

Preliminary Environmental Information Report: Annex 1.1 – Borehole Logs (Part 4)

Date: July 2017







Environmental Impact Assessment

Preliminary Environmental Information Report

Volume 6

Annex 1.1 – Borehole Logs

Report Number: P6.6.1.1

Version: Final

Date: July 2017

This report is also downloadable from the Hornsea Project Three offshore wind farm website at: www.dongenergy.co.uk/hornseaproject3

DONG Energy Power (UK) Ltd.

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London, SW1P 1WG

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Front cover picture: Kite surfer near one of DONG Energy's UK offshore wind farms © DONG Energy Hornsea Project Three (UK) Ltd., 2016.

Liability

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contract with DONG Energy Power (UK) Ltd.

Prepared by: RPS

Checked by: Tracey Siddle and Jennifer Brack

Accepted by: Sophie Banham

Approved by: Sophie Banham







British Geological Survey

British Geological Survey

TG 10 NE 49 1644 0581

Burnthouse Lane, Hethersett

Surface level (+ 41.0 m) + 134 ft Water struck at (+ 35.6 m) + 117 ft Wirth B 1, 8 inch diam., December 1969 vey

Waste (18.3 m +) 60 ft +

British Geological Survey

British Geological Survey

			Thicknes	55	Dept	h
			(m)	ft	(m)	ft
		Soil.	(0.6)	2	(0.6)	2
	Chalky Boulder Clay	Brown clay with traces of medium sand and fine gravel towards the	(4.6)	15	(5.2)	17
ritish Geological Su	rvey	base. British Geological Survey			Briti	sh Geological Survey
		Brown chalky clay.	(13.1 +)	13 -	(18.3)	60

British Geological Survey British Geological Survey British Geological Survey British Geological Survey

51

British Geological Survey

British Geological Survey British Geological Survey British Geological Survey

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British Geological Survey British Geological Survey * British Geological Survey

British Geological Survey British Geological Survey British Geological Survey

TG 10 NW 14

1356 0944

Cobb's Grove Plantation, Marling ford

Surface level (+ 37.9 m) + 124 ft Groundwater conditions not recorded Shell and auger, 8 inch diam., December 1969 Overburden (0.3 m) 1 ft; Mineral (4.9 m) 16 ft; Waste (10.3 m) 34ft; Bedrock (0.9 m +) 3 ft +

itish Geological Surve

			Thickn	ess	Depth			
-			(m)	ft	(m)	ft		
		Soil.	(0.3)	1	(0.3)	1		
	Glacial Sand and Gravel	Sandy gravel. Gravel: fine to coarse subangular flint, with traces of fine subrounded	(4.9)	16	(5.2)	17	(St	10
British Geological Survey		quartz. British Geological Survey			Britis	h Geologic	tal Survey	
		Sand: medium with coarse, mainly subangular flint. Brown.						
	Chalky Boulder Clay	Slightly sandy brown clay with traces of gravel.	(6.4)	21	(11.6)	38		
		Light brown chalky clay.	(0.9)	3 -	(12.5)	41		
		Sandy brown clay with traces of	(3.0)	10	(15.5)	51		
Brit	ish Geological Survey	gravel. British Geo	logical Survey				British Geological S	urvey
	Upper Chalk	Chalk.	(0.9+)	3+	(16.4)	54		
	%	mm %	Depth bell surface (entage and (Gravel	

									Depth below		Percenta	ge
								07	surface (ft)	Fines	Sand	Gravel
	Gravel	% AA	~	64	mm			% 0	1 - 4	6	42	52
	Gravei	44		64	+	16	:	23	4 - 7	2	46	52
			-	36121	+	10000		21	7 - 10	6	70	24
			0.77	10		•	•		10 - 13	0	70	30
British Geological Survey	Sand	53	_	4	+	1	By	riti 14 Geological Survey	13 - 17	1	Britisi 42 e	ological 57 rvey
			-	1	4	1/4	:	33				
			_	1/4	+	1/16	:	6				

British Geological Survey

British Geological Survey

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British Geological Survey

1.

TG 10 NW 20 1414 0895 North of Algarsthorpe

Surface level (+ 14.1 m) + 46 ft Water struck at (+ 13.1 m) + 49 ft Shell and auger, 8 inch diam., December 1969

Upper Chalk

Overburden (2.4 m) 8 ft; Mineral (6.4 m) 21 ft; Bedrock (0.9 m +)3 ft +

(0.9 +) 3+

79		Thicks	iess	Dep	th
		(m)	ft	(m)	ft
Alluvium	Soil and brown silty and peaty clay,	(2.4)	8	(2.4)	8
Sub-alluvium	Gravel.	(6.4)	21	(8.8)	29
SARTO	Gravel: fine to coarse subangular flint, with traces of subrounded brown flint and traces of fine subrounded quartz.	20			British Geological S

Sand: medium and coarse subangular flint with subrounded quartz and

chalk. Grey and brown.

								25	Dept	h be	low	I	ercentag	e
	%			mm			%		surfa	ace	(ft)	Fines	Sand	Gravel
Gravel	65	+	64			:	0		8	-	11	3	33	64
		_	64	4	16	:	30		11	_	14	2	32	66
		-	16	+	4	:	35		14	-	17	2	27	71
									17	-	20	4	34	62
Sand 5	32	-	4	+	1	:	13		20	_	23	5	36	59
		-	1	+	1/4	:	14		23	_	26	1	32	67
			11		11		=		oc		00		00	CC

41

Ref: A/S 40/91

British Geological Survey

TG 10 NW / 45 1468, 0758,

June 92

F SMITH & SON (GRIMSBY) LIMITED

Record of 762mm (30") nominal dia x 87m deep Water Abstraction borehole drilled for Anglian Water Services Ltd Histon Cambridge

161

1468 0758 VALLEY FARM Nr BARFORD NORLK NGR TG 148 076

TGIONW

British Geólogical Survey	British Geological Survey Britis	h Geol
STRATA	Thickness M. Depth M.	
Top soil Grey and brown sandy clay Dry White chalk Firm and soft yellow chalk with flints Firm and soft yellow chalk Harder chalk and flint Chalk and flint Hard chalk and flint with soft seams Hard chalk and flint with soft seams	0.50 0.50 1.20 1.70 1.80 3.50 1.00 4.50 0.50 0.50 1.80 3.50 1.00 4.50 1.00 4.50	
Hard chalk and flint with soft sticky se	10.00 87.00	

3-2-43

WATER

RWL 2.81m bg1, reading taken 6 December 1991

LINING TUBE

a) 25.50m x 762mm OD plain mild steel lining tube installed to a depth of

25m BGL. the top being fitted with a weld - on flange drilled NP16. Colonial Sure b) 87.5 x 600mmOD steel casing installed to base of borehole the top being left flush with head flange drilled NP16 casing column made up as follows:
1) Perforated from base of borehole to 24m BGL (63")

11) Plain from 24m BGL to top flange.

111) Slotting pattern: Rings of 10 No x 300mm long x 12.5 wide slots with 50mm plain tube between rings adjacent rows of slots staggered. Total No of slots 1773.

