

	Client Name:		Site Location:	Project No.:
AE	3P Development Compa	any	The Mole, Barry	413800.0000.0000
Photo No.	Date			
5	27 April 2021			
Description: Monitoring w CPBH101.	vell installed at			
Photo No.	Date			
6	27 April 2021			
corner of the	1) on the south east Site. Underground al (steel sheets)			



	Client Name:		Site Location:	Project No.:
AE	3P Development Compa	any	The Mole, Barry	413800.0000.0000
Photo No.	Date			
7	May 2021	-		
Description: Trial pit (TPO encountering concrete slab	, underground			
Photo No.	Date			
8	May 2021			
Description: Looking eastw excavation, w encountered underground	vhich also a concrete slab			



	Client Name:		Site Location:	Project No.:
AE	3P Development Compa	any	The Mole, Barry	413800.0000.0000
Photo No.		1		
	Date		6	
9	May 2021			10 mm
Description: Excavation of	f TP04, looking east.			
Photo No.	Date May 2021			
Description: Excavation of	f TP05, looking east.			



	Client Name:		Site Location:	Project No.:
AB	P Development Comp	any	The Mole, Barry	413800.0000.0000
Photo No.	Date			
11	May 2021			
Description: Excavation of west corner of	TP06 on the south of the Site.			
Photo No.	Date			
12	May 2021			
Description: Made ground	l looking into TP06.			



Annex C: Exploratory Hole Logs



TRIAL PITTING LOG

/												Page 1 of 1	
Facilit	/Proje	ct Name	e:	_	_		Date Drilling Started	d:	Date Drilling		eted:	Project Number:	
_				The Mol			15/2/21		15/2	-		413800	
Contra	actor:				Excavation Method:		Surface Elev. (m)	TOCI	Elevation (m)	Total	Depth (I		
T : 15							8.52			-		4.0	
I rial F	'it Loca	tion:					Personnel Logged By - Colin	Morton		Exca	avation Equipment:		
				311694.58500	00		Trial Pitter -						
Civil T	own/Ci	ty/or Vil	lage:	County:			Water Level Observ While Drilling:		/Time		∇	Depth (m bgs) <u>2.8</u>	
							After Drilling:		/Time		<u>+</u>	Depth (m bgs)	
SAM	PLE												
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			LITHOLOGI DESCRIPTIC				nscs	GRAPHIC LOG	COMMENTS	
Bulk Bulk				Geotexti Grey Ty Geotexti MADE C coarse. concrete recovere MADE C Sand is coarse c MADE C fine to c concrete MADE C	GROUND: light brow fine to coarse. Grav concrete. GROUND: grey sligh oarse. Gravel is sub	vey very grav r to subroun eel rail and s nish grey ve el is subang tly sandy slig angular to su ed clayey ver angular to su d boulders an	velly SAND. Sar ded fine to coar sheet of corruga ry clayey sandy ular to subround ghtly gravelly Cl ubrounded fine y sandy GRAVI ubrounded fine	nd is fi se brid ited irc GRA ded fin LAY. Sa to coa EL. Sa to coa	ne to ck and on VEL. e to Sand is rse and is rse			Hydrocarbon odour	
Signat	ure:		-				Companies Lin						
						∠ Jon	in Street, Londo	11				Fax	



TRIAL PITTING LOG

/												Page 1 of 1
Facilit	y/Proje	ct Name	e:				Date Drilling Started	d:	Date Drilling		eted:	Project Number:
				The Mo	le, Barry		15/2/21		15/2			413800
Contra	actor:				Excavation Method:		Surface Elev. (m)	TOC	Elevation (m)	Total	Depth (
Trial F	Pit Loca	tion:					8.60 Personnel			4.0 Excavation Equipment:		
N: 16	67333.	312000		311629.3990	00		Logged By - Colin Trial Pitter -					1
Civil T	own/Ci	ty/or Vil	lage:	County:			Water Level Observ While Drilling: After Drilling:	Date	e/Time e/Time			Depth (m bgs) Depth (m bgs)
SAM	IPLE						, iter 2000 g.					
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			THOLOGI SCRIPTIC				NSCS	GRAPHIC LOG	COMMENTS
D)				Coarse. concrete Geotext Grey Ty Geotext MADE (content.	GROUND: brown sandy Gravel is subangular to e and cobbles and bould ile membrane. /pe 1 gravel. ile membrane. GROUND: black clayey . Sand is fine to coarse. toarse brick and concre	o subround ders of co sandy GI . Gravel is	ded fine to coar oncrete. RAVEL with low	rse bri	ck and			Large concrete obstruction at 1.1m
Signat	ture:				Fin		Companies Lin					
						2 Joh	n Street, Londo	n				Fax



TRIAL PITTING LOG

							Page 1 of 1	
Facility/Project Name:			Date Drilling Started:			eted:	Project Number:	
	The Mole, Ba	-	15/2/21		/2/21		413800	
Contractor:	Exca	vation Method:		TOC Elevation (m)	Total	Depth (
Trial Pit Location: N: 167319.845000 E: 311	1524.034000		8.63 Personnel Logged By - Colin M Trial Pitter -	 lorton	Exca	vation E	4.0 quipment:	
Civil Town/City/or Village: C	county:		Water Level Observa While Drilling: After Drilling:	tions: Date/Time Date/Time			Depth (m bgs) Depth (m bgs)	
SAMPLE								
NUMBER AND TYPE RECOVERY (%) SPT N VALUE DEPTH IN METERS		LITHOLOGI DESCRIPTIC			USCS	GRAPHIC LOG	COMMENTS	
	Geotextile m Grey Type 1 Geotextile m MADE GROU coarse, Grav	gravel.	inded, fine to coa	rse grained.			Concrete obstruction at 1.1m	
Signature:		Firm: TRC	Companies Limi	ited			Fax	



TRIAL PITTING LOG

												Page 1 of 1
Facility	//Proje	ct Name	e:				Date Drilling Started	1:	Date Drilling		eted:	Project Number:
				The Mo	le, Barry		15/2/21		15/2			413800
Contra	ictor:				Excavation Method:		Surface Elev. (m)	TOCI	Elevation (m)	Total	Depth (
	it Loca						8.90 Personnel Logged By - Colin	Morton		Exca	ation E	4.0 quipment:
				311498.9690	00		Trial Pitter - Water Level Observ	otiona				
	own/Ci	ty/or Vi	llage:	County:			Water Level Observ While Drilling: After Drilling:	Date	/Time /Time			Depth (m bgs) Depth (m bgs)
SAM	PLE											
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			LITHOLOGI DESCRIPTIC				USCS	GRAPHIC LOG	COMMENTS
Bulk/			-	content. fine to c cobbles	GROUND: brown sa Sand is fine to coa oarse brick and cor of concrete. ile membrane.	rse. Gravel is	s subangular to	subrou	unded			
NV/I			- 1 - -	Grey Ty Geotext MADE (coarse. concrete MADE (CLAY. S fine to c	pe 1 gravel. ile membrane. GROUND: black cla Gravel is subangula and boulders and GROUND: dark blue Sand is fine to coars oarse brick and cor	ar to subroun cobbles of co eish greenish se. Gravel is s	ded fine to coar oncrete. grey slightly sa subangular to su	se brid ndy gr ubrour	ck and			Hydrocarbon odour
Bulk/			2	MADE	s of concrete. GROUND: dark gree	enish grey cla	ayey very gravel	ly SAI	ND.			
NV2 Bulk			3-		fine to coarse. Grav concrete.	vel is subang	ular to subround	led fin	e to			
			- 4 -									
			5	- - -								
			-									
Signet			1	1		Eirm: TDO	Composies Lin	aitad		1		1
Signat	ure.						Companies Lin In Street, Londo					Fa



TRIAL PITTING LOG

							1					Page 1 of 1	
Facilit	y/Proje	ct Name	e:				Date Drilling Started		Date Drilling		eted:	Project Number:	
<u> </u>				The Mol			15/2/21			2/21		413800	
Contra	actor:				Excavation Method:		Surface Elev. (m)	TOCI	Elevation (m)	Total	Depth (
N: 16		239000		311437.96300	00		8.60 Personnel Logged By - Martin Trial Pitter -		 9	Excav	vation E	3.0 quipment:	
Civil T	own/Ci	ty/or Vi	llage:	County:			Water Level Observ While Drilling: After Drilling:	Date	/Time /Time			Depth (m bgs) Depth (m bgs)	
SAM	PLE						<u> </u>						
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			LITHOLOGI DESCRIPTIC				USCS	GRAPHIC LOG	COMMENTS	
			-	fine. Gra	GROUND: light grey avel is claystone. pe 1 gravel.	very silty sli	ghtly sandy CLA	Y. Sa	nd is				
Bulk/ NV1			1-		GROUND: light black	k clayey san	dy SILT. Sand is	med	um				
Bulk			-	MADE C	GROUND: light grey	ish white					XX		
Bulk/			2	MADE C	GROUND: light grey fine, Gravel is sub-r	ish brown cla	ayey very sandy grained.	GRA	VEL.				
NV2 Bulk			-	MADE C	GROUND: brown slig	ghtly gravelly	/ slightly sandy (CLAY.					
			3-	-									
			4	-									
			5-	-									
			-	-									
Signat	ure:					Firm: TRC	Companies Lim	ited					
						2 Joh	in Street, Londor	n				Fax	



TRIAL PITTING LOG

Facility/Pro	niect Nam	ie.			Date Drilling Started	4.	Date Drilling	Comple		Page 1 of 1 Project Number:	
i aomiy/FIC	JEGUNAN	15.	The Mo	le, Barry	15/2/21	<i>.</i>	15/2			413800	
Contractor	:			Excavation Method:	Surface Elev. (m)	TOC	Elevation (m)		Depth (
					8.74			4.0			
Trial Pit Lo	cation:			1	Personnel Logged By - Colin	Morton		Exca	vation E	quipment:	
			311419.8970	00	Trial Pitter -						
Civil Town	/City/or V	'illage:	County:		Water Level Obser While Drilling:		/Time	_		Depth (m bgs)	
					After Drilling:		/Time			Depth (m bgs)	
SAMPLE											
NUMBER AND TYPE RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			DLOGIC RIPTION			USCS	GRAPHIC LOG	COMMENTS	
ılk 			Claystor concrete MADE coarse. concrete MADE slightly subrour MADE GRAVE fine to co MADE	GROUND: reworked green gravelly CLAY. Sand is fin- ided fine to coarse mudsto GROUND: dark reddish bro coarse claystone and muds GROUND: Greenish browr h cobble content. Sand is founded fine to coarse muds	e, and boulders and co ry gravelly SAND. Sat ibrounded fine to coar ish brownish grey slig e to coarse. Gravel is one. own slightly clayey ve Gravel is subrounded stone. nish grey clayey sandy fine to coarse. Gravel	htly sa subar ory san to rou or GRA	of ne to ck and gular to dy nded VEL angular			Hydrocarbon odour	
Signature:				Firm:	TRC Companies Lir 2 John Street, Londo					Fa	



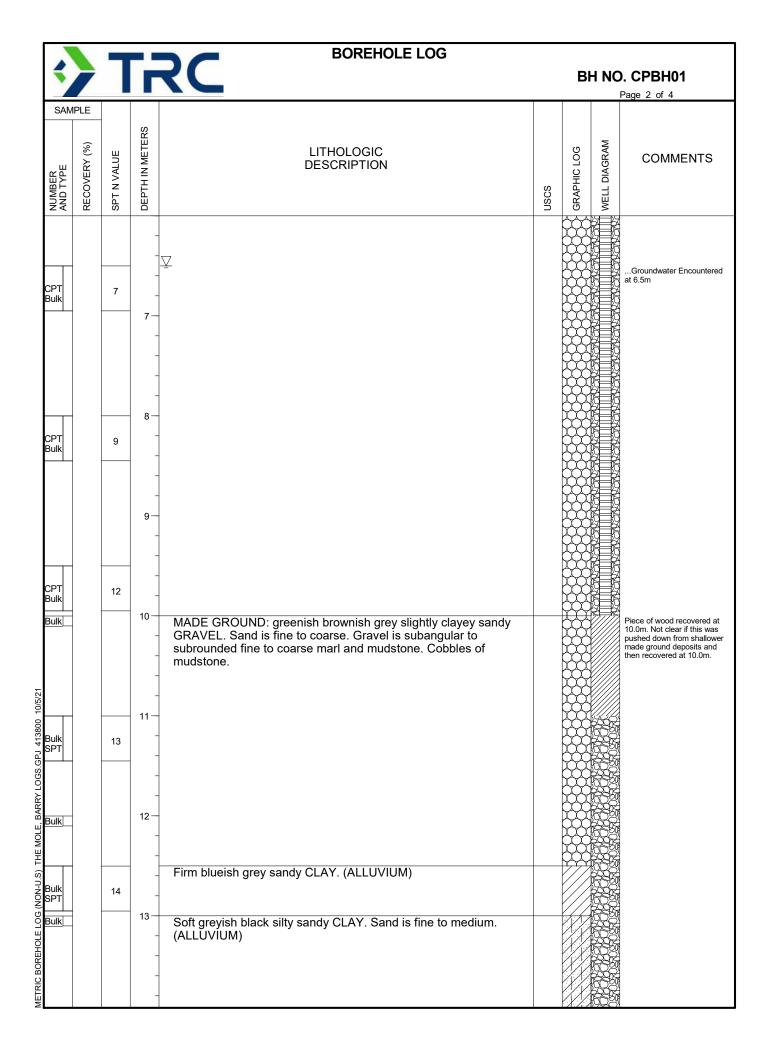
TRIAL PITTING LOG

											Page 1 of 1
Facilit	y/Proje	ct Nam	e:			Date Drilling Started	1:	Date Drilling		eted:	Project Number:
				The Mol	e, Barry	15/2/21		15/2	2/21		413800
Contra	actor:				Excavation Method:	Surface Elev. (m)	TOC	Elevation (m)	Total	Depth (I	m bgs)
						8.64					4.0
Trial F	Pit Loca	tion:				Personnel	1		Exca	ation E	quipment:
NI: 40	37000	006000) F .	211277 4000	00	Logged By - Colin	Morton				
		886000 ty/or Vi		311377.10000 County:	JU	Trial Pitter - Water Level Observ	ations:				
	Swii/Cl	cyror VI	naye.	County.		While Drilling:		/Time			Depth (m bgs)
						After Drilling:	Date	/Time			Depth (m bgs)
SAM	IPLE										
			SS								
	(%)		DEPTH IN METERS		LITHOL	OGIC				U	
ш	<u>۲</u>	TUE	ME		DESCRI					Ē	COMMENTS
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	Z T		DECON			GRAPHIC LOG			
DTB	8	Z ⊢	ILL				USCS	(AP			
AR	R	- dS	В						IN	В	
				MADE G	ROUND: brown sandy sligh	ntly gravelly CLAY.	Sand is	s fine to			
			-		Gravel is subangular to subi	rounded fine to coar	se brid	ck,		bbb	
			-	clayston	e, concrete and mudstone.					bbb bbb	
NV/			-							<u>K</u>	
Bulk					ile membrane.						
			-		pe 1 gravel.			/		HAN 1	
			1-		ile membrane.					HH.	
			-	MADE C	GROUND: dark brownish gre fine to coarse. Gravel is sub	ey clayey very sandy	GRA	VEL.		\square	
					brick and flint.	อาญนเลา เปรินมเบนที่ไ	iea IIU			PPP)	
Bulk			-							p	
			-	-						\not	
			-	-						\Rightarrow	
			2-	MADE	GROUND: greenish brownisl	n grey clayey very s	andy			協力	
			-	GRAVE	L. Sand is fine to coarse. Gr	avel is subangular t	o subr	rounded		HA	
			-	fine to c	oarse claystone.					KXX	
			-	-						β	
ENVŻ			-	-						$\not\bowtie$	
			-							\bowtie	
			3-	1							
			-	-							
			-	-							
			-	1							
			-	-							
			4-	-							
			-								
			-	1							
			-	-							
			-	-							
			_								
			5-	1							
			-	-							
			-	-							
			-								
			-	1							
Signat	ture [.]				Firm:	TRC Companies Lin	nited				
						John Street, Londo					Fax

