185504	CP5 14.50	24/09/2019	01/10/2019	Sandy loam	
185505	CP6 5.50	24/09/2019	01/10/2019	Silty loam	
185506	CP7 5.50	24/09/2019	01/10/2019	Silty clayey loam	



Results Summary

Report No.: 19-25079, issue number 1

	ELAB Reference				185496	185497	185498	185499
	Customer Reference							
		:	Sample ID					
		Sa	mple Type	SOIL	SOIL	SOIL	SOIL	SOIL
		Sample	e Location	CP1	CP1	CP2	CP2	CP3
		Sample	Depth (m)	4.50	10.00	7.50	13.50	9.00
	Sampling Date			24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Determinand	Codes	Units	LOD					
Soil sample preparation paramet	ers							
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None	None
Anions								
Water Soluble Sulphate	M	g/l	0.02	1.12	0.83	0.73	0.74	0.32
Miscellaneous								
рН	M	pH units	0.1	8.5	8.4	8.3	8.2	8.5



Results Summary

Report No.: 19-25079, issue number 1

	ELAB Reference					185502	185503	185504
	Customer Reference							
			Sample ID					
		Sar	mple Type	SOIL	SOIL	SOIL	SOIL	SOIL
		Sample	e Location	CP3	CP4	CP4	CP5	CP5
		Sample	Depth (m)	14.50	3.50	5.90	5.80	14.50
	Sampling Date			24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Determinand	Codes	Units	LOD					
Soil sample preparation paramet	ers							
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None	None
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.42	1.48	2.08	0.33	0.22
Miscellaneous								
рН	M	pH units	0.1	7.8	8.1	7.4	7.0	7.9



Results Summary

Report No.: 19-25079, issue number 1

		185505	185506				
	Customer Reference						
		:	Sample ID				
		Sa	mple Type	SOIL	SOIL		
		Sample	e Location	CP6	CP7		
		Sample	Depth (m)	5.50	5.50		
	Sampling Date 2						
Determinand	Codes	Units	LOD				
Soil sample preparation paramet	ers	· · · ·					
Material removed	N	%	0.1	< 0.1	< 0.1		
Description of Inert material removed	N		0	None	None		
Anions							
Water Soluble Sulphate	М	g/l	0.02	0.12	0.27		
Miscellaneous							
рН	M	pH units	0.1	7.0	8.5		

1



Method Summary Report No.: 19-25079, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
рН	М	Air dried sample	03/10/2019	113	Electromeric
Water soluble anions	М	Air dried sample	03/10/2019	172	Ion Chromatography



Report Information

Report No.: 19-25079, issue number 1

Key

Ney	
U	hold UKAS accreditation
М	hold MCERTS and UKAS accreditation
Ν	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
	Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed. ELAB are unable to provide an interpretation or opinion on the content of this report. The results relate only to the sample received. PCB congener results may include any coeluting PCBs Uncertainty of measurement for the determinands tested are available upon request Unless otherwise stated, sample information has been provided by the client
Deviation	Codes
а	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
С	Sample not received in appropriate containers
d	Sample not received in cooled condition

- e The container has been incorrectly filled
- f Sample age exceeds stability time (sampling to receipt)
- g Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report Charges may apply to extended sample storage



Environmental Science

Adam Steele TerraConsult Ltd 9 The Courtyard Pheonic Square Wyncolls Road Colchester CO4 9PE

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

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

e: adamsteele@terraconsult.co.uk

Analytical Report Number : 19-62316

Project / Site name:	Statera, Tilbury	Samples received on:	24/09/2019
Your job number:	4593	Samples instructed on:	24/09/2019
Your order number:	PO-005803	Analysis completed by:	03/10/2019
Report Issue Number:	1	Report issued on:	03/10/2019
Samples Analysed:	9 soil samples		

Signed: <

Zina Abdul Razzak Senior Quality Specialist For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils leachates waters asbestos	 4 weeks from reporting 2 weeks from reporting 2 weeks from reporting 6 months from reporting
Excel copies of reports are only valid when accompanied by this PDF certificate.		

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





Lab Sample Number				12881	12882	12883	12884	12885
Sample Reference				WS01	WS02	WS03	WS04	WS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.40	0.40	0.20
Date Sampled				19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter		de Li	Accre St					
(Soil Analysis)	Units	Limit of detection	Accreditation Status					
SOILS								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	17	16	15	12
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.2	1.2
Ashastas in Cail	T	NI/A	100 17025	Nat datastad	Net detected	Net detected	Net detected	Net detected
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.1	6.8	7.2	7.1	6.8
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate	- 0	0.00125	MCEDITO	0.20	0.11	0.0000	0.010	0.020
Equivalent) Water Soluble Chloride (2:1)	g/l	0.00125	MCERTS MCERTS	0.20	0.11 8.3	0.0099	0.019	0.020
water Soluble Chloride (2:1)	mg/kg		MCERTS	120	8.3	3.2	14	12
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05 < 0.05	< 0.05 < 0.05	< 0.05	< 0.05 < 0.05	< 0.05 < 0.05
Benzo(k)fluoranthene Benzo(a)pyrene	mg/kg	0.05	MCERTS MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH							1	1
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	20	14	7.4	25
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.7	1.8	1.2	1.3	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	14	9.9	5.7	4.2	5.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	50	50	40	43	39
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.5	4.9	5.0	24	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	20	16	15	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	43	24	40	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	84	86	67	71	67
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	80	80	68	110	77
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
JUCH ZCH C	μ4/κ4	∎ ⊥	PICERIS	< 1.0	1.0	< 1.U	1.0	

Benzene µg/kg MCERTS < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 MCERTS Toluene µg/kg < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 1 Ethylbenzene MCERTS < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 µg/kg 1 p & m-xylene MCERTS < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 µg/kg 1 MCERTS o-xylene µg/kg 1

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Lab Sample Number				12881	12882	12883	12884	12885
Sample Reference				WS01	WS02	WS03	WS04	WS05
Sample Number				None Supplied				
Depth (m)		0.30	0.20	0.40	0.40	0.20		
Date Sampled		19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019		
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)								
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH (C10 - C25)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample





Lab Sample Number				12886	12887	12888	12889	
Sample Reference				WS06	WS07	WS08	WS09	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.30	0.15	0.10	0.25	
Date Sampled				20/09/2019	20/09/2019	20/09/2019	20/09/2019	
Time Taken			-	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter	Units	Limit of detection	Accreditation Status					
(Soil Analysis)	प्र	it of	itation tus					
SOILS								
SOILS								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	17	16	15	18	
Total mass of sample received	kg	0.001	NONE	1.0	1.1	0.40	1.1	
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	
			-					
General Inorganics	al 11-2	N//A	MCEDIC	7 5	7.5	7 1	7.4	
H - Automated	pH Units	N/A 1	MCERTS	7.5	7.3	7.1	7.4	
Total Cyanide Water Soluble SO4 16hr extraction (2:1 Leachate	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Equivalent)	g/l	0.00125	MCERTS	0.026	0.021	0.024	0.020	
Vater Soluble Chloride (2:1)	mg/kg	1	MCERTS	20	31	20	11	
	•							
Total Phenols	1						1	
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS MCERTS	< 0.05 < 0.05	< 0.05 < 0.05	< 0.05 < 0.05	< 0.05 < 0.05	
Benzo(ghi)perylene	mg/kg mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
colonene	iiig/ kg	0.05	NONE	0.05	0.05	0.05	0.05	
Fotal PAH				-		-		
Fotal WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	< 0.9	< 0.9	< 0.9	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	14	19	19	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.3	1.5	1.4	
Boron (water soluble)	mg/kg	0.2	MCERTS	5.8	3.7	4.6	4.6	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	43	38	43	40	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	9.7	14	11	
ead (aqua regia extractable)	mg/kg	1	MCERTS	33	32	30	30	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	26	27	26	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
/anadium (aqua regia extractable)	mg/kg	1	MCERTS	75	71	74	72	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	78	130	82	
Ionoaromatics & Oxygenates								
Senzene	ua/ka	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

i ionou oniutio a oxygenutes								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

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Lab Sample Number	Lab Sample Number						12889	
Sample Reference				12886 WS06	12887 WS07	12888 WS08	WS09	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	0.30	0.15	0.10	0.25				
Date Sampled	20/09/2019	20/09/2019	20/09/2019	20/09/2019				
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied				
Analytical Parameter (Soil Analysis)								
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	
TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	
TPH (C10 - C25)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	

U/S = Unsuitable Sample I/S = Insufficient Sample





Analytical Report Number : 19-62316

Project / Site name: Statera, Tilbury

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
12881	WS01	None Supplied	0.30	Brown clay with vegetation.
12882	WS02	None Supplied	0.20	Brown clay with vegetation.
12883	WS03	None Supplied	0.40	Brown clay with vegetation.
12884	WS04	None Supplied	0.40	Brown clay and sand with vegetation.
12885	WS05	None Supplied	0.20	Brown clay and gravel with vegetation.
12886	WS06	None Supplied	0.30	Brown clay.
12887	WS07	None Supplied	0.15	Brown clay.
12888	WS08	None Supplied	0.10	Brown clay.
12889	WS09	None Supplied	0.25	Brown clay.





Analytical Report Number : 19-62316

Project / Site name: Statera, Tilbury

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

					1
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L017-UK	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
DRO (Soil)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method	L076-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	in-house method	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP- OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP- OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS

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

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Therese McDaid

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Analytical Report Number : 19-65300

Project / Site name:	Tilbury	Samples received on:	11/10/2019
Your job number:	4593	Samples instructed on:	11/10/2019
Your order number:	PO-005935	Analysis completed by:	17/10/2019
Report Issue Number:	1	Report issued on:	17/10/2019
Samples Analysed:	3 water samples		

Signed: <

Zina Abdul Razzak Senior Quality Specialist For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :		 4 weeks from reporting 2 weeks from reporting 2 weeks from reporting 6 months from reporting
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when accompanied by this l eports are only valid v certificate

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





Analytical Report Number: 19-65300

Project / Site name: Tilbury

Your Order No: PO-005935

Lab Sample Number				1327498	1327499	1327500		
Sample Reference				WS2	WS4	WS7		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				09/10/2019	09/10/2019	09/10/2019		
Time Taken				1440	1410	1430		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.3	7.4	7.4		
Electrical Conductivity at 20 °C	μS/cm	10	ISO 17025	28000	6700	5500	İ	1
Total Cyanide	μg/l	10	ISO 17025	< 10	< 10	< 10	İ	1
Sulphate as SO ₄	μg/l	45	ISO 17025	1290000	2200000	1970000	1	1
Chloride	mg/l	0.15	ISO 17025	6200	810	610		
Ammonium as NH ₄	µg/l	15	ISO 17025	33000	6100	6200	1	
Nitrate as N	mg/l	0.01	ISO 17025	0.78	0.58	0.54		
						2.37		
Nitrate as NO ₃	mg/l	0.05	ISO 17025	3.45	2.59	2.37		
	mg/l	0.05				-		
Nitrate as NO ₃ Alkalinity Hardness - Total			ISO 17025 ISO 17025 ISO 17025	3.45 2500 4400	2.59 960 1450	880 1740		
Nitrate as NO ₃	mg/l mgCaCO3/l	3	ISO 17025	2500	960	880		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols	mg/l mgCaCO3/l mgCaCO3/l	3 1	ISO 17025 ISO 17025	2500 4400	960 1450	880 1740		1
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric)	mg/l mgCaCO3/l mgCaCO3/l	3 1	ISO 17025 ISO 17025	2500 4400	960 1450	880 1740		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs	mg/l mgCaCO3/l mgCaCO3/l µg/l	3 1 10	ISO 17025 ISO 17025 ISO 17025	2500 4400 150	960 1450 13	880 1740 < 10		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene	mg/l mgCaCO3/l mgCaCO3/l µg/l µg/l	3 1 10 0.01	ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025	2500 4400 150 < 0.01	960 1450 13 < 0.01	880 1740 < 10 < 0.01		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene	mg/l mgCaCO3/l mgCaCO3/l µg/l µg/l µg/l	3 1 10 0.01 0.01	ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01	960 1450 13 < 0.01 < 0.01	880 1740 < 10 < 0.01 < 0.01		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l	3 1 10 0.01 0.01 0.01	ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01 < 0.01	960 1450 13 < 0.01 < 0.01 < 0.01	880 1740 < 10 < 0.01 < 0.01 < 0.01		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l	3 1 10 0.01 0.01 0.01 0.01 0.01	ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	960 1450 13 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	880 1740 < 10 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01		
Nitrate as NO ₃ Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l μg/l	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01	ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	960 1450 13 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	880 1740 < 10 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Fluorene Phenanthrene Phenanthrene Fluoranthene Fluoranthene Pyrene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l μg/l μg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ < 10 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Fluorene Phenanthrene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l μg/l μg	3 1 10 0.01 0.01 0.01 0.01 0.01 0.01 0.0	ISO 17025 ISO 17025	2500 4400 150 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \hline \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \end{array}$		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Acenaphthylene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene	mg/l mgCaCO3/l pgCaCO3/l pg/l pg/l pg/l pg/l pg/l pg/l pg/l pg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	2500 4400 150 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \hline \end{array}$	$\begin{array}{c} 880\\ 1740\\ \hline \\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ \end{array}$		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Elorene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l μg/l μg	3 1 10 0.01 0.01 0.01 0.01 0.01 0.01 0.0	ISO 17025 ISO 17025	2500 4400 150 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880\\ 1740\\ \hline \\ < 10\\ \hline \\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ < 0.01\\ \end{array}$		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Acenaphthylene Phenanthrene Phenanthrene Phenanthrene Fluorene Phenanthrene Phenanthrene Chrysene Benzo(b/fluoranthene Benzo(k)fluoranthene	mg/l mgCaCO3/l μg/l μg/l μg/l μg/l μg/l μg/l μg/l μg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	$\begin{array}{c} 2500 \\ 4400 \\ \hline \\ 150 \\ \hline \\ 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ &< 10 \\ \hline \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ $		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Phenanthrene Phenanthrene Phenanthrene Phenarthrene Phenarthrene Chrysene Benzo(k)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene	mg/l mgCaCO3/l mgCaCO3/l µg/l µg/l µg/l µg/l µg/l µg/l µg/l µg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	$\begin{array}{c} 2500 \\ 4400 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ &< 10 \\ \hline \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ $		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluorene Phenanthrene Phyrene Benzo(a)anthracene Chrysene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(b)pyrene Indeno(1,2,3-cd)pyrene	mg/l mgCaCO3/l mgCaCO3/l µg/l µg/l µg/l µg/l µg/l µg/l µg/l µg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	$\begin{array}{c} 2500 \\ 4400 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ &< 10 \\ \hline \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ $		
Nitrate as NO3 Alkalinity Hardness - Total Total Phenols Total Phenols (monohydric) Speciated PAHs Naphthalene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Acenaphthylene Phenanthrene Phenanthrene Phenanthrene Phenarthrene Phenarthrene Chrysene Benzo(k)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene	mg/l mgCaCO3/l mgCaCO3/l µg/l µg/l µg/l µg/l µg/l µg/l µg/l µg	3 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0	ISO 17025 ISO 17025	$\begin{array}{c} 2500 \\ 4400 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	$\begin{array}{c} 960 \\ 1450 \\ \hline \\ 13 \\ \hline \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ < 0.01 \\ \end{array}$	$\begin{array}{c} 880 \\ 1740 \\ \hline \\ &< 10 \\ \hline \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ &< 0.01 \\ $		

Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	
			-			-	





Analytical Report Number: 19-65300

Project / Site name: Tilbury

Your Order No: PO-005935

Lab Sample Number				1327498	1327499	1327500			
Sample Reference	WS2	WS4	WS7						
Sample Number	None Supplied	None Supplied	None Supplied						
Depth (m)	None Supplied	None Supplied	None Supplied						
Date Sampled	09/10/2019	09/10/2019	09/10/2019						
Time Taken				1440	1410	1430			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status						
Heavy Metals / Metalloids									
Boron (dissolved)	µg/l	10	ISO 17025	1800	1500	1100			
Calcium (dissolved)	mg/l	0.012	ISO 17025	410	190	330			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	820	240	220			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	-	-			
Arsenic (dissolved)	µg/l	0.15	ISO 17025	< 0.15	1.40	0.89			
Boron (dissolved)	µg/l	10	ISO 17025	1800	1500	1100			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02			
Calcium (dissolved)	mg/l	0.012	ISO 17025	410	190	330			
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.2	< 0.2			
Copper (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5			
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.4	< 0.2			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	820	240	220			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	< 0.5	9.2	< 0.5			
Selenium (dissolved)	µg/l	0.6	ISO 17025	U/S	14	13			
Zinc (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5			