Stabiliser Pack

The annular space between the 600mm OD lining and the borehole wall and between the 600mm OD lining and 762mm OD lining was packed with 40mm natural shingle.

12th January 93

9656

British Geological Survey

British Geological Surve

Anglian N.R.A.

Ref: A/S 40/91,

June 92

F SMITH & SON (GRIMSBY) LIMITED

Record of 762mm (30") nominal dia x 87m deep Water Abstraction borehole drilled for Anglian Water Services Ltd Histon Cambridge

1468 0758 VALLEY FARM Nr BARFORD NORLK NGR TG 148 -076

STRATA		Thickness M.	Depth M.
Top soil Grey and brown Dry White chalk Firm and soft y Firm and soft y Harder chalk an Chalk and flint Hard chalk and	ellow chalk with flints ellow chalk d flint flint with soft seams flint with soft sticky seams	0.50 1.20 1.80 1.00 3.50 3.50 18.00 eta cous 49.00 10.00	0.50 1.70 3.50 4.50 8.00 10.00 28.00 77.00 87.00
Harder chalk and Chalk and flint Hard chalk and	ellow chalk d flint flint with soft seams flint with soft sticky seams) pur 2. 18. 18. 18. 18.	.00 .00 .00

RWL 2.81m bgl, reading taken 6 December 1991

LINING TUBE

- a) 25.50m x 762mm OD plain mild steel lining tube installed to a depth of 25m BGL. the top being fitted with a weld - on flange drilled NP16.
- b) 87.5 x 600mmOD steel casing installed to base of borehole the top being left flush with head flange drilled NP16 casing column made up as follows:-
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Stabiliser Pack

The annular space between the 600mm OD lining and the borehole wall and between the 600mm OD lining and 762mm OD lining was packed with 40mm natural shingle.

JANUARY 1993

Grouting

The annulor space between the 762mmOD lining and the wall of the borehole was packed with stabiliser gravel and smaller grit to make grout retaining seal at 18.50m BGL and the remaining space filled with cement and grout to

TEST PUMPING

The borehole was clearance pumped, step tested and yield tested for a period of 14 days approximately 23.31/sec from approx 21m BGL.

DATES

Commenced: drilling October 1991 Completed: Pumping June 1992

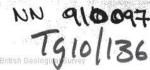
DRILLING MACHINE

Ruston Erie 29T/S Cable Percussion Rig.

DRILLER

C Billings Pumping J.Best

British Geological Survey



Grouting

The annulor space between the 762mmOD lining and the wall of the borehole was packed with stabiliser gravel and smaller grit to make grout retaining seal at 18.50m BGL and the remaining space filled with cement and grout to

GL.

TEST PUMPING

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DATES

Commenced: drilling October 1991

Completed: Pumping June 1992

DRILLING MACHINE

Ruston Erie 29T/S Cable Percussion Rig.

DRILLER

C Billings Pumping J.Best

DATA ACQUISITION SHEET

CSC/D/140

P21

NRA region: ANGLIAN (NOQWICH)

7910/136

File Number: PTF 34/13 TECHNIC	AL FILG(B)
Pump Well Identification: NRA id No: BGS (WL) No: 7919/36 NGR: TG 1487 0759 ALEVATION BH Measuring Point: prob detum + 0.76 m A6 Production BH VALLEY Fram.	Well details: depth of pumping well: 87 m diameter: casing details: 762mm plan steel to 25m byl 600mm plan steel to 24 m byl 600mm slittet steel 24 to 87m byl observation boreholes
Locality MARLINGFORD	

Aquifer Details:

confined / unconfined

Aquifer Geology

CHALK

CRAG + bon midg clay to 1.7m

If confined, confining layer: NA

from to Aquifer Geology from to

British Geological Survey

Pumping Test Details:

NORFOLK

date of test: CONSTANT RATE: 12.5.92 4 26.5.92

length of test:

RWL:

PWL: \$20.50 mbd

24.18/s; 2085 m3/d pumping rate:

Additional Well Information: ☐ Well Loss Data: B..... C.... Efficiency.... Well Acidified NOT ACIDISED HE Lelau Flow Logs Other Geophysical Logs Inc CCTV Fissure Information: major inflows from......to..... lettle flow above 33. 5m bd a lettle below c 63m bd dos he slowed lettle Las below 59 m **Aquifer Parameters:** Analysis Type: COOPER TROOP Analysis Type: COOPER JACOB RECOVERY PROD DBS 114 m2/d Transmissivity: 162 m2/d Transmissivity: 154 0.039 Storage Coefficient: ~ Storage Coefficient: -Analysis Type: THEIS Other Data: REPRESENTATIVE ARRIFER PARAMETERS: Transmissivity: 90 myd T= 130 m2/d Storage Coefficient: - 0.0004 0.076 5=0.0004 54= 0.04 Confidence: excellent

Notes: Not acidised because Chalk not stable e also there is a fish pand rearly Since original pilot bh collapsed after test purping a new obs like was drilled 39 m from mode bh Q(m3/d) Dustin (min) Drawdom (m) STEP TEST. 2505 Constant rate test - Q was not constant - first 60 min Q = 1726 m2/d before being encreased - increased again during 22 hrs before and of test.

Cooper sacro recovery gives different T from dan - may be better of recovery data corrected Their curve fitting probably "mulgical To mignificant arrors"

FOR EARLIER TESTING OF VALLEY FARM PILOT BH DER CSC/D/138

DATA ACQUISITION SHEET

TGIOLISI

CSC/D/138

P21

NRA region: ANGLIAN (NORWICH)

File Number: Pump TEST FILE 34/13 TECHNICAL FILE

7410 NW /76

Pump Well Identification:

NRA id No:

BGS (WL) No: TG10/15/

NGR: TG 1484 0760

Elevation:

Measuring Point:

Site Name: VALLEY FARM

MARLINGFORD Locality: YARE VALLEY

Well details:

depth of pumping well: 80.0m

diameter:

to 30.0m casing details:

Observation boreholes None

number of obs bhs:

obs bh details:

Aquifer Details:

confined / unconfined

If confined, confining layer: NA

Aquifer Geology from Aquifer Geology from CHALK 2.1 80.0

Pumping Test Details:

3 JUNE 1987 STEP TEST CONSTANT RATE 6. JUNE 1993

length of test: 3 steps each 120 min, 4th step extended constant RATE: 10080 min = 7 DAYS

2.1m bomp RWL:

9.64m Ony PWL:

pumping rate: 465 m³/d; 576 m³/d, 804 m³/d, 1140 m³/d AV. 747 m³/d CONSTANT RATE 1151 m3/d