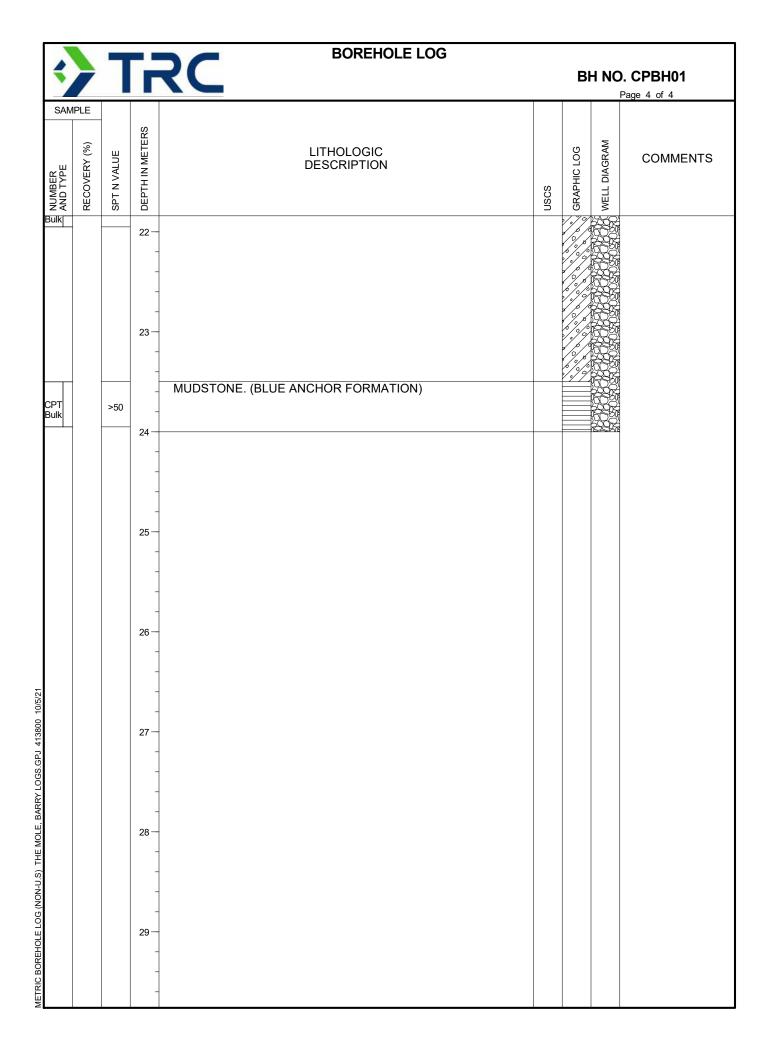


BOREHOLE LOG

Facility	//Proje	ct Name	e:		_	Date Drilling St	arted:	Date	Drilling	Comple		Page 1 Projec	of 4 t Number:	
				The Mol	le, Barry	15/2/	21		16/	2/21			41380	00
Drilling	Firm:				Drilling Method:	Surface Elev. (C Elevatio			Depth (m bgs)		Dia. (cm)
						8.60					25.0			
Boring			E· 3	11702.39600		Personnel Logged By - C Driller -	olin Morto	n		Drilling	g Equip	ment:		
		ty/or Vil		County:		Water Level O		3:		1				
			0	,		While Drilling: After Drilling:		ite/Time ite/Time			⊻ ₹	Depti Depti	n (m bgs) n (m bgs)	<u>6.5</u> 2.6
SAM	PLE		()											
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS		LITHOLO DESCRIPT				USCS	GRAPHIC LOG	WELL DIAGRAM	с	OMME	NTS
Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk		21 8 19 17 4		MADE C	GROUND: brownish grey sli fine to coarse. Gravel is sul e concrete and mudstone. GROUND: black clayey sand Sand is fine to coarse. Gra ded fine to coarse ash and ded fine to coarse ash and GROUND: very gravelly CL/ s subangular to subrounded	dy GRAVEL with vel is subangular clinker.	high col to	bble ent.				30mins	ned water e	el after
Signat	ure:			1	Firm:	TRC Companies 20 Red Lion Str	Limited	al c	1	14 4 4		1		Fax



				BOREHOLE LOG				
2	7			RC BOREHOLE LOG		В		D. CPBH01 Page 3 of 4
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS	LITHOLOGIC DESCRIPTION	NSCS	GRAPHIC LOG	WELL DIAGRAM	COMMENTS
SPT		8	14 — - - - - - - - - - - - - - - - - - - -	Soft grey slightly sandy CLAY. Sand is fine to medium. (ALLUVIUM)				
Bulk		6	- - - - - - - - - - - - - - - - - - -					
Sulk SPT		6	- - - - - - - - - - - - - - - - - - -					
Bulk		29	21	Stiff grey slightly gravelly very sandy CLAY. Gravel is subangular to subrounded fine to coarse Marl. (BLUE ANCHOR FORMATION)				

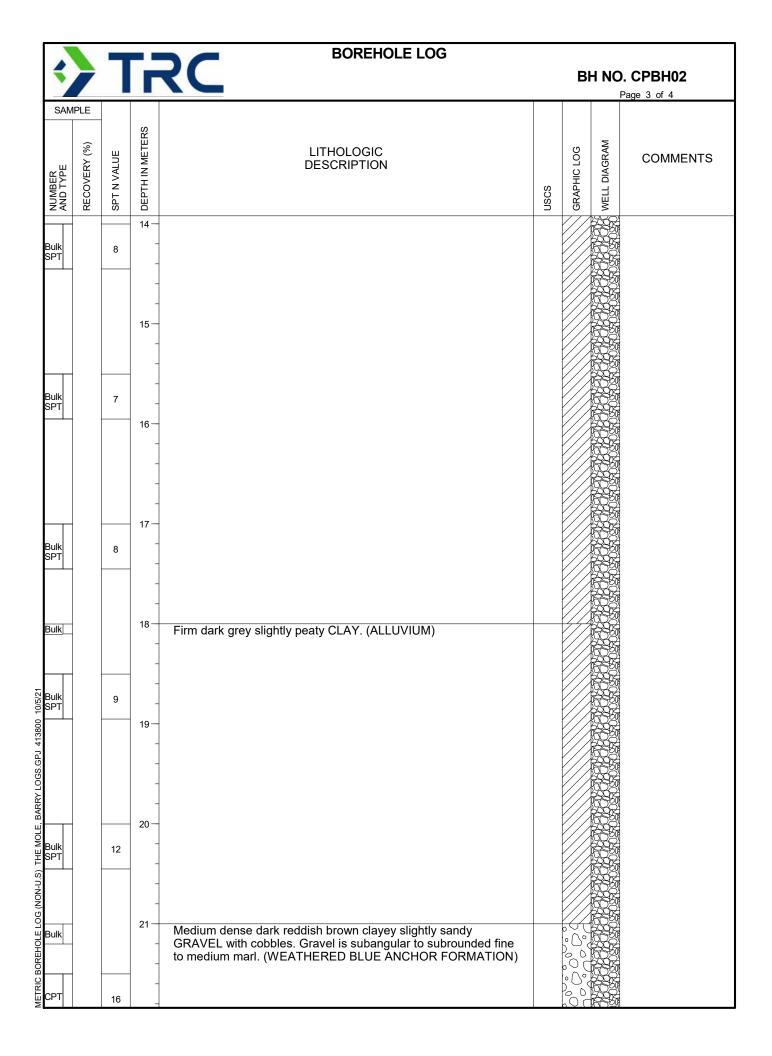


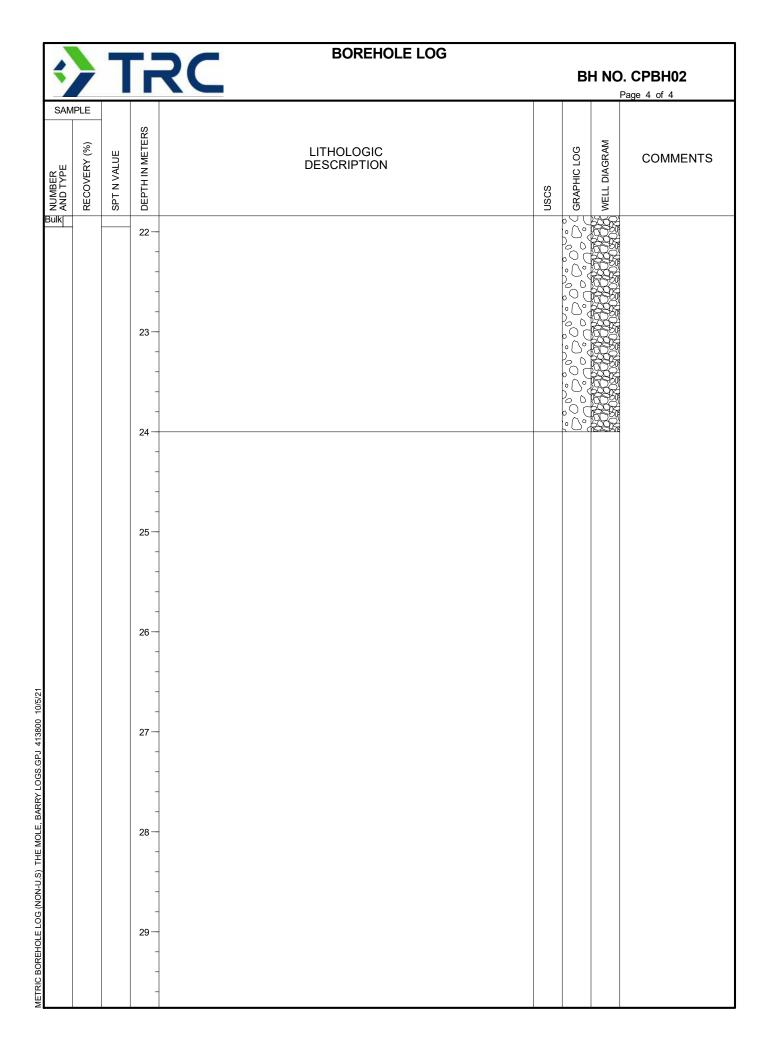


BOREHOLE LOG

Facilit	v/Proio	ct Nam	e.					Date Drilling Starte	.d.	Date D	rilling	Comple	ted:	Page	1 of 4 ct Number:	
Facilit	ултоје		е.	The Me	le, Barry			18/2/21	u.	Date D		2/21	leu.	Fioje	41380	
Drillin	g Firm:				Drilling Method:			Surface Elev. (m)	TOC	 Elevatior			Depth	ı (m bgs)		
								7.86			()		24.(
-	g Locat				1			Personnel Logged By - Colin	n Morton			Drilling		ipment:	1	
		64300 ity/or Vi		11565.79200 County:				Driller - Water Level Obser	vations.							
510111	0001/0	ity/or vi	lage.	County.				While Drilling: After Drilling:	Date	/Time /Time					th (m bgs) th (m bgs)	
SAN	IPLE	_	0													
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS				THOLOGIC SCRIPTION				uscs	GRAPHIC LOG	WELL DIAGRAM	C	COMME	NTS
Sulk SPT Sulk SPT Sulk SULK SPT Sulk SULK SULK SULK SULK SULK SULK SULK SULK		10 6 11 10 18		MADE C medium subangu	GROUND: dar GROUND: dar cobble conte ular to subrout GROUND: dar cobble conte cobble conte cobble conte cobble conte cobble conte coarse claystor	is sub e and r ck ver angula rk grey nt. San nded f	y sandy GRA r to subroun clayey sand nd is fine to c ine to coarse very gravell avel is suban I mudstone.	AVEL. Sand is f ded fine to coar y GRAVEL with brick and mud brick and mud y sandy CLAY gular to subrou	to fine to rse brid h is lstone. with unded sandy to	sk.					undwater leve s = 3.5m	el after
Signa	ture:						Firm: TRC	Companies Lir	mited				2	2		
_							20	Red Lion Stree	t, Lond	lon						Fa

				BOREHOLE LOG				
				RC BOREHOLE LOG		B		D. CPBH02 Page 2 of 4
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS	LITHOLOGIC DESCRIPTION	nscs	 GRAPHIC LOG 	WELL DIAGRAM	COMMENTS
Z X		26 4 5 6 11		MADE GROUND: dark greenish grey gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium mudstone. Soft dark greenish grey very sandy CLAY. Sand is fine to medium. (ALLUVIUM)				Groundwater Encountered at 10m

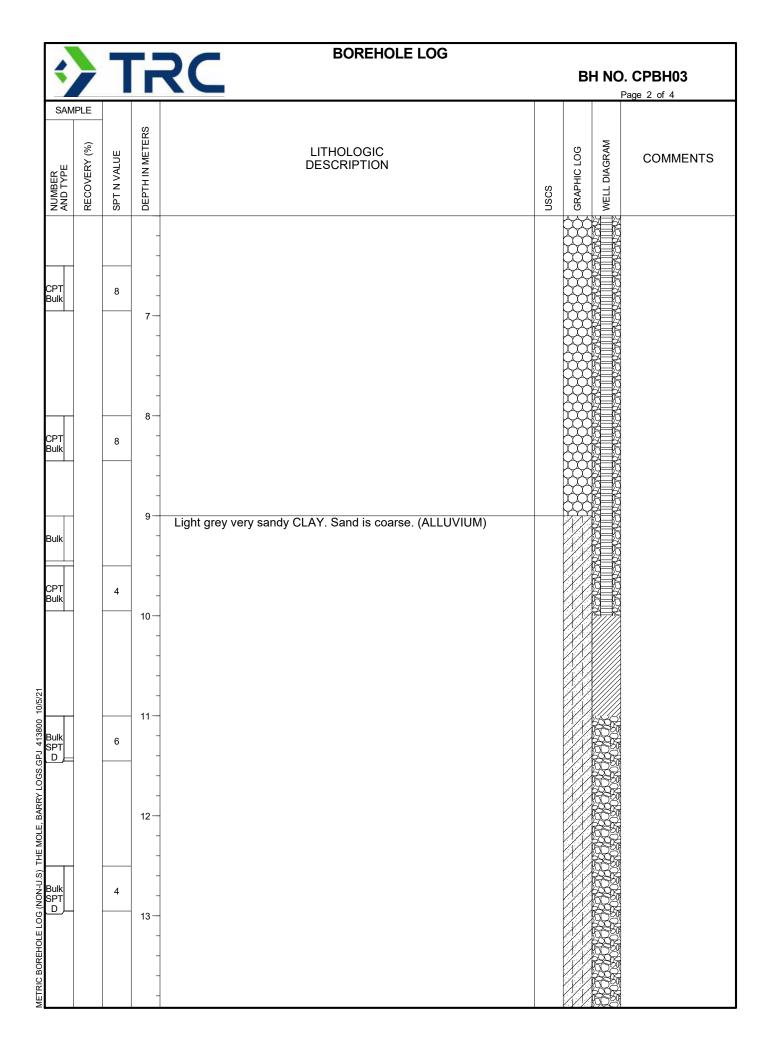


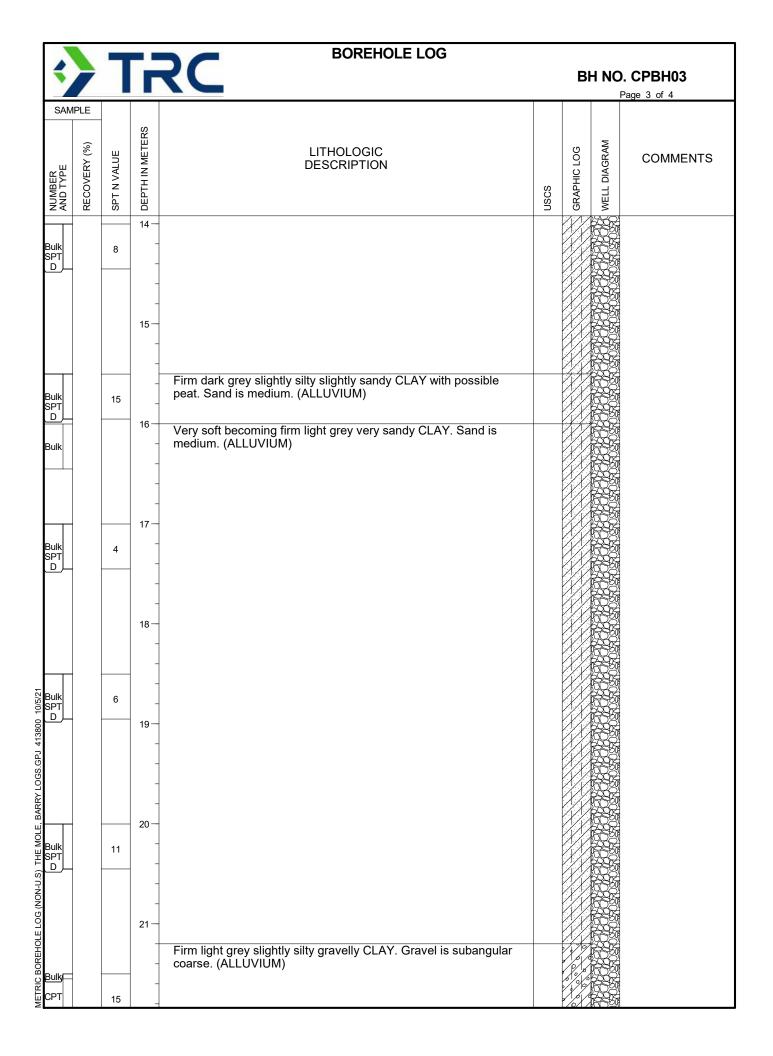


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BOREHOLE LOG

							Page 1 of 4	
Facility/Project Name:		Date Drilling Started	l:	Date Drilling		ed:	Project Number:	_
	lole, Barry	23/2/21			2/21)	413800	
Drilling Firm:	Drilling Method:	Surface Elev. (m) 7.74		levation (m)		Depth (m 25.0	n bgs) Borehole [ла. (СШ)
Boring Location:		Personnel				Equipm	nent:	
N: 167349.17100 E: 311462.536	00	Logged By - Martir Driller -						
Civil Town/City/or Village: County:		Water Level Observ While Drilling: After Drilling:	ations: Date/ ⁻ Date/ ⁻			∑ ₹	Depth (m bgs) Depth (m bgs)	4.3
SAMPLE								
NUMBER AND TYPE RECOVERY (%) SPT N VALUE DEPTH IN METERS	LITHO DESCR	ILOGIC RIPTION		USCS	GRAPHIC LOG	WELL DIAGRAM	COMMEN	ITS
ENV2 Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT Bulk CPT CPT Bulk CPT CPT Bulk CPT CPT CPT CPT CPT CPT CPT CPT CPT CPT	E GROUND: light brown cla nedium cobble content. Sa gular medium.	nd is medium. Gravel is		L.			Groundwater Enco at 4.3m Groundwater level 30mins = 4.5m	
Signature:	Firm	TRC Companies Lim 20 Red Lion Street,	nited , Londo	on				Fax