Analytical Report Number: 19-65300

Project / Site name: Tilbury

Your Order No: PO-005935

Lab Sample Number	1327498	1327499	1327500				
Sample Reference	WS2	WS4	WS7				
Sample Number				None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	
Date Sampled	09/10/2019	09/10/2019	09/10/2019				
Time Taken				1440	1410	1430	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	

U/S = Unsuitable Sample I/S = Insufficient Sample





Analytical Report Number : 19-65300

Project / Site name: Tilbury

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

Analytical Test Name Analytical Method Description Alkalinity in Water (by discreet analyser) Determination of Alkalinity by discreet analyser		Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status	
		In house method based on MEWAM & USEPA Method 310.2.	L082-PL	w	ISO 17025	
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025	
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	w	ISO 17025	
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	w	ISO 17025	
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	w	ISO 17025	
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	w	ISO 17025	
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	w	ISO 17025	
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(AI, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	w	ISO 17025	
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	w	ISO 17025	
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	w	ISO 17025	
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	w	ISO 17025	
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	w	ISO 17025	
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	w	ISO 17025	
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	w	ISO 17025	
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	w	ISO 17025	
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	w	ISO 17025	
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	w	NONE	

Iss No 19-65300-1 Tilbury 4593

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Analytical Report Number : 19-65300

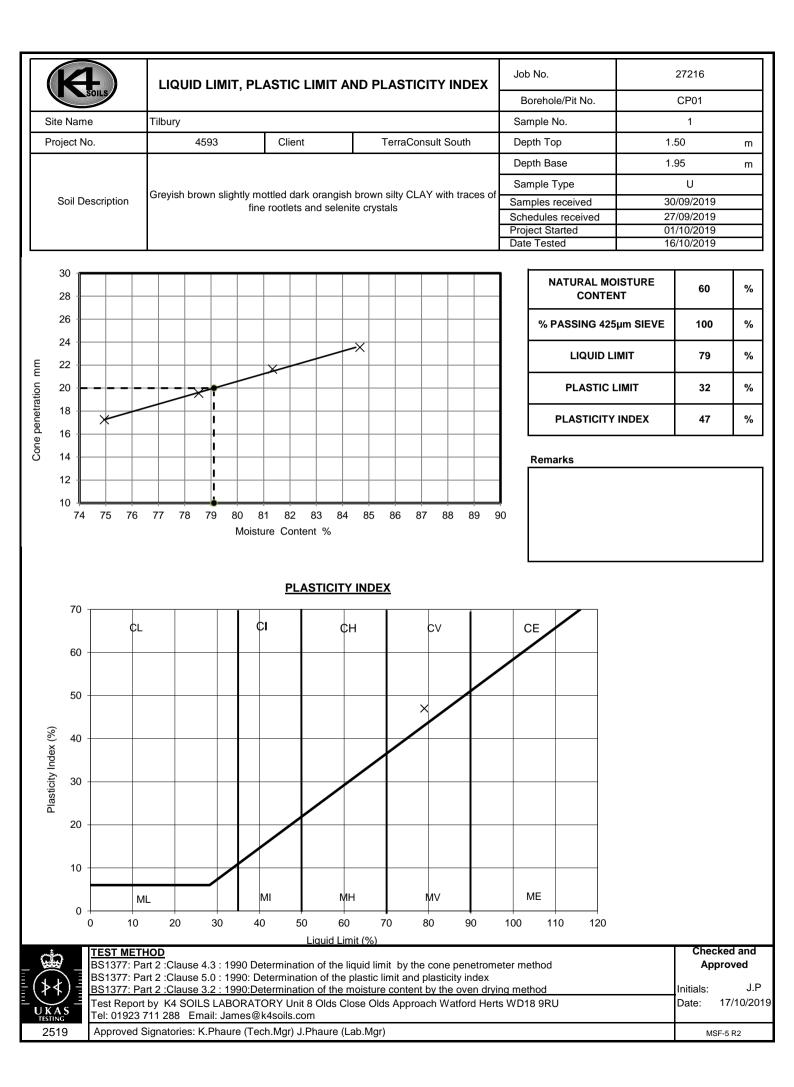
Project / Site name: Tilbury

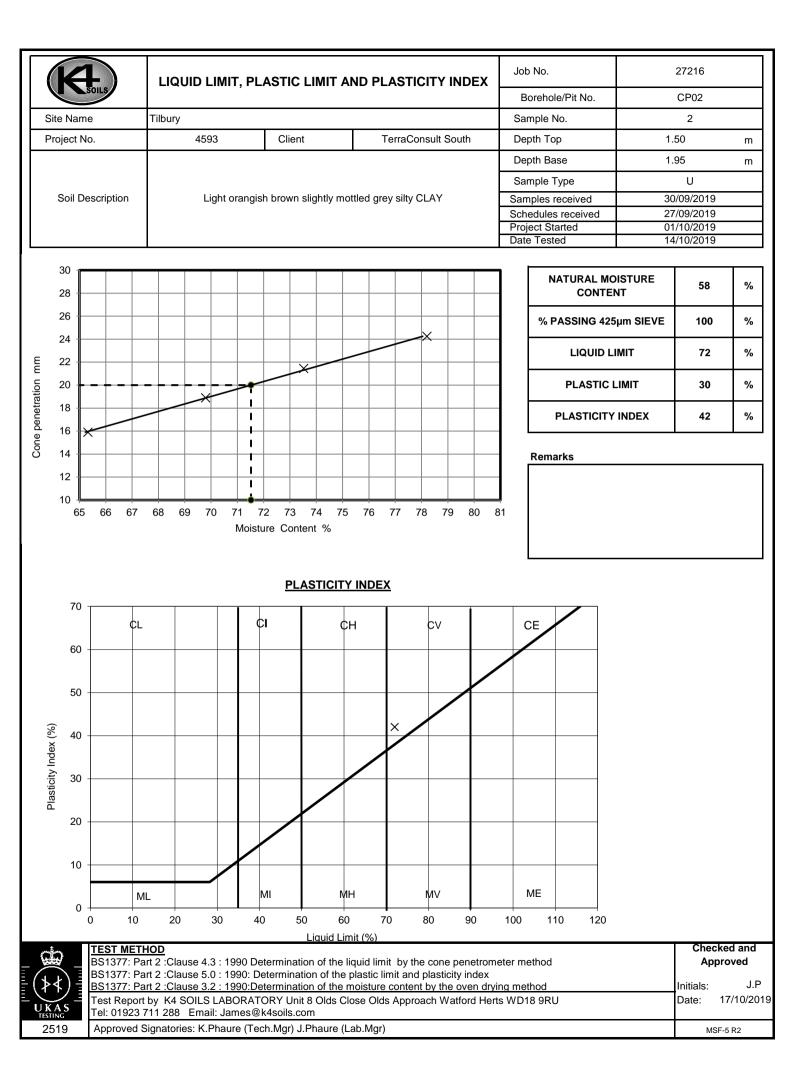
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

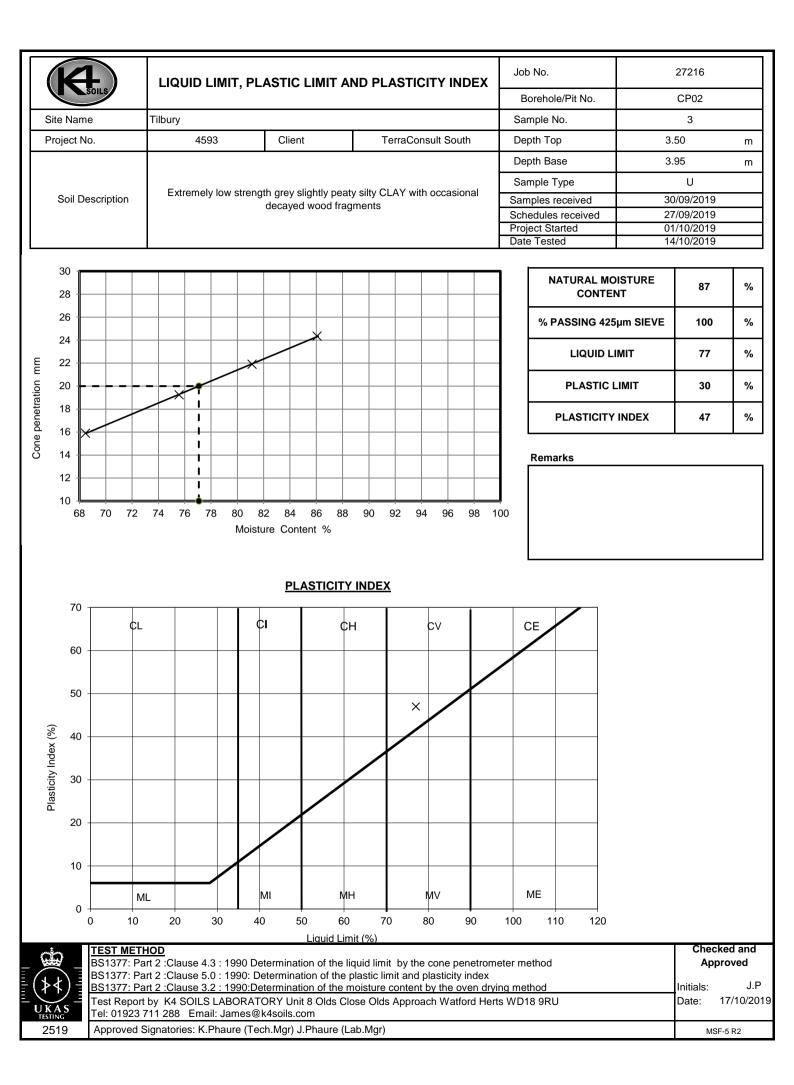
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

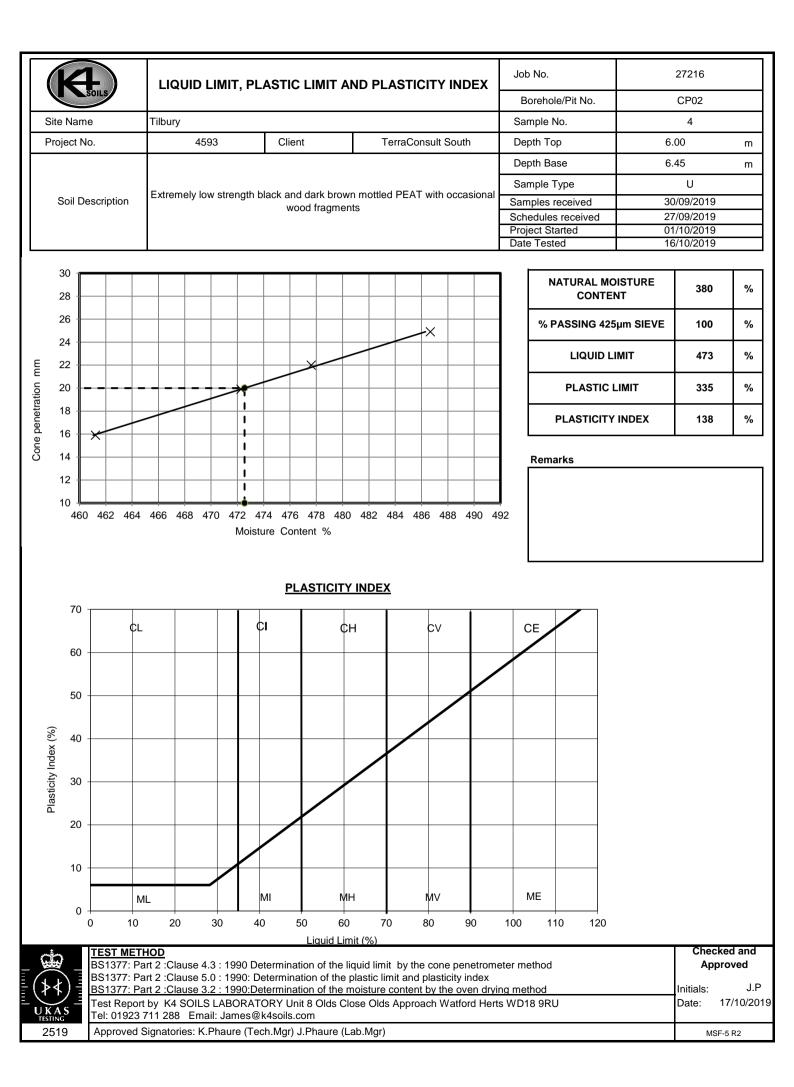
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom. For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

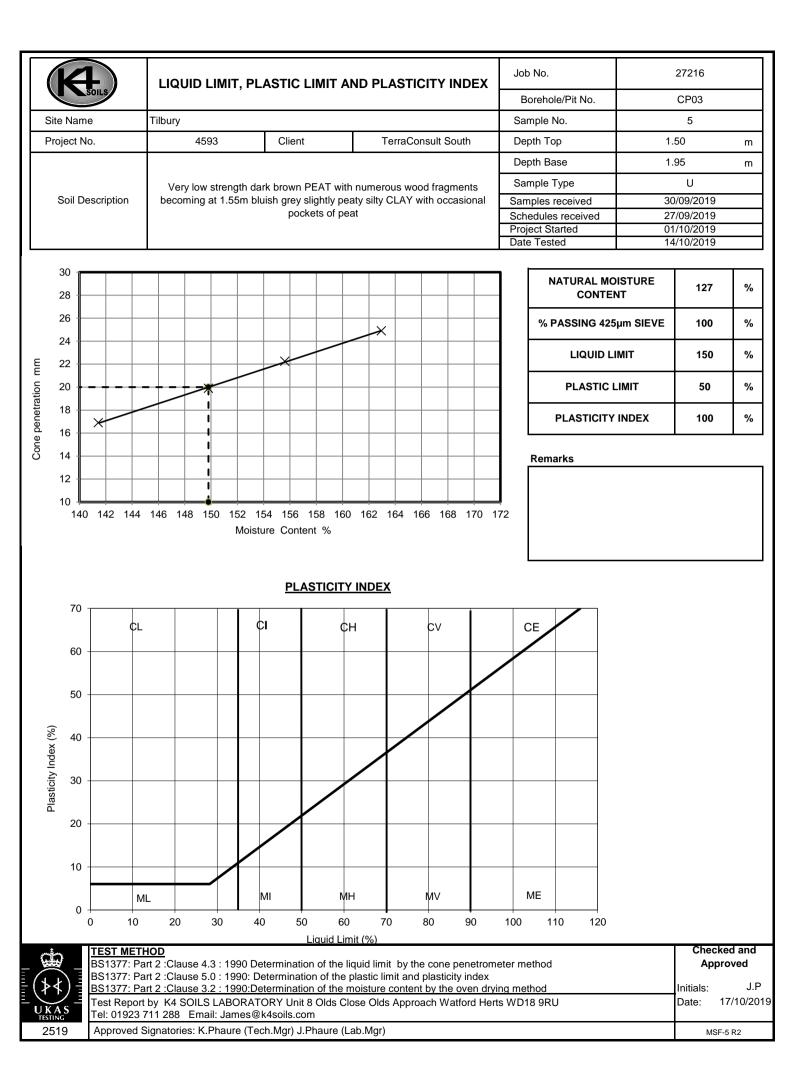
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