HOLE NO PROJECT ATT IMPROVEMENT - WYMENDMAN TO CRINCLEFORD. ENGINEER G. MAUNSELL & PARTNERS. GROUND LEVEL LOGGEL RETURNATION OF CALLERY EXCAVATION METHODS British Geological Survey COURDINATES 617345 Hunsund Springer TIGURE FIELDWORK: BY. SH WHEELED EXCAVATOR (JCB 3C) LAB TESTING BY S.C.C. DATES 29/4/82 SHEFT 1 SAMPLING/ IN SITU TESTING STRATA LAB TESTING TATE /TIME | DEPTH | DEPTH OTHER TESTS AND NOTES DEPTH W PL LI tevfi DEPTH V / Roti 116 TYPE DEPTH KASING WATER */• m DD (458 64 25.321. 0 Pale greyish brown silty 10AM. (TOPSOIL.) 24.971 0.35 0000 0.5 3.3 Pale yellowish brown gravelly SAND. (GLACIAL SAND AND GRAVEL) 24.631 0.7 British Ged British Geological Survey British Geological Survey PARTICLE SIZE DISTRIBUTION. Orange brown with reddish-brown veining uniformly graded fine-medium SAND to silty SAND. 1.5 (GLACIAL SAND AND GRAVEL) 2.02 23.121 2.2 British Geological Survey British Geological Sulvey British Geological Survey British Geological Survey British Gedlogical Survey British Geological Survey PIEZUME TER EZ Upper sen! Rainty core V vane streigth string WATER D. Small disturbed sample Blows N - N value Mr. D. L. L. vans. FLSt. Tech, MSC. FICE, I recovery to scole 26/150, times for 150mm AND Nature1 first mater street Response length D Bull disturbed sample FIMONE FIHE Glower sent V Insite were fert drive offer sealing Ren put Subsequent warm attackes Director (Transport) Li Lore tecesers ". U Und-sturbed somer Rut hore comin o-signatur [fastern Regional Office[fransport] Unstalletier on, E Cone penetration test white of section prive mily P Piston somnie feodings eisewhere: open hore Permondulate tex. 1261 Unions turned name or \$4.75 Somme to persons 49/51 Goldington Road

Ph Pressuremeter text

625mm siere

bedies



76/20 8~/3 2(70、0225

BOREHOLE No. 3 BOREHOLE DIAMETER 6" WATER STRUCK AT -

	- 1		DEBTH				SA	MPLE DETA	
	DATE	WATER LEVEL	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	NUMBER OF BLOWS	TYPE AND REF.
56	18.12.65	British Geolog	ical Survey	Topenil British Geological Survey	116"	107 . 05	Bi	itish Geologii	al Survey
CE/IPS/ABK/5485				Sand with flint boulders and very small clay content	(0 4 cm)				
Œ/IR							5 1 0"		0
British Ge	logical Surv	y		British Geological Survey		British Geole	gical Survey		
							310" 810"	19	X
	18,12,65		10 [‡] 0"	Sand with flint boulders and very small clay and chalk content	101011 (3.csm)	97,05	104011		0
8				Controlle			1310"		v
		ritish Geolog	cal Survey	British Geological Survey			14 [†] 8" _{B1}	21 Ush Geologia	X al Survey 0
							18 <u>1</u> 0°	20	Х
							18 ¹ 0 ¹¹ 19 ¹ 0 ¹¹ 20 ¹ 0 ¹¹	20	0
British Ge	logical Surv	У		British Geological Survey		British Geold	gical Survey		
							2310" 2410"	25	χ
							2410"		0
		ritish Geolog	rcal Survey	British Geological Survey	(4.14.		2810" 2910"	ilish Gi 21 jogic	i Surv X
	19.12.65	Nfl	3010u		301011 Bottom	77.05	270		
					of borehole				
British Ger	ogical Surv			British Geological Survey		British Geold	gical Survey		
ı		Bitish Geolog	ni al Survey	British Geological Survey			Bi	il sh Geologic	l Survey
l:								<u> </u>	

UNDISTURBED SAMPLES O WATER SAMPLES V S. P. TESTS X

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			Pa1		ish bro TOPSOII		ded GRAVEL/SAND			AM.			na	0.35														- The second																																																	
Brownish red subrou with old rootlets.			ded GRAVEL/SAND			ded GRAVEL/SAND				ded GRAVEL/SAND			ded GRAVEL/SAND			ded GRAVEL/SAND			ded GRAVEL/SAND			led GRAVEL/SAND			led GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVFL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		led GRAVEL/SAND		ded GRAVEL/SAND		ded GRAVFI/SAND		ded GRAVEL/SAND		ed GRAVEL/SAND		ed GRAVEL/SAND		18		0.000	ti			1	0.5	D											-			
				Bick	chi, s	nds also	o GRA	vel)			0000	000	1		2	gitis id	Geolog	ikal Su	rvey			1.9						Виха	nenc	SCAL	destra	BUTION.																																													
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				velly	d pale unifors						100 mm				4	2.0 2	E E					7.0					The second secon	PAR	TICLE	SIZE	DISTRI	EBUTTON.																																													
+	Britis	sh Gebl	ogical Su		CIAL S	AND AN	P GRAY	/EL)			177	e Britisi	n Ge	ologica	Burvi	W.	-					OTHER DESIGNATION OF THE PERSON OF THE PERSO		В	litish	Geolo	gical S	Survey			92																																														
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Subse	Subsequent water strikes States States Response tength AND B Bi			IN ACID B Bush disturbed sample 1 sector 1957 W Water sample V Institu KEY II Undisturbed sample 5 Stohen P Piston sample 1 C Cone i B Perme						Robury core Filom R & N value securery to scale 26/15%, binws for institution test 26°, himse to po Come penetiation test 26°, himse test 26°,					es toi port or Er Core recevers to Director II senteng drive only ROD Rock quality designation 1 85 ferti R issurbed sample CL25 Sample to passing 49/51 Gall						r (Trans n. Regio: Golding)	Vans BS: Tech MSF FICE, MSF FICE, FIMUNE FIRE (Transport) Regional Office (Transport) oldington Road			wf																																																				

British Geological Survey British Geological Survey

> TG 10 SE 18 1957 0233

South-west of Hospital Farm, Swardeston

Brit Surface Jevel (at 33.2 m) - 109 ft Water not struck Wirth B O, 8 inch diam., January 1970

Waste (15.5gm) 51 rdt; Bedrock (0.9 m +) 3 ft +

British Geological Survey

Thickness Depth (m) Made ground and soil. (1,2)(1.2)British Geological Survey Glacial Sand (1.8) Geological Survey 'Very clayey' sand. Traces of (0.6)and Gravel hard chalk fragments. Gravel: fine, subangular traces subrounded, mainly flint, some quartz. Sand: medium and fine, subangular. Light brown. Chalky Boulder Brown sandy clay with some gravel Geologic (2:1) vey 7 13 British Geological Survey (3.9)Gravel: mainly fine, subangular flint. Sand: medium and coarse. Light brown clay with traces of 38 (11.6)(15.5)51 chalk. Upper Chalk Chalk. (16.4) (0.9 +)54

> British Geological Survey British Geological Survey British Geological Survey

British Geological Survey British Geological Survey

British Geological Survey

British Geological Survey British Geological Survey British Geological Survey

British Geological Survey

TG 10 SE 7

1750 0442

East of Hethersett Station

Surface level (+ 29.6 m) + 98 ft Water not struck

Fines 6 - 1/16

Overburden (4.2 m) 14 ft; Mineral (4.6 m) 15 ft;