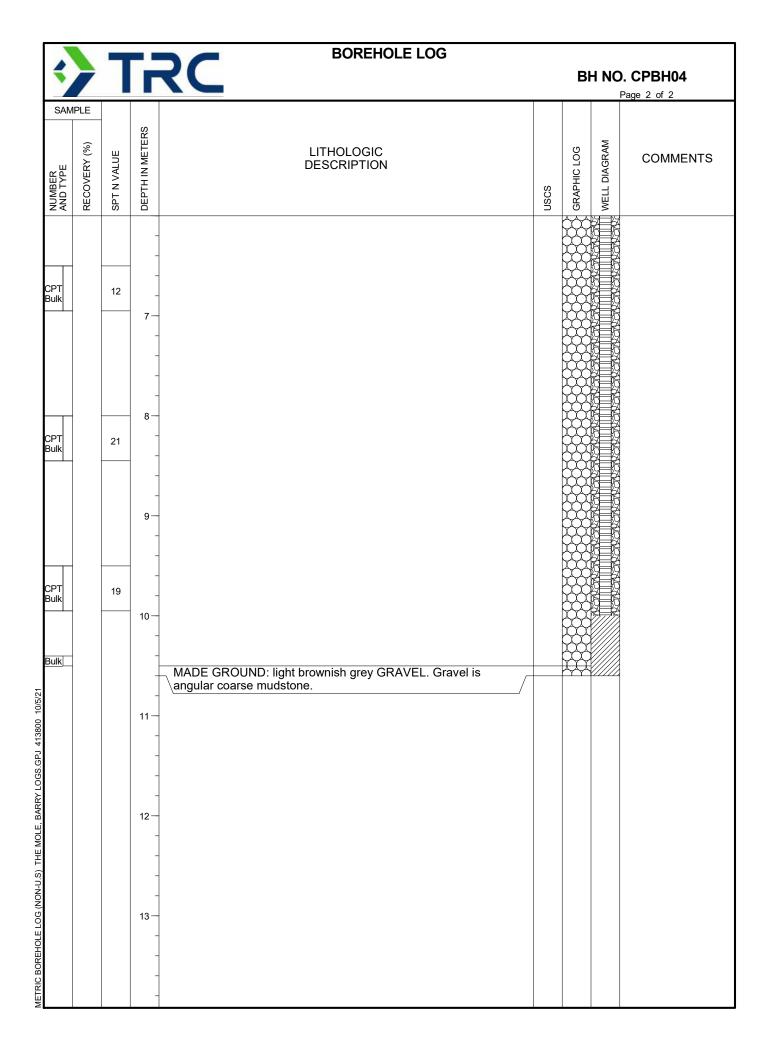


				BOREHOLE LOG				
5	7		ſ	RC BOREHOLE LOG		В		D. CPBH03 Page 4 of 4
SAM	1PLE							
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	WELL DIAGRAM	COMMENTS
			22	Firm light greenish grey slightly silty CLAY. (ALLUVIUM)				
CPT Bulk		>50	23	MUDSTONE. ((BLUE ANCHOR FORMATION)				
			 24 — 					
			- - 25 - -					
			- 26 -					
JGS.GPJ 413800 10/5/21			- - 27 - -					
METRIC BOREHOLE LOG (NON-U.S.) THE MOLE. BARRY LOGS.GPJ 413800 10/5/21			- - 28 - -					
30REHOLE LOG (NON-U			- 29					
METRICE			-					



BOREHOLE LOG

		-1.1									0		Page 1		
⊢acilit	y/Proje	ct Nam	e:		Do Port		Date Drilling Started	3:	Date D		Comple [:] 2/21	led:	Projec	t Number:	h
Drilling	g Firm:				Drilling Method:		25/2/21 Surface Elev. (m)	TOCE	Elevation			Depth (m þae)	413800 Borehole I	
<u>ب</u> ا الله الح	ייי <i>ן</i> יייני.						8.06			. ()		25.0	595)	DOI GITUIO I	Jia. (UII
	J Locat		E. 3	11352.1100)		Personnel Logged By - Martir Driller -	n Dorfling	9			g Equip	ment:		
		ity/or Vi		County:	,		Water Level Observ								
							While Drilling: After Drilling:		/Time /Time			∑ Ţ	Depti Depti	n (m bgs) n (m bgs)	_ <u>4_</u> 3.3
SAM	IPLE	-	0												
NUMBER AND TYPE	RECOVERY (%)	SPT N VALUE	DEPTH IN METERS			LITHOLOGIC DESCRIPTION				nscs	GRAPHIC LOG	WELL DIAGRAM	С	OMMEN	NTS
NV)—				MADE GRAVE mediun	EL. Sand is coa	< brownish black s rse. Gravel is ang	slightly clayey sa ular to subangul	andy lar							
:PT Sulk		15	1-	-											
vV2 PT julk		13	2-	-											
CPT Bulk		15	3-	with me	edium cobble co	t brown slightly cla ontent. Sand is co to coarse claysto	arse. Gravel is a	angula	r				Groui 30mins	ndwater leve = 3.3m	l after
			4-	Ţ											
CPT Bulk		9		-									at 4m	ndwater Enc	ountered
			5-	-											
CPT Sulk		17		-											
							_					~ <u>-</u> F			
Signat	ture:					Firm: TRC	Companies Lin Red Lion Street	nited , Lond	on						Fa





Annex D: Field Data

JOB DETAILS: Client: Site: Date:	ABP Barry, C 03/19/21								Quote Visit N Opera	No:	1 Matt C	of Credali	4	Project N	Manage	er:	Jake Towns	end			
					GAS	CONCE	INTRAT	ONS					VOL	ATILES		F	LOW DATA		WELL A	ND WATER DAT	1
Monitoring Point	Methan	e (%v/v)	%	LEL		dioxide v/v)	Carbon n (pp			ogen e (ppmv)	Oxyge	n (%v/v)	PID Peak (ppm)	Product thickness (mm)	Flow ra	ate (l/hr)	Differential	Time for flow	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady	Pressure (Pa)	(secs)	(1
CPBH01	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NA	NR	NR	NR	NR	NR	NR	Ī
CPBH02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NA	NR	NR	NR	NR	NR	NR	Į.
CPBH03 CPBH04	NR ND	NR ND	NR ND	NR ND	NR 0.4	NR 0.1	NR ND	NR ND	NR ND	NR ND	NR 20.4	NR 20.6	NR ND	NA	NR 0.2	NR 0.2	NR 0	NR 60	NR 3.05	NR 9.75	ť
																	-				t
Max Min	ND ND	ND ND	ND ND	ND ND	0.4	0.1	ND ND	ND ND	ND ND	ND ND	20.4 20.4	20.6	NR	ND 0.0	0.2	0.2	0.2	60 60	3.05	9.75	1
ND - Not detected NR - Not recorded NA - Non applicable										with X o	r enter da Wet Model Cloud Model Stead	rate y rate	plicable) 14:00 1025	Snow Strong Overcast Heavy End End Rising			Frozen				
INSTRUMENTAT	TION TEC	HNICAL	SPEC	IFICAT	IONS:																

INS

Ground gas meter:	GA2000plus; GA126	52		
Gas Range:	CH ₄ 0 - 100%	CO2 0 - 100%	O ₂	0 - 25%
Gas Flow range:	+100/-50 l/hour			
Differential Pressure:	(+/-) 1000 Pa			
Date of last calibration:	01/06/21			
Date of next calibration:	07/06/21			
			_	
Ambient air check:	CH ₄ 0.0	CO2 0.0	O ₂	20.8
			-	

Comments

Unable to open top hat, bolts too tight to move. Grease applied, (inapped 3 sets of alien keys, and no movement with hammer either.) Unable to open top hat, bolts too tight to move. Grease applied, (inapped 3 sets of alien keys, and no movement with hammer either.) Unable to open top hat, bolts too tight to move. Grease applied, (inapped 3 sets of alien keys, and no movement with hammer either.)

JOB DETAILS:							
Client:	ABP	Quote No:					
Site:	Barry, Cardiff	Visit No:	2	of	4		
Date:	03/25/21	Operator:	Matt Cr	edali		Project Manager:	Jake Townsend

					GAS	CONCE	INTRATI	ONS					VOL	ATILES	FLOW DATA				WELL AN	ID WATER DATA	Comments
Monitoring Point	Methane	e (%v/v)	%I	LEL		dioxide v/v)	Carbon m (ppi	nonoxide mv)	Hydr sulphide	ogen e (ppmv)	Oxyger	ו (%v/v)	PID Peak (ppm)	Product thickness (mm)	Flow ra	ite (l/hr)		Time for flow to equalise	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady	Pressure (Pa)	(secs)	(
CPBH01	ND	ND	ND	ND	1.0	1.0	3	3	ND	ND	16.0	16.2	ND	NA	-9.6	-2.1	-0.56	60	4.20	10.10	
CPBH02	ND	ND	ND	ND	0.7	0.5	1	1	ND	ND	19.4	20.2	ND	NA	2.7	0.3	-0.68	60	3.55	10.12	
CPBH03	0.5	0.1	10.0	2.0	0.3	0.1	2	2	ND	ND	19.9	20.4	ND	NA	0.2	0.2	-0.64	60	3.37	10.33	
CPBH04	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.4	20.6	ND	NA	0.3	0.2	0.58	60	3.61	9.75	
Max	0.5	0.1	10.0	2.0	1.0	1.0	3	3	ND	ND	20.4	20.6	NR	ND	2.7	0.3	1	60	4.20	10.33	
Min	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	16.0	16.2	NR	0.0	-9.6	-2.1	-0.7	60	3.37	9.75	

Frozen

ND - Not detected

NR - Not recorded

NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

METEOROLOGICAL AND SITE INFOR	MATION	:		(Select correct	ct box with X	or enter data, as	applicable)		
State of ground:	х	Dry		Moist		Wet		Snow	
Wind:		Calm		Light	Х	Moderate		Strong	_
Cloud cover:		None	x	Slight		Cloudy		Overcast	
Precipitation:	х	None		Slight		Moderate		Heavy	
Time monitoring performed:		-	12:45	Start		-	14:15	End	
Barometric pressure (mbar):			1024	Start			1027	End	
Pressure trend (Daily):				Falling		Steady	х	Rising	
Source:	Met O	office		_		-		_	
Air Temperature (Deg. C):			11	Before			12	After	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:	GA2000	plus; GA126	52				
Gas Range:	CH₄	0 - 100%	CO2	0 - 100%	O ₂	0 - 25%	
Gas Flow range:	+100/-5	0 l/hour					
Differential Pressure:	(+/-) 100	00 Pa					
Date of last calibration:		01/06/21					
Date of next calibration:		07/06/21					
	[1

Ambient air check:	CH₄	0.0	CO2	0.1	O ₂	20.7	
--------------------	-----	-----	-----	-----	-----------------------	------	--

JOB DETAILS: Client: Site: Date:	ABP Barry (T 03/30/21	,	1						Quote Visit N Opera	lo:	3 Matt C	of redali	4	Project N	lanage	r:	Jake Towns	end				
					GAS	CONCE	NTRATI	ONS					VOL	ATILES		F	LOW DATA		WELL AI	ND WATER DATA		Comments
Monitoring Point	Methane	e (%v/v)	%	LEL		dioxide v/v)	Carbon n (pp		Hydr sulphide	ogen e (ppmv)	Oxyger	n (%v/v)	PID Peak (ppm)	Product thickness (mm)	Flow ra	Flow rate (I/hr)		Time for flow	Water level (mbgl)	Depth of well (m)		
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady	borehole Pressure (Pa)	to equalise (secs)	(mbgi)			
CPBH01	ND	ND	ND	ND	1.1	1.0	4	1	ND	ND	16.8	16.8	ND	NA	0.3	0.3	-0.47	60	2.45	10.07	Sampled successfully.	
CPBH02	0.1	ND	2.0	ND	1.5	1.3	1	ND	ND	ND	19.9	19.8	ND	NA	-11.4	-4.0	-2.25	60	1.76	10.10	Sampled successfully.	
CPBH03	0.5	0.5	10.0	10.0	0.4	0.2	ND	ND	ND	ND	19.7	19.7	ND	NA	11.0	8.0	-0.46	60	1.61	10.32	Sampled successfully.	
CPBH04	0.1	0.1	2.0	2.0	0.1	0.1	1	1	ND	ND	19.9	20.1	ND	NA	3.1	3.1	-0.71	60	1.84	9.85	Sampled successfully.	
Max	0.5	0.5	10.0	10.0	1.5	1.3	4	1	ND	ND	19.9	20.1	NR	ND	11.0	8.0	0	60	2.45	10.32		
Min	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	16.8	16.8	NR	0.0	-11.4	-4.0	-2.3	60	1.61	9.85		
	ND -	Not deter	cted																			

Frozen

NR - Not recorded NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

METEOROLOGICAL AND SITE INFORM	ATION	:		(Select correct bo	x with X	or enter data, as a	pplicable)		
State of ground:	х	Dry		Moist		Wet		Snow	
Wind:		Calm	х	Light		Moderate		Strong	
Cloud cover:	х	None		Slight		Cloudy		Overcast	
Precipitation:	х	None		Slight		Moderate		Heavy	
Time monitoring performed:		-	13:15	Start			14:30	End	
Barometric pressure (mbar):			1027	Start			1027	End	
Pressure trend (Daily):				Falling	х	Steady		Rising	
Source:	Met O	ffice				-			
Air Temperature (Deg. C):			15	Before			15	After	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:	GA2000plus; GA12	2652		
Gas Range:	CH₄ 0 - 100%	CO2 0 - 100%	O ₂ 0 - 25%	
Gas Flow range:	+100/-50 l/hour			
Differential Pressure:	(+/-) 1000 Pa			
Date of last calibration:	01/06/21			
Date of next calibration:	07/06/21			
Ambient air check:	CH ₄ 0.0	CO ₂ 0.1	O ₂ 20.7	

x None

Met Office

CO2 0 - 100%

0.0

CO₂

GA2000plus; GA12652 **CH**₄ 0 - 100%

01/06/21

07/06/21

0.0

+100/-50 l/hour

(+/-) 1000 Pa

CH₄

Cloud cover: Precipitation:

Source:

Time monitoring performed:

Barometric pressure (mbar):

Air Temperature (Deg. C):

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Pressure trend (Daily):

Ground gas meter:

Differential Pressure:

Ambient air check:

Date of last calibration:

Date of next calibration:

Gas Range:

Gas Flow range:

JOB DETAILS: Client: Site: Date:	ABP Barry (TI 04/21/21		I						Quote Visit N Opera	lo:	4 Matt C	of redali	4	Project N	lanage	er:	Jake Towns	end					
		GAS CONCENTRATIONS VOLATILES											VOL	ATILES		F	LOW DATA		WELL AN	ID WATER DATA		Comments	
Monitoring Point	Methane	e (%v/v)	%I	LEL	Carbon (%	dioxide v/v)	Carbon m (ppi		Hydr sulphide	ogen e (ppmv)	Oxyger	n (%v/v)	PID Peak (ppm)	(mm)		ate (l/hr)	Differential borehole	Time for flow to equalise	Water level (mbgl)	Depth of well (m)			
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady	Pressure (Pa)	(secs)	(
CPBH01	0.1	0.1	1.0	1.0	0.9	0.8	1	1	ND	ND	19.1	19.1	ND	NA	0.5	0.3	-0.86	60	4.20		Sampled successfully.		
CPBH02	0.1	0.1	1.0	1.0	0.8	0.8	ND	ND	ND	ND	19.0	19.3	ND	NA	-8.1	-5.3	-3.14	60	3.52	10.10	Sampled successfully.		
CPBH03	ND	ND	ND	ND	0.9	0.2	ND	ND	ND	ND	18.0	18.2	ND	NA	6.2	2.1	-0.21	60	3.37		Sampled successfully.		
CPBH04	ND	ND	ND	ND	0.1	0.1	1	1	ND	ND	20.5	20.5	ND	NA	3.3	2.9	-1.24	60	3.61	9.85	Sampled successfully.		
Max	0.1	0.1	1.0	1.0	0.9	0.8	1	1	ND	ND	20.5	20.5	NR	ND	6.2	2.9	0	60	4.20	10.30			
Min	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	18.0	18.2	NR	0.0	-8.1	-5.3	-3.1	60	3.37	9.85			
	NR -	Not detec Not recor Non appl	ded																		-		
METEOROLOGI	CAL AND	SITE IN	FORM	ATION				(Select co	orrect bo	with X o	or enter d	ata, as a	oplicable)										
State of ground:				х	Dry			Moist			Wet	ĺ	. ,	Snow			Frozen						
Wind:					Calm			Light			Moder	ate		Strong		L							
Cloud cover:					•									- ×									
Ciouu cover.				X	None			Slight			Cloudy			Overcast									

Heavy

Rising

15:15 End

1025 End

13 After

Steady

Moderate

Slight

Falling

14:15 Start

1026 Start

14 Before

02

O₂

0 - 25%

20.8

5



Annex E: Laboratory Chemical Data





Jonathon Sander TRC Companies Ltd Work.Life Brown Street Manchester M2 1DH

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

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Samples Analysed:

Analytical Report Number : 21-70557

Project / Site name:	ABP The Mole 413800	Samples received on:	23/04/2021
Your job number:		Samples instructed on/ Analysis started on:	24/04/2021
Your order number:		Analysis completed by:	29/04/2021
Report Issue Number:	1	Report issued on:	29/04/2021



Rachel Bradley Deputy Quality Manager 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 :

3 water samples

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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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: 21-70557

Project / Site name: ABP The Mole 413800

Lab Sample Number				1847339	1847340	1847341
Sample Reference				CPBH01	CPBH02	CPBH04
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH	pH Units	N/A	ISO 17025	7.1	7.6	7.9
Sulphate as SO4	µg/l	45	ISO 17025	739000	311000	353000
Sulphate as SO4	mg/l	0.045	ISO 17025	739	311	353

Speciated PAHs						
Naphthalene	µg/I	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/I	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/I	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids						
Boron (dissolved)	µg/l	10	ISO 17025	940	370	470
Chuanaiuna (hausualant)	10/	E	ICO 1702E			

Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	3.9	4.3	3.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	33.0	15.4	21.7
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	0.11
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.9	4.3	3.0
Copper (dissolved)	µg/l	0.5	ISO 17025	21	15	23
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	6.1	3.2	4.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	21	12	15
Zinc (dissolved)	µg/l	0.5	ISO 17025	0.7	0.8	0.7





Analytical Report Number: 21-70557

Project / Site name: ABP The Mole 413800

Lab Sample Number	1847339	1847340	1847341				
Sample Reference				CPBH01	CPBH02	CPBH04	
Sample Number	None Supplied	None Supplied	None Supplied None Supplied				
Depth (m)	None Supplied	None Supplied					
Date Sampled	Deviating	eviating Deviating					
Time Taken	None Supplied	None Supplied	None Supplied				
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 TPH-CWG - Aliphatic >C5 - C6	ا/وµ	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)	µq/l	10	NONE	< 10	< 10	< 10	

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





Analytical Report Number : 21-70557 Project / Site name: ABP The Mole 413800

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, AI=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
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
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-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
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	w	NONE
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
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	w	NONE
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	w	ISO 17025

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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report



Analytical Report Number : 21-70557 Project / Site name: ABP The Mole 413800

Sample ID	Other ID			Sample Deviation	Test Name	Test Ref	Test Deviation
CPBH01	None Supplied	W	1847339	ab	BTEX and MTBE in water (Monoaromatics)	L073B-PL	b
CPBH02	None Supplied	W	1847340	ab	BTEX and MTBE in water (Monoaromatics)	L073B-PL	b
CPBH04	None Supplied	W	1847341	ab	BTEX and MTBE in water (Monoaromatics)	L073B-PL	b



Martin Dorfling TRC Companies Ltd 20 Red Lion Street, London WC1R 4PQ



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e: mdorfling@trcsolutions.com

Analytical Report Number : 21-59257

Replaces Analytical Report Number: 21-59257, issue no. 1 Additional analysis undertaken.

