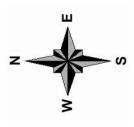
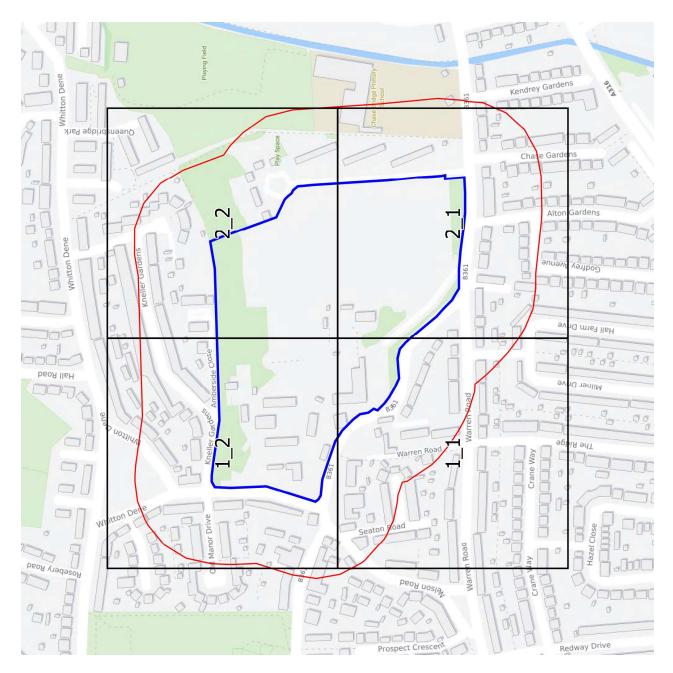