Wirth B I, 8 inch				Bedrock								
BriDercember 1969	ey					British G	eological Survey					British Geological Survey
							Thickne	·\$8		Depth		
							(m)	ft	(m)		ft	
Chalky Boulder Clay		Soi	l an	d so	ft b	rown clay.	(4.2)	14	(4.	2)	14	
Glacial Sand and Gravel						Clayey in parts.	(4.6)	15	(8.	8)	29	
British Geological Survey						British Geological Survey				British	Geological Su	rvey
		S	quai	me oars	occ:	ome fine subrounded usional flint cobbles. In and fine with traces ubangular flint.						
Upper Chalk		Ch	alk.				(0.9 -)	3+	(9.	7)	32	
British Geological Sulv	ey					British G	eological Survey					British Geological Survey
							Depth be	low	P	ercenta	ge	
a	0.0		mm			Or .	surface (ft)	Fines	Sand	Gravel	
Gravel 1) +	64	ann.		:	~ 0	14 - 1		7	74	19	
	_	64	#6	16	33	4	17 - 2		2	98	0	
	_	16	+	4	:	6	20 - 2		0	100	0	
							23 - 20	6	11	75	14	
Sand 84	-	4	# :	1		6	26 - 2	9	10	75	15	
	-	1	+	14		57						
	-	14	+	1/16	:	21						
British Geological Survey					3.6	British Geological Survey				British	Geological Su	rveV

British Geological Survey British Geological Survey British Geological Survey

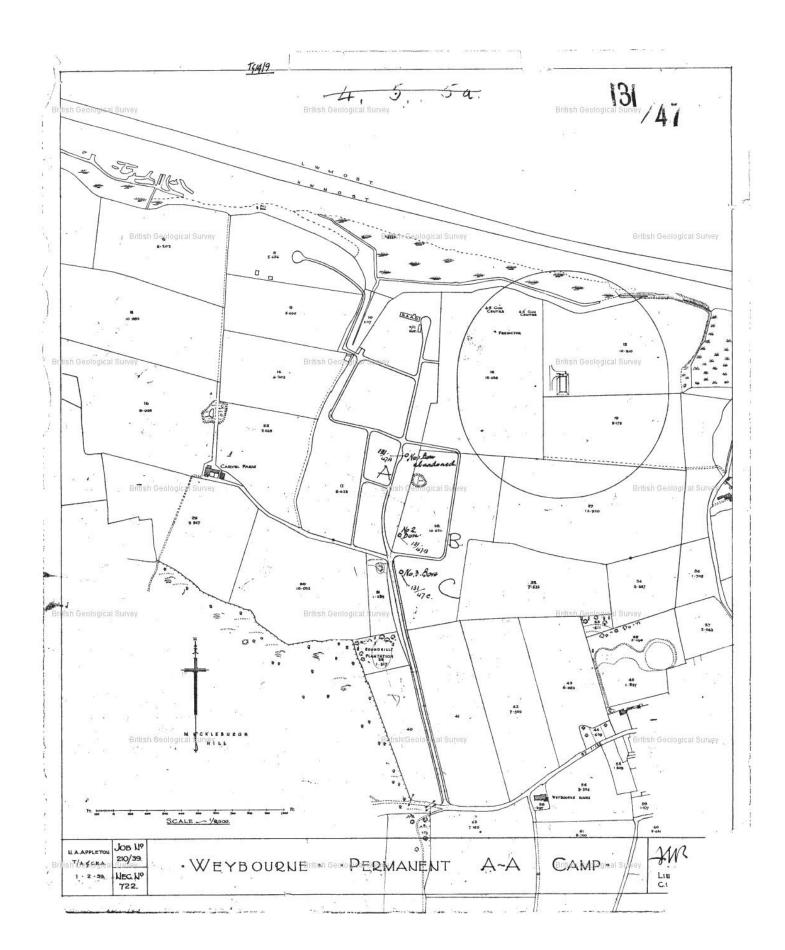
British Geological Survey

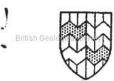
British Geological Survey

British Geological Survey

British Geological Survey

69





76/20 8W/1
2209, 0220

BOREHOLE No. 1 BOREHOLE DIAMETER 68 WATER STRUCK AT -

		DEPTH			•	SA	MPLE DETA	
16.11.65	WATER LEVEL	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LÉVEL	LEVEL	OF BLOWS	TYP ANI REF
16.11.65	riisir Babio	rear ourse)	Topso1!		99,88	В	nsn Geologia •	al Surve
				310*	96,88			
			Brown sandy clay with flint boulders & chalk	(0 41ml	70 s 00	410"	51	X
25						410" 510" to 6'6"	190	Γ
h Geological Surv	ý		British Geological Survey		British Geol	gical Survey		1
						40 810n	52	X
16.11.65 18.11.65	Nil Nil	101011				1010"		0
10311403								
				3 4 3		13 ¹⁰ " to	51.	Х
	ritish Geolog	ical Suivey	British Geological Survey			14'0" BI	tish Geologid	al Surve O
18.11.65	Nil					18 ¹ 0" 19 ¹ 0" 20 ¹ 0"	36	Х
19.11.65	N1I	19104				2010"		0
h Geological Surv	Date (British Geological Survey		British Geol	gical Survey		
						2310"	43	Х
				İ		2510"		0
			8					i.
	ritish Geolog	gcal Survey	British Geological Survey			2010" BI	ish 50 clogid	al Sur X
19.11.65		30°0°		3010"	69,88	29"0"		
				Bottom of borehole				
Ì				porenote				
h Gerlogical Surv	Î ^V		British Geological Survey		British Geol	ogical Súrve)		

B.M. cn parapet, of railway bridge Map ref. 2220222 taken as 105,861 0.D.