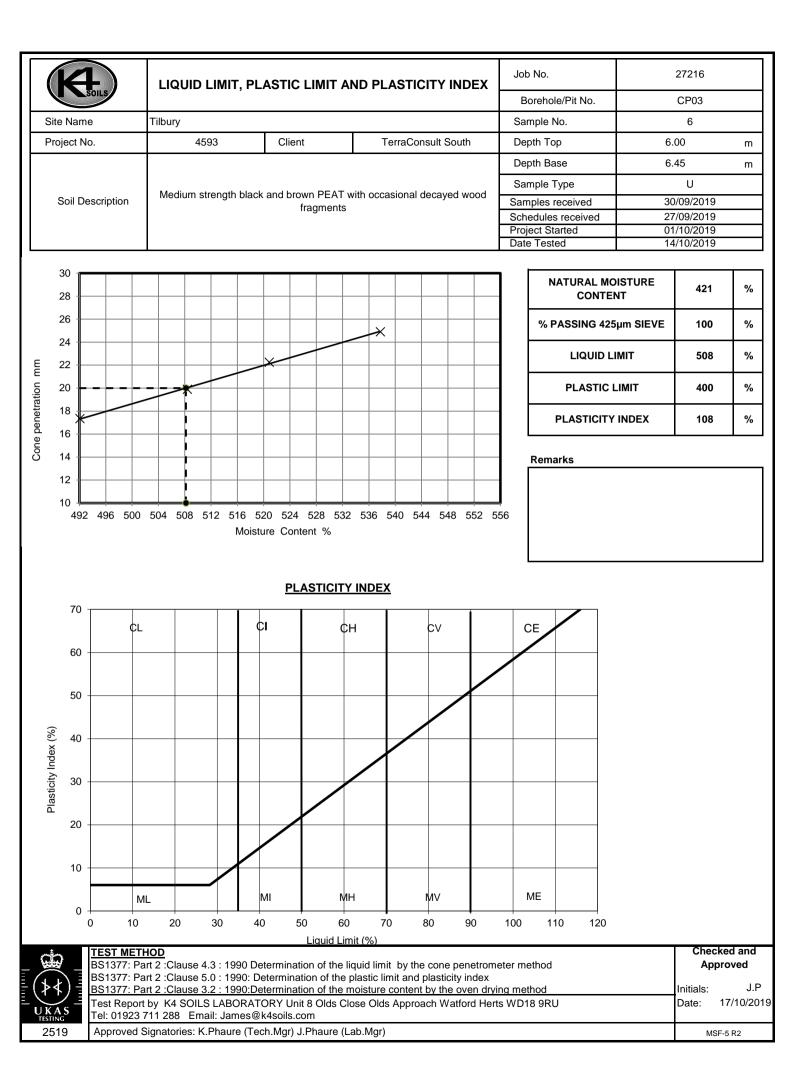


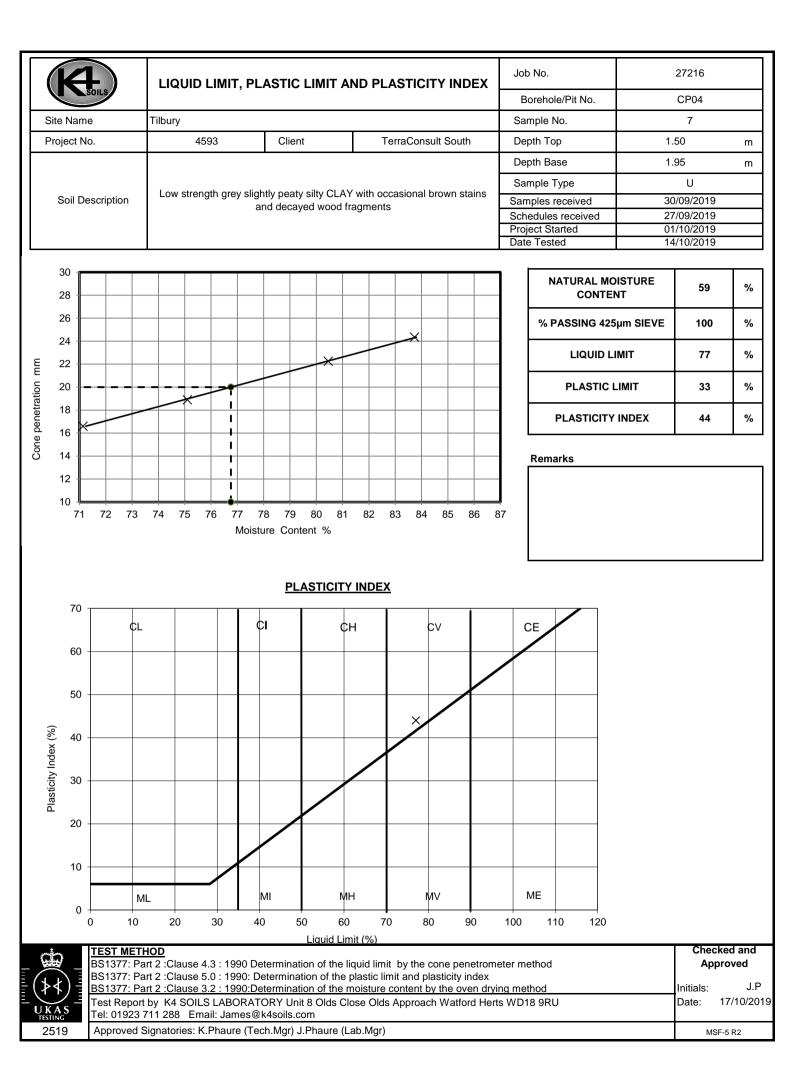


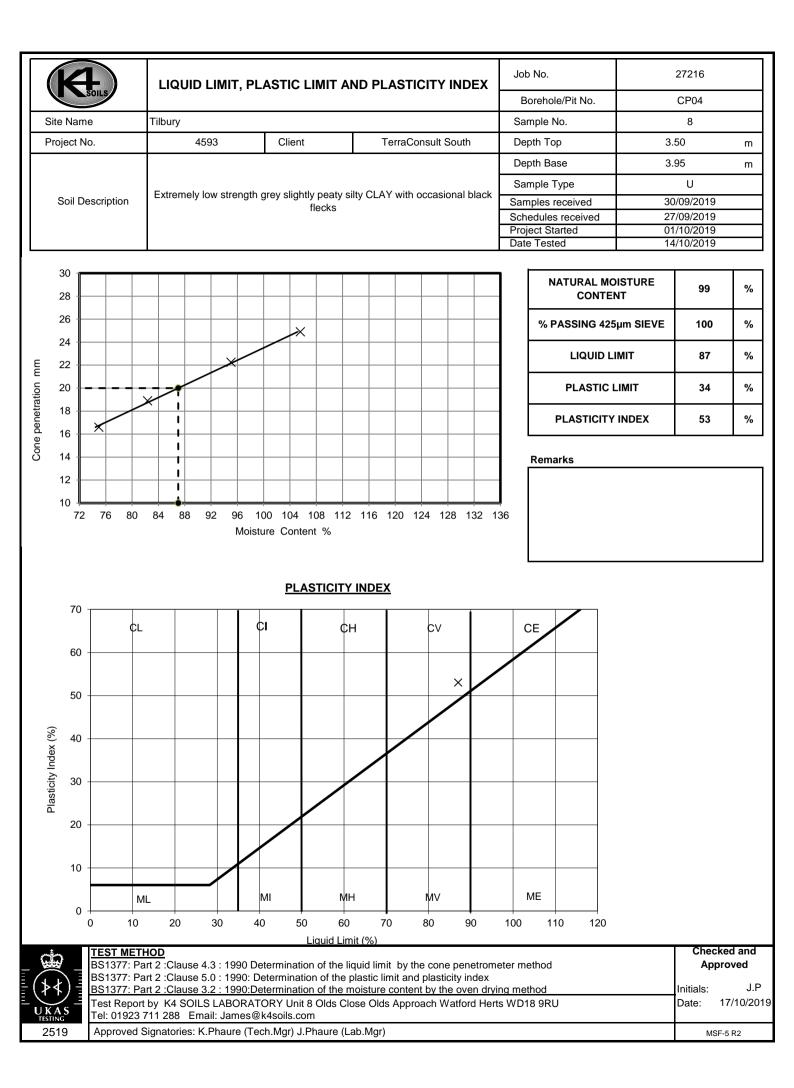


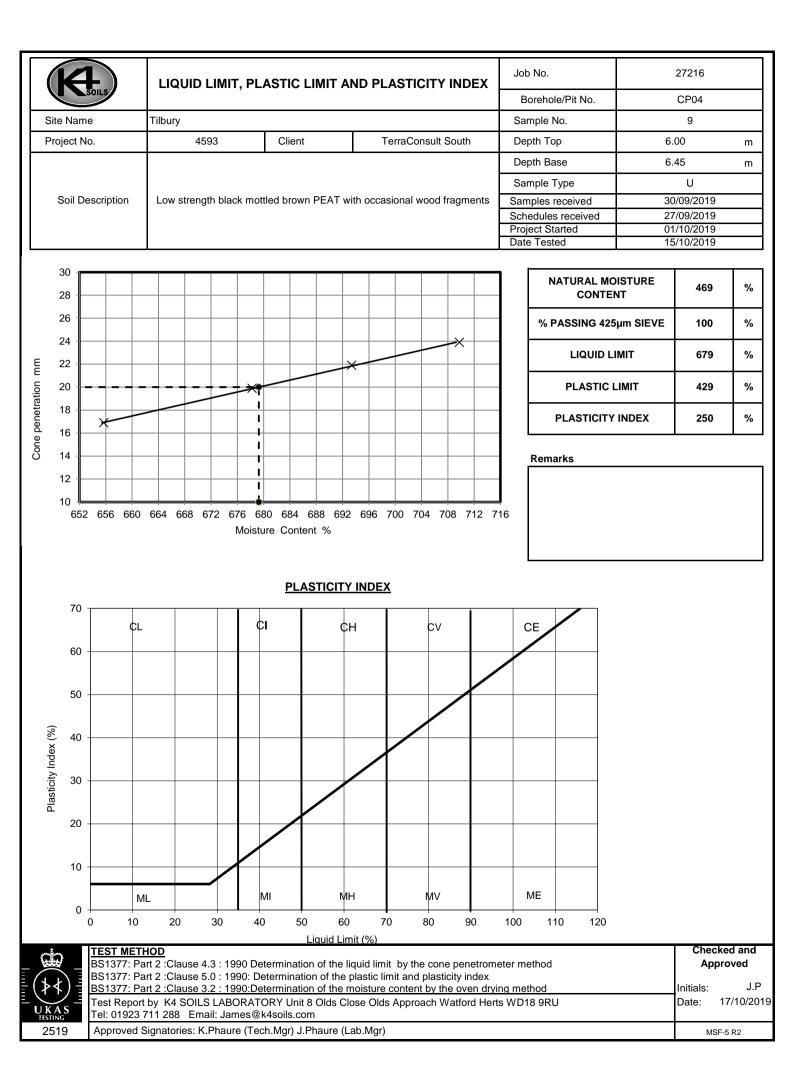


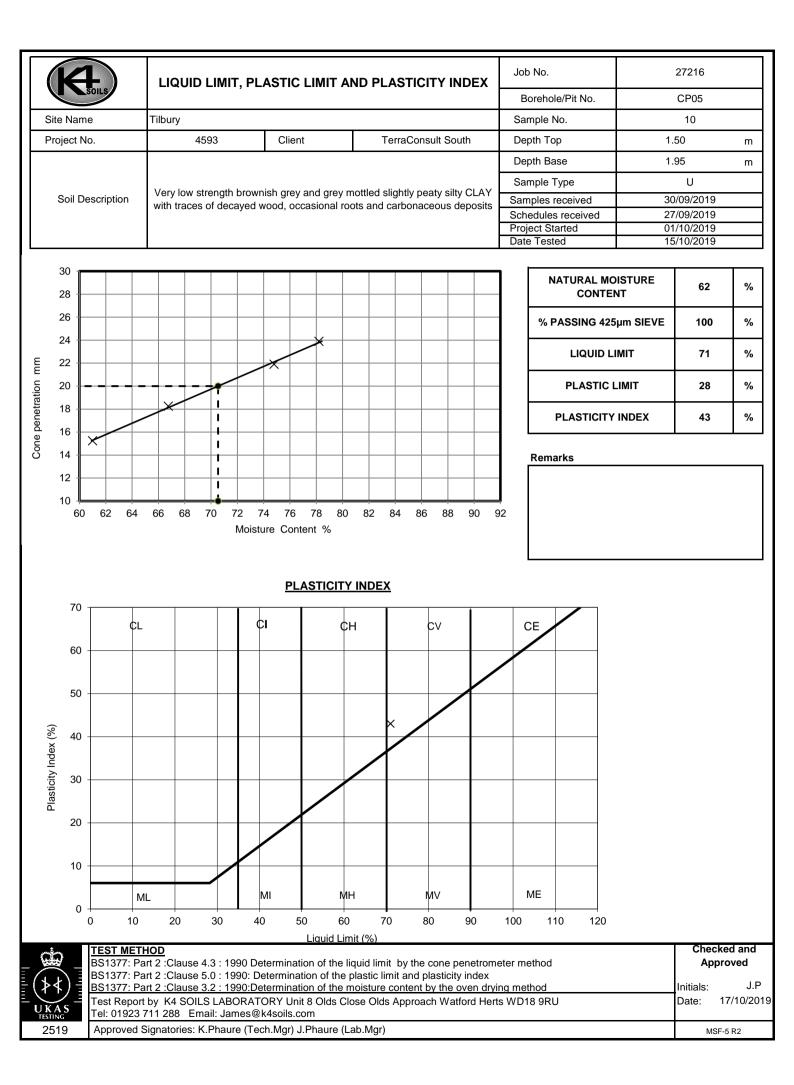


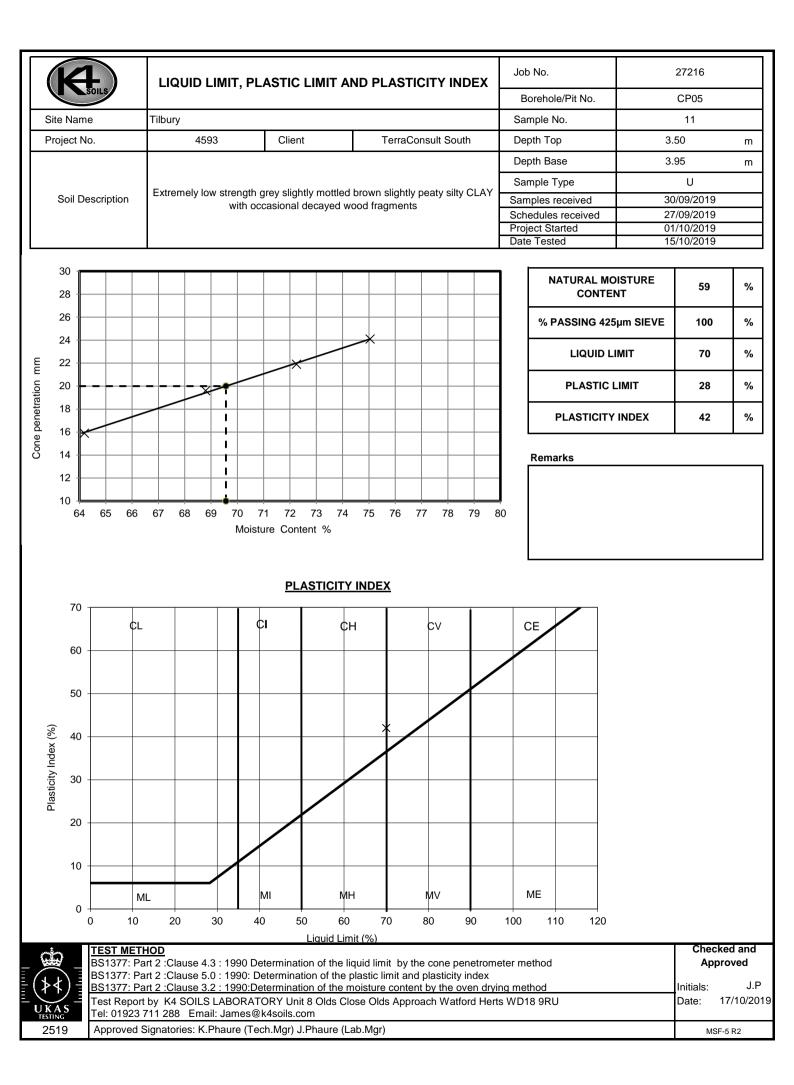


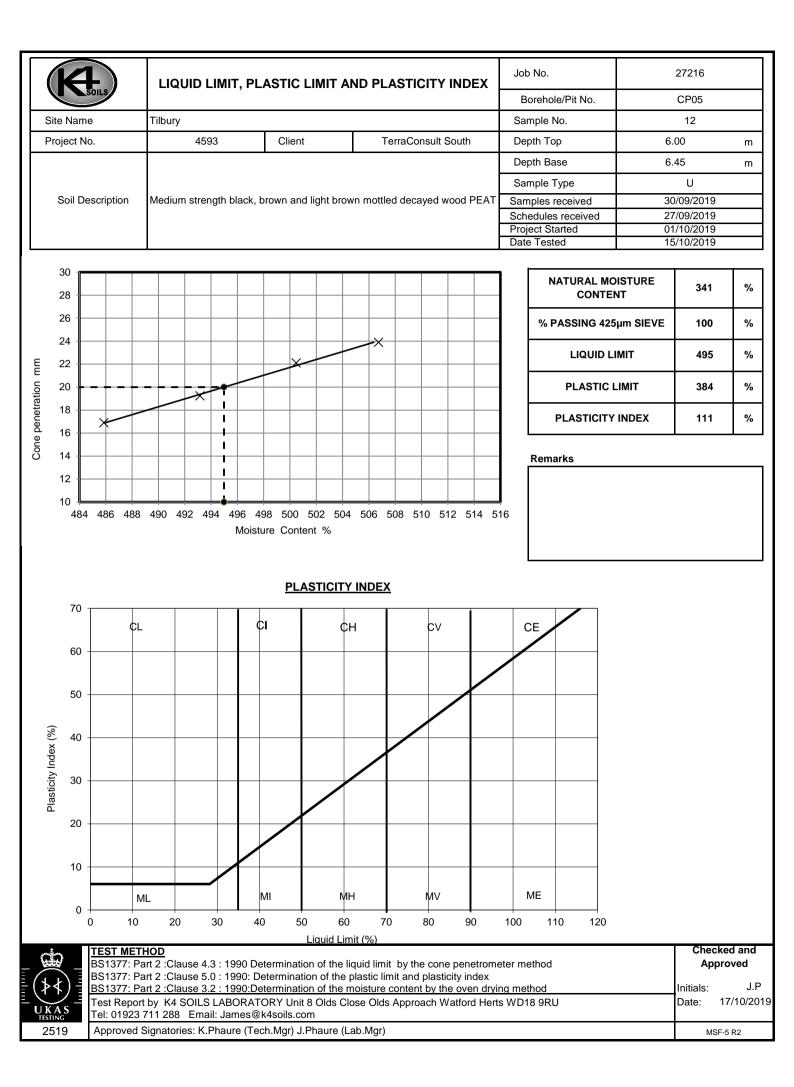


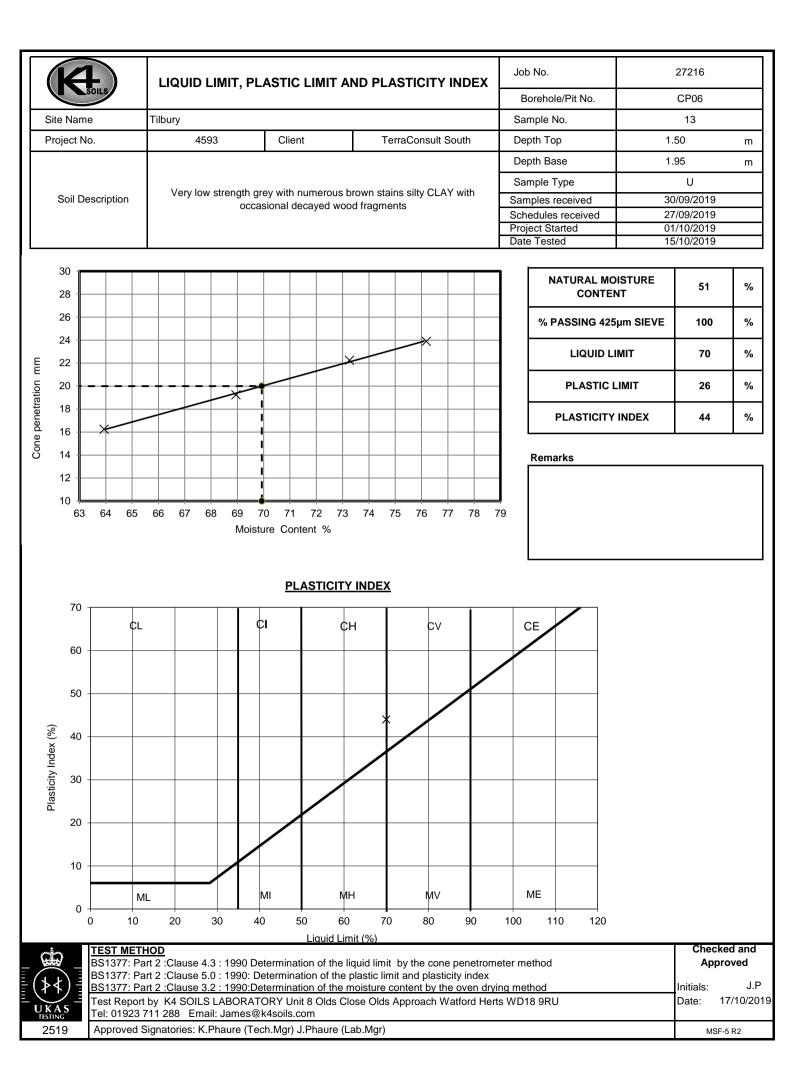


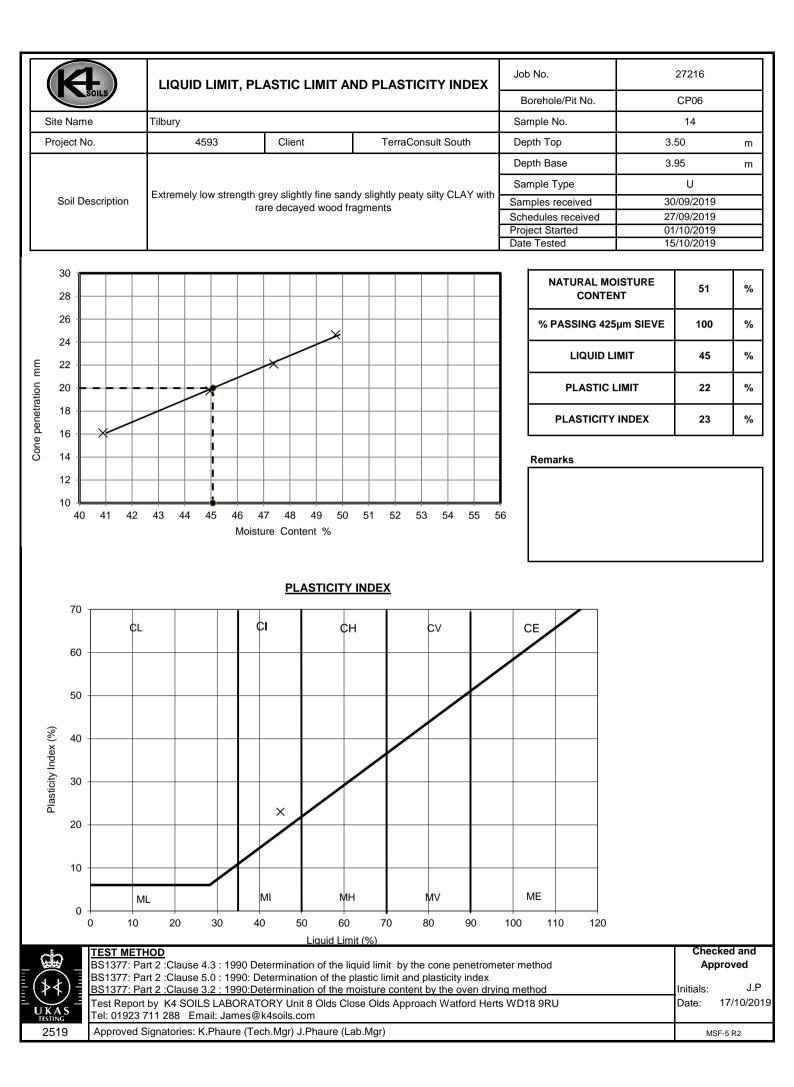


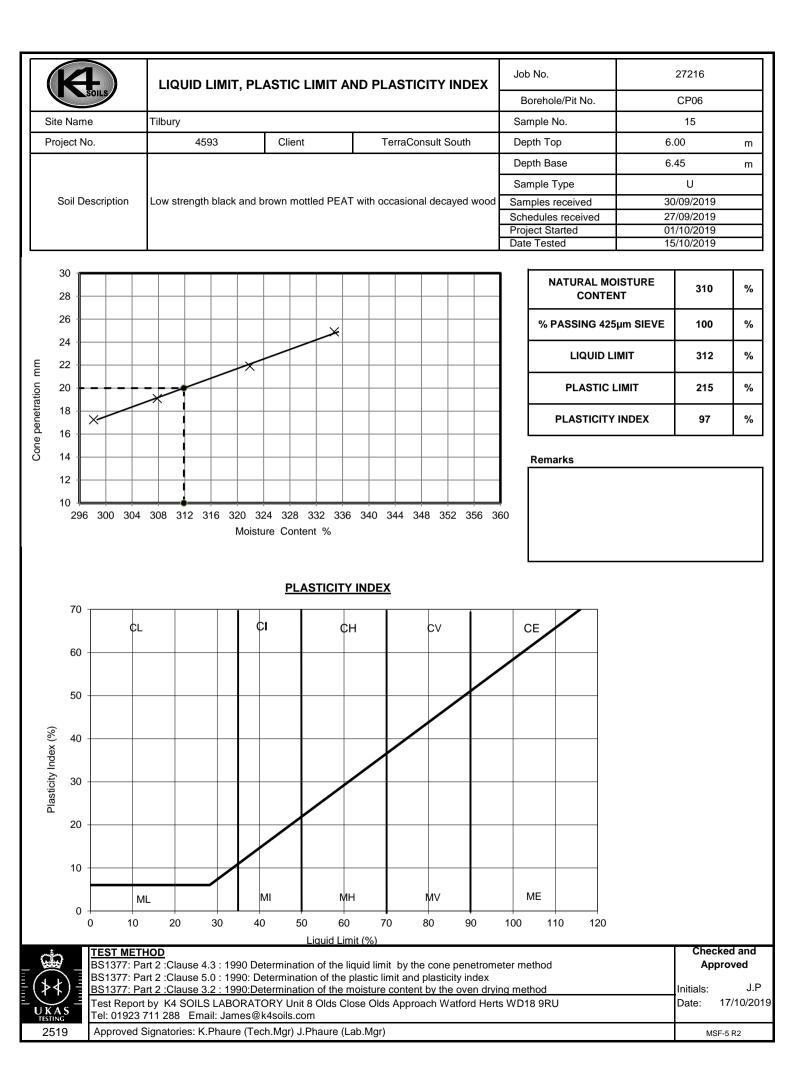


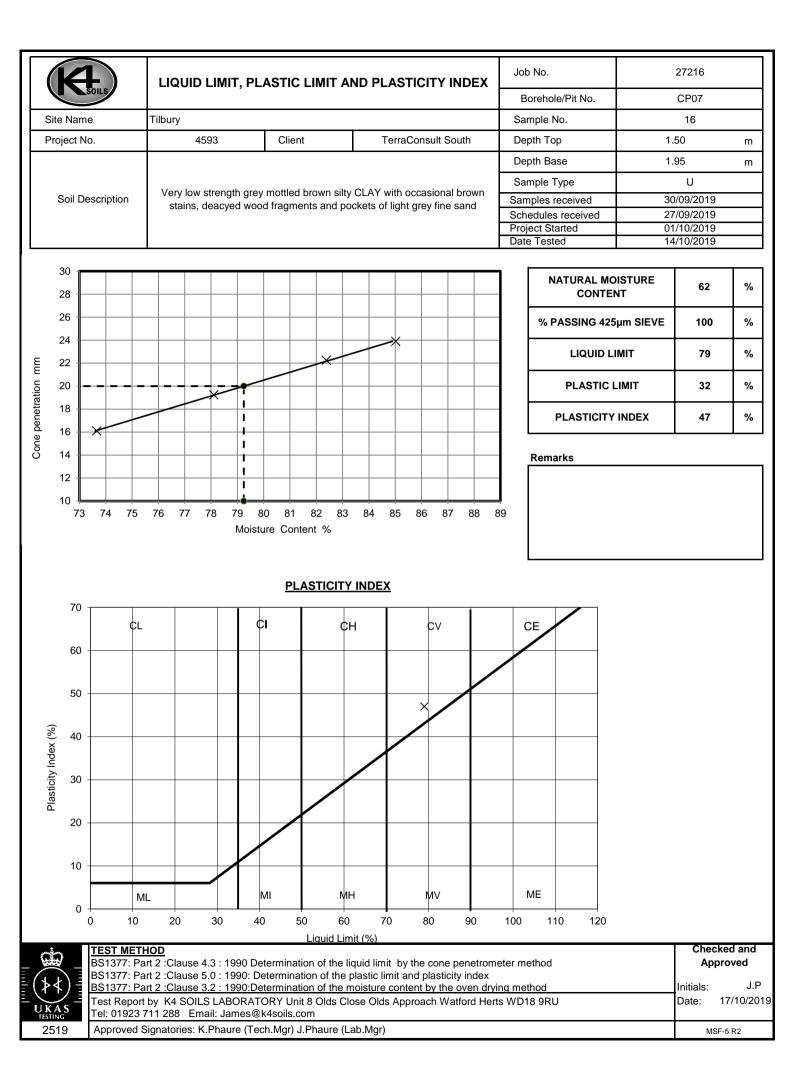


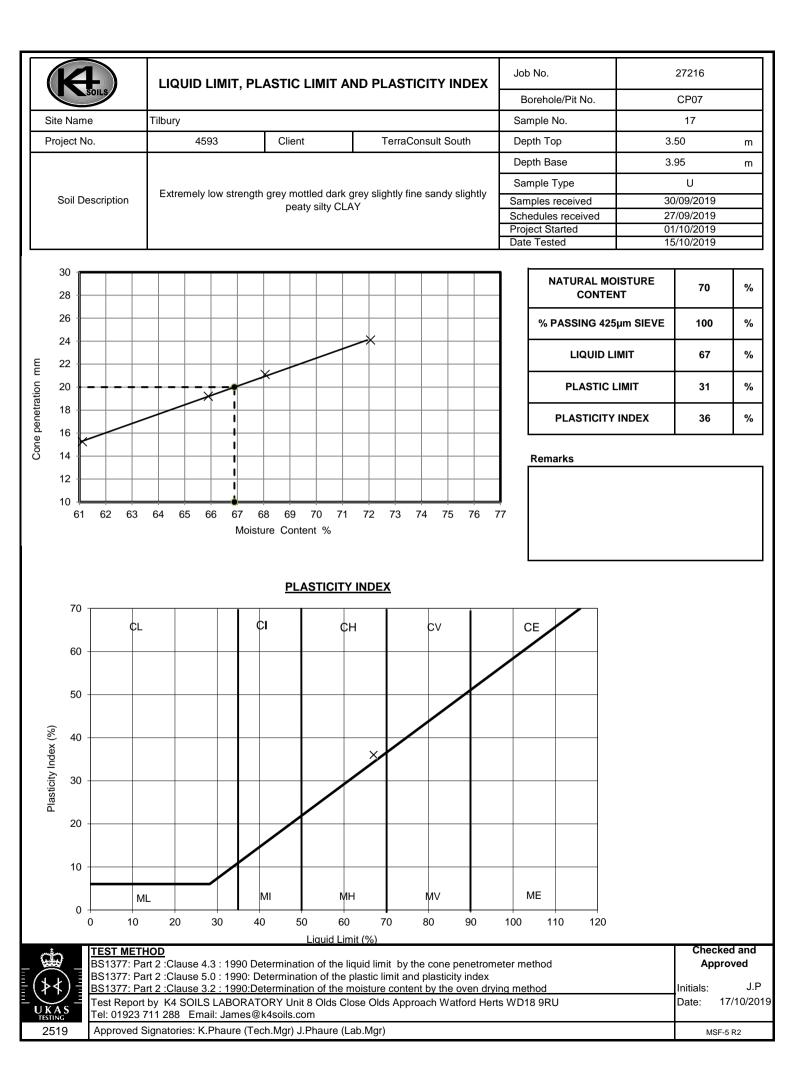


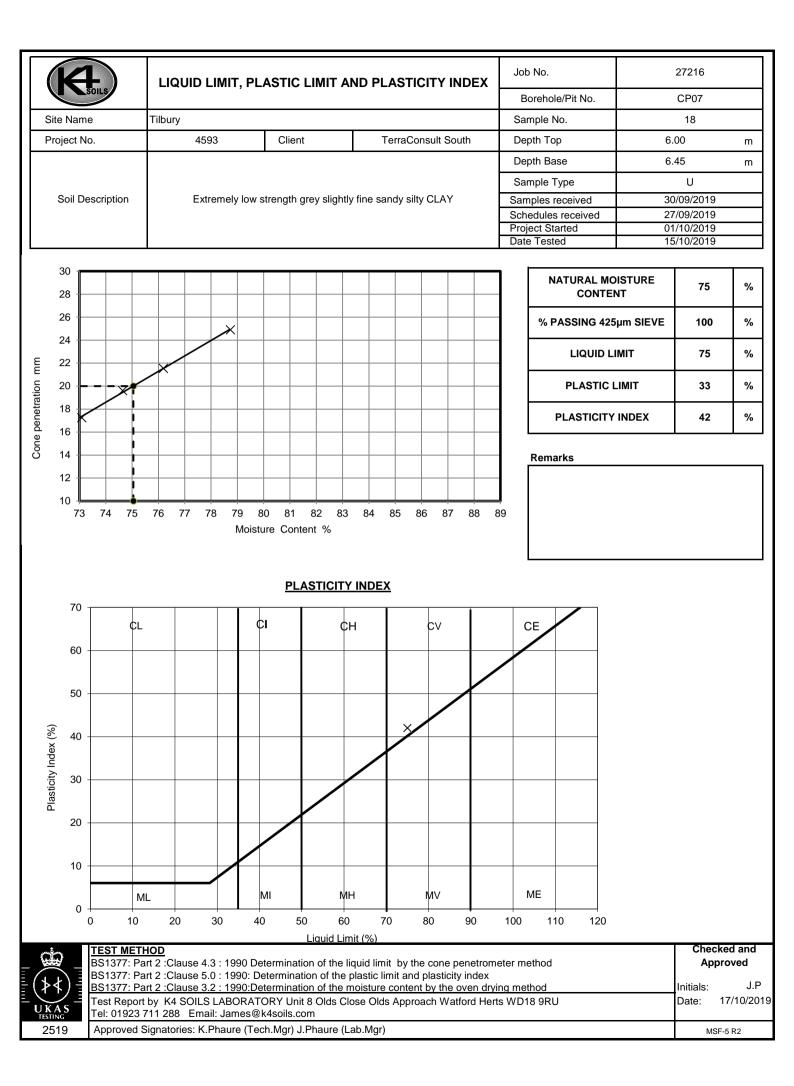












ob No.			Project	Name						Prog	ramme
27	216		Tilbury						Samples		30/09/2019
roject No.			Client						Schedule Project sta		27/09/2019 01/10/2019
-	593		TerraCo	onsult	South				Testing S		15/10/2019
				, io an		1			· comig c	I	
Hole No.	Def		mple	T	Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Туре		%	%	%	%	%	
CP01	1	1.50	1.95	U	Greyish brown slightly mottled dark orangish brown silty CLAY with traces of fine rootlets and selenite crystals	60	100	79	32	47	
CP02	2	1.50	1.95	U	Light orangish brown slightly mottled grey silt CLAY	y 58	100	72	30	42	
CP02	3	3.50	3.95	U	Extremely low strength grey slightly peaty silt CLAY with occasional decayed wood fragments	87	100	77	30	47	
CP02	4	6.00	6.45	U	Extremely low strength black and dark brown mottled PEAT with occasional wood fragmer		100	473	335	138	
CP03	5	1.50	1.95	U	Very low strength dark brown PEAT with numerous wood fragments becoming at 1.55 bluish grey slightly peaty silty CLAY with occasional pockets of peat	^m 127	100	150	50	100	
CP03	6	6.00	6.45	U	Medium strength black and brown PEAT with occasional decayed wood fragments	421	100	508	400	108	
CP04	7	1.50	1.95	U	Low strength grey slightly peaty silty CLAY with occasional brown stains and decayed wood fragments	59	100	77	33	44	
CP04	8	3.50	3.95	U	Extremely low strength grey slightly peaty silt CLAY with occasional black flecks	⁹ 99	100	87	34	53	
CP04	9	6.00	6.45	U	Low strength black mottled brown PEAT with occasional wood fragments	469	100	679	429	250	
CP05	10	1.50	1.95	U	Very low strength brownish grey and grey mottled slightly peaty silty CLAY with traces of decayed wood, occasional roots and carbonaceous deposits	^f 62	100	71	28	43	
CP05	11	3.50	3.95	U	Extremely low strength grey slightly mottled brown slightly peaty silty CLAY with occasion decayed wood fragments	al 59	100	70	28	42	
CP05	12	6.00	6.45	U	Medium strength black, brown and light brow mottled decayed wood PEAT	ⁿ 341	100	495	384	111	
	Natura	al Moistu	Is: BS13 re Content s: clause 4	t : clau	se 3.2			s Appro 18 9RU		•	Checked an Approved Initials J.F

b No.			Project	Name						Proar	amme
	216		Tilbury						Samples		30/09/2019
	210		-						Schedule	received	27/09/2019
roject No.			Client						Project sta	arted	01/10/2019
45	593		TerraCo	onsult	South				Testing St	tarted	15/10/2019
		Sar	mple			NMC	Passing	LL	PL	PI	
Hole No.	Ref	Top m	Base m	Туре	Soil Description	%	425µm %	%	%	%	Remarks
CP06	13	1.50	1.95	U	Very low strength grey with numerous brown stains silty CLAY with occasional decayed wood fragments	51	100	70	26	44	
CP06	14	3.50	3.95	U	Extremely low strength grey slightly fine sandy slightly peaty silty CLAY with rare decayed wood fragments	51	100	45	22	23	