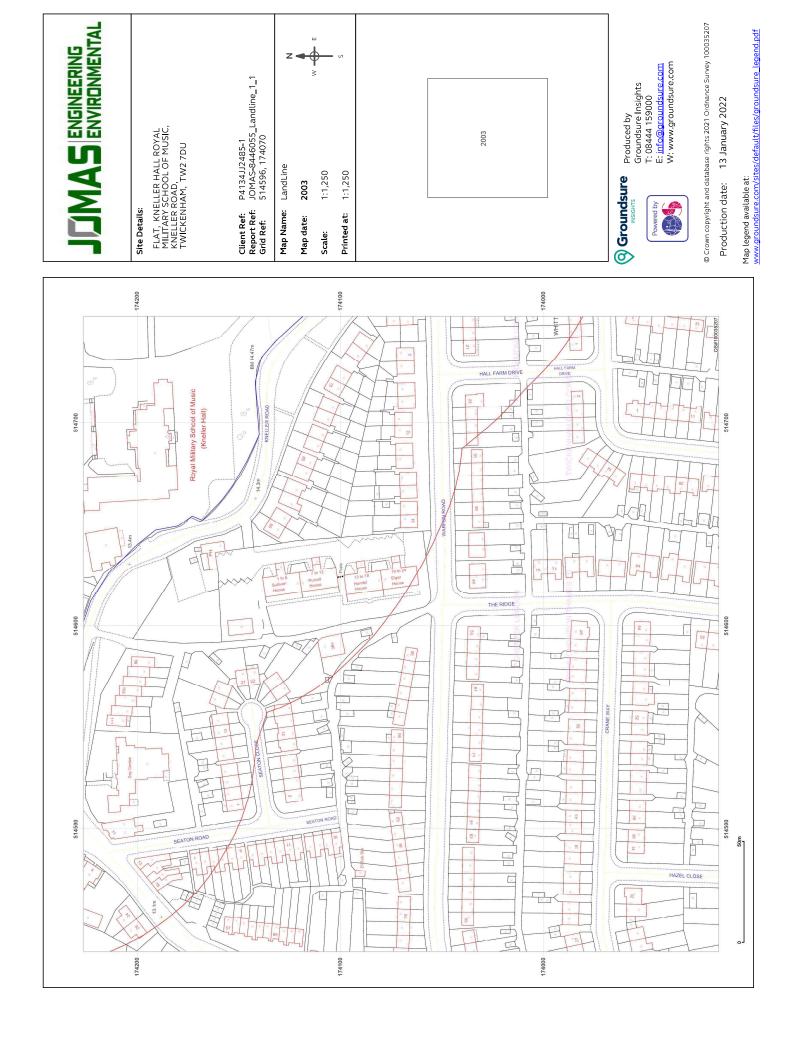
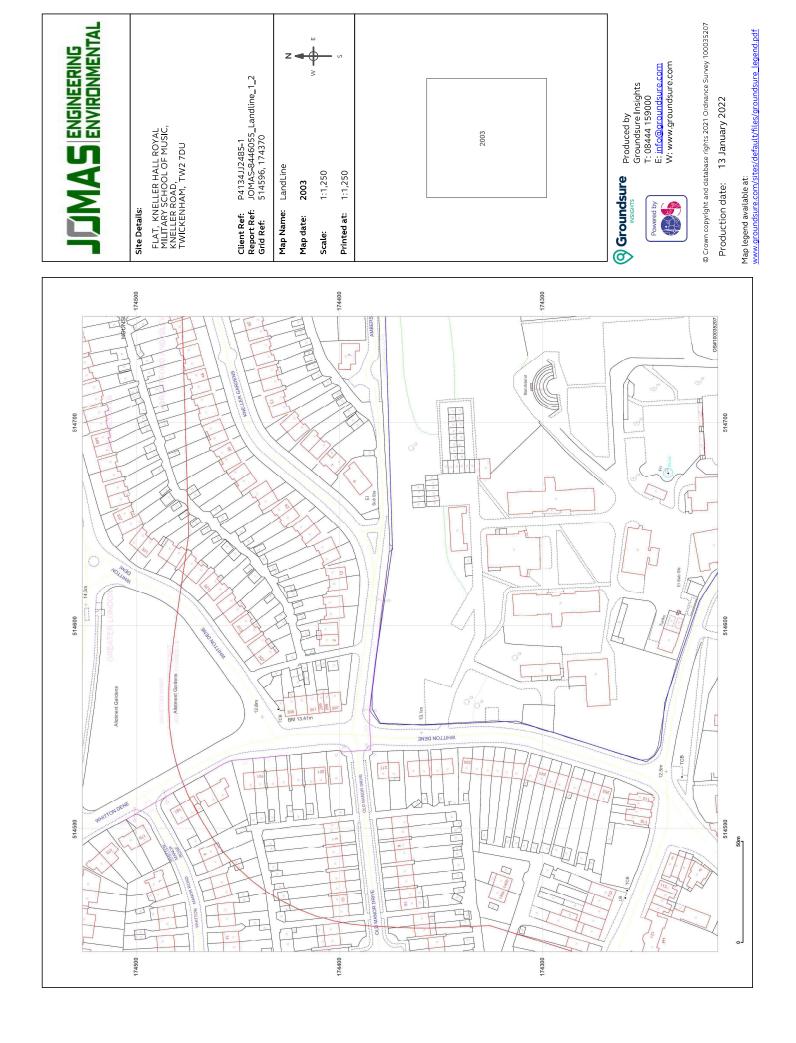