UNDISTURBED SAMPLES DISTURBED SAMPLES O WATER SAMPLES ♥ S. P. TESTS X

TG 20 SW 900

INEE	R	G. MA	UNS	ELL AND PARTNERS	PROJECT A47 NORWICH	SOUTH	HERN BYP	ASS		P 0000			GROUND	LEVE	L	35.	20	animas		m 0.D.		HOLE NO. 147
GED	BY:		ND	ENGINEERING LIMITED	EXCAVATION METHODS	PERCU	BSIVE (P	ILCON W	AYFAR	ER)			COORDIN	ATE	5 6	21	460	E 303	66	2 N		FIGURE A
LDWO	STING	Geol	ggi	ral Survey	200mm casing to 6,25m	Bi	itish Ge	ological	Surve	y.			DATES	2	8/4/	82		Bri	ish	Geolog	lical	SHEET OF
	DEPTH		Τ.	T	STRATA				SAN	PLING/	IN SI	TU TES	TING				TE	TING				OTHER TESTS AND NOTES
	OF CASING	TO		DESCRIPT	ION	LEG.	m.O.D.	DEPTH	NO.	DEPTH	TYPE	BLOWS	v /Cr RQD	% <425	w %	PL %	LL %		/m ³	Cu kN/m²		
82 _ 0				CLAY with some fine to angular gravel (Boulde with chalk fra Medium dense orange br with occasional fine gravel	d dark brown silty sandy medium subrounded to subr Clay) gments and cobbles own fine to medium SAND ravel (Glacial Sand and brown clay and fine to led to subangalar gravel	X × × × × × × × × × × × × × × × × × × ×	35.20 - 34.80	0.40 0.85 1.25 1.90 2.00	1 2 3 4 5 6 8	0.45 0.80 0.85 1.00 1.45 1.45 1.90 2.00 2.45 3.00 3.45	B D D o BG BC	(49) N=10 N=10	ey-	70	15	16	30	1		20 gu- 30°		Water added from 1.80m to 6.00m British Geological Survey
9	British	Seol	ogi(becoming brown coarse SAND and rounded to sub-	i fine to mediúm sub- ingular GRAVEL	X	29.20	. 5.00 (18.00)	9 Surve 10	5.00- 5.45	вс	N=15			14			Bri	tish:	Geolog	jical	Survey
				medium subrounded grave (Boulder Clay) becoming green stained fissur	ish brown with brown	*	-	6,95	11 12	6,95	1	(45)		87	14	11	25	2	.23	42		Consolidation
4.82 30	6,25	DRY		becoming firm	o stiff	× <u>/</u>	-	8.00	13 14 15	7,50 8,00 8,45 8,45	U	(52)		87	12	12	24	. 2	,20	78		
8				Borehole Completed British Geological S	urvey				8	itish G	eologio	al Surv	ely									British Geological Survey
= :	irst wa iubseque lighest open hol	water t	r str	36377 (b) L 14 (b)	KEY U Undisturbed s	d sampl sample	Y Insi S Sta C Con K Per	aty core overy to sca itu wane tes ndard penel e penetratio meability te ssuremeter	t tration on test	lest	drive at 26°, blo whole a	blows for ter seating ws for pa f seating of disturbed to	g rt or Irive only,	Cr C	ore re Rock Samp	em ou	id ry % lity der passi	ignation		Director Eastern	(Tran Regio	C. C. Eng. FICE, FIHE SHOTE STORY ST

TG 20 SW/86

HOINEER		G. MA	UNSI	ELL AND PARTNERS	PROJECT A47 NORW	ICH SOUTH	ERN BYP	ASS	375			200000	GROUND	LEV	EL	26	. 90m	- 25		m O	.D.	HOLE NO. 144	(T)
XGGED BY			OUNI	D BNGINEERING LIMITED	EXCAVATION METHODS	WHEE	LED RYM	AC .					COORDII	VATE	5 (620	965	E	303	600	N	FIGURE A	3.,,
AB. TEST	ING	B Yie	leg	ical Survey .			British G	eologica	Sur	vey			DATES	29	9/3/8	2			Britis	h Geo	logica	SHEET I OF	
E/TIME DE	142 (77)	14 THE R. P.	1 .		STRATA				SA	MPLING/	IN SI	TU TES	STING		L	AB	TES	_	G			OTHER TESTS AND NOTES	
P27.500	SING	WATE	R	DESCRIPTI	DN	LEG.	m.Q.D.	DEPTH	NO.	DEPTH	TYPE	BLOWS	V /Cr	% <425	**	PL V4	11 ×	ICV P	4g/m ³	Eu kn/m²			
1.00			ľ	TOPSOIL (Dark brown fine to coarse subround and occasional rootlets Firm silty sandy CLAY with occasional fine to	·	vel 💢	26.60	0.00	1 13 2	0.45 0.50 0.50	D CBR B											1)Pit completed an to 3.50m 2)Groundwater was at 2.85m and pum continued for 1	encountere
		12		subangular gravel with			28,15	0.75		0.60						1	1	ĺ				3)Photographs takes 2 CBR (0.50m	of face
†				Stiff pale greenish bro fine to medium subangul	ar gravel (Boulder	оте јо-			4	0.90 1.00	В				17							pH and sulphate of	17
				Clay) British Geological Stiff orange brown sand (Boulder Clay)			25.60	1.30	5 6	1.30	e plog B	ical Sui	vey			_						British Geologica	Survey
Ī				···· becoming clayey SAN	D			1.70	14 7 8	1.60 1.60 1.80 1.95	U38 D B			64	20		NP	1	2,01	68			
1				Stiff grey mottled oran CLAY with abundant chal (Boulder Clay)		x -	24.90	-2.00		2.05													
ŧ						×		-	9	2.50	D			85	17 1	6	27			X.		pH and sulphate c	ontent
₽B	ritist	1₽ Geo		ital Survey		×-	ritish G	eologica	•	2.80 2.90	B W								Britis	h Geo	logica] Survey	ĺ
3.30 9.3.82	9	2.8	5); 	-,	28.40	3.50	12	3.40 3.50	В			78	18 1	6	25						
				TRIAL PIT COMPLETED	62																	24	
ŧ																							24
+				British Geological	Survey					British (eolog	ical Sur	vey									4 Hoam 3:30m—	s N
1	.]		-																		Ž.		1
Subs	equeni	r strik I water water le	strit	67%	KEY U Undisturb	bed sample	Y Insit S Ston C Cons K Pern	ry care very to scal tu vane test dard peneti e penetration teability tes	ation test	test	drive aft 26°, blow whole of	lows for 1 er seating a for par seating dr sturbed se	t or ive only,	Cr Co		ould very ualit	% by design	notio	n E	irector astern	(Tran Regio	C Eng FICE, FINE — mm sport) nat Office (Transport) ng tan Road, Bedford	144 (T)

+34.	Surface +116. Shaft P.W.L4. Yield of Handpump. 1953. H. † Boulder Clay UCk	600 g.p.h. (8 h. ardness: total 40	Lining tubes: test). <u>Buckingha</u> 00. Anal. <u>Befor</u> c.30 c.140	m, Mar. 1950. e 1960. c.30 170 Bullish Geological Survey
British Geological Survey	Estimate 6" Warter Sheet 75 Sec E	Pp P.N.Hu	79 2066 03 Idueta 18.6	
British (Geological Survey	British Geol	ogical Survey	British Geological Survey
British Geological Survey	3	British Geological Survey		British Geological Survey
British (Geological Suivey	British Geol	ogical Sulvey	British Geological Survey
British Geological Survey		British Geological Survey	8	British Geological Survey
British C	Geological Survey	British Geol	ogical Survey	British Geological Survey