Project / Site name:	413 800	Samples received on:	26/02/2021
Your job number:	413 800	Samples instructed on/ Analysis started on:	26/02/2021
Your order number:		Analysis completed by:	11/03/2021
Report Issue Number:	2	Report issued on:	12/03/2021
Samples Analysed:	4 soil samples		

Signed:

Agnieszka Czerwińska Technical Reviewer (Reporting Team) 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	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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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	1784880	1784881	1784882	1784883			
Sample Reference	CPBH03	CPBH03	CPBH04	CPBH04			
Sample Number	ENV1	ENV2	ENV1	ENV2			
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/02/2021	23/02/2021	25/02/2021	25/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.7	13	11	11
Total mass of sample received	kg	0.001	NONE	1.3	1.2	1.0	1.2
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	-	-	Amosite	Chrysotile
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025 ISO 17025	Not-detected	- Not-detected	Detected	Detected
Asbestos Quantification (Stage 2)	турс %	0.001	ISO 17025 ISO 17025	-		< 0.001	< 0.001
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025		-	< 0.001	< 0.001
General Inorganics			<u> </u>		1		
pH - Automated	pH Units	N/A	MCERTS	10.5	10.5	8.6	9.1
Speciated PAHs Naphthalene	mg/kg	0.05	MCERTS	0.37	0.25	< 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	0.49	0.54	< 0.05	0.63
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.70	0.64	< 0.05	0.46
Pyrene	mg/kg	0.05	MCERTS	0.75	0.75	< 0.05	0.56
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.48	0.50	< 0.05	0.27
Chrysene	mg/kg	0.05	MCERTS	0.47	0.41	< 0.05	0.32
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.75	0.83	< 0.05	0.43
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.26	0.28	< 0.05	0.15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.70	0.66	< 0.05	0.24
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.35	0.42	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.49	0.53	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.81	5.81	< 0.80	3.06
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.9	10	12	6.2
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	2.0	0.6	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0

cauman (aqua regia extractable)				< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	14	16	17	12
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	16	17	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	28	42	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	300	160	64	37
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	18	23	20	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	76	90	91	62





Lab Sample Number	1784880	1784881	1784882	1784883			
Sample Reference				CPBH03	CPBH03	CPBH04	CPBH04
Sample Number				ENV1	ENV2	ENV1	ENV2
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/02/2021	23/02/2021	25/02/2021	25/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics & Oxygenates	-		-	-			
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
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons





Lab Sample Number	1784880	1784881	1784882	1784883			
Sample Reference	CPBH03	CPBH03	CPBH04	CPBH04			
Sample Number	ENV1	ENV2	ENV1	ENV2			
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/02/2021	23/02/2021	25/02/2021	25/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.6	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	11	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	16	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	84	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	110	< 10	< 10
	-		_				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10





Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1784882	CPBH04		115	Loose Fibres	Amosite	< 0.001	< 0.001
1784883	CPBH04		132	Loose Fibres	Chrysotile	< 0.001	< 0.001

Both Qualitative and Quantitative Analyses are UKAS accredited.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.





Analytical Report Number : 21-59257

Project / Site name: 413 800

* 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 *
1784880	CPBH03	ENV1	None Supplied	Brown loam and clay with gravel and vegetation.
1784881	CPBH03	ENV2	None Supplied	Brown clay and loam with gravel and vegetation.
1784882	CPBH04	ENV1	None Supplied	Brown clay and loam with gravel and vegetation.
1784883	CPBH04	ENV2	None Supplied	Brown clay and sand with gravel.





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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	w	NONE
Speciated EPA-16 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	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
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
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	w	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025

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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



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Analytical Report Number : 21-58009

Project / Site name:	41380	Samples received on:	22/02/2021
Your job number:	41380	Samples instructed on/ Analysis started on:	22/02/2021
Your order number:		Analysis completed by:	26/02/2021
Report Issue Number:	1	Report issued on:	26/02/2021
Samples Analysed:	2 soil samples		



Will Fardon Technical Reviewer (CS Team) 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	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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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 1777099 1777100 Sample Reference CPBH02 CPBH02 Sample Number ENV1 ENV2 Depth (m) 1.50 4.40 Date Sampled Deviating Deviating Time Taken None Supplied None Supplied Limit of detection Accreditation Status Analytical Parameter Units (Soil Analysis) % 0.1 NONE Stone Content < 0.1 < 0.1 Moisture Content % 0.01 NONE 12 25 kg 0.001 NONE Total mass of sample received 1.2 1.2 N/A ISO 17025 Not-detected Asbestos in Soil Туре -**General Inorganics** pH - Automated pH Units N/A MCERTS 8.4 8.2 Speciated PAHs Naphthalene mg/kg 0.05 MCERTS < 0.05 < 0.05 0.05 MCERTS mg/kg Acenaphthylene < 0.05 < 0.05

Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.38	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.4	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.38	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

	Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.16	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.7	11
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	6.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	10	24
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	10	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	47	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	78	35
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	110

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0

Petroleum Hydrocarbons

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report relate only to the sample(s) submitted for testing.





Lab Sample Number	1777099	1777100			
Sample Reference	CPBH02	CPBH02			
Sample Number	ENV1	ENV2			
Depth (m)	1.50	4.40			
Date Sampled	Deviating	Deviating			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10
	-				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10





* 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 *
1777099	CPBH02	ENV1	1.5	Brown clay and sand with gravel and vegetation.
1777100	CPBH02	ENV2	4.4	Brown clay and sand with vegetation and gravel





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

Analytical Test Name Analytical Method Description A		Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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	water soluble, in soil Determination of water soluble boron in soil by hot water water soluble boron is soil by hot water water soluble boron is soil by hot water soluble boron is soil by hot water water soluble boron is soluble boro		L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	w	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 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	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
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
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	w	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	w	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-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.



:	Sample ID	Other ID	Sample Type		Sample Deviation	Test Name	Test Ref	Test Deviation
	CPBH02	ENV1	S	1777099	а	None Supplied	None Supplied	None Supplied
I	CPBH02	ENV2	S	1777100	а	None Supplied	None Supplied	None Supplied



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Analytical Report Number : 21-57125

Replaces Analytical Report Number: 21-57125, issue no. 1 Additional analysis undertaken.

Project / Site name:	413800	Samples received on:	17/02/2021
Your job number:	413800	Samples instructed on/ Analysis started on:	17/02/2021
Your order number:		Analysis completed by:	12/03/2021
Report Issue Number:	2	Report issued on:	12/03/2021
Samples Analysed:	13 soil samples		



Joanna Wawrzeczko Technical Reviewer (Reporting Team) 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	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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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.





				177/05/	1771050	1771050	4774054	4774055
Lab Sample Number				1771951	1771952	1771953	1771954	1771955
Sample Reference		CPBH01	CPBH01	TP01	TP01	TP02		
Sample Number		ENV1	ENV2	ENV1	ENV2	ENV1		
Depth (m)	1.60	3.80	0.10	2.80	0.80			
Date Sampled Time Taken				15/02/2021 None Supplied				
		E		None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	16	13	12	13
Total mass of sample received	kg	0.001	NONE	0.90	1.0	1.2	1.2	1.2
					-		-	
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	-	-	Amosite	-	-
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	-	Detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	-	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.2	8.7	7.7	9.0	8.2
Speciated PAHs		-	-		-		-	
Naphthalene	mg/kg	0.05	MCERTS	1.6	< 0.05	0.96	< 0.05	1.2
Acenaphthylene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	< 0.05	0.17
Acenaphthene	mg/kg	0.05	MCERTS	0.21	< 0.05	0.25	< 0.05	0.52
Fluorene	mg/kg	0.05	MCERTS	0.47	< 0.05	0.28	< 0.05	0.53
Phenanthrene	mg/kg	0.05	MCERTS	4.0	0.31	2.0	< 0.05	3.9
Anthracene	mg/kg	0.05	MCERTS	0.52	< 0.05	0.29	< 0.05	0.58
Fluoranthene	mg/kg	0.05	MCERTS	4.0	0.30	2.3	< 0.05	4.4
Pyrene	mg/kg	0.05	MCERTS	3.4	0.28	2.1	< 0.05	4.0
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.1	0.23	1.5	< 0.05	3.0
Chrysene	mg/kg	0.05	MCERTS	2.5	0.17	1.7	< 0.05	2.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.6	< 0.05	2.0	< 0.05	3.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	0.78	< 0.05	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.0	< 0.05	1.7	< 0.05	2.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	< 0.05	0.93	< 0.05	1.4
Dibenz(a,h)anthracene	mg/kg mg/kg	0.05	MCERTS MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	шу/ку	0.05	PICERTS	1.3	< 0.05	1.6	< 0.05	1.6
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	27.2	1.29	18.5	< 0.80	30.5
Specialeu Iulai LEA-10 FAES				27.2	1.29	10.5	< 0.80	30.5
Heavy Metals / Metalloids					-			
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	8.6	18	8.8	21
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	4.5	0.9	2.8	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	6.1	31	23	21	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	6.3	32	24	21	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	190	40	200	24	140
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200	46	440	28	380
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.6	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	33	34	22	30
Selenium (aqua regia extractable)	mg/kg mg/kg	1	MCERTS MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	тту/кд	1	PICER13	130	69	530	88	210





Project /	Site name:	413800	

Lab Sample Number				1771951	1771952	1771953	1771954	1771955
Sample Reference				CPBH01	CPBH01	TP01	TP01	TP02
Sample Number				ENV1	ENV2	ENV1	ENV2	ENV1
Depth (m)				1.60	3.80	0.10	2.80	0.80
Date Sampled	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Status Limit of detection Units						
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	42	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	35	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	14	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	3.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons		0.001						
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.3	< 2.0	3.1	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	14	< 8.0	22	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg mg/kg	8 10	MCERTS MCERTS	110	< 8.0	45	< 8.0	37
TPH-CWG - Aliphatic (EC5 - EC35)	шу/ку	10	MCERTS	130	< 10	70	< 10	40
		0.001						
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	0.042	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	0.035	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	0.017	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.2	< 1.0	7.9	4.3	8.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	2.7	< 2.0	15	3.4	7.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	13	< 10	38	< 10	15
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	15	< 10	92	< 10	18
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	34	< 10	150	12	48





Lab Cample Number				1771056	1771057	1771050	1771050	1771000
Lab Sample Number				1771956	1771957	1771958	1771959	1771960
Sample Reference				TP04	TP04	TP05	TP05	TP06
Sample Number				ENV1	ENV2	ENV1	ENV2	ENV1
Depth (m)				1.40	2.80	1.10	2.40	1.00
Date Sampled				15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021
Time Taken			-	None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	18	7.1	22	14
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.5	1.0
	-		-	-	-		-	-
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	Chrysotile	-	-	-	-
Asbestos in Soil	Туре	N/A	ISO 17025	Detected	-	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	-	-	-
General Inorganics		-						_
pH - Automated	pH Units	N/A	MCERTS	8.0	8.1	8.3	8.0	8.0
Speciated PAHs				-				
Naphthalene	mg/kg	0.05	MCERTS	1.6	0.73	0.49	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.13	< 0.05	< 0.05	< 0.05	0.16
Acenaphthene	mg/kg	0.05	MCERTS	0.20	0.30	< 0.05	0.29	0.46
Fluorene	mg/kg	0.05	MCERTS	0.47	0.54	< 0.05	0.18	0.35
Phenanthrene	mg/kg	0.05	MCERTS	2.6	1.2	1.6	1.4	2.5
Anthracene	mg/kg	0.05	MCERTS	0.43	< 0.05	0.49	0.23	0.63
Fluoranthene	mg/kg	0.05	MCERTS	2.1	0.63	2.0	1.8	4.8
Pyrene	mg/kg	0.05	MCERTS	1.8	0.65	1.4	1.7	3.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.0	0.51	0.95	0.86	3.4
Chrysene	mg/kg	0.05	MCERTS	1.8	0.47	0.76	0.64	4.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.7	0.56	0.85	0.73	5.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.2	0.21	0.43	0.36	2.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.5	0.39	0.52	0.74	4.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	0.29	0.50	0.32	2.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.99
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.7	0.36	0.52	0.40	3.1
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	21.7	6.82	10.6	9.54	40.6
Heavy Metals / Metalloids		-		-	-	-	-	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	13	14	12	7.7
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	1.1	1.0	1.4	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	24	18	14	18	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	18	14	18	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	260	61	130	17	110
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200	64	110	38	67
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34	20	17	16	41
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (agua regia extractable)	mg/kg	1	MCERTS	240	87	120	76	500





Lab Sample Number		1771956	1771957	1771958	1771959	1771960		
Sample Reference				TP04	TP04	TP05	TP05	TP06
Sample Number				ENV1	ENV2	ENV1	ENV2	ENV1
Depth (m)				1.40	2.80	1.10	2.40	1.00
Date Sampled	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates					-		-	
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	0.080	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	13	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	16	130	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	66	170	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	130	87	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	210	410	< 10	< 10	< 10
	I		· · · · · · · · · · · · · · · · · · ·					
TPH_CWG - Aromatic > EC5 - EC7	ma/ka	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	5.9	13	4.4	< 1.0	7.1
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	12	49	7.5	< 2.0	16
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	32	67	16	< 10	27
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	62	44	11	< 10	51
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	110	170	38	< 10	100





Lab Sample Number				1771961	1771962	1771963
Sample Reference				TP06	TP07	TP07
Sample Number				ENV2	ENV1	ENV2
Depth (m)				2.60	0.50	2.50
Date Sampled				15/02/2021	15/02/2021	15/02/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	13	16
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2
Asbestos in Soil Screen / Identification Name	Туре	N/A	ISO 17025	-	-	-
Asbestos in Soil	Туре	N/A	ISO 17025	-	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	8.5	8.3	8.5
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.96	0.74	1.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.15	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.61
Fluorene	mg/kg	0.05	MCERTS	0.19	0.19	0.42
Phenanthrene	mg/kg	0.05	MCERTS	1.6	1.3	3.4
Anthracene	mg/kg	0.05	MCERTS	0.27	0.32	0.85
Fluoranthene	mg/kg	0.05	MCERTS	1.7	1.7	4.0
Pyrene	mg/kg	0.05	MCERTS	1.9	1.5	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	1.1	2.6
Chrysene	mg/kg	0.05	MCERTS	1.1	1.4	2.9
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.7	1.5	2.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.51	0.59	1.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.4	1.1	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	0.73	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	0.83	1.4
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	15.0	13.2	28.3
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	14	18
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	0.7	2.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	19	25	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	26	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	78	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	320	250	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	1.1	1.8
Nickol (agua rogia oxtractablo)	ma/ka	1	MCEDIC	20	22	22

MCERTS

MCERTS

MCERTS

29

< 1.0

290

32

< 1.0

200

33

< 1.0

190

mg/kg

mg/kg

mg/kg

1

1

1

Nickel (aqua regia extractable)

Zinc (aqua regia extractable)

Selenium (aqua regia extractable)





Lab Sample Number				1771961	1771962	1771963
Sample Reference				TP06	TP07	TP07
Sample Number	ENV2	ENV1	ENV2			
Depth (m)	2.60	0.50	2.50			
Date Sampled	15/02/2021	15/02/2021	15/02/2021			
Time Taken	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Monoaromatics & Oxygenates						
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons						

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	5.0	2.5
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	8.4	9.3
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	25
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	17	44
TPH_CWG - Aromatic >EC5 - EC7	ma/ka	0.001	MCERTS	< 0.001	< 0.001	< 0.001

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	3.4	7.1
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.7	16
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	10	< 10	28
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	21	19	38
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	32	38	89





Analytical Report Number:21-57125Project / Site name:413800Your Order No:1000

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1771953	TP01	0.10	139	Loose Fibres	Amosite	< 0.001	< 0.001
1771956	TP04	1.40	131	Loose Fibres	Chrysotile	< 0.001	< 0.001

Both Qualitative and Quantitative Analyses are UKAS accredited.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.