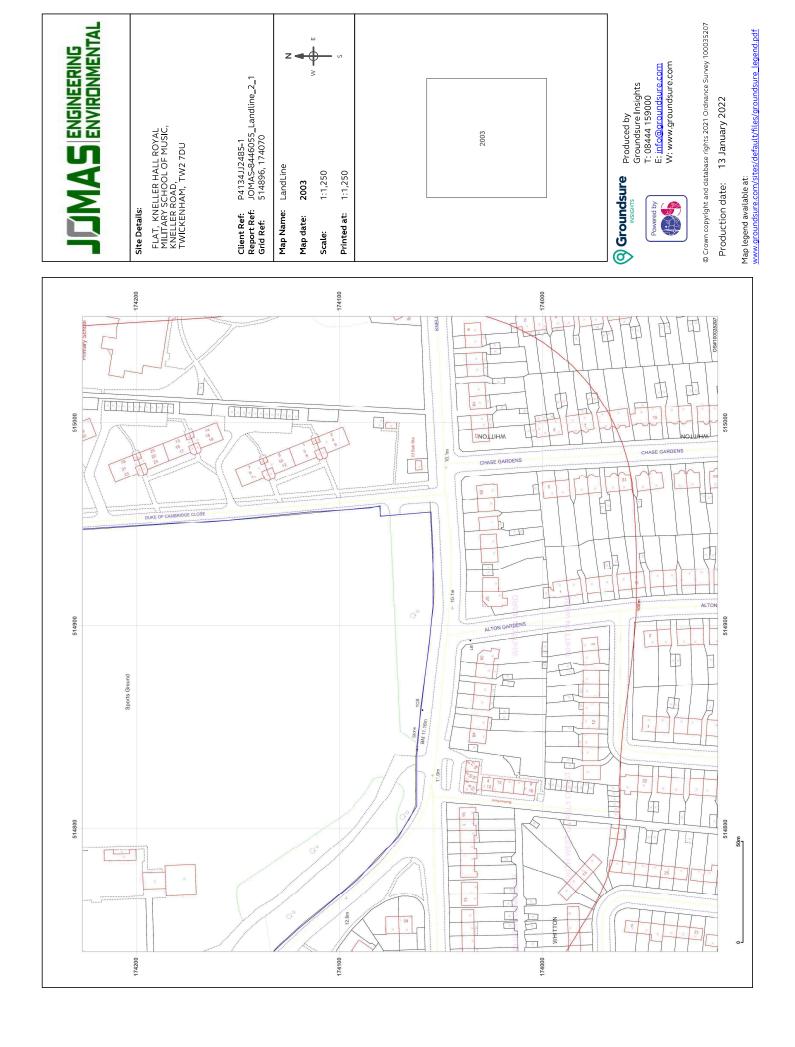
Landline Scale Grid Index

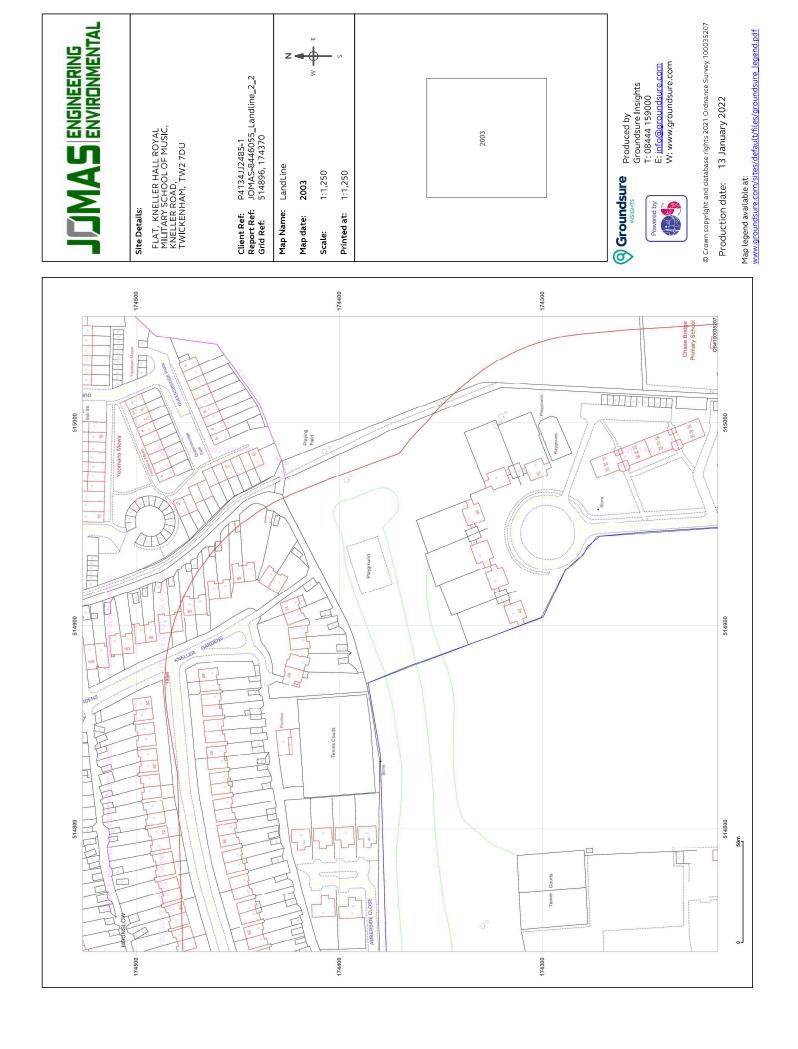














**APPENDIX 4 – QUALITATIVE RISK ASSESSMENT METHODOLOGY** 

## QUALITATIVE RISK ASSESSMENT METHODOLOGY

The following Contaminated Land Risk Assessment methodology is based on CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*, in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I stage. This will then determine an overall risk category which can be used to identify likely actions. This methodology uses qualitative descriptors and therefore is a qualitative approach.

The methodology requires the classification of:

- the magnitude of the consequence (severity) of a risk occurring, and
- the magnitude of the **probability** (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this site are classified in accordance with Table A4.1 below, which is adapted from the CIRIA guidance.

Classification	Definition of Consequence
Severe	<ul> <li>Short-term (acute) risks to human health.</li> <li>Short-term risk of pollution of sensitive water resource or ecosystem.</li> <li>Catastrophic damage to crops/buildings/property/infrastructure, including off-site soils.</li> </ul>
Medium	<ul> <li>Medium/long-term (chronic) risks to human health.</li> <li>Medium/long-term risk of pollution of sensitive water resource or ecosystem.</li> <li>Significant damage to crops/buildings/property/infrastructure (on or off-site).</li> <li>Contamination of off-site soils.</li> </ul>
Mild	<ul> <li>Easily preventable, permanent health effects on humans.</li> <li>Pollution of non-sensitive water resources.</li> <li>Localised damage to crops/buildings/property/infrastructure (on or off-site).</li> </ul>