CP06	15	6.00	6.45	U	Low strength black and brown mottled PEAT with occasional decayed wood	310	100	312	215	97	
CP07	16	1.50	1.95	U	Very low strength grey mottled brown silty CLAY with occasional brown stains, deacyed wood fragments and pockets of light grey fine sand	62	100	79	32	47	
CP07	17	3.50	3.95	U	Extremely low strength grey mottled dark grey slightly fine sandy slightly peaty silty CLAY	70	100	67	31	36	
CP07	18	6.00	6.45	U	Extremely low strength grey slightly fine sandy silty CLAY	75	100	75	33	42	
	Natura	al Moistur	s: BS13 e Content s: clause 4	: clau	se 3.2 Ur			s Approa 18 9RU			Checked and Approved Initials J.P

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Proje	ct ID		45	593			Client		Т	erra	Con	sult	So	uth	De	pth E	Base	;				3.	.95				m
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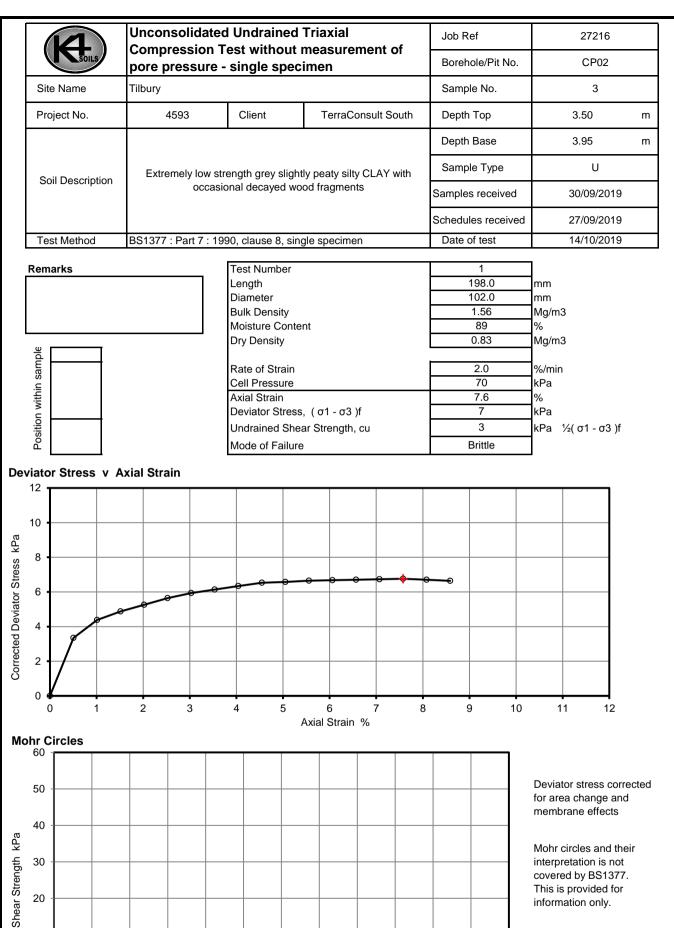
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											Sample	No.				6			
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Proje	ect ID		45	93	Client		Terra	Cons	ult So	buth	Depth Ba	ise			6	.45			m
											Sample	Туре				U			
So	oil Des	cription	Medium st	rength black	and brown P	PEAT winents	vith occa	siona	l dec	ayed wood	Sample					0/09/2			
					nagn	nenits					Schedu					7/09/2 1/10/2			
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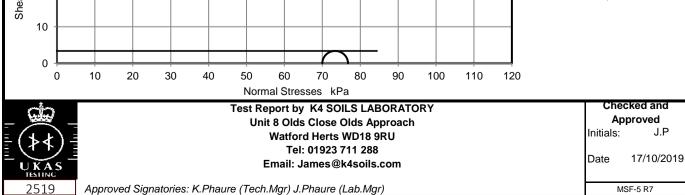
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	K	SOILS			NO							LJ		E	Boreh	ole/l	Pit N	0.					CPO)4			
														S	Samp	le N	0.						8				
Site	Name	;				Tilk	oury							C	Depth	Тор)					3.	50				m
Proje	ct ID		45	593		Client		Т	erra	Cons	ult S	South		De	epth	Base	Э					3.9	95				m
														s	Samp	le Ty	/pe						U				
So	il Des	cription	Extremely le	ow strengt	h gr			ty C	LAY	' with	осс	asio	nal black	s	Samp	le R	eceiv	/ed				30)/09/2	2019			
		onption				fle	cks							ŝ	Sche				1				/09/2				
Test	Math	l															Start					01	/10/2	2019			
Test	Meth 2.40		BS1377:Par	t 5: 1990,	clau	se 3 e _o								L	Date	rest	stan	tea								_	
	2.20					00																					
	2.00	00					~	$\overline{}$																			
tio	1.80	0			++										-	-	_	╈					-	-		+	-
Voids Ratio	1.60	0	_								\setminus	\vdash									_	_		_		_	-
Void	1.40						_																				
												+	<u> </u>	•													
	1.20	0																									
	1.00	0													+	-											-
	0.80	0			++				-							-	_	+			_			_		_	
	0.60	0																									4
	0.40																										
bo	0.50																										
yr (l Je)	0.40 0.30						~	<u> </u>	\searrow																		
Cv m²/yr (log time)	0.20									_	_						_		_		_			_		_	_
ú	0.10									_	_						-		_		_			-			_
	0.00	1			1	0			A	polie	d Pr	100	re kPa					1	000							10	0000
									,,																		
Appli			Mv	Cv		Cv			Prep	parati	on																
Press kPa		Voids ratio	m2/MN	(t50, log m2/yr)	(t90, root) m2/yr			Orie	ntatio	on w	thin s	sample								Ve	ertica	I				
2.0)	2.387	-	-		-																					
25 50		1.975 1.767	5.3 2.8	0.4	_	0.36 0.4			Part	icle d	ensi	ity							a	sume	d			2.50			Mg/m3
100		1.509	1.9	0.39		0.42				cimer		tails								Initial				Final			