* 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 *
1771951	CPBH01	ENV1	1.6	Black clay and sand.
1771952	CPBH01	ENV2	3.8	Brown clay and loam.
1771953	TP01	ENV1	0.1	Brown loam and clay with gravel and vegetation.
1771954	TP01	ENV2	2.8	Brown clay and loam with gravel and vegetation.
1771955	TP02	ENV1	0.8	Brown loam and clay with gravel and vegetation.
1771956	TP04	ENV1	1.4	Brown loam and clay with gravel and vegetation.
1771957	TP04	ENV2	2.8	Brown clay and loam with gravel and vegetation.
1771958	TP05	ENV1	1.1	Brown loam and clay with gravel and vegetation.
1771959	TP05	ENV2	2.4	Grey clay and sand.
1771960	TP06	ENV1	1	Brown clay and loam with gravel.
1771961	TP06	ENV2	2.6	Brown clay and loam with gravel.
1771962	TP07	ENV1	0.5	Brown loam and clay with gravel and vegetation.
1771963	TP07	ENV2	2.5	Brown clay and loam with gravel and vegetation.





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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Itetals in soil by ICP-OES Determination of metals in soil by aqua-regia digestion followed by ICP-OES.		L038-PL	D	MCERTS
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	w	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	w	NONE
Speciated EPA-16 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	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
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
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	w	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	w	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025

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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



Annex F: Screened Data

TRC Companies Limited - Soil Assessment Record (residential without the consumption of homegrown produce)							
Contract Engineer	Colin Morton						
Project/Site Name	The Mole, Barry						
Project Number	413800.0000.0000						

Sample Reference	CPBH01	CPBH01	CPBH02	CPBH02	CPBH03	CPBH03	CPBH04	CPBH04	TP01	TP01	TP02	TP04	TP04	TP05	TP05	TP06
Depth	1.60	3.80	1.50	4.40	0.5	4.0	0.3	2.2	0.10	2.80	0.80	1.40	2.80	1.10	2.40	1.00
Date Sampled	15/02/2021	15/02/2021	Deviating	Deviating	23/02/2021	23/02/2021	25/02/2021	25/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021
Time Taken	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Analytical Parameter																					
		Screening																			
(Soil Analysis)	Units	Criteria																			
Stone Content	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	-	15	16	12	25	7.7	13	11	11	13	12	13	16	18	7.1	22	14	16	13	16
							I			1		I				1					
Speciated PAHs																					
Naphthalene	mg/kg	2.3	1.6	< 0.05	< 0.05	< 0.05	0.37	0.25	< 0.05	< 0.05	0.96	< 0.05	1.2	1.6	0.73	0.49	< 0.05	< 0.05	0.96	0.74	1.1
Acenaphthylene	mg/kg	2900	0.29	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	0.13	< 0.05	< 0.05	< 0.05	0.16	< 0.05	0.15	< 0.05
Acenaphthene	mg/kg	3000	0.20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.25	< 0.05	0.52	0.2	0.3	< 0.05	0.29	0.46	< 0.05	0.14	0.61
Fluorene	mg/kg	2800	0.47	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.28	< 0.05	0.53	0.47	0.54	< 0.05	0.18	0.35	0.19	0.19	0.42
Phenanthrene	mg/kg	1300	4	0.31	0.38	< 0.05	0.49	0.54	< 0.05	0.63	2	< 0.05	3.9	2.6	1.2	1.6	1.4	2.5	1.6	1.3	3.4
Anthracene	mg/kg	31000	0.52	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.29	< 0.05	0.58	0.43	< 0.05	0.49	0.23	0.63	0.27	0.32	0.85
Fluoranthene	mg/kg	1500	4	0.3	0.4	< 0.05	0.7	0.64	< 0.05	0.46	2.3	< 0.05	4.4	2.1	0.63	2	1.8	4.8	1.7	1.7	4
Pyrene	mg/kg	3700	3.4	0.28	0.38	< 0.05	0.75	0.75	< 0.05	0.56	2.1	< 0.05	4	1.8	0.65	1.4	1.7	3.9	1.9	1.5	3.5
Benzo(a)anthracene	mg/kg	11	2.1	0.23	< 0.05	< 0.05	0.48	0.5	< 0.05	0.27	1.5	< 0.05	3	2	0.51	0.95	0.86	3.4	1.3	1.1	2.6
Chrysene	mg/kg	30	2.5	0.17	< 0.05	< 0.05	0.47	0.41	< 0.05	0.32	1.7	< 0.05	2.6	1.8	0.47	0.76	0.64	4.3	1.1	1.4	2.9
Benzo(b)fluoranthene	mg/kg	3.9	2.6	< 0.05	< 0.05	< 0.05	0.75	0.83	< 0.05	0.43	2	< 0.05	3.3	2.7	0.56	0.85	0.73	5.5	1.7	1.5	2.7
Benzo(k)fluoranthene	mg/kg	110	1.1	< 0.05	< 0.05	< 0.05	0.26	0.28	< 0.05	0.15	0.78	< 0.05	1.1	1.2	0.21	0.43	0.36	2.6	0.51	0.59	1.4
Benzo(a)pyrene	mg/kg	2.5	2	< 0.05	< 0.05	< 0.05	0.7	0.66	< 0.05	0.24	1.7	< 0.05	2.4	1.5	0.39	0.52	0.74	4.8	1.4	1.1	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	45	1.1	< 0.05	< 0.05	< 0.05	0.35	0.42	< 0.05	< 0.05	0.93	< 0.05	1.4	1.5	0.29	0.5	0.32	2.9	1.1	0.73	1.1
Dibenz(a,h)anthracene	mg/kg	0.31	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.99	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	360	1.3	< 0.05	< 0.05	< 0.05	0.49	0.53	< 0.05	< 0.05	1.6	< 0.05	1.6	1.7	0.36	0.52	0.4	3.1	1.3	0.83	1.4
Total PAH																					
Speciated Total EPA-16 PAHs	mg/kg	-	27.2	1.29	1.16	< 0.80	5.81	5.81	< 0.80	3.06	18.5	< 0.80	30.5	21.7	6.82	10.6	9.54	40.6	15	13.2	28.3
	-	-	-																		
Heavy Metals / Metalloids																					
Arsenic	mg/kg	40	15	8.6	5.7	11	8.9	10	12	6.2	18	8.8	21	19	13	14	12	7.7	12	14	18
Boron	mg/kg	11000	0.5	4.5	0.7	6.2	2.6	2	0.6	0.8	0.9	2.8	1.9	1.6	1.1	1	1.4	1.3	1.9	0.7	2.2
Cadmium	mg/kg	85	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	910	6.1	31	10	24	14	16	17	12	23	21	21	24	18	14	18	19	19	25	20
Copper	mg/kg	7100	190	40	47	22	30	28	42	29	200	24	140	260	61	130	17	110	120	78	130
Lead	mg/kg	330	200	46	78	35	300	160	64	37	440	28	380	200	64	110	38	67	320	250	140
Elemental Mercury	mg/kg	1.2	< 0.3	< 0.3	0.4	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.6	< 0.3	< 0.3	0.5	< 0.3	< 0.3	< 0.3	< 0.3	0.9	1.1	1.8
Inorganic Mercury	mg/kg	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Mercury	mg/kg	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	180	15	33	10	22	18	23	20	14	34	22	30	34	20	17	16	41	29	32	33
Selenium Zinc	mg/kg mg/kg	430 40000	< 1.0 130	< 1.0 69	< 1.0 49	< 1.0 110	< 1.0 76	< 1.0 90	< 1.0 91	< 1.0 62	< 1.0 530	< 1.0 88	< 1.0 210	< 1.0 240	< 1.0 87	< 1.0 120	< 1.0 76	< 1.0 500	< 1.0 290	< 1.0 200	< 1.0 190
	ilig/kg	40000	150	03	43	110	10	30	31	02	550	00	210	240	07	120	10	500	230	200	130
Monoaromatics																					
Benzene	µg/kg	380	42	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	880000	35	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	83000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	161000	14	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	88000	3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	23400	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
· · · · · · · · · · · · · · · · · · ·																					
Petroleum Hydrocarbons																					
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	42	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	100	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	27	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.08	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	130	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13	< 1.0	< 1.0	< 1.0	< 1.0	5	2.5
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	1100	2.3	< 2.0	< 2.0	< 2.0	< 2.0	11	< 2.0	< 2.0	3.1	< 2.0	< 2.0	16	130	< 2.0	< 2.0	< 2.0	< 2.0	8.4	9.3
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	65000	14	< 8.0	< 8.0	< 8.0	< 8.0	16	< 8.0	< 8.0	22	< 8.0	< 8.0	66	170	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
· · · · · · · · · · · · · · · · · · ·	mg/kg	65000	110	< 8.0	< 8.0	< 8.0	< 8.0	84	< 8.0	< 8.0	45	< 8.0	37	130	87	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	25
TPH-CWG - Aliphatic >EC21 - EC35		I -	130	< 10	< 10	< 10	< 10	110	< 10	< 10	70	< 10	40	210	410	< 10	< 10	< 10	< 10	17	44
	mg/kg																				
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	-																			
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons		•			1	1				1	1		1			-		1		1	
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7	mg/kg	370	0.042	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8	mg/kg mg/kg	860	0.035	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8 TPH-CWG - Aromatic >EC8 - EC10	mg/kg mg/kg mg/kg	860 47	0.035 0.017	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001	< 0.001 < 0.001						
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8 TPH-CWG - Aromatic >EC8 - EC10 TPH-CWG - Aromatic >EC10 - EC12	mg/kg mg/kg mg/kg mg/kg	860 47 250	0.035 0.017 3.2	< 0.001 < 0.001 < 1.0	< 0.001 < 0.001 7.9	< 0.001 < 0.001 4.3	< 0.001 < 0.001 8	< 0.001 < 0.001 5.9	< 0.001 < 0.001 13	< 0.001 < 0.001 4.4	< 0.001 < 0.001 < 1.0	< 0.001 < 0.001 7.1	< 0.001 < 0.001 < 1.0	< 0.001 < 0.001 3.4	< 0.001 < 0.001 7.1						
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8 TPH-CWG - Aromatic >EC8 - EC10 TPH-CWG - Aromatic >EC10 - EC12 TPH-CWG - Aromatic >EC10 - EC12	mg/kg mg/kg mg/kg mg/kg mg/kg	860 47 250 1800	0.035 0.017 3.2 2.7	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 7.9 15	< 0.001 < 0.001 4.3 3.4	< 0.001 < 0.001 8 7.3	< 0.001 < 0.001 5.9 12	< 0.001 < 0.001 13 49	< 0.001 < 0.001 4.4 7.5	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 7.1 16	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 3.4 5.7	< 0.001 < 0.001 7.1 16						
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8 TPH-CWG - Aromatic >EC6 - EC10 TPH-CWG - Aromatic >EC6 - EC10 TPH-CWG - Aromatic >EC10 - EC12 TPH-CWG - Aromatic >EC10 - EC12 TPH-CWG - Aromatic >EC12 - EC16 TPH-CWG - Aromatic >EC16 - EC21	mg/kg mg/kg mg/kg mg/kg mg/kg	860 47 250 1800 1900	0.035 0.017 3.2 2.7 13	< 0.001 < 0.001 < 1.0 < 2.0 < 10	< 0.001 < 0.001 7.9 15 38	< 0.001 < 0.001 4.3 3.4 < 10	< 0.001 < 0.001 8 7.3 15	< 0.001 < 0.001 5.9 12 32	< 0.001 < 0.001 13 49 67	< 0.001 < 0.001 4.4 7.5 16	< 0.001 < 0.001 < 1.0 < 2.0 < 10	< 0.001 < 0.001 7.1 16 27	< 0.001 < 0.001 < 1.0 < 2.0 10	< 0.001 < 0.001 3.4 5.7 < 10	< 0.001 < 0.001 7.1 16 28						
TPH-CWG - Aliphatic >EC21 - EC35 TPH-CWG - Aliphatic (EC5 - EC35) Petroleum Hydrocarbons TPH-CWG - Aromatic >EC5 - EC7 TPH-CWG - Aromatic >EC7 - EC8 TPH-CWG - Aromatic >EC8 - EC10 TPH-CWG - Aromatic >EC10 - EC12 TPH-CWG - Aromatic >EC10 - EC12	mg/kg mg/kg mg/kg mg/kg mg/kg	860 47 250 1800	0.035 0.017 3.2 2.7	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 7.9 15	< 0.001 < 0.001 4.3 3.4	< 0.001 < 0.001 8 7.3	< 0.001 < 0.001 5.9 12	< 0.001 < 0.001 13 49	< 0.001 < 0.001 4.4 7.5	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 7.1 16	< 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 3.4 5.7	< 0.001 < 0.001 7.1 16						

TP06	TP06	TP07	TP07
1.00	2.60	0.50	2.50
5/02/2021	15/02/2021	15/02/2021	15/02/2021
-	-	-	-



Annex G: Laboratory Geotechnical Data





Martin Dorfling TRC Companies Ltd 20 Red Lion Street, London WC1R 4PQ

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: mdorfling@trcsolutions.com

Analytical Report Number : 21-65463

Project / Site name:	The Mole, Barry	Samples received on:	0 1/03/2021
Your job number:	413800	Samples instructed on/ Analysis started on:	2 3/03/2021
Your order number:		Analysis completed by:	1 3/04/2021
Report Issue Number:	1	Report issued on:	13/04/2021
Samples Analysed:	22 soil samples		

Signed:

Karolina Marek PL Head of Reporting Team 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 :

S	oils	- 4	weeks from reporting
le	eachates	- 2	weeks from reporting
۷	vaters	- 2	weeks from reporting
а	sbestos	- 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				1819139	1819140	1819141	1819142	1819143
Sample Reference				TP02	TP04	TP05	CPBH01	CPBH01
Sample Number				None Supplied				
Depth (m)				0.90	0.40	2.50	5.00	12.50
Date Sampled				15/02/2021	15/02/2021	15/02/2021	15/02/2021	16/02/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	5.2	13	25	30	22
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.40	0.70

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.4	8.0	8.4	8.6
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.078	0.083	1.0	1.6	1.0
Organic Matter	%	0.1	MCERTS	-	-	-	-	2.0





Lab Sample Number				1819144	1819145	1819146	1819147	1819148
Sample Reference				CPBH01	CPBH01	CPBH01	CPBH01	CPBH02
Sample Number				None Supplied				
Depth (m)				13.00	15.50	18.50	21.50	3.00
Date Sampled				16/02/2021	16/02/2021	16/02/2021	17/02/2021	18/02/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	23	20	17	19
Total mass of sample received	kg	0.001	NONE	0.40	0.70	0.40	0.40	0.40

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	8.8	9.0
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.13	0.25
Organic Matter	%	0.1	MCERTS	1.0	1.7	2.6	-	3.9





Lab Sample Number				1819149	1819150	1819151	1819152	1819153
Sample Reference				CPBH02	CPBH02	CPBH02	CPBH02	CPBH02
Sample Number				None Supplied				
Depth (m)				4.00	7.00	8.00	11.00	18.50
Date Sampled				18/02/2021	18/02/2021	18/02/2021	19/02/2021	19/02/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	26	30	20	15	24
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.70	0.70

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	8.4	-	8.7	8.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.76	-	0.44	0.53
Organic Matter	%	0.1	MCERTS	5.4	4.0	1.8	0.7	4.6





Lab Sample Number				1819154	1819155	1819156	1819157	1819158
Sample Reference				CPBH03	CPBH03	CPBH03	CPBH03	CPBH03
Sample Number				None Supplied				
Depth (m)		3.00	11.00	14.00	18.50	23.00		
Date Sampled	23/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.3	20	22	23	1.9
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40	0.40	0.40

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9	8.6	8.7	7.9	8.6
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.10	0.49	0.42	0.31	0.24
Organic Matter	%	0.1	MCERTS	-	1.4	1.9	0.9	-





Lab Sample Number	1819159	1819160			
Sample Reference	CPBH04	CPBH04			
Sample Number	None Supplied	None Supplied			
Depth (m)	2.00	6.50			
Date Sampled	25/02/2021	25/02/2021			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.6	19
Total mass of sample received	kg	0.001	NONE	0.40	0.40

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6	8.6
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.035	0.19
Organic Matter	%	0.1	MCERTS	-	-





* 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 *
1819139	TP02	None Supplied	0.9	Brown clay and loam with gravel.
1819140	TP04	None Supplied	0.4	Brown clay and loam with gravel and vegetation.
1819141	TP05	None Supplied	2.5	Brown clay.
1819142	CPBH01	None Supplied	5	Grey clay with gravel.
1819143	CPBH01	None Supplied	12.5	Brown clay and loam.
1819144	CPBH01	None Supplied	13	Brown clay and loam.
1819145	CPBH01	None Supplied	15.5	Brown loam and clay.
1819146	CPBH01	None Supplied	18.5	Brown loam and clay.
1819147	CPBH01	None Supplied	21.5	Brown sandy clay with gravel.
1819148	CPBH02	None Supplied	3	Brown clay.
1819149	CPBH02	None Supplied	4	Brown clay and loam.
1819150	CPBH02	None Supplied	7	Grey clay.
1819151	CPBH02	None Supplied	8	Brown clay and loam with gravel.
1819152	CPBH02	None Supplied	11	Brown sandy loam.
1819153	CPBH02	None Supplied	18.5	Grey clay and loam.
1819154	CPBH03	None Supplied	3	Brown clay and gravel.
1819155	CPBH03	None Supplied	11	Light grey clay.
1819156	CPBH03	None Supplied	14	Grey clay and sand.
1819157	CPBH03	None Supplied	18.5	Grey loam.
1819158	CPBH03	None Supplied	23	Non Soil**
1819159	CPBH04	None Supplied	2	Brown clay and gravel.
1819160	CPBH04	None Supplied	6.5	Brown clay.