Minor	<ul> <li>Easily preventable, non-permanent health effects on humans, or no effects.</li> <li>Minor, low-level and localised contamination of on-site soils.</li> <li>Easily repairable damage to crops/buildings/property/infrastructure.</li> </ul>

#### Table A4.1: Classification of Consequence

The probability of contamination risks occurring at this site will be classified in accordance with Table A4.2 below which is also adapted from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Classification	Definition of Probability
High Likelihood	Circumstances are such that an event appears very likely in the short-term or almost inevitable in the long-term; or there is already evidence that such an event has occurred.
Likely	Circumstances are such that such an event is not inevitable, but is possible in the short-term and is likely over the long-term.
Low Likelihood	Circumstances are such that it is by no means certain that an event would occur even over a longer period, and it is less likely in the short-term.
Unlikely	Circumstances are such that it is improbable that an event would occur even in the very long-term.

### Table A4.2: Classification of Probability

For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated, as presented in Table A3.3. Based upon this, CIRIA C552 presents definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each case, as in Table A3.4. These risk categories apply to each possible pollutant linkage, and not simply to each hazard/source of contamination or sensitive receptor.

		Consequence							
		Severe	Medium	Mild	Minor				
	High likelihood	Very high risk	High risk	Moderate risk	Low risk				
bility	Likely	High risk	Moderate risk	Moderate risk	Low risk				
Probability	Low likelihood	Moderate risk	Moderate risk	Low risk	Very low risk				
	Unlikely	Low risk	Low risk	Very low risk	Very low risk				