200 25		1.282 1.416	0.9 0.34	0.3		0.41			Dian Heig	neter Iht										75.05 18.90		-	1	- 3.48	3		mm mm
									Mois	sture		tent								97.2				59.6		_	%
										dens densi										1.46 0.74		-		1.65 1.03			Mg/m3 Mg/m3
									Void	ls Ra	tio									2.387 102				105 I.416	6		o.
										iratio		perat	ure for te	st				-		102	2	22.0		105			% oC
												ssure	uration														kPa %
									Jeili	eme		1 540	lation														70
									Rem	narks																	
						Test Repor	thv K	1.50	2011 6	ΙΔP	OP /		27									°hoo	ked	and	۸nr		- Adv
						Unit 8	Olds Cl	ose	Old	s App	oroa												neu	anu	-hł	101	-cu
{}∢	:)						atford H Tel: 01				RU										Initia	als			K	P	
	s =						ail: Jam				com										Date	:		1	17/10)/20)19
2519		Approved Sig	natories: K.Ph	aure (Tech	Mgr)	J.Phaure (L	ab.Mgr)																				MSF-5-R6

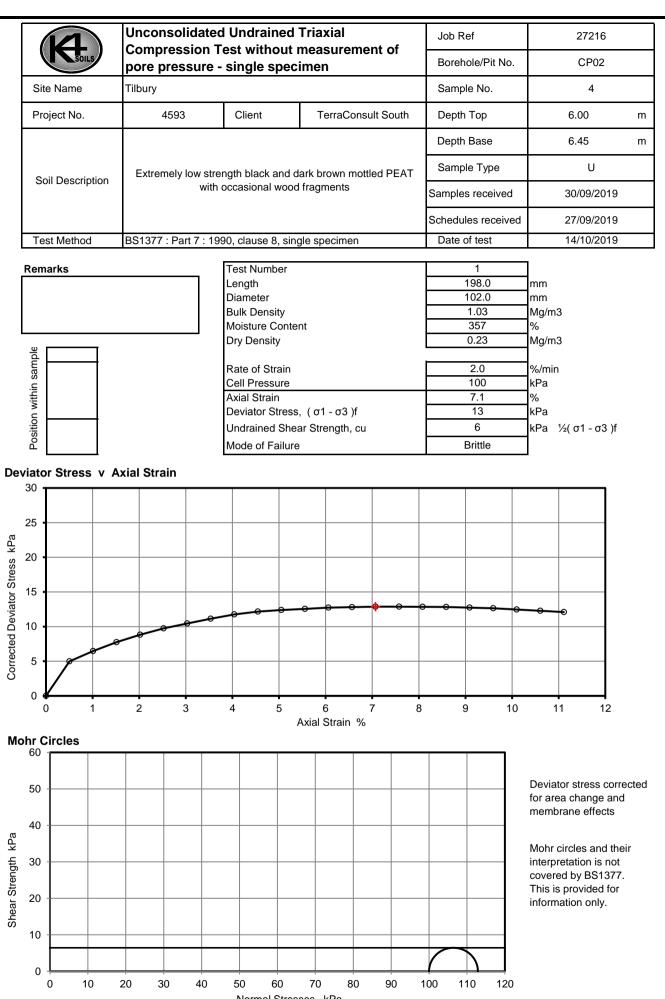
			ON		SIONAL C	ONSC		TION	I TE	ST	-	ob Ref					272			
	K	SOILS	•								B	orehole	e/Pit N	0.	_		CP	05		
											S	ample	No.				1	2		
Site	e Name	е			Tilk	oury					D	epth T	ор				6.00			m
Proje	ect ID		45	593	Client		Terra	Consu	ilt Sc	outh	De	epth Ba	se				6.45			m
											S	ample	Туре				ι	J		
S	oil Des	scription	Medium	strength black		l light br AT	own mo	ttled c	leca	yed wood		ample					30/09			
											S	Schedu Projec			_		27/09/ 01/10/			
Tes	st Meth	nod	BS1377 Par	t 5: 1990, cla	use 3						D	ate Te					02/10			
L	8.50																			
	8.00				- e,															
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atio	7.00	00																		
Voids Ratio	6.50	00				9		_								_	_			
Void	6.00	00					$ \ge$										_			
	5.50	00						Ň												
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	5.00																			
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	4.00	00						\rightarrow	+	$ \searrow $							_			
	3.50	₀₀									7									
	10.0	0																		
(log	10.0 8.0																			
²/yr me)	6.0					×											_			_
Cv m²/yr (log time)	4.0						\mathbf{i}													
0	2.0 0.0							\searrow		×	- ×									
		1			10		A	pplied	I Pre	00 ssure kPa				10	000					10000
App Pres		Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)		Prep	aratio	n											
kF			m2/MN	m2/yr	m2/yr		Orie	ntatior	n wtł	nin sample						Vert	ical			
2.		8.041 6.608	- 5.7	- 5.2	- 17		Parti	icle de	ensity	v					assume	ed		1.75		Mg/m3
6 12		5.803 4.520	3.5 3.1	0.41 0.32	2.1				-						Initial			Final		-
24		3.638	1.3	0.32	1.1 0.54			cimen neter	deta	alis					Initial 75.05			Final -		mm
3	0	4.491	0.88				Heig	ht ture C	ont	ont					19.00 328.6			11.54 270.6		mm %
								densi		5111					0.83			1.18		Mg/m3
								densit s Rati							0.19 8.041			0.32		Mg/m3
								ration							72			105		%
								age te Iling P		erature for te	st					22	.0			oC kPa
										saturation										%
							Dom	arks												٦
							Kell	Idi KS												
G	9				Test Repor											Cł	necked	and	Appr	oved
(\mathbf{k})	$\mathbf{\hat{z}}$					Olds Cleatford He				n						Initials	6		K.F	C
	ショ					Tel: 019 ail: Jam	923 711	288												
UK TESTIN 251	NG 9	Approved Sig	natories: K.Ph	aure (Tech.Mg			съ @ К4S	0115.00	JIII							Date:		1	7/10/2	2019 MSF-5-R6