** Non MCERTS matrix





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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	w	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
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

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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name		Test Deviation
CPBH01	None Supplied	s	1819142	с	pH in soil (automated)	L099-PL	с
CPBH01	None Supplied	S	1819143	с	Organic matter (Automated) in soil	L009-PL	с
CPBH01	None Supplied	S	1819143	с	pH in soil (automated)	L099-PL	с
CPBH01	None Supplied	S	1819144	с	Organic matter (Automated) in soil	L009-PL	с
CPBH01	None Supplied	S	1819145	с	Organic matter (Automated) in soil	L009-PL	с
CPBH01	None Supplied	S	1819146	с	Organic matter (Automated) in soil	L009-PL	с
CPBH01	None Supplied	S	1819147	с	pH in soil (automated)	L099-PL	с
CPBH02	None Supplied	S	1819148	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819148	с	pH in soil (automated)	L099-PL	с
CPBH02	None Supplied	S	1819149	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819150	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819150	с	pH in soil (automated)	L099-PL	с
CPBH02	None Supplied	S	1819151	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819152	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819152	с	pH in soil (automated)	L099-PL	с
CPBH02	None Supplied	S	1819153	с	Organic matter (Automated) in soil	L009-PL	с
CPBH02	None Supplied	S	1819153	с	pH in soil (automated)	L099-PL	с
CPBH03	None Supplied	S	1819154	с	pH in soil (automated)	L099-PL	с
CPBH03	None Supplied	S	1819155	с	Organic matter (Automated) in soil	L009-PL	с
CPBH03	None Supplied	S	1819155	с	pH in soil (automated)	L099-PL	с
CPBH03	None Supplied	S	1819156	с	Organic matter (Automated) in soil	L009-PL	с
CPBH03	None Supplied	S	1819156	с	pH in soil (automated)	L099-PL	с
CPBH03	None Supplied	S	1819157	с	Organic matter (Automated) in soil	L009-PL	с
CPBH03	None Supplied	S	1819157	с	pH in soil (automated)	L099-PL	с
CPBH03	None Supplied	S	1819158	с	pH in soil (automated)	L099-PL	с
CPBH04	None Supplied	S	1819159	с	pH in soil (automated)	L099-PL	с
CPBH04	None Supplied	S	1819160	с	pH in soil (automated)	L099-PL	с
TP02	None Supplied	S	1819139	с	pH in soil (automated)	L099-PL	с
TP04	None Supplied	S	1819140	с	pH in soil (automated)	L099-PL	с
TP05	None Supplied	S	1819141	с	pH in soil (automated)	L099-PL	с



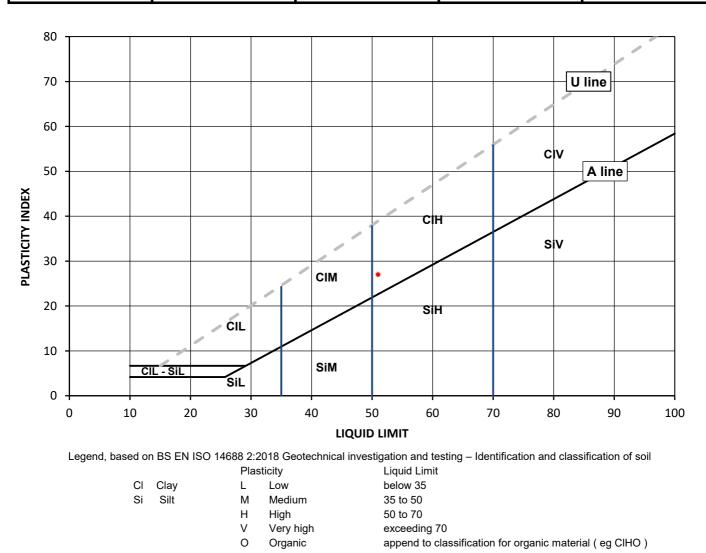
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 **TRC** Companies Ltd Client Reference: 413800 Client: Client Address: Job Number: 21-65451 Date Sampled: 15/02/2021 20 Red Lion Street, London, WC1R 4PQ Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819067 Depth Top [m]: 2.50 **TP05** Depth Base [m]: Not Given Hole No .: Sample Reference: Not Given Sample Type: B Soil Description: Brown slightly gravelly slightly sandy CLAY

Sample Preparation: Tested after washing to remove >425um

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm	
Content [W] %	[WL]%	[Wp] %	[lp] %	BS Test Sieve	
35	51	24	27	92	



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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i2 Analytical Ltd Unit 8 Harrowden Road



Brackmills Industrial Estate Liquid and Plastic Limits Northampton NN4 7EB 404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 Client: **TRC** Companies Ltd Client Reference: 413800 Client Address: Job Number: 21-65451 Date Sampled: 16/02/2021 20 Red Lion Street, London, WC1R 4PQ Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819072 Depth Top [m]: 12.50 CPBH01 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Grey sandy CLAY Sample Preparation: Tested in natural condition 80 70 **U** line 60 civ 50 A line PLASTICITY INDEX 40 CIH SIV 30 CIM 20 SIH CIL 10 SiM CIL - SiL SiL 0 0 10 20 30 40 50 60 70 80 90 100 LIQUID LIMIT Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing - Identification and classification of soil Plasticity Liquid Limit CI Clay L Low below 35 Si Silt Μ Medium 35 to 50 Н High 50 to 70 V Very high exceeding 70 0 Organic append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Page 1 of 1

Signed:



As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm	
Content [W] %	[WL] %	[Wp] %	[lp]%	BS Test Sieve	
37	44	21	23	100	



i2 Analytical Ltd Unit 8 Harrowden Road **Brackmills Industrial Estate** Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 **TRC** Companies Ltd Client Reference: 413800 Client: Client Address: Job Number: 21-65451 20 Red Lion Street, London, WC1R 4PQ Date Sampled: 16/02/2021 Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819073 Depth Top [m]: 13.00 CPBH01 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Brownish grey sandy CLAY Tested in natural condition Sample Preparation: Liquid Limit As Received Moisture Plasticity Index Plastic Limit % Passing 425µm Content [W] % **BS Test Sieve** [WL]% [Wp]% [lp]% 34 37 18 19 100 80 70 **U** line 60 civ 50 A line PLASTICITY INDEX 40 CIH SIV 30 CIM 20 SIH CIL 10 SiM CIL - SiL SiL 0 0 10 20 30 40 50 60 70 80 90 100 LIQUID LIMIT Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing - Identification and classification of soil Plasticity Liquid Limit



Low Medium High Very high

Organic

L

Μ

Н

V

0

below 35 35 to 50 50 to 70 exceeding 70 append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 20/04/2021

GF 236.10



i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



			l ested l	n Accordance w	ith: BS 1377-	-2: 1990: Cla	use 4.3 and			40000	
lient: lient Address:		TRC Companies Ltd 20 Red Lion Street, London, WC1R 4PQ					Client Reference: 413800 Job Number: 21-65451 Date Sampled: 16/02/2021				
	Mantin D	- ufilia a							Received:		
ontact: te Address:		Martin Dorfling The Mole, Barry						te Tested: [•] mpled By: •			
esting carried out a		-	Pionierov	v 39, 41-711 I	Ruda Slask	a, Poland		Cu	inpica by:		
est Results: aboratory Referenc	e [.] 1819074							Dept	h Top [m]:	15.50	
ble No.:	CPBH01								Base [m]:		
ample Reference:	Not Give							Sam	nple Type: I	3	
oil Description:	Grey slig	htly sandy C	LAY								
ample Preparation:	Tested in	natural con	dition								
As Received Mo Content [W]		Liquid [WL			Plastic Lin [Wp] %			ticity Index [lp] %	%	Passing 4 BS Test Si	-
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	CI Cla	21/	Plastic L L	ity ₋ow		iquid Limit. elow 35					
	Si Si			Jow Medium		15 to 50					
			ΗН	High	5	60 to 70					
				/ery high Organic		exceeding 7		n for organic m	atorial / ac		
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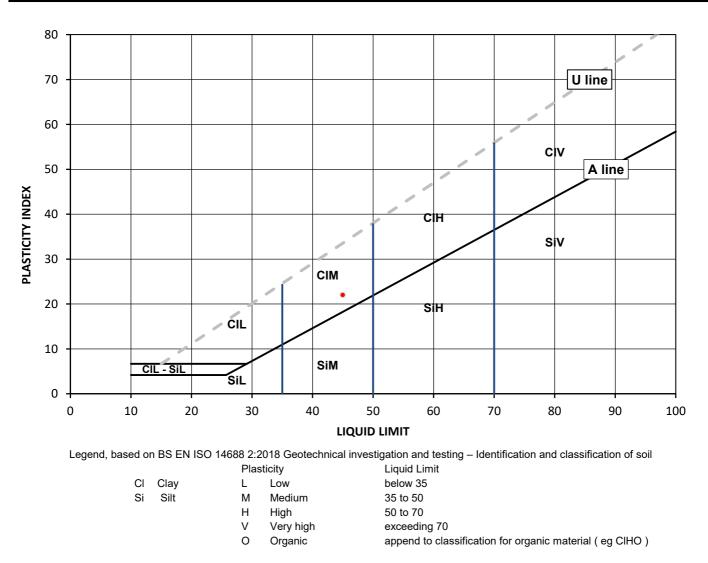
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 Client: **TRC** Companies Ltd Client Reference: 413800 Client Address: Job Number: 21-65451 Date Sampled: 16/02/2021 20 Red Lion Street, London, WC1R 4PQ Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 08/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819075 Depth Top [m]: 18.50 CPBH01 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Greenish grey slightly sandy CLAY

Tested in natural condition Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Content [W] %	[WL]%	[Wp] %	[lp]%	BS Test Sieve
34	45	23	22	100



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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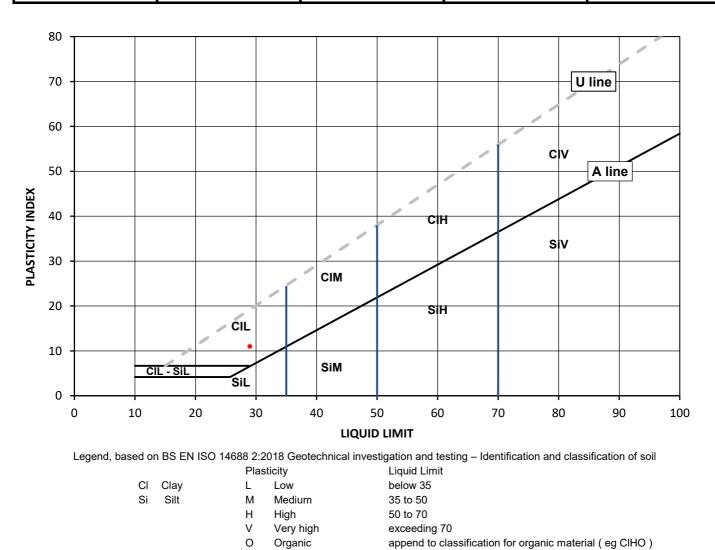
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 **TRC** Companies Ltd Client Reference: 413800 Client: Client Address: Job Number: 21-65451 Date Sampled: 17/02/2021 20 Red Lion Street, London, WC1R 4PQ Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819076 Depth Top [m]: 21.50 CPBH01 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Brown slightly gravelly very sandy CLAY

Sample Preparation: Tested after washing to remove >425um

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm		
Content [W] %	[WL] %	[Wp] %	[lp]%	BS Test Sieve		
21	29	18	11	76		



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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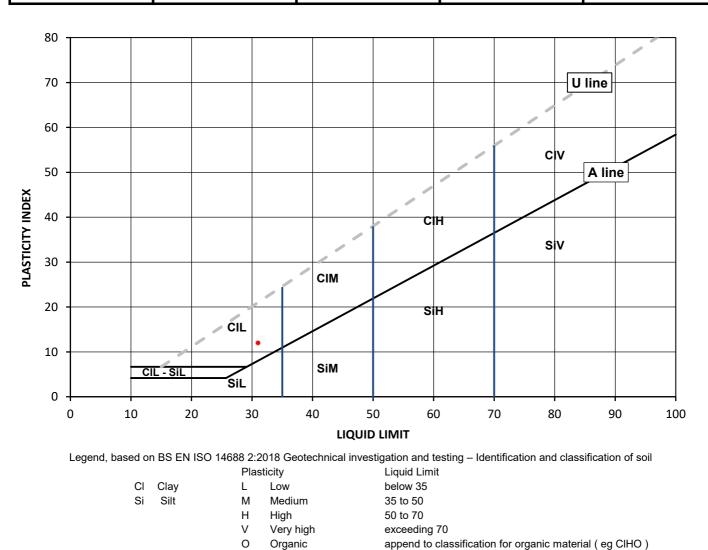
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



4041	Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5		
Client:	TRC Companies Ltd	Client Reference:	413800
Client Address:		Job Number:	21-65451
	20 Red Lion Street, London, WC1R 4PQ	Date Sampled:	18/02/2021
		Date Received:	01/03/2021
Contact:	Martin Dorfling	Date Tested:	14/04/2021
Site Address:	The Mole, Barry	Sampled By:	Client
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland		
Test Results:			
Laboratory Reference:	1819078	Depth Top [m]:	3.00
Hole No.:	CPBH02	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	В
Soil Description:	Brown clayey sandy GRAVEL with cobbles		

Tested after washing to remove >425um Sample Preparation:

As Received Moisture			Plasticity Index	% Passing 425µm		
Content [W] %			[lp] %	BS Test Sieve		
14	31	19	12	30		



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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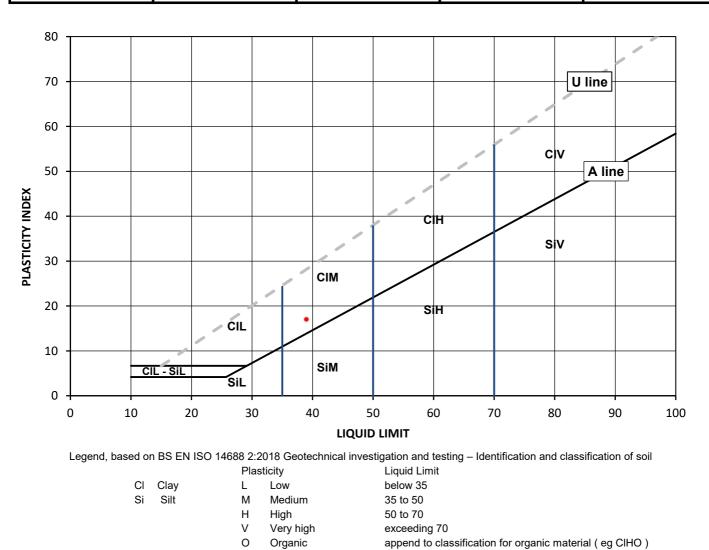


Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

4041	Tested In Accordance with BS 1377-2: 1990: Clause 4:3 and 5	
Client:	TRC Companies Ltd	Client Reference: 413800
Client Address:		Job Number: 21-65451
	20 Red Lion Street, London, WC1R 4PQ	Date Sampled: 18/02/2021
		Date Received: 01/03/2021
Contact:	Martin Dorfling	Date Tested: 14/04/2021
Site Address:	The Mole, Barry	Sampled By: Client
Testing carried out at	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland	
Test Results:		
Laboratory Reference:	1819079	Depth Top [m]: 4.00
Hole No.:	CPBH02	Depth Base [m]: Not Given
Sample Reference:	Not Given	Sample Type: B
Soil Description:	Greyish brown very gravelly sandy CLAY with cobbles	

Sample Preparation: Tested after washing to remove >425um

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Content [W] %	[WL] %	[Wp] %	[lp]%	BS Test Sieve
22	39	22	17	47