## Table A4.3: Overall Contamination Risk Matrix

Risk Category	Definition and likely actions required						
Very high	<ul> <li>Severe harm to a defined receptor is very likely, or has already occurred.</li> <li>The risk is likely to result in a substantial liability.</li> <li>Urgent investigation (if not already undertaken) is likely to be required.</li> <li>Urgent remediation is likely to be required.</li> </ul>						
High	<ul> <li>Harm to a defined receptor is likely.</li> <li>The risk, if realised, may result in a substantial liability.</li> <li>Urgent investigation (if not already undertaken) is likely to be required.</li> <li>Remediation is likely to be required in the long term, possibly sooner.</li> </ul>						
Moderate	<ul> <li>Harm to a defined receptor is possible, but severe harm is unlikely.</li> <li>Investigation is likely to be required to clarify the level of potential liability and risk.</li> <li>Some remediation may be required in the longer term</li> </ul>						
Low	<ul> <li>Harm to a defined receptor is possible, but is likely to be mild at worst.</li> <li>Liabilities could theoretically arise, but are unlikely.</li> <li>Further investigation is not required at this stage</li> <li>Remediation is unlikely to be required.</li> </ul>						
Very low	<ul> <li>Harm to a defined receptor is unlikely, and would be minor at worst.</li> <li>No liabilities are likely to arise.</li> <li>Further investigation is not required at this stage</li> <li>Remediation is very unlikely to be required.</li> </ul>						

## Table A4.4: Definition of Risk Categories and Likely Actions Required



**APPENDIX 5 – BGS BOREHOLE RECORDS** 

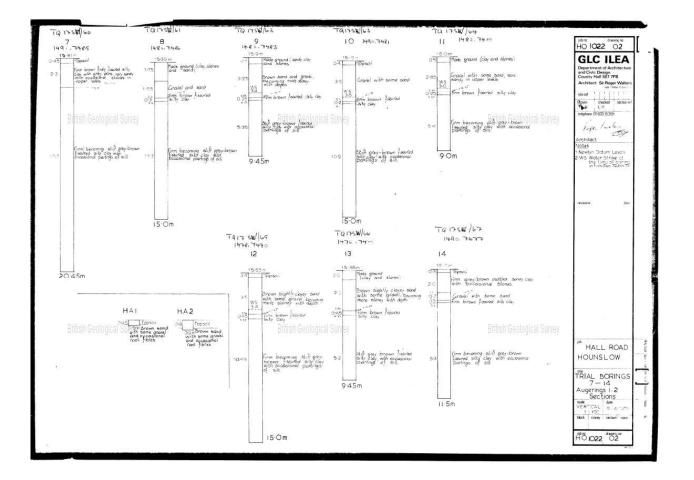
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Version 2.0.6.4



BGS ID: 581042 : BGS Reference: TQ17SW64 British National Grid (27700) : 514820,174290 Report an issue with this borehole

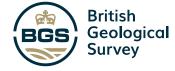
<< < Prev Page 1 of 1 × Next > >>



British Geolegical St	Contr	ACT KNELLER HALL - TWI	CROY	AM .		4014 /309	
1 2 2 3		& Dia of Boring SHELL AUGER				menced 8.5.60	
	Water St 1, 2.6 (MED 2	O         Hole Depth         4.75         4.75         11.5           Casing Depth         4.75         4.75         7.0	0 10·00 7·00	9.50 5TAI	9.50 9.		9.50
	3 Remar	Depth to Water 3.80 2.30 DR Date & Time 8th 19309th 07309th 18 ks Water added to assist borring	30 124 0750	) Bh	14m 11		0 15.6.80
• • • •	Reduced	Description	SCALE Depth	Legend Th	ickness Type	Samples Depth	S. P. T.
Ĺ	Level	TURF & TOPSOIL	0.50	tring	0:50	5 <sup>2</sup>	N.
British Geological St		Orangish light brown very sondy CLAY becoming very clayey fine & medium SAND with some			-35	1.00 1.50	66* 24
		fine & medium gravel	2.10		0.25 se		18
	11.20	clayey fine SAND. some organics Medium dense light brown fine = medium SAND	3.25	8.0.	1.15 B	3.00	24
		Medium dense variably slightly sondy to sondy fine e medium		0000	2.25	4.00	22
		Sub-angular to sub-rounded CIRAVEL. COarse gravel KP present with depth.	5.50	0.00	B	5.30	17
	7.80		H		*/sP	6.20	19 86 <sup>*</sup>
-		@ 5.50m Stiff brown mottled light brown & reddish brown laminated silty CLAY. Fissured			• /se	6.70	21
British Geological Bu	- 2009 - 1219 - 1219	@ 6.00m Shiff grey brown laminated e fissured CLAY		7	6.00 B	7•75 8:00 8:60	89*
		@ 10.00m Very stiff grey brown poorly laminated CLAY. Heavily fissured.			В	9.30 9.50	65*
		Occasional shell fragments			B	10.00	22
	1.80	LONDON CLAY.	11.50	E	ļ	11.00	61*
				w.			
British Geological Br	9) 9)	British Geological Survey		1	Britis	h Seolóğical Survey ,	
ļL		UNDISTURBED SAMPLE B BULK SAMPL				FIG	1
da i		UNDISTURDED SAMPLE B BULK SAMPL			4/309		W1365