RECORD OF WELL (SHAFT OR BORE) (attach copy of analysis if available) For Survey use only TGO 50 N.541.)
ey British Geological Survey British Geological Survey
At I Olice I house.
Town or Village Swardeston Morwich
County Norfock Six-inch quarter sheet 75 SWIE
For Mr. Contractor, consultant, etc.:
Address (if different from above) Thorpe tout, Manual, Level of ground surface If well-top is not at ground fabove;
above sca-level (O.D.) ft. level, state how far (below;ft.
SHAFT 57 ft.; diameter ft.; Details of headings
BORE 33 It.; diameter of bore: at top 4 ins.; at bottom ins.
Details of permanent lining tubes 70'X4"
Water struck at depths of
Rest-level of water ft. above well-top. Suction at ft. Yield on hours' test
pumping at 600 galls. per kour with depression to 20. ft. below well-top.
Recovery to rest-level in mins. Capacity of pump g.p.h. Date of measurements
Description of permanent pumping equipment:
Make and/or type British Geological Survey Motive power British Geological Survey
Capacity gallous per hour. Suction at ft.
Amount pumped galls, per day Estimated consumption galls, per week.
Well made by F. Buckingham. Date of well March 1950
Information from British Geological Survey British Geological Survey British Geological Survey
Police house visited - no one in
Site worked of Randpump outside back abor. S.D. 116' SMA 15.10.53
O.D. 116' -8MA 15.10.53
ey British Geological Survey British Geological Survey
Continued chlorus 1.8- gras lead. Total Hordress 38° Very slight trace from.
Lotal Bardness 38°
a C * Came 1
Violitid . British Geological Survey 24/8/60 BD. British Geological Survey
24/8/60 BU.
M. Johanned an LOG OF STRATA OVERLEAF.

Received No. on 1" Map on 6" Map

Q. 4 55. South Kensington, London, S.W.7.



British Geolog (20ey SW /S

BOREHOLE No. 5 BOREHOLE DIAMETER 6th WATER STRUCK AT -

2179.0271

1 1	x .	DEPTH				SA	MPLE DETA	
DATE	WATER LEVEL	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	NUMBER OF BLOWS	TYPE AND REF.
20,12,65	British Gaeld	giasi-Eurosy	Tops:il	450	126,09		rnish Geolog	ical Surve
			Brown sandy clay with filmt boulder and chalk content	- 1560 (C 46m)	124.59			
						510u		С
G≢ological Sur	rey		British Geological Survey		British Geo	810" 80" to 910" 10"0"	41	X O
	British Geold	gical Survey	British Geological Suivey			13 ¹⁰ ¹¹ tc 14 ¹⁰ ¹⁰ 15 ¹⁰ ¹¹	40 Itish Geolog	x cal Surve
Grological Sur	ey		British Geological Survey		British Geol	18 ¹⁰ " to 19 ¹⁰ " 20 ¹⁰ "	41	x 0
20,12,65		2410"				2310# to 2410# 2510#	40	x 0
21 .12 .65	British Geold N 11	lical Sulvey 29 10⁴	British Geological Suivey	- 2910" Bottom of borehole	97,09	2810° to 2910°	atish (13 0log	al Su X
Geological Sun	У		British Geological Survey		British Geol	gical Survi		
	British Geold	ocal Survey	British Geological Survey			Ę	Irlish Geolog	ical Surv

UNDISTURBED SAMPLES O WATER SAMPLES V S. P. TESTS X

161/403 Police House, Swardeston. (Sealed) Surface +116. Shaft 87; rest bore. Lining tubes: 70 x 4 in. R.W.L. +34. P.W.L. 4. Yield 600 g.p.h. (8 h. test). Buckingham, Mar. 1950. Handpump. 1953. Hardness: total 400. Anal. Before 1960. † Boulder Clay c.30 170 c.140 British Geological Survey Estimated log 6" Warter Sheet Pp. P.N. Hildreyn 18.6.69. 75 SW E British Geological Survey British Geological Survey



Sheet 2 of 3 TG/205W/39.

DOREHOLE No. 220 DOREHOLE DIAMETER 6"

SITE:

Norwich Geological Survey 220.

WATER STRUCK AT 10'0" (3.05m)

			WAI	IER STRU	CK AT 10'0" (3.03m)					
	DETE	DEPTH	DEPTH OF	DARTH TO	STRATA DESCRIPTION		RATA	S.P.T. BLOWS	EEPTK	SAMPLY THE
		3081%G	CASINO	WATER		DEPTH	LEVEL LEVEL	E CONTROL		11/2
	3.1.70	l Brit	sh Geologic	a Survey	TOPSOIL and SUBSOIL. British Geological Survey	(0760)	115.0 (35-05m)		British Geold	ical Survey
C)				SILTY CLAY with gravel sized pieces of CHAIK and some FLINTS. Generally firm, light yellowish grey with traces of orange F.M. sand.	2161	112.5 (34·29m)		3'6" to 5'0"	
100	itish Geolo	8'0"	8101	DRY	(Boulder clay) British Geological Survey		Drittely Co.	logical Sur		
		10'0"	810"	10*0*	. Dillian Scalegical Survey		1	legical out	8'6" to 10'0"	
The state of the s	•	12'0"	12*0#	DRY					-	
		Briti	sh Geologic	al Suivey	British Geological Survey				13'6" to 15'0" British Geold	gical Survey
•			29		SILTY CLAY with gravel sized pieces of CHALK. Firm, turning stiff, grey. (Boulder clay)	(5.79m) 19'0"	(29.26m) 96.0	85	18'6" to 20'0"	
	7.1.70	gical Survey	2316"	DRY	British Sub Rigical Survey		British Ge	ological Sur	23'6" to 25'0"	П
	4.1.70			DRY	9 * * * * * * * * * * * * * * * * * * *			e.v.		
		Brit	sh Geologic	al Sulivey	British Geological Survey	. ,		6	2816" Britis 10 38019	gical Survey
		83		i.	X 2 X				30'0"	_
	4.1.70	35'0"	33'6"	DRY		(10-67m) 35'0"	(24.38 _m)		33'6" to 35'0"	П
C)				End of borehole					- ;
	ritish Geold	gical Survey			British Geological Survey		British Ga	ological Sui	vey	5 4 6
	*	BH	sh Geologia	al Survey	British Geological Survey		- •		British Geol	gical Survey
				:	39 AS		n.			1

SCALE: 5 FAST TO 1 INCH
UNDISTURBED SAMPLES D DISTURBED SAMPLES O
NO RECOVERY OF UNDISTURBED SAMPLES DER

WATER SAMPLES V

S. P. TESTS X



BOREHOLE LOG

76/20 8W/4 2 (93.0245

BOREHOLE No. 4 BOREHOLE DIAMETER 611 WATER STRUCK AT -

经			DESTU					MPLE DETA	
CE/1PG/ABK/SH85	DATE	WATER LEVEL	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	NUMBER OF BLOWS	TYPE AND REF.
Œ/	16.12.65	WWW.	(cal-Sulve)	Topsof!		113.18	В	ush Geologie	al Survey
				Brown sandy clay with flint boulder and chalk content	156" (0 year)	111 ,68	1000		
British Ge	logical Survi	У		British Geological Survey		British Geold		114	
							810" 910" 1010"	33	х О
		ritish Geolog	cal Survey	British Geological Survey			131011 to 141011 Bri 151011	36 jsh Geologid	al Survey O
British Geo	logical Surve	V		British Geological Survey		British Geold	18101 19101 20101	35	x 0
•	16.12.65 17.12.65	IIN IIN	24 ¹⁰ "				2310" to 2410" 2510"	31	X O
	17.12.65	ntish Geolog Ni l	tal Survey	British Geological Survey	(9 14m) 3010" Bottom	83.18	28°0" to 29°0"	ish G 37 logic	il Sul x ey
British Geo	ogical Surve			British Geological Survey	borehole	British Geold	aical Survey		
×	E	litish Geolog	tal Survey	British Geological Survey			Bri	ish Geclogic	Survey