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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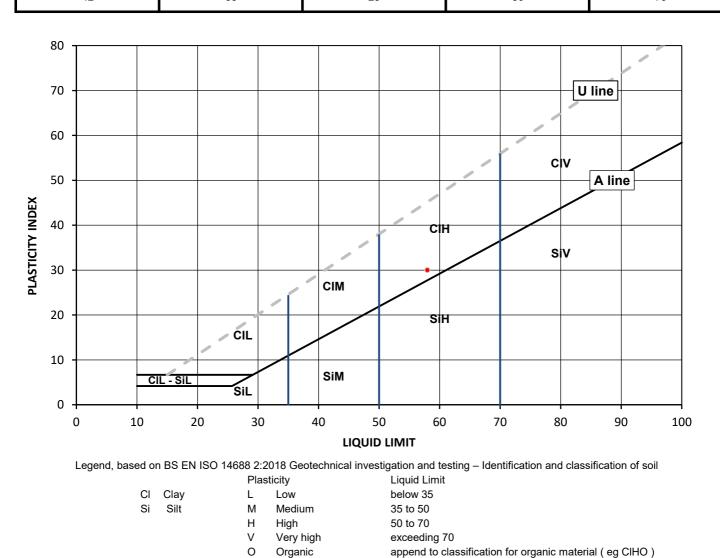


i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 **TRC** Companies Ltd Client Reference: 413800 Client: Client Address: Job Number: 21-65451 20 Red Lion Street, London, WC1R 4PQ Date Sampled: 18/02/2021 Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819081 Depth Top [m]: 7.00 CPBH02 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Grey slightly gravelly slightly sandy CLAY Tested after washing to remove >425um Sample Preparation:

As Received Moisture
Content [W] %Liquid Limit
[WL] %Plastic Limit
[Wp] %Plasticity Index
[Ip] %% Passing 425µm
BS Test Sieve4258283070



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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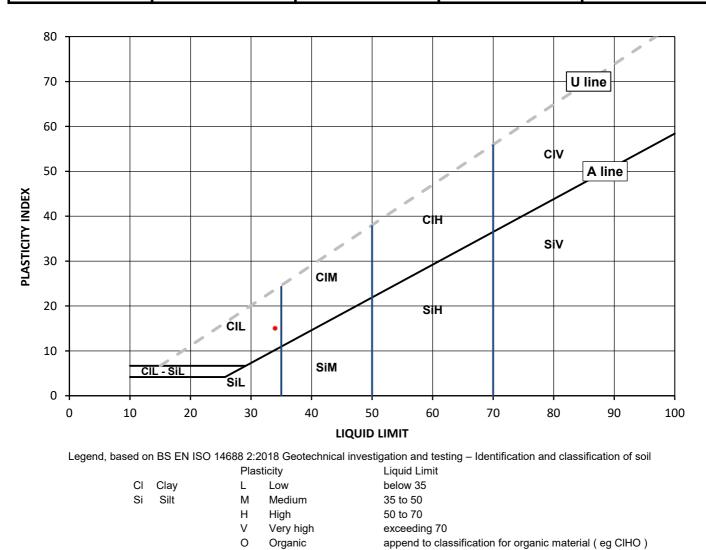
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



4041	Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5	
Client:	TRC Companies Ltd	Client Reference: 413800
Client Address:		Job Number: 21-65451
	20 Red Lion Street, London, WC1R 4PQ	Date Sampled: 18/02/2021
		Date Received: 01/03/2021
Contact:	Martin Dorfling	Date Tested: 14/04/2021
Site Address:	The Mole, Barry	Sampled By: Client
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland	
Test Results:		
Laboratory Reference:	1819082	Depth Top [m]: 8.00
Hole No.:	CPBH02	Depth Base [m]: Not Given
Sample Reference:	Not Given	Sample Type: B
Soil Description:	Greyish brown slightly gravelly very sandy CLAY	

Tested after washing to remove >425um Sample Preparation:

As Received Moisture			Plasticity Index	% Passing 425µm	
Content [W] %			[lp] %	BS Test Sieve	
28	34	19	15	92	



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



AS			Liquid and I	Plastic Limits	No	orthampton NN	4 7EB	A.
11NG 041		Tested in	Accordance with: BS	1377-2: 1990: Cla	use 4.3 and 5			Environmen
lient: lient Address:	TRC Compan	iies Ltd Street, London, WC	C1R 4PQ			Client Reference: 413800 Job Number: 21-65451 Date Sampled: 19/02/2021		
ontact:	Martin Dorflin	g				Date Recei Date Tes	ved: 01/03/202 sted: 14/04/202	21
te Address: esting carried out at	The Mole, Ba 2 Analvtical Lin	-	39. 41-711 Ruda	Slaska. Poland		Sampleo	By: Client	
est Results: aboratory Reference ole No.: ample Reference: oil Description:						Depth Top Depth Base Sample T	[m]: Not Giver	1
ample Preparation: As Received Mois	Tested in natu	ural condition	Plasti	c Limit	Plasticity	Index	% Passing	g 425µm
Content [W] %	/ 0	[WL]%	[W	p]%	[lp]		BS Test	
38		45	2	24	21		10	D
70 60 50 50 50 30 20 10 0 0		CIL	CIM	CIF		SiV	A line	
0	10 2	0 30		50 60	70	80	90	100
Legend, b	ased on BS EN Cl Clay Si Silt	M M H Hi V Ve	Geotechnical inve	Liquid Limit below 35 35 to 50 50 to 70 exceeding 7				

Remarks:

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Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 20/04/2021



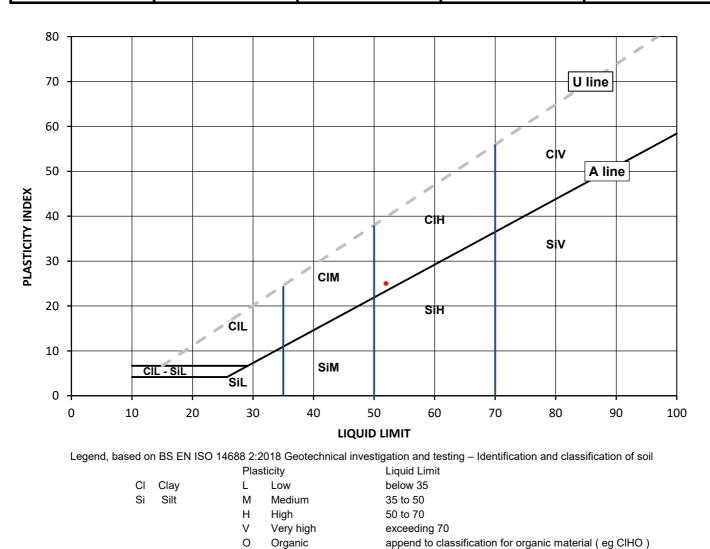
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



4041	Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5	chritenta
Client:	TRC Companies Ltd	Client Reference: 413800
Client Address:		Job Number: 21-65451
	20 Red Lion Street, London, WC1R 4PQ	Date Sampled: 19/02/2021
		Date Received: 01/03/2021
Contact:	Martin Dorfling	Date Tested: 14/04/2021
Site Address:	The Mole, Barry	Sampled By: Client
Testing carried out at i	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland	
Test Results:		
Laboratory Reference:	1819084	Depth Top [m]: 18.50
Hole No.:	CPBH02	Depth Base [m]: Not Given
Sample Reference:	Not Given	Sample Type: B
Soil Description:	Brownish grey slightly gravelly slightly sandy CLAY	

Tested after washing to remove >425um Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Content [W] %	[WL] %	[Wp] %	[lp] %	BS Test Sieve
28	52	27	25	72



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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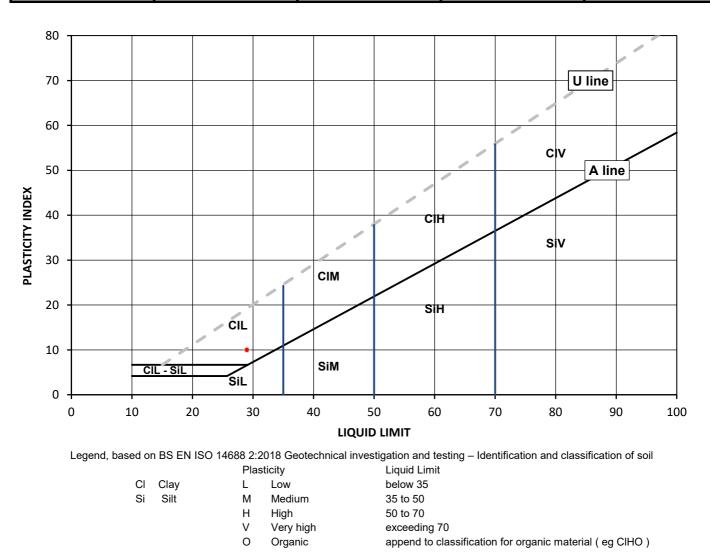
i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



404 Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5 **TRC** Companies Ltd Client Reference: 413800 Client: Client Address: Job Number: 21-65451 Date Sampled: 24/02/2021 20 Red Lion Street, London, WC1R 4PQ Date Received: 01/03/2021 Contact: Martin Dorfling Date Tested: 14/04/2021 Site Address: The Mole, Barry Sampled By: Client Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland **Test Results:** Laboratory Reference: 1819089 Depth Top [m]: 14.00 CPBH03 Depth Base [m]: Not Given Hole No .: Not Given Sample Reference: Sample Type: B Soil Description: Grey slightly gravelly very sandy CLAY

Sample Preparation: Tested after washing to remove >425um

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Content [W] %	[WL]%	[Wp] %	[lp] %	BS Test Sieve
29	29	19	10	91



Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



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		Tester	الم الم	الالمحم امتنا											
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	tent [W] 9			[WL]%		1		Vp]%			[lp]%			3S Test S	
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	Legend. b	based on	BS EN	ISO 14688	3 2:2018	Geotech	nnical in	vestigation	and te	sting – Ide	ntification	and clas	sification	of soil	
	, L	2004 011			Plasticity				d Limit				2	2. 500	
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Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

Page 1 of 1



SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN

17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test),

Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



Client Reference: 413800 Job Number: 21-65451 Date Sampled: 16/02 - 19/02/2021 Date Received: 01/03/2021 Date Tested: 08/04 - 14/04/2021 Sampled By: Client

TRC Companies Ltd

Client Address:

4041

Client:

20 Red Lion Street, London, WC1R 4PQ

Contact:	Martin Dorfling
Site Address:	The Mole, Barry
Testing carried out at	i2 Analvtical Limited. ul. Pionierow 39. 41-711 Ruda Slaska. Poland

Test results

			Sample	9				Content /]	tent		Atte	berg			Density		#	
Laboratory Reference	Hole No.	Reference	Depth Top	Depth Base	Туре	Description	Remarks	Moisture Co [W]	Water Con [W]	% Passing 425um	WL	Wp	lp	bulk	dry	PD	Total Porosity#	
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%	
1819072	CPBH01	Not Given	12.50	Not Given	В	Grey sandy CLAY	Atterberg 4 Point	37		100	44	21	23					
1819073	CPBH01	Not Given	13.00	Not Given	В	Brownish grey sandy CLAY	Atterberg 4 Point	34		100	37	18	19					
1819074	CPBH01	Not Given	15.50	Not Given	В	Grey slightly sandy CLAY	Atterberg 4 Point	40		100	45	22	23					
1819075	CPBH01	Not Given	18.50	Not Given	В	Greenish grey slightly sandy CLAY	Atterberg 4 Point	34		100	45	23	22					
1819076	CPBH01	Not Given	21.50	Not Given	В	Brown slightly gravelly very sandy CLAY	Atterberg 4 Point	21		76	29	18	11					
1819078	CPBH02	Not Given	3.00	Not Given	В	Brown clayey sandy GRAVEL with cobbles	Atterberg 4 Point	14		30	31	19	12					
1819079	CPBH02	Not Given	4.00	Not Given	В	Greyish brown very gravelly sandy CLAY with cobbles	Atterberg 4 Point	22		47	39	22	17					
1819081	CPBH02	Not Given	7.00	Not Given	В	Grey slightly gravelly slightly sandy CLAY	Atterberg 4 Point	42		70	58	28	30					
1819082	CPBH02	Not Given	8.00	Not Given	В	Greyish brown slightly gravelly very sandy CLAY	Atterberg 4 Point	28		92	34	19	15					
1819083	CPBH02	Not Given	11.00	Not Given	В	Grey slightly sandy CLAY	Atterberg 4 Point	38		100	45	24	21					

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section

for and on behalf of i2 Analytical Ltd

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Date Reported: 20/04/2021

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN

17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test),

Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



Client Reference: 413800 Job Number: 21-65451 Date Sampled: 15/02 - 24/02/2021 Date Received: 01/03/2021 Date Tested: 14/04/2021 Sampled By: Client

TRC Companies Ltd

Client Address:

4041

Client:

20 Red Lion Street, London, WC1R 4PQ

Contact:	Martin Dorfling
Site Address:	The Mole, Barry
Testing carried out at	ti2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

			Sample	9				ntent	Content W]		Atte	rberg			Density		#	
Laboratory Reference	Hole No.	Reference	Depth Top	Depth Base	Туре	Description	Remarks	Moisture Content [W]	Water Con [W]	% Passing 425um	WL	Wp	lp	bulk	dry	PD	Total Porosity#	
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%	
1819084	CPBH02	Not Given	18.50	Not Given	В	Brownish grey slightly gravelly slightly sandy CLAY	Atterberg 4 Point	28		72	52	27	25					
1819088	CPBH03	Not Given	11.00	Not Given	В	Greyish brown slightly gravelly very sandy CLAY		25										
1819089	CPBH03	Not Given	14.00	Not Given	В	Grey slightly gravelly very sandy CLAY	Atterberg 4 Point	29		91	29	19	10					
1819090	CPBH03	Not Given	18.50	Not Given	В	Grey very sandy silty CLAY	Atterberg 4 Point	30		100	34	24	10					
1819067	TP05	Not Given	2.50	Not Given	В	Brown slightly gravelly slightly sandy CLAY	Atterberg 4 Point	35		92	51	24	27					

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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G]	EST CERTI	FICATE	i2 Analytica Unit 8 Harro	il Ltd owden Road	tical				
-(≯	≮) ≣			Particle Size Dis	stribution		Industrial Estate on NN4 7EB					
UK TESTI 404			Tested	in Accordance with	: BS 1377-2: 199			Environmental Science				
Cl	ient: ient Address:	TRC Compared the c	nies Ltd Street, London, WC1R	4PQ		Job Date	eference: 4138 Number: 21-65 Sampled: 15/02	5451 2/2021				
Sit	ontact: te Address: esting carried out	The Mole, Ba	Martin Dorfling Date Received: 01/03/2021 Martin Dorfling Date Tested: 14/04/2021 The Mole, Barry Sampled By: Client Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland Sampled By: Client									
La Ho Sa Sa	est Results: aboratory Referen ble No.: ample Reference: ample Description	TP02 Not Given : Dark grey cla	ayey sandy GRAVEL wi			Depth Sam	n Top [m]: 0.90 Base [m]: Not 0 pple Type: B	Siven				
Sa	ample Preparation	n: Sample was SILT Fine Medium	whole tested, oven drie	d at 106.0 °C and t SAND Medium Coa		and. GRAVEL Medium Coarse	COBBLES	BOULDERS				
Percentage Passing %	100 90 80 70 60 50 40 30 20 10											
	0	0.01	0.1	Particle Siz	ze mm	10	100	1000				
		Sioving	Sodimo	ntation	Sam	nlo Proportions	0/.	dry mass				

Siev	ing	Sedimentation					
Particle Size mm	% Passing	Particle Size mm	% Passing				
500	100						
300	100						
150	100						
125	100						
90	100						
75	100						
63	97						
50	91						
37.5	87						
28	75						
20	61						
14	56						
10	54						
6.3	50						
5	48						
3.35	47						
2	45						
1.18	42						
0.6	39						
0.425	36						
0.3	32						
0.212	29						
0.15	25						
0.063	20						

Sample Proportions	% dry mass
Very coarse	3
Gravel	52
Sand	25
Fines <0.063mm	20

Grading Analysi	s	
D100	mm	75
D60	mm	18.5
D30	mm	0.23
D10	mm	
Uniformity Coefficient		> 290
Curvature Coefficient		

Remarks:

arks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



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0.063 58 Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

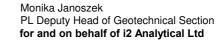
Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Page 1 of 1

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$\langle \mathbf{A} \rangle$								<u>TES</u> Partic	T CE				Ur Br	ackmills I	l Ltd wden Road ndustrial Esta n NN4 7EB	ate	Analytical
UKA TESTIR 404	NG						Teste	ed in Acc	ordance	e with: E	3S 1	377-2: 1990				En	vironmental Sci
Cli	ent: ent Addi	ress:			companie d Lion St	es Ltd treet, Lond	lon, WC1	R 4PQ						Job Date	eference: 41 Number: 21 Sampled: 15 Received: 01/	-65451 /02/2021	
Sit	ntact: e Addre <i>sting ca</i> l			The Mo	Dorfling ole, Barr <i>ical Limi</i> i		onierow 3	9. 41-71	1 Ruda	Slaska	. Po	land		Dat	e Tested: 14, npled By: Cli	/04/2021	
Lal Ho Sa	e st Res boratory le No.: mple Re mple De	Refere	e:	TP06 Not Giv	ven	clayey sar	ndy GRA'	√EL with	cobble	6				Depth I	Top [m]: 2.8 Base [m]: No ple Type: B		
	mple Pr	•		Sample		•••	•	ried at 10					nd. GRAVEL Medium	Coarse	- COBBLES	BOUL	DERS
Percentage Passing %	100 90 80 70 60 50 40 30 20 10 0																
	0.00)1	Cier	-	0.01		0.1			cle Size	e m	ım Samul	10		100	0/	1000
			Siev	/ing			Sean	nentatio	n			Sampi	e Propo	ruons		% dry m	lass