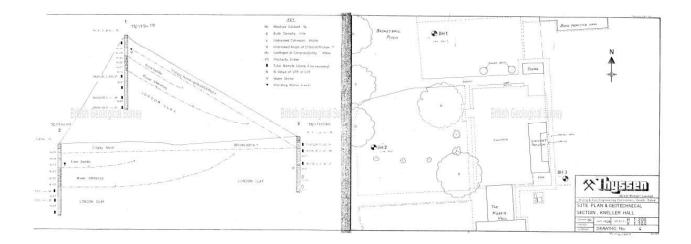
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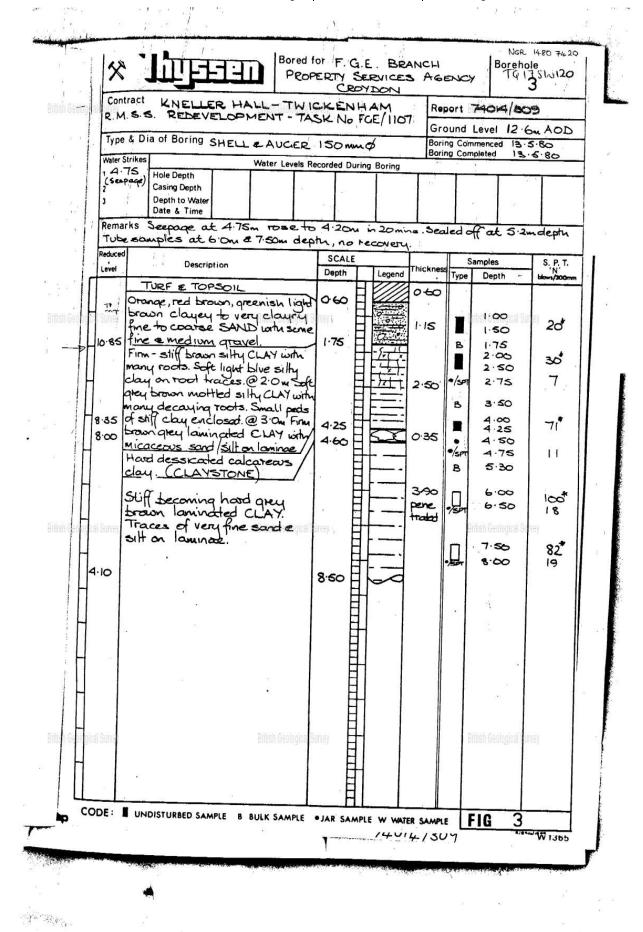
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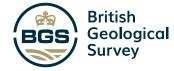
	×	Bored I	OF F.G	E.	BRAN	AGE	JCY	Borehole	10119
Oprilaria <del>nt C</del>	unqu		CRO	ND	ON				-
CC P	.M.	CI KNELLER HALL-TH S.S REDEVELOPMENT - TH	icken	F.C	E/110	7		4014/309 evel 13.8	n AOD
		Dia of Boring SHELL & AUGE				Boring	Com	menced 12.5	80
	ter Stri					Boring	Com	pleted 13-5	
1	3.20	Hole Depth 6.00 6.00 11	00 10.	50	10.50		010	50 10.50	
2	1	Depth to Water 3.60 2.60 -	- 3.	20	3.10	3.10	1000	00 3.00	
Re	mark	(S Service at 3:2 rose to 3:0	1200 Bm	Óm	14th ne, se	aled of	_	5.80 13.6.8 7.0m. Wat	
to	bor	ing 2.20 to 3.20m. Standpipe In	stalled	at	6.50	>m.		amples	S. P. T.
Red Lev	luced	Description	SCALE Depth	T	Legend	Thickness		Depth	N blows/300mm
		TURF & TOPSOIL	_	Ħ		0.75			
Geological St	Ine	Loose orange brown slightly clayey fine SAND. Black	0.75	Ħ		0.65	·/ser	in <b>1∙∞</b> gialSi	e 10
12	40	nottling & some silty pockets	140	目		0.80	B	1.75	
ĽH.	60	Medium dense dark brown argo fine SAND with a little fine grav	el 2.20	Ħ		0.00	-/ser	2.00	18
		Medium dense light reddish brown & yellow Brown, light bro		E	0.	1.55	B	2.75	13
$    \square$		to base, fine SAND with scatter	ed	Ħ	5		B	ĿĴ.	
> H10.	8	gravel' trace of clay near top.	- 3.75	Ħ	930		CPT	4.00	30
		Medium dense slightly clayer fine to coarse sub-angular	( .	Ħ	3.00		AND	4:75	20
		CRAVEL with a little fine		E	0.00	2.85			25
I H		sand. Less binder to base	2	Ħ	0200		CPT	5.75	16
	20	and a price in many second	- 6.60	目	0.000			-	
Geologicali Si	IIVEY	British Geologic	al actively	Ħ				7.00	90
Ц		Stiff grey brown laminated CLAY with traces of dark		Ħ	<u>_</u>	2	•/sm	and the second second	27
		grey fine sand /silt on laminae. Becomes very stif	7	F		4.40	B	8:30	56
H	3	to base.	· · · ·	E		pene	·/s	and the second sec	28
		@ 8.75m Band of very weat buff calcareous clay	2	Ħ	<u> </u>	-		<i>i</i> r •	
		(claystone).	1	·H				10:30	64*
H2	80		11.00	泪		1 1	÷.	1	•
			2.1	F				al co	
	6	provide a second	N	H					
Gellogen St		British Geologic	al Surrey :	E				Bittish Geological Sc	
								1	1.1
Ϋ́					Ħ -			$\frac{1}{\mu^{\alpha}}$ . $\alpha$	
L		n	- 2 - 1	F					
PC	ODE	UNDISTURBED SAMPLE B BULK SAM	PLE .JAR	SA					2
		i. Star gall	r: ::			.0141	30.	7	11 130