			ON		SIONAL C	ONSC	OLIDA		ΝΤΙ	EST	Job Ref	(D)())				272			
	s	OILS									Borehole).	_		CP			
		/									Sample			_		14	1		
Site	Name				Till	bury					Depth T	ор			:	3.50			m
Proje	ct ID		45	593	Client		Terra	Cons	ult So	outh	Depth Ba	se			:	3.95			m
											Sample					U			
Sc	il Desc	cription	Extremely	low strength with	grey slightly				eaty	silty CLAY	Sample			_		30/09/			
							- U				Schedul Projec	t Starte				27/09/ 01/10/			
Test	t Metho		BS1377:Par	t 5: 1990, cla	use 3						Date Te				(02/10/	2019		
	1.300	·			e _o														
	1.200	o ───													_	-			
	1.100	o				~									_				
0	1.000	o						•								_			_
Rati	0.900	o							\geq										
Voids Ratio	0.800																		
						0													
	0.700	0																	
	0.600	D													_	-			
	0.500	o																	
	0.400	o														_			
	0.300	, L																	
	2.50																		
(log	2.00														_				
1 ² /yr ime)	1.50					*			/	**					_				-
Cv m²/yr (log time)	1.00 0.50																		
	0.00	ļ			ļ														
		1			10		A	Applie	d Pre	90 Ssure kPa			100	00					10000
Appli	ed			Cv	Cv	1	Pre	paratio	on										
Press	ure	Voids ratio	Mv	(t50, log)	(t90, root)														
kPa 2.0		1.261	m2/MN -	m2/yr -	m2/yr -		Orie	entatic	on wt	hin sample					Vertio	cal			
25 50		1.105	3 1.5	1.2 0.94	1.3 1.5		Par	ticle d	ensit	У				assume	d		2.60		Mg/m3
100	0	0.923	1	1.6	1.4			cimer		ails				Initial			Final]
200 25		0.729 0.763	1 0.11	1.2	2.2		Diar Heig	neter ght						74.95 18.84			- 14.69		mm mm
							Moi	sture		ent				49.9			34.0		%
						-		c dens densi						1.72 1.15			1.98 1.47		Mg/m3 Mg/m3
						1	Void	ds Rat	tio					1.261			0.763		
								uration rage t		erature for te	st			103	22.0		116		% oC
						1	Swe	elling I	Press	sure						-			kPa
							Sett	lemer	nt on	saturation									%
							Ren	narks											7
]													
					Test Repor	rthv K4			OP A	TORY					Ch	ecked	and	Annr	aved
					Unit 8	Olds Clo	ose Olo	ls App	oroac						Ch	eukea	anu	Appro	veu
(≯∢	5)				Wa	atford He Tel: 019			RU						Initials			K.F)
	S					ail: Jame			com					. <u>.</u>	Date:		1	7/10/2	
2519		Approved Sig	natories: K.Ph	aure (Tech.Mg	r) J.Phaure (L	ab.Mgr)													MSF-5-R6

					SIONAL C	- ONSOI			тс	ет	Jo	b Ref					27	216			
	t	SOILS								51	Bo	orehole	e/Pit N	0.			CF	P07			
											Sa	ample	No.				1	18			
Site	Name	•			Til	bury					D	epth To	ор				6.00				m
Projec	t ID		45	593	Client		TerraC	onsul	t So	uth	De	pth Ba	se				6.45				m
					•						Sa	ample	Туре					U			
Soi	l Des	cription	Ex	tremely low	strength grey	slightly fi	ne sand	y silty	/ CL	AY	Sa	ample	Receiv	ved			30/09				
												chedul Projec					27/09				
Test	Meth	od	BS1377:Pa	rt 5: 1990. c	ause 3						_	ate Te					02/10				
	2.00																				٦
	1.90	0			e _o				++-								_	-			-
	1.80	0	_														_	_			4
_	1.70	0																			
Ratio	1.60					٩															
Voids Ratio																					
>	1.50	0						\mathbf{N}													1
	1.40	0						++-													1
	1.30	0						+	++-							_	_				-
	1.20	0				~			-								_	_			-
	1.10	0									~										4
	1.00																				
(log	1.00 0.80																				
² /yr me)	0.60) <u> </u>				~				*											
Cv m²/yr (log time)	0.40 0.20							*			~										
•	0.20														ļ						ļ
		1			10		Ар	plied	Pre	Sure kPa				10	000					10	000
Applie	he			Cv	Cv	1	Prepa	ration	n												
Pressu	ure	Voids ratio	Mv	(t50, log)	(t90, root)		•														
kPa 2.0		1.901	m2/MN -	m2/yr -	m2/yr -	1	Orient	tation	wth	in sample						Ver	tical				
30 60		1.666 1.520	2.9 1.8	0.64 0.38	0.77 0.46]	Partic	le dei	nsity						assum	ed		2.5	5	N	/lg/m3
120)	1.328	1.3	0.54	0.62	1	Speci		deta	ils					Initia			Fina			
240 30		1.143 1.243	0.66	0.47	0.61	1	Diame Heigh								75.05			- 14.6			nm nm
						1	Moiste Bulk c	ure C		nt					73.8 1.53			51. 1.7		%	6 /lg/m3
							Dry de	ensity	í						0.88			1.1	4		/ig/m3 /ig/m3
						-	Voids Satura		C						1.901 99	1		1.24		%	6
						1	Avera	ge te		rature for te	st					22	2.0			0	С
							Swelli Settle			aturation										к 9	Pa 6
	\neg					4	Rema	rko													
							Reina	1113													
ଭିଇ					Test Repo Unit 8	rt by K4 S Olds Clos										С	hecke	d an	d Ap	prov	ed
(≱∢)					atford Her	ts WD1	8 9RI								Initial	s		ł	K.P	
	s				Em	Tel: 0192 ail: James			m							Date:			17/1	0/201	19
2519		Approved Sig	natories: K.Ph	aure (Tech.N	gr) J.Phaure (L	.ab.Mgr)										Date.			17/1		SF-5-R6



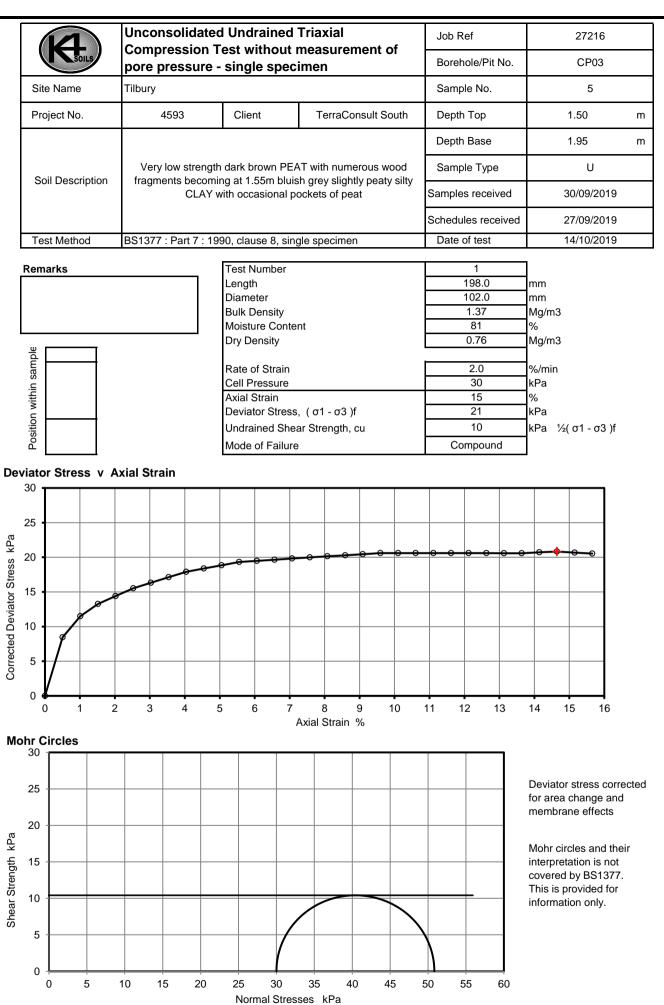




 Normal Stresses kPa
 Checked and Approved

 Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288
 Initials: J.P Date 17/10/2019

 2519
 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)
 MSF-5 R7



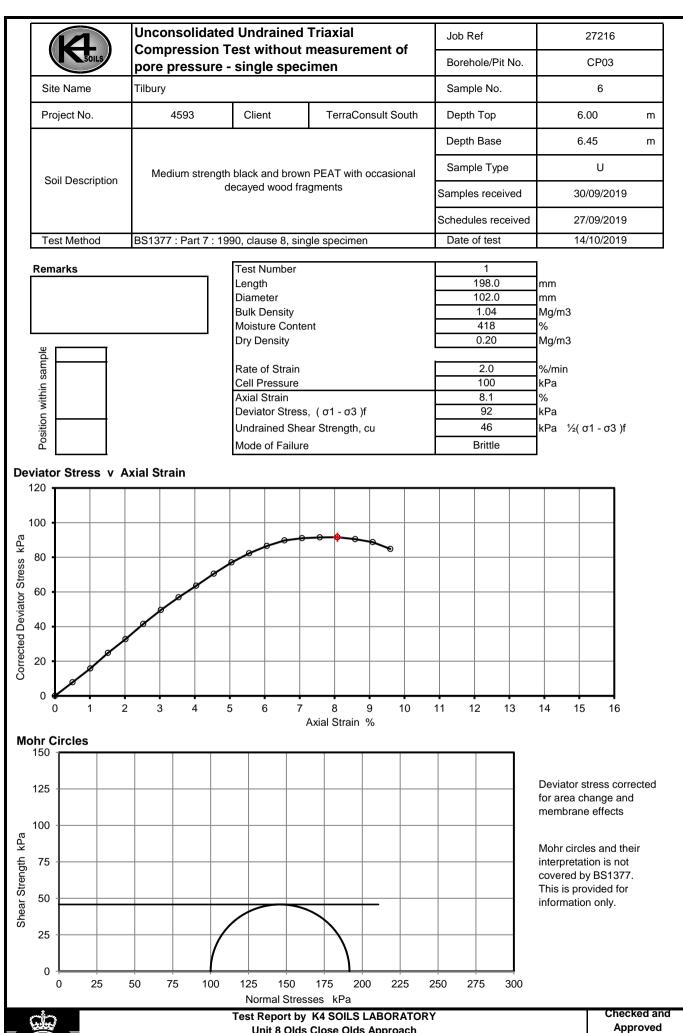
 Normal Stresses
 KPa

 Test Report by K4 SOILS LABORATORY
 Checked and Approved

 Unit 8 Olds Close Olds Approach
 Initials: J.P

 Unit 8 Olds Close Olds Approach
 Date 17/10/2019

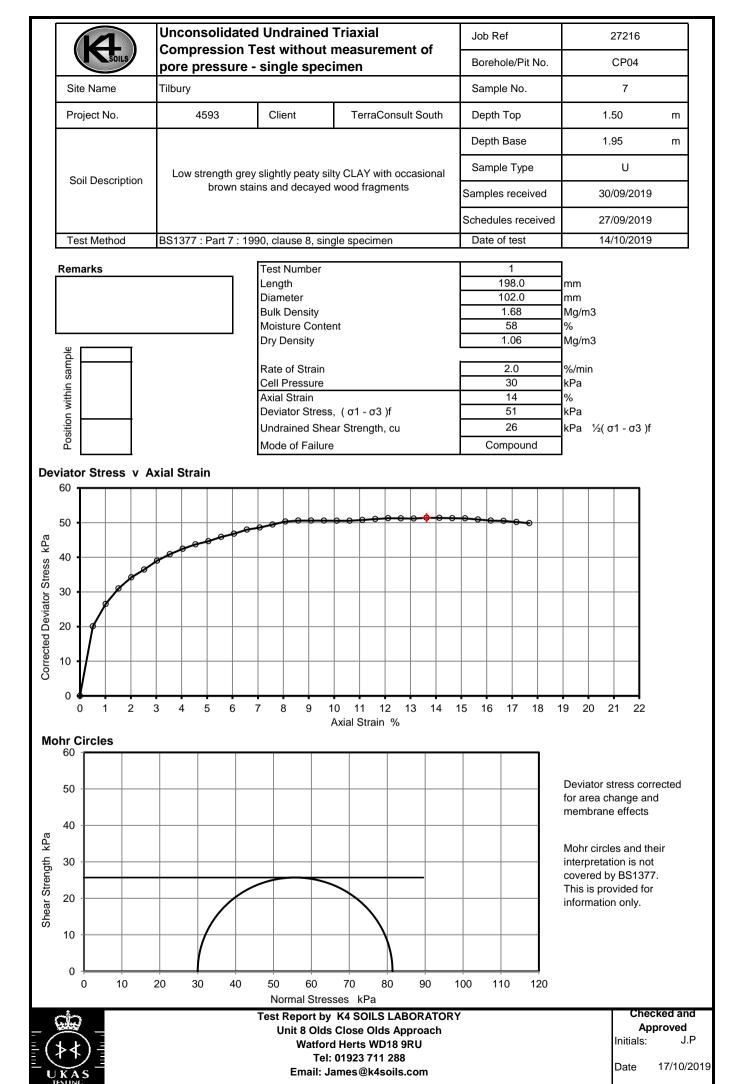
 Email: James@k4soils.com
 MSF-5 R7



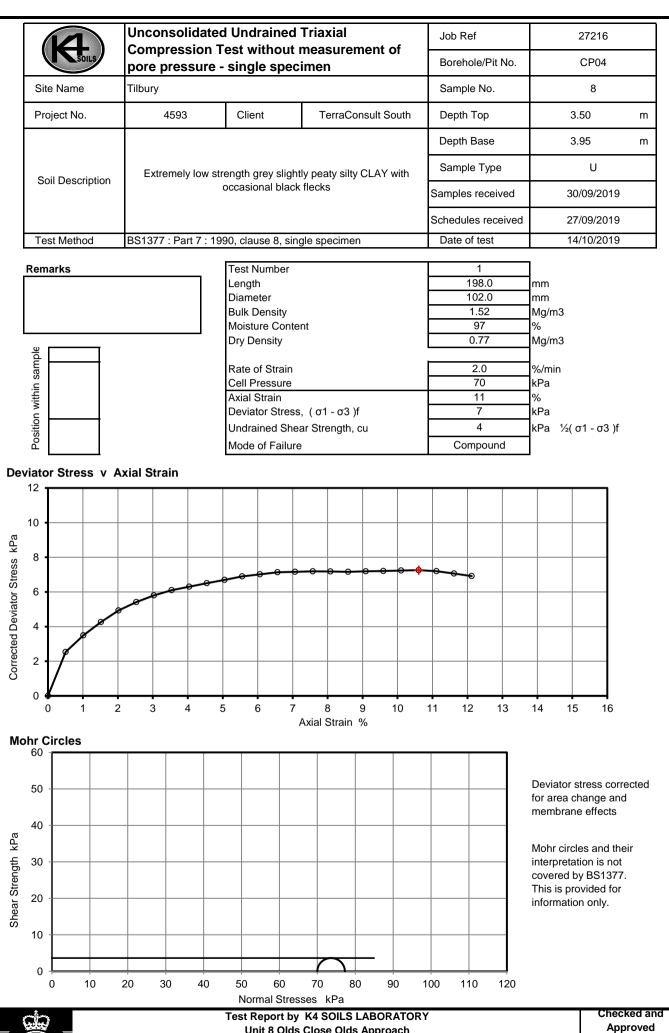
Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com