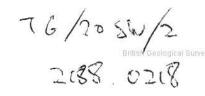
UNDISTURBED SAMPLES

DISTURBED SAMPLES O

WATER SAMPLES ♥ S. P. TESTS X



BOREHOLE No. 2 BOREHOLE DIAMETER 6" WATER STRUCK AT -



S. P. TESTS X

WATER SAMPLES V

1			DESTU				SA	MPLE DETA	
CE/IPG/ABK/SH85	DATE	WATER	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	OF BLOWS	TYPE AND REF.
e/BK	10.12.65	mish Geolog	car survey	Topso11 British Geological Survey	1104	94.38 93.38	Br	ish Geologic	il Survey
Œ/IP				Brown sandy clay with flint boulders	(0,5012)	75,00			
	10,12,65	Ni	416"	Brown sandy clay with flint boulders and chalk	(1 22m)	90,38	310" to 416" 516"	85	
				87 BUS			616u	37	X
sh Geo	ogical Surve			British Geological Survey		British Geolo	\$10"		0
							10 ¹ 6" 11 ¹ 6"	42	х
	В	itish Geolog	i al Sulvey	British Geological Sulvey			1510" ^{Bri}	tsh Geologica	i Suivey 0
	15,12,65	Ni I	19161		(5.44w) 1916" Bottom	74.88	1816# to 1916#	38	X
sh Geo	ological Surve			British Geological Survey	of borehole	British Geolo	cal Survey		
	В	tish Geolog	idai survey	British Geological Survey			BU	tish Geologics	Survey
	ological Surve			British Geological Survey		British Geolo			
511 ØE0	nugical surve			Billish osenogical survey		o liisii Gedio	an ourvey		
	8	ritish Geolog	ical Survey	British Geological Survey			Bri	tish Geologica	ıl Burv

DISTURBED SAMPLES O

UNDISTURBED SAMPLES

BORÉHOLE LOG

SITE: Norwich

TG/205W/38

Sheet 2 of 3

2139.0257

DOREHOLE No. 218 DOKEHOLE DIAMETER 64 G WATER NOT ENCOUNTERED

DATE	DEPTH OF BORING	DEPTH SX DHAMAD	DEPTH 10 WATER	STRATA DESCRIPTION	DEPTH	L249L	S.P.T. DLOWE	DEPTH	. CYMATE
4.1.70			1	TOPSOIL and SUBSOIL.		1 124.0		 	
	Firitis	r Geological	Shirvey	British Geological Survey	(0.76m	127 41.		Bitish Gealan	ilcal Survey
					2161				
			1	SANDY CLAY with gravel sized pieces of CHALK and some FLINTS.		(37.03m)	'	316"	
	510"	MIL	DRY	Firm, light yellowish grey.				100 5'0"	
			111	,gar ; ga		1		1	
1			: 1	8.					
1			1		1				
ritish Geologi	cal Survey		4 '	British Geological Survey	(3.05m	(34-75m	ogical Surv	8'6"	
	10'0"	10'0"	LRY	L C C C C C C C C C C C C C C C C C C C	10'0"			10'0"	
			1.0	M.C. SAND. Light yellow brown, occasional		,			
		i	14	fine irregular gravel.				12'0"	
				,			62	13'0"	I O
4.1.70	15*0*	15'0"	DRY	S 8	(4-57m)	(33.22m	292	1.,0	
5.1.70	1,0	170	DAT	SANDY CLAY.	15'0"	109.0			
	Britis	n Geological	Survey	Soft light yellow grey.	1.000			ritish Geolog	
1 1	18'0"	18'0"	DRY		(549m)	(32-31m)		to	^
1 1				SANDY GRAVEL.	18'0"	106.0		.18'0"	¥
		- 8		Light yellow brown graded F.M.C.		1 1		20'0"	
				sand and F.M.C. irregular and		2	68	to 21'0"	Α.υ.,
				rounded gravel. Small pockets of		1917		21.0"	
	102		19.1.	sandy clay also present at top of stratum seclogical Survey	See di				
lish Geolog	cal Survey	11		O1 BO1 a Cathia seological Survey		British Ge	ogical Sun	ey	
	182 2	2						25'0"	
			* 0		26°0"	(29-87m)	78	26'0"	x o
				SANDY CLAY with GRAVEL.	26.0	98.0			1
-			-	Firm, orange brown, with F.M. rounded gravel.	(a				1
	30'0"	30'0"	DRY	Tounded graver.	(9-14m)	(28.65m)		28'6" to	П
		h Geologica	Survey	CANDY COANTY British Geological Survey	3010"	94.0	1	30'0"	ical sunday
	1		77	SANDY GRAVEL. Light yellow brown graded F.M.C.			77	31'0"	.
	0.000-02-0		- 1	sand and rounded and irregular	,		73	32'0"	X
-	33'6"	33'6"	DRY	F.M.C. gravel.				34'0"	1
5.1.70	35'0"	33'6"	DRY	the second secon	(10-67m)		i	to 35'0"	0
				End of borchole	35'0"	89.0	1	75.0"	j
								- 1	1
itish Geologi	cal Survey			British Geological Survey		British Geol	ogical Sulv	ey	
8					:	. 1			
	्र		•						
9								. [
				*			. 1		
*	10		11				W 11	- 1	- 10
	1	1		6 6 M W	126	1	- 1		. 1
	Rimba	h Geological	Survey	British Geological Survéy	120	• .		British Geobg	iical Suivev

SCALE: 5 YEAT TO 1 INCH
UNDISTURBED SAMPLES O
NO RECOVERY OF UNDISTURBED SAMPLES O
NO RECOVERY OF UNDISTURBED SAMPLES O

WATER SAMPLES V S. P. TEST

3	NATURE OF STRATA	Тнісі	KNESS	DE	Р́ТН	
(For Survey use only) British GEOLOGICAL CLASSIFICATION	If measurements start below ground surface, state how far	Feet	Inches	Feet _{gic}	Inches	
7 -	- Brick shaft .	84				
uck.		83		170		
46 Cat	Estimated Log:				Rijisl	Geological Survey
10.1.01	BC to c. 30'					
British Geological Survey	P.N.FWsh Geological Survey		Brit	sh Geologic	il Survey	
*	DATA Bank					
British Ge	ological Survey British Geological Survey	***************************************		••••	British	Geological Suivey
British Geological Survey	SWING Geo) is greated on the part of the p		- O rt	str-Sesiogic	ıl-Survey	
						
British Ge	ological Survey British Geological Survey				Britist	Geological Survey
		,				
British Geological Survey	British Geological Survey		Brit	sh Geologic	si Sürvey	
					•	. W
Difficility Co.	plogical Survey British Geological Survey				Britisl	Geningical Suive
មហាខារ ៤៩	ological Survey British Geological Survey				BIIIIB	Geological Suivey
British Geological Survey	* British Geological Survey		, Brit	sh Geologic	il Survey	-
	ol€ na ^K e do wa		enes.		iden ja naks	la aprophisa .