#### Page 1 | Borehole TQ17SW120 | Borehole Logs



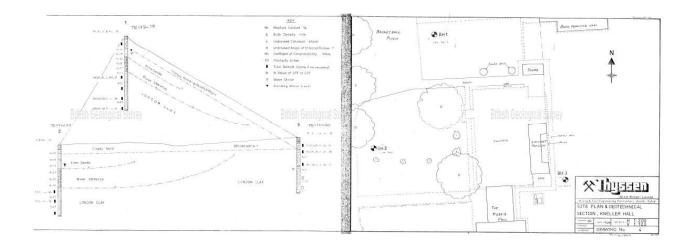
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Version 2.0.6.4



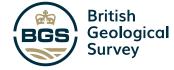
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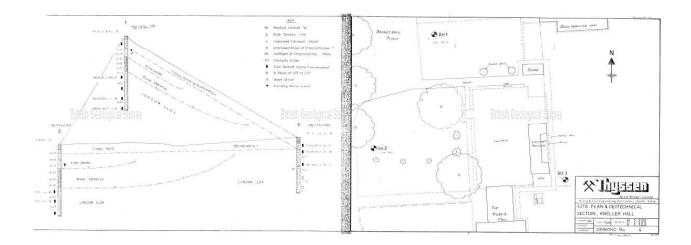
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## **CONTACT US**

Website: www.jomasassociates.com

Tel: 0843-289-2187

Fax: 0872-115-4505

Email: info@jomasassociates.com