J.P

17/10/2019



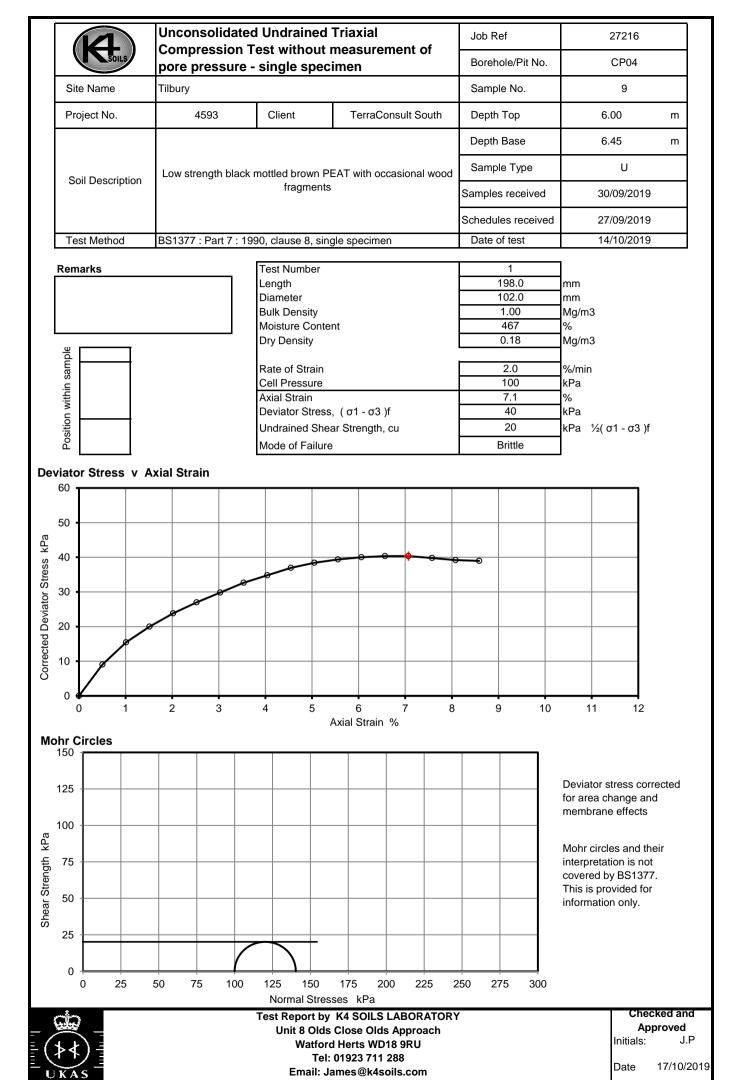
MSF-5 R7



-	Unit & Olds Close Olds Approach	~~	prove
⊁∫∃	Watford Herts WD18 9RU	Initials:	
ショ	Tel: 01923 711 288	Date	17/10
AS	Email: James@k4soils.com	Date	17710
19	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)	M	SF-5 R7

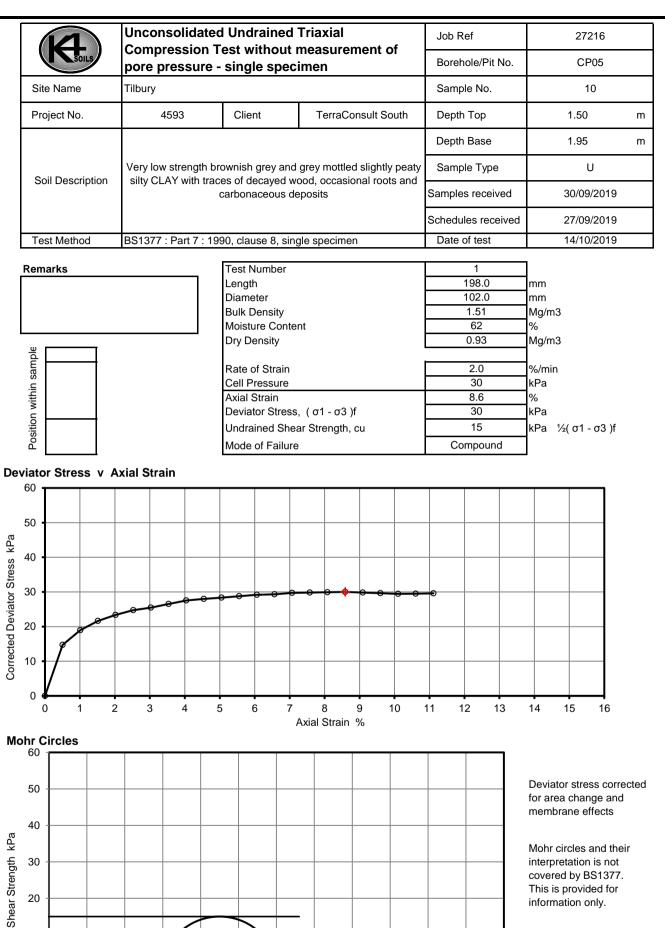
J.P

17/10/2019



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2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

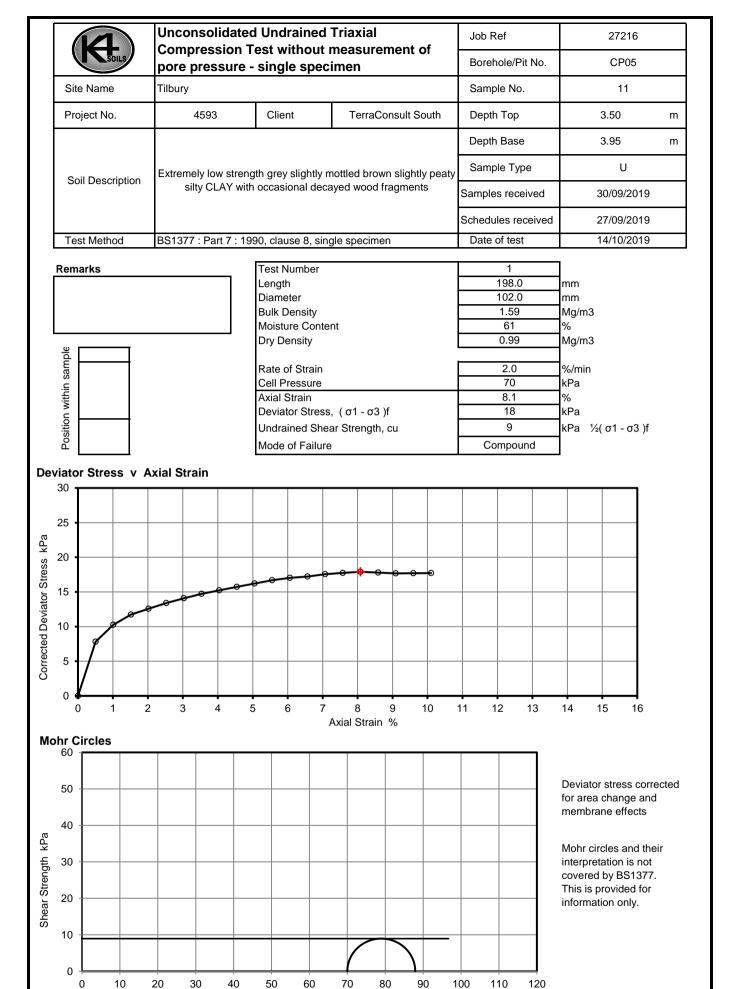
MSF-5 R7



This is provided for information only.

0 0 10 20 30 40 50 60 70 80 90 100 110 120 Normal Stresses kPa Test Report by K4 SOILS LABORATORY Checked and Approved Unit 8 Olds Close Olds Approach Initials: J.P Watford Herts WD18 9RU Tel: 01923 711 288 17/10/2019 Date Email: James@k4soils.com Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5 R7

10



Normal Stresses kPa

Test Report by K4 SOILS LABORATORY

Unit 8 Olds Close Olds Approach

Watford Herts WD18 9RU Tel: 01923 711 288

Email: James@k4soils.com

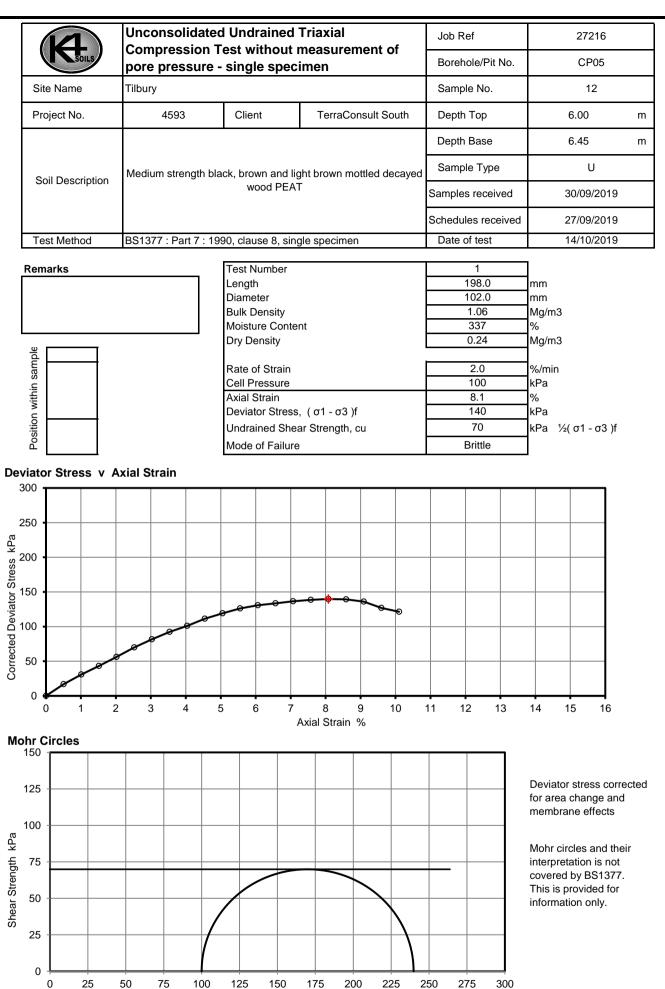
Checked and Approved

J.P

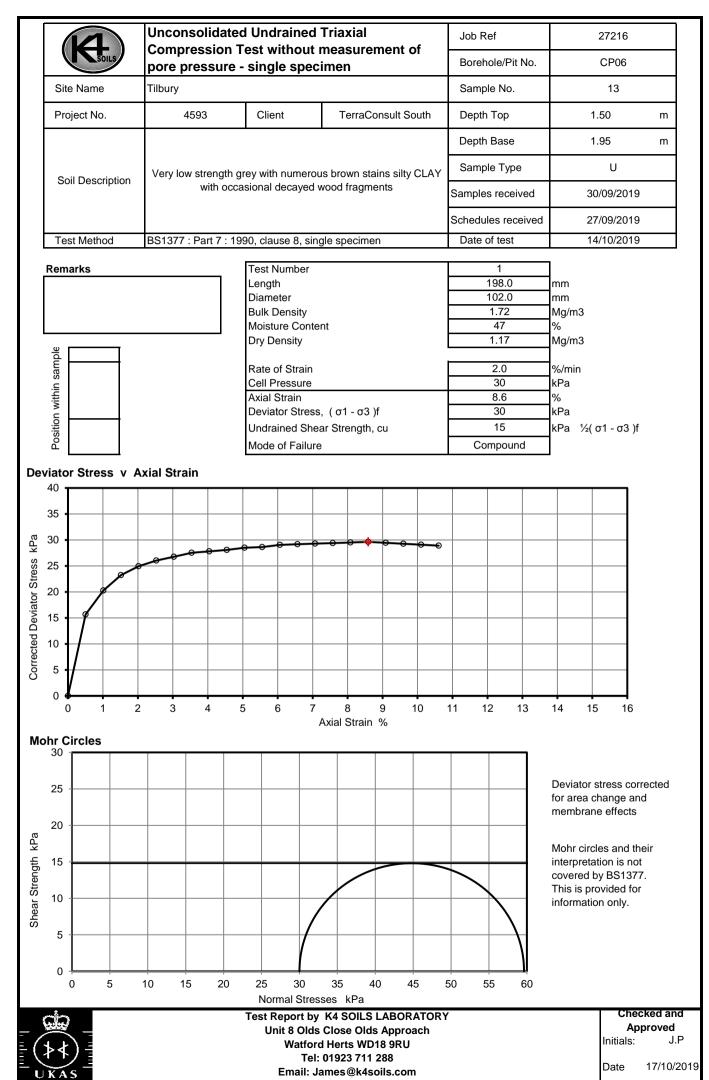
17/10/2019

Initials:

Date



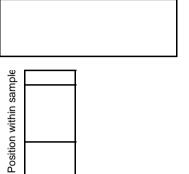
0 25 50 75 100 125 150 175 200 225 250 275 300 Normal Stresses kPa Test Report by K4 SOILS LABORATORY Checked and Approved Unit 8 Olds Close Olds Approach Initials: J.P Watford Herts WD18 9RU Tel: 01923 711 288 17/10/2019 Date Email: James@k4soils.com Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5 R7



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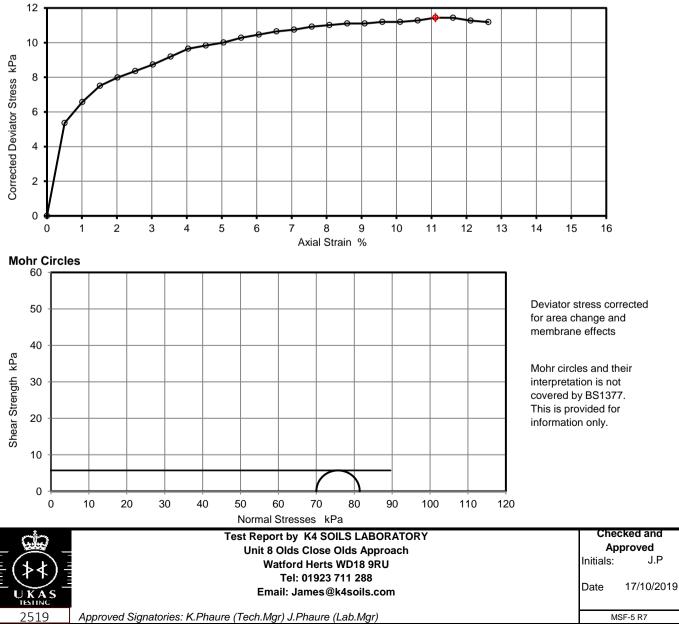
MSF-5 R7