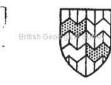


BOREHOLE No. 6 BOREHOLE DIAMETER 6" WATER STRUCK AT

76/20 8W/6
British Geological Survey
22/3.0252

1			DERTH				SAI	APLE DETA	UL5
	DATE	WATER LEVEL	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	NUMBER OF BLOWS	TYPE AND REF.
2	21.12.65		pgical outley	Topscil Survey	11611	89,02 87,52		antish Geolo	ical Survey
CE/IPG/ABK/SM85				Brown sandy clay with flint boulders and chalk content	(0 4pm)	01,522			
1/196/4									
8	Li						510 ¹¹		0
British G	eological Su	vey		British Geological Survey		British Ge	logical Súre	ву	
							9184 6104	40	X
		55-5.V/L 188					1010#		0
							4.7808		
		Dritteh Goal	ogical Survey	British Geological Survey			13 ¹⁰ " to 14 ¹⁰ "	43 British Geolog	X In all Sulman
		Billian Geol	agicar ourvey	Dinion Octobarca Curvey			1510"	Allusii Geolog	0
							18104 to	41	Х
	21.12.65	MI	20101		(6 1 cm)	69,02	1910" 2010"		0
British G	eological Su	vey		British Geological Survey	Bottom	British Geo	logical Surv	ý	
					borehole			1000	
900									
					İ				
		British Geol	igical Survey	British Geological Survey	İ			Iritish Geclod	ical Survey
British G	eological Su	vey		British Geological Survey		British Geo	logical Surv	У	
	i.								
		British Geol	ogical Survey	British Geological Survey				ritish Geclog	cal Survey

UNDISTURBED SAMPLES O WATER SAMPLES V S. P. TESTS X



76/20 SW/7 h Geological Survey 2215.0274

BOREHOLE No. 7 BOREHOLE DIAMETER 6" WATER STRUCK AT

			DEDTH		I		SAMPLE DETAILS			
	DATE	WATER	DEPTH OF BORING	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	LEVEL	NUMBER OF BLOWS	TYPE AND REF.	
CE/IFG/ABX/SMES	17,12,65	Shirsh Geold	gical Sulvey	Topscil Brown sandy clay with flint boulders and chalk content	(0 46m)	105.72 104.22	E	ritish Geolog	cal Survey	
28	ological Sur	3úr ey		British Geological Survey		British Geo	510° • to 616° ogical Surve 810° to 910° 10°0°	124 33	х 0	
		British Geold	gical Sulvey	British Geological Survey			13 ¹⁰ 1 to 14 ¹⁰ 1	36 itish Geologi	X cal Survey O	
	17,12,65 18,12,65	M1I M1I	19 ^{10#}	British Geological Survey		British Geol	1810" to 1910" 2010"	35	X 0	
							2310" to 2410" 2510"	42	X 0	
	18,12,65	British Geolo	aical Survey 3010 ¶	British Geological Survey	(4:14w) 3010" Bottom of borehole	75.72	2810" to 2910"	iitist 35 eologii	talS X vey	
British Ge	ological Sun	ey .		British Geological Survey		British Geol	ogical Surve			
		British Geolo	ical Survey	British Geological Survey			E	itish Geologi	al Survey	

ish Geological Suivey		British Ged	ological Survey		Bittsh
UNDISTURBE	ED SAMPLES []	DISTURBED SAMPLES	O WATER	SAMPLES V	S. P. TESTS X



tish Geological Survey British Geological Survey British Geological Survey

Additional	Well	Information

☐ Well Loss Data: ☐ Well Acidified	B C E	fficiency	•••••
Flow Logs No Other Geophysical Lo	British Geological Survey	ä	British G
Fissure Information:	major inflows from	to	
	from		
	from	to	
cal Survey	British Genladical Survey	British Geologi	ral Stimov

Aquifer	Parameters:
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Confidence:

British Geological Survey

Analysis Type: Readed Theor 52 British Geological Survey Transmissivity: 208 m ² /d Storage Coefficient:	Analysis Type: Transmissivity: Storage Coefficient:	British
Analysis Type: British Geological Su Transmissivity:	Other Data:	British Geological Survey
Storage Coefficient:		

Notes: Boreholi colopoed on pricompletion of pumping hence not possible to carry out geophysical al Rogging

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h Geological Survey British Geological Survey British Geological Survey

C.	TG 10 SE 11	1842 0356 South-west of	of Hall Farm, Intwood			
	Surface level (+ 31.5 m Water not struck Wirth B O, 8 inch diam. January 1970	28.	Overburden (0.9 m) 3 ft; Mineral (0.9 m) 3 ft; Waste (16.4 m +)54 ft +			
	British Geological Survey		British Geological Survey Thickness (m) ft	(m) De	pth ft	British Geological Survey
		Soil.	(0,9) 3	(0.9)	3	
	Glacial Sand and Gravel	Gravel.	(0.9)	(1.8)	6	
British Geological Su		Gravel: coarse with fine, subangular flint with some subrounded quartz. British Geological S Sand: medium with coarse, subangular, Brown.	luryey		British Geologica	l Survey
		Very 'clayey' pebbly sand	(0.9) 3	(2.7)	9	
		Gravel: fine to coarse, mainly subangular to subrounded fli	nt.			
	British Geological Survey	Sand: fine to coarse, subangu Light brown.	British Geological Survey			British Geological Survey
	Chalky Boulder Clay	Brown sandy clay with occasion flint pebbles.		(10.4)	34	
		Light brown chalky clay.	(3.0) 10	(13.4)	44	
		Brown sandy clay with thin sand bands.	(1.8) 6	(15.2)	50	
British Geological Survey		Light brown-orange clay, slightl sandy, with occusional quarte chalk pebbles.		28.5.73.53 5. 61	60 British Geologica	l Survey
	Gravel 61 -	mm	Depth below surface (fr) 3 + 6		entage Sand Grav 32 6	
	Sand 32 - British Geological Survey -	4 * 1 : 8 1 + 34 : 21 ¹⁴ + ¹ / ₆ : 3	British Geological Survey			British Geological Survey
	Fines 7 -	¼ : 7				

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British Geological Survey		TY - NORFOLK AND SUFFOLK	RIVER DIVISION COLOR	For Institute us GEOLOGICAL CLASSIFICATION
	K.A. Buckley. B.Sc. Tech, C.Eng., M.I.C.E., M.I.W.E.S. Divisional Engineer.	Our Ref.	P.O. Box 50, Norwich. NR1 1BR -7 DEC198 2	GLASSIFICATION
Bri	The Director, Institute of Geological S Exhibition Road, South Kensington, London, S.W.7	British Geological Survey	British Geological Survey	81
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	Consent under Section 24(5/3/70.	
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۵).	CLASSIFICATION	If measurements start below ground surface, state how far.	Feet	Inches	Metres	Feet	Inches	Metres	
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