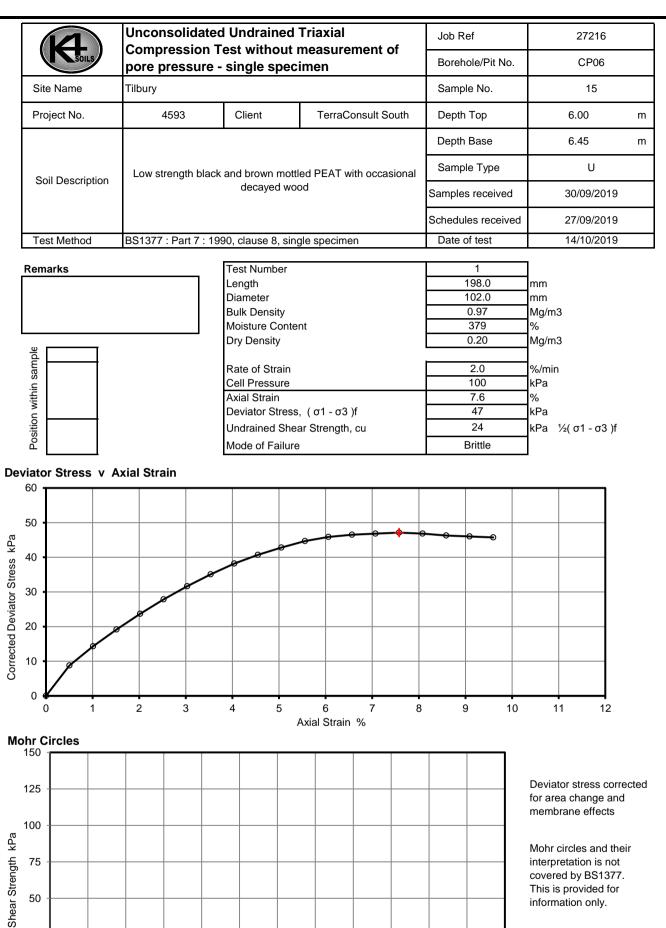
4	Unconsolidated		Triaxial measurement of	Job Ref	27216	
Soils	pore pressure -			Borehole/Pit No.	CP06	
Site Name	Tilbury			Sample No.	14	
Project No.	4593	Client	TerraConsult South	Depth Top	3.50	m
			-	Depth Base	3.95	m
	Extremely low stre	ngth grey slightly	/ fine sandy slightly peaty	Sample Type	U	
Soil Description	silty CLAY	with rare decaye	d wood fragments	Samples received	30/09/2019	
				Schedules received	27/09/2019	
Test Method	BS1377 : Part 7 : 19	90. clause 8. sin	ale specimen	Date of test	14/10/2019	



Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.84	Mg/m3
Moisture Content	56	%
Dry Density	1.18	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	70	kPa
Axial Strain	11	%
Deviator Stress, (σ1 - σ3)f	11	kPa
Undrained Shear Strength, cu	6	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



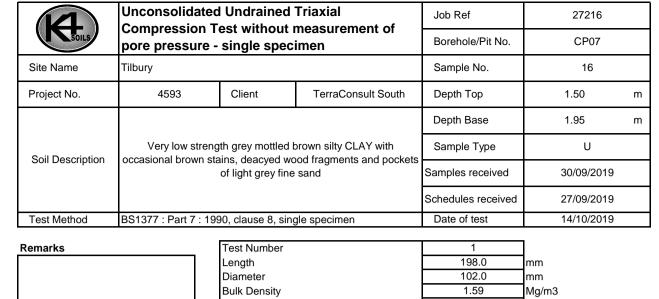


covered by BS1377. This is provided for information only.

0 0 25 50 75 100 125 150 175 200 225 250 275 300 Normal Stresses kPa Test Report by K4 SOILS LABORATORY Checked and Approved Unit 8 Olds Close Olds Approach Initials: J.P Watford Herts WD18 9RU Tel: 01923 711 288 17/10/2019 Date Email: James@k4soils.com Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5 R7

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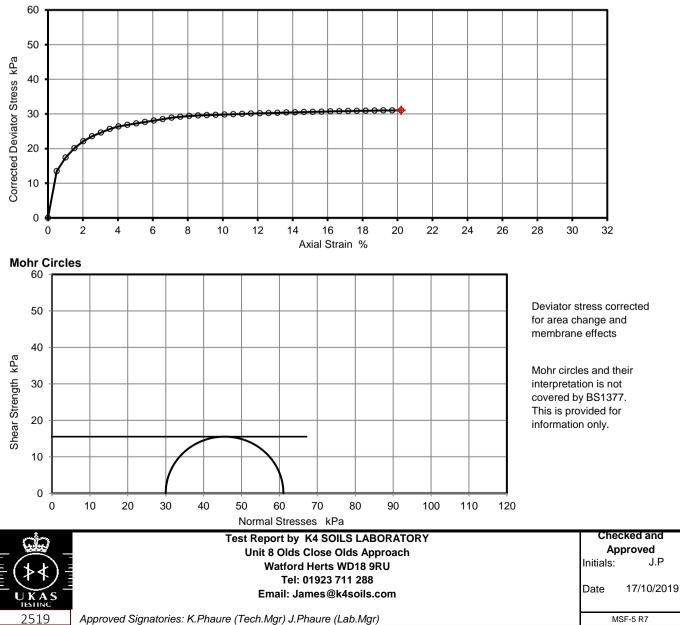
25

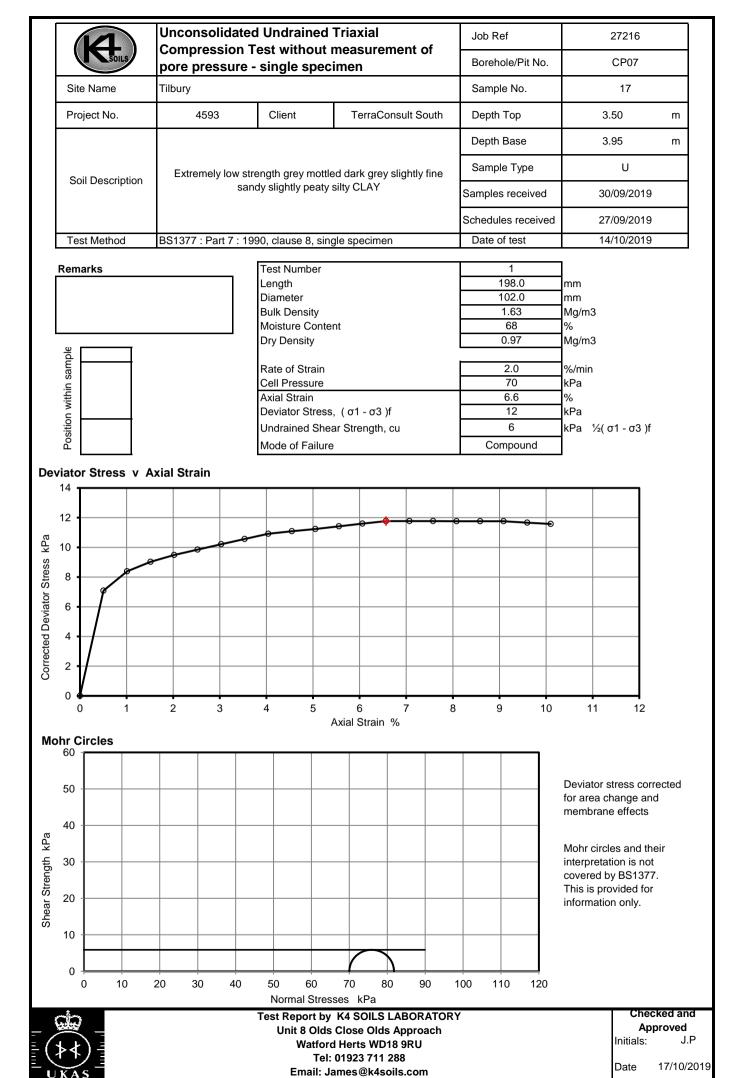


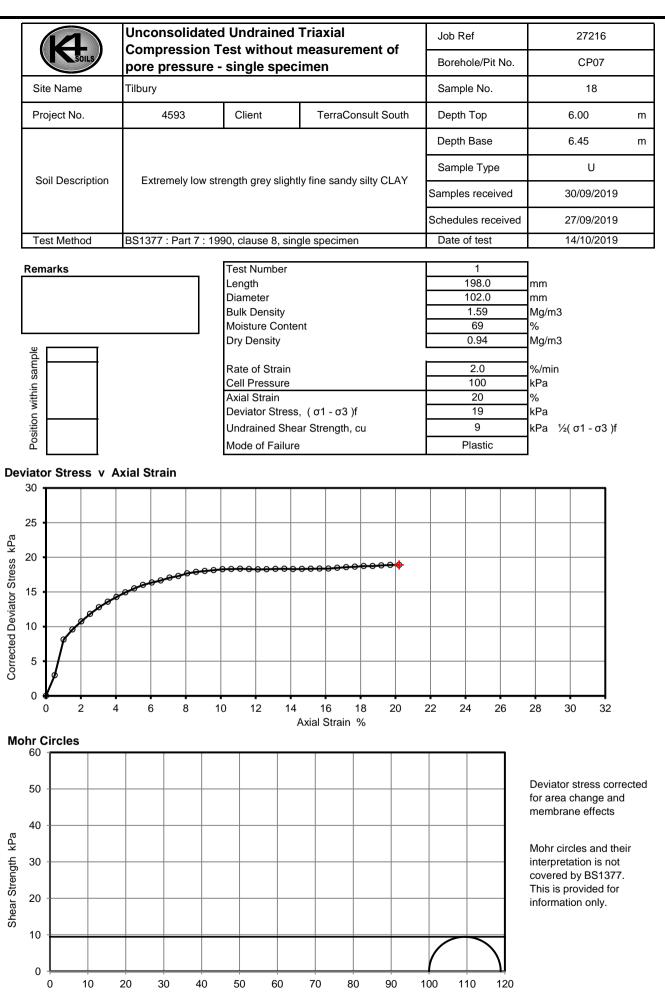
mple		
vithin sa		
Position within sample		

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.59	Mg/m3
Moisture Content	61	%
Dry Density	0.99	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	30	kPa
Axial Strain	20	%
Deviator Stress, (σ1 - σ3)f	31	kPa
Undrained Shear Strength, cu	16	kPa ½(σ1-σ3)f
Mode of Failure	Plastic	

Deviator Stress v Axial Strain







 Normal Stresses
 kPa

 Test Report by
 K4 SOILS LABORATORY

 Unit 8 Olds Close Olds Approach

 Watford Herts WD18 9RU

 Tel:
 01923 711 288

 Email:
 James@k4soils.com

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

Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure Summary of Results

K	Unconsolidated Undrained Triaxial Compression tests without measureme Summary of Results Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as ap																
Job No.					Proj	ect Nar	ne							mples i	Pr	ogran	
27216	Schedule										nedule	receive	27/09/2019				
Project No).		Client		Cauth										started 01/10/2019 Started 14/10/2019		
4593		<u></u>	TerraCo mple	onsuit	South		Da		1		I		16	At fail			14/10/2019
Hole No.				Turne	Soil Description	Test Type	bulk	nsity dry	w	Length	Diameter	σ3	Axial	σ1 - σ	r	м	Remarks
11010 110.	Rei	Top m	Base m	Туре				/m3	%	mm	mm	kPa	strain %	kPa	CU kPa	o d e	Remarko
CP02	3	3.50	3.95	U	Extremely low strength grey slightly peaty silty CLAY with occasional decayed wood fragments	UU	1.56	0.83	89	198	102	70	7.6	7	3	В	
CP02	4	6.00	6.45	U	Extremely low strength black and dark brown mottled PEAT with occasional wood fragments	UU	1.03	0.23	357	198	102	100	7.1	13	6	в	
CP03	5	1.50	1.95	U	Very low strength dark brown PEAT with numerous wood fragments becoming at 1.55m bluish grey slightly peaty silty CLAY with occasional pockets of peat	UU	1.37	0.76	81	198	102	30	15	21	10	с	
CP03	6	6.00	6.45	U	Medium strength black and brown PEAT with occasional decayed wood fragments	UU	1.04	0.20	418	198	102	100	8.1	92	46	В	
CP04	7	1.50	1.95	U	Low strength grey slightly peaty silty CLAY with occasional brown stains and decayed wood fragments	UU	1.68	1.06	58	198	102	30	14	51	26	с	
CP04	8	3.50	3.95	U	Extremely low strength grey slightly peaty silty CLAY with occasional black flecks	UU	1.52	0.77	97	198	102	70	11	7	4	с	
CP04	9	6.00	6.45	υ	Low strength black mottled brown PEAT with occasional wood fragments	UU	1.00	0.18	467	198	102	100	7.1	40	20	в	
CP05	10	1.50	1.95	U	Very low strength brownish grey and grey mottled slightly peaty silty CLAY with traces of decayed wood, occasional roots and carbonaceous deposits	UU	1.51	0.93	63	198	102	30	8.6	30	15	с	
CP05	11	3.50	3.95	U	Extremely low strength grey slightly mottled brown slightly peaty slity CLAY with occasional decayed wood fragments	UU	1.59	0.99	61	198	102	70	8.1	18	9	с	
CP05	12	6.00	6.45	U	Medium strength black, brown and light brown mottled decayed wood PEAT	UU	1.06	0.24	337	198	102	100	8.1	140	70	в	
CP06	13	1.50	1.95	U	Very low strength grey with numerous brown stains silty CLAY with occasional decayed wood fragments	UU	1.72	1.17	47	198	102	30	8.6	30	15	с	
CP06	14	3.50	3.95	U	Extremely low strength grey slightly fine sandy slightly peaty silty CLAY with rare decayed wood fragments	UU	1.84	1.18	56	198	102	70	11	11	6	с	
CP06	15	6.00	6.45	U	Low strength black and brown mottled PEAT with occasional decayed wood	UU	0.97	0.20	379	198	102	100	7.6	47	24	в	
Legend	d UU - single stage test (single and multiple specimens) σ3 Cell pressure Mode of failure ; UUM - Multistage test on a single specimen σ1 - σ3 Maximum corrected deviator stress u suffix R - remoulded or recompacted cu Undrained shear strength, ½ (σ1 - σ3) V/2 (σ1 - σ3)												B - Brittle P - Plastic C - Compound				
cip	Test Report by K4 SOILS LABORATORY											ed and Approved					
					Unit 8 Olds Clo Watford H												
\mathbb{C}					Watford H Tel: 01			0							Initials	5.	J.P
					Email: jame	es@k4s	soils.co								Date:		17/10/2019
2519												MSF-5-R7b					

Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure Summary of Results

K	1 SOILS)		Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure Summary of Results Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as appropriate to test type.													
Job No.		Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as ap Project Name									s app	propriate to test type. Programme					
27216													nples r	es received 30/09/2019			
															eceive	d	27/09/2019
Project No	•		Client Project													01/10/2019	
4593			TerraConsult South Testing											esting S	Started		14/10/2019
		Sar	nple			Test	Der	nsity	w	Length	Diameter	σ3		At fail	ure		
Hole No.	Ref	Тор	Base	Туре	Soil Description	Туре	bulk	dry	**	Lengui	Diameter	05	Axial strain	σ1 - σ3	cu	M O	Remarks
		m	m				Mg	/m3	%	mm	mm	kPa	%	kPa	kPa	d e	
CP07	16	1.50	1.95	U	Very low strength grey mottled brown silty CLAY with occasional brown stains, deacyed wood fragments and pockets of light grey fine sand	UU	1.59	0.99	61	198	102	30	20	31	16	Ρ	
CP07	17	3.50	3.95	U	Extremely low strength grey mottled dark grey slightly fine sandy slightly peaty silty CLAY	UU	1.63	0.97	68	198	102	70	6.6	12	6	с	
CP07	18	6.00	6.45	U	Extremely low strength grey slightly fine sandy silty CLAY	UU	1.59	0.94	69	198	102	100	20	19	9	Ρ	
Legend	UUM	- Multista	tage test (single and multiple specimens) σ3 Cell pressure Mode of failure ; B - Brittle tage test on a single specimen σ1 - σ3 Maximum corrected deviator stress P - Plastic noulded or recompacted cu Undrained shear strength, ½ (σ1 - σ3) C - Compound														
					Test Report by K4 Unit 8 Olds Clo	ose Old	s Appr	oach	Y								ed and Approved
•(≯≮)=					Watford H Tel: 01			U							Initials	51	J.P
UKAS					Email: jame			m							Date:		17/10/2019
2519			Ap	prove	d Signatories: K.Phaure (Tech.N				r)								MSF-5-R7b













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