Sievi	ng	Sedimentation						
Particle Size mm	% Passing	Particle Size mm	% Passing					
500	100							
300	100							
150	100							
125	100							
90	100							
75	94							
63	80							
50	73							
37.5	65							
28	59							
20	51							
14	47							
10	43							
6.3	38							
5	36							
3.35	35							
2	33							
1.18	31							
0.6	29							
0.425	28							
0.3	27							
0.212	25							
0.15	23							
0.063	20							
Tested in Accordan	ce with BS137	7:Part 2:1990, clause	9.2					

20
48
13
20

Grading Analysis	s	
D100	mm	90
D60	mm	28.9
D30	mm	0.82
D10	mm	
Uniformity Coefficient		> 460
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3



Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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()	\$) "							<u>P</u>	artic	le Siz	e Distri	ibut	ion					nills In mpton		al Esta 7EB	ate		Analy	4
UK TESTI 404	AS ING						Tes	sted ir	n Acco	rdance	e with: B	S 13	377-2:	: 19	90							Envin	onmenta	Sci
	ient:			TRC	Companie	es Ltd											Clie	nt Ref	ferenc	ce: 413	3800			
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				20 R	ed Lion St	reet, Lond	on, WC	C1R 4	PQ										•	ed: 15/ ed: 01/				
Co	ontact:			Marti	in Dorfling													Date	Teste	ed: 14/	/04/20	21		
	te Addr				Mole, Barr	5												Sam	pled E	By: Clie	ent			
			ut at i2	2 Anal	ytical Limi	ted, ul. Pio	nierow	39, 4	1-711	Ruda	Slaska,	Pola	and											
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	•	Referenc Descript				andy GRA	VELW	ith co	hhles								•	Samp	ie i yp	је. D				
	•	Preparat				hole tested				6.0 °C	and bro	ken	down	by	hand									
	• -	CLAY			SILT					ND				,		AVEL			COB	BLES	BC	ULDEF	RS	
	100 -	GLAT	Fin	e	Medium	Coarse	Fi	ne	Mec	dium	Coarse	•	Fine	e	Me	dium	Co	arse	005					
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	0.0	001			0.01		0.1	1		Parti	cle Size	mı	m			10			1(00			100)0
			Sie	ving			Sec	limen	tation			Г		Sai	elam	Propo	rtion	s		(% dry	/ mas	s	

Sievi	ng	Sedimentation						
Particle Size mm	% Passing	Particle Size mm	% Passing					
500	100							
300	100							
150	100							
125	100							
90	100							
75	65							
63	52							
50	47							
37.5	40							
28	39							
20	37							
14	35							
10	33							
6.3	31							
5	30							
3.35	29							
2	27							
1.18	25							
0.6	22							
0.425	21							
0.3	20							
0.212	18							
0.15	17							
0.063	16							
Tested in Accordan	nce with BS1377		9.2					

Sample Proportions	% dry mass
Very coarse	48
Gravel	25
Sand	11
Fines <0.063mm	16

Grading Analysi	s	
D100	mm	90
D60	mm	70.2
D30	mm	5.02
D10	mm	
Uniformity Coefficient		> 1100
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3



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						ST CERTIFIC	oution E	2 Analytical Lto Jnit 8 Harrowd Brackmills Indu Northampton N	en Road strial Estate
UKA TESTIR 404	NG				Tested in	Accordance with: BS	6 1377-2: 1990		Environmental Sci
Cli	ent: ent Address	:		npanies Ltd ion Street, Londo	on, WC1R 4F	PQ		Job Nu Date San	ence: 413800 mber: 21-65451 npled: 15/02/2021 eived: 01/03/2021
Sit	ntact: e Address: s <i>ting carriec</i>	out at i	Martin Do The Mole 2 <i>Analytica</i>	, Barry	nierow 39, 41	I-711 Ruda Slaska, I	Poland	Date Te	ested: 14/04/2021 ed By: Client
Lal Ho Sa	st Results boratory Ref le No.: mple Refere mple Descri	erence:	CPBH01 Not Giver Brown sa	ndy very gravelly		ragments of brick, w		•	p [m]: 5.00 e [m]: Not Given Type: B
Sa	mple Prepa		SIL	LT	oven dried a	at 106.0 °C and brok SAND Medium Coarse	en down by hand. GRAVEL Fine Medium	Coarse	COBBLES BOULDERS
	90								
	80								/
%	70								f
assing	50								
age Pa	40								
Percentage Passing	30								
Ре	10								
	0.001		0.0	1	0.1	Particle Size	10 mm		100 1000
		Si	eving		Sediment	ation	Sample Prop	ortions	% dry mass

Sievi	ng	Sedimentation						
Particle Size mm	% Passing	Particle Size mm	% Passing					
500	100							
300	100							
150	100							
125	100							
90	78							
75	69							
63	69							
50	63							
37.5	61							
28	60							
20	59							
14	56							
10	55							
6.3	52							
5	49							
3.35	47							
2	42							
1.18	40							
0.6	39]						
0.425	38							
0.3	37							
0.212	35							
0.15	32							
0.063	29]						
Tested in Accordar	nce with BS1377	Part 2:1990, clause	9.2					

Sample Proportions	% dry mass
Very coarse	31
Gravel	26
Sand	13
Fines <0.063mm	29

Grading Analysi	is	
D100	mm	125
D60	mm	27.4
D30	mm	0.0764
D10	mm	
Uniformity Coefficient		> 440
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3



Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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	S ^S S S ^S S S ^S S							Tes	P	artic	le Siz	e D	Distribu	ition	<u>1</u>	990	Ui Bi	ackm	Harrov hills Ir	wden idust	Road rial Est 4 7EB		Enviro	Analytical	
C	041 Slient: Slient Addr	ess:			ompanie Lion St	es Ltd reet, Lo	ndor	1, W(C1R 4	PQ								D	Job ate S	Num Samp	nce: 41 ber: 21 led: 16 ved: 01	3800 -6545 ⁻ /02/20	1 021		
S T	Contact: Site Addres Testing car	rried ou	Т	he Mo	Dorfling le, Barr cal Limit	-	Pioni	ierow	/ 39, 4	1-711	Ruda	n Sla	aska, Po	land							ted: 14 By: Cli		21		
L H S	est Resu aboratory lole No.: ample Re ample De ample Pre	Refere	C e: N on: E	CPBH0 lot Giv Brown s	1 en slightly (clayey s hole tesi	-				6.0 °C	and	d broker	ו dov	vn by	hand	ł.	De	pth E	ase	[m]: 11 [m]: No /pe: B		'n		
	C		Fine		SILT edium	Coars	е	Fi	ne		ND dium	С	Coarse	F	ine		RAVEL edium	Coa	arse	со	BBLES	во	ULDEF	RS	Ī
Percentage Passing %																									
	0.00	1		0	.01			0.	1		Parti	cle	1 Size m	nm			10				100			1	000

Siev	ing	Sedime	Sedimentation						
Particle Size mm	% Passing	Particle Size mm	% Passing						
500	100								
300	100								
150	100								
125	100								
90	100								
75	100								
63	100								
50	100								
37.5	98								
28	97								
20	95								
14	90								
10	81								
6.3	67								
5	61								
3.35	48								
2	35								
1.18	24								
0.6	19	1							
0.425	17	1							
0.3	15	1							
0.212	11	Î							
0.15	8	1							
0.063	6	C. Port 2:1000 aloug							

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Sample Proportions % dry mass 0 Very coarse Gravel 65 29 Sand 6 Fines <0.063mm

Grading Analysis	6	
D100	mm	50
D60	mm	4.88
D30	mm	1.57
D10	mm	0.181
Uniformity Coefficient		27
Curvature Coefficient		2.8

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Remarks:

Signed:

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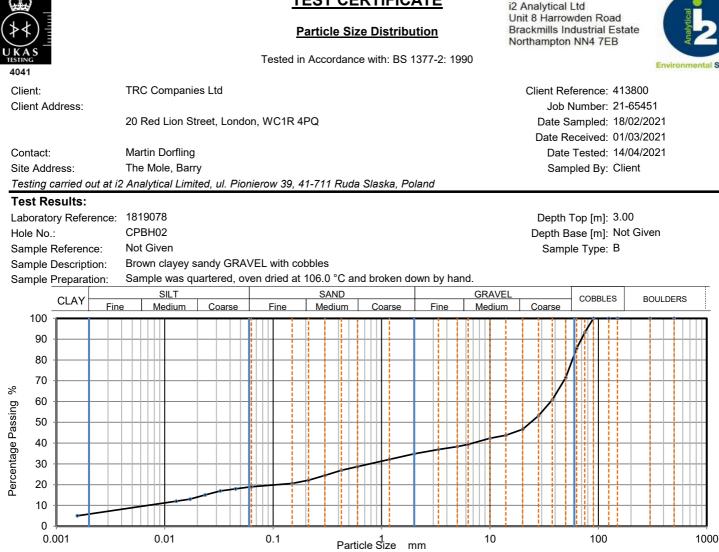
PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

Page 1 of 1

Monika Janoszek







Siev	ing	Sedime	entation		
Particle Size mm	% Passing	Particle Size mm	% Passing		
500	100	0.0626	19		
300	100	0.0450	18		
150	100	0.0326	17		
125	100	0.0235	15		
90	100	0.0171	13		
75	93	0.0128	12		
63	86	0.0016	5		
50	72				
37.5	61				
28	53				
20	47				
14	44				
10	42				
6.3	39				
5	38				
3.35	37	Particle density	(assumed)		
2	35	2.65	Mg/m3		
1.18	32				
0.6	29	1			
0.425	27				
0.3	24				
0.212	22				
0.15	21				
0.063	19	1			
Tested in Accorda	nce with BS1377	Part 2:1990, claus	es 9.2 and 9.5		

Sample Proportions	% dry mass
Very coarse	14
Gravel	51
Sand	16
Silt	13
Clay	6

Grading Analysis	5	
D100	mm	90
D60	mm	36.4
D30	mm	0.776
D10	mm	0.00682
Uniformity Coefficient		5300
Curvature Coefficient		2.4

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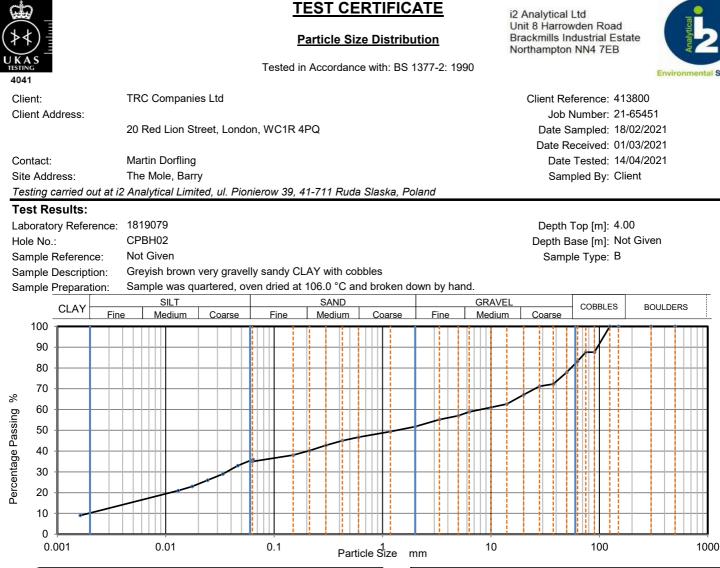
Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd



Page 1 of 1



TEST CERTIFICATE



Siev	ving	Sedimentation				
Particle Size mm	% Passing	Particle Size mm	% Passing			
500	100	0.0638	36			
300	100	0.0462	33			
150	100	0.0336	29			
125	100	0.0243	26			
90	88	0.0175	23			
75	88	0.0130	21			
63	83	0.0016	9			
50	78					
37.5	72					
28	71					
20	67					
14	63					
10	61					
6.3	59					
5	57					
3.35	55	Particle density	(assumed)			
2	52	2.65	Mg/m3			
1.18	49					
0.6	47					
0.425	45					
0.3	43					
0.212	40					
0.15	38]				
0.063	36					
e: Tested in Accorda	nce with BS1377	:Part 2:1990, claus	es 9.2 and 9.5			

Sample Proportions	% dry mass
Very coarse	17
Gravel	31
Sand	16
Silt	26
Clay	10

Grading Analysis		
D100	mm	125
D60	mm	8.08
D30	mm	0.0367
D10	mm	0.00184
Uniformity Coefficient		4400
Curvature Coefficient		0.091

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3



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Page 1 of 1

						EST CERT			i2 Analytical Lt Unit 8 Harrowd Brackmills Indu Northampton N	len Road ustrial Estate	Analytical
UKA TESTIN 404	NG				Tested in	Accordance wit	h: BS 1:	377-2: 1990			Environmental Science
Clie	ent: ent Address:		RC Companie 0 Red Lion St		, WC1R 4	PQ			Job Nu Date Sar	rence: 413800 Imber: 21-654 npled: 18/02/2 eived: 01/03/2	51 2021
Site	ntact: e Address: s <i>ting carried</i>	Т	lartin Dorfling he Mole, Barr Inalytical Limi	•	erow 39, 4	1-711 Ruda Slas	ska, Pol	and	Date T	ested: 14/04/2 ed By: Client	
Lat Hol Sar	st Results poratory Refe le No.: mple Referer mple Descrip	erence: 1 C nce: N otion: B	PBH02 lot Given rown slightly :						Depth Bas	op [m]: 5.00 se [m]: Not Gi Type: B	/en
Sai	mple Prepara		ample was w SILT Medium	nole tested, o Coarse	oven dried Fine	at 106.0 °C and SAND Medium Co	broken barse	down by hand. GRAVI Fine Mediur		COBBLES	BOULDERS
	90										
	80										
ing %	60										
Pass	50										
Percentage Passing	30										
Perce	20										
	10										
	0.001		0.01		0.1	Particle S	1 lize m	m 10		100	1000
		Sievi	ng		Sedimen	tation		Sample Pro	portions	% c	ry mass 37

Slevi	ng	Sedimentation				
Particle Size mm	% Passing	Particle Size mm	% Passing			
500	100					
300	100					
150	100					
125	100					
90	63					
75	63					
63	63					
50	61					
37.5	54					
28	43					
20	34					
14	28					
10	23					
6.3	19					
5	17					
3.35	16					
2	14					
1.18	13					
0.6	13					
0.425	12					
0.3	12					
0.212	12					
0.15	12]				
0.063	11]				
Tested in Accordan	nce with BS1377	:Part 2:1990, clause	9.2			

Sample Proportions	% dry mass
Very coarse	37
Gravel	48
Sand	3
Fines <0.063mm	11

Grading Analysi	s	
D100	mm	125
D60	mm	48.7
D30	mm	15.9
D10	mm	
Uniformity Coefficient		> 770
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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G							TEST CER	<u>TIFIC</u>	<u>ATE</u>	i2 Analytical L Unit 8 Harrow		B
(>	\$)						Particle Size	Distribu	<u>ution</u>	Brackmills Ind Northampton		
U K TEST 404	ING					Testeo	in Accordance	with: BS	1377-2: 1990			Environmental Sci
	ient:			TRC Compan	es Ltd					Client Refe	erence: 4138	300
CI	ient Ad	ldress:								Job N	umber: 21-6	5451
				20 Red Lion S	treet, Londo	on, WC1F	R 4PQ				mpled: 19/02 ceived: 01/03	
Co	ontact:			Martin Dorfling	3					Date 1	Fested: 14/04	4/2021
Si	te Addı	ress:		The Mole, Bai	-					Samp	led By: Clier	nt
Te	esting c	carried o	ut at i2	2 Analytical Lim	ited, ul. Pio	nierow 39	, 41-711 Ruda S	Slaska, Po	oland			
Te	est Re	sults:										
La	borato	ry Refer	ence:	1819085						Depth T	op [m]: 21.00	0
Ho	ble No.	:		CPBH02						Depth Ba	se [m]: Not (Given
Sa	ample F	Reference	ce:	Not Given						Sample	е Туре: В	
	-	Descripti		Brown clayey								
Sa	ample F	Preparat	ion:		hole tested	, oven dri		nd broke	n down by hand.			
		CLAY	Fin	SILT e Medium	Coarse	Fine	SAND Medium	Coarse	GRA Fine Medi		COBBLES	BOULDERS
	100											
	90	 									-/	
	80											
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			Sie	ving		Sedim	entation	ו ר	Sample P	oportions	%	dry mass

Sievi	ng	Sedimentation			
Particle Size mm			% Passing		
500	100				
300	100				
150	100				
125	100				
90	100				
75	90				
63	90				
50	88				
37.5	79				
28	69				
20	59				
14	54				
10	49				
6.3	45				
5	42				
3.35	39				
2	34				
1.18	30				
0.6	27				
0.425	26				
0.3	25				
0.212	24				
0.15	22]			
0.063	20]			
Tested in Accordar	nce with BS1377	Part 2:1990, clause	9.2		

Sample Proportions	% dry mass
Very coarse	10
Gravel	56
Sand	14
Fines <0.063mm	20

Grading Analysi	S	
D100	mm	90
D60	mm	20.5
D30	mm	1.11
D10	mm	
Uniformity Coefficient		> 330
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3



Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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Page 1 of 1



					<u>T</u>	EST CER	RTIFIC	<u>ATE</u>	i2 Analytical L		
(≱≮					Ē	Particle Size	e Distrib	ution	Unit 8 Harrow Brackmills Inc Northampton	dustrial Estate	Analytic
UKA TESTING 4041	6				Tested i	n Accordance	e with: BS	1377-2: 1990			Environmental Sci
Clier			TRC Companie 20 Red Lion St		on, WC1R ₄	4PQ			Job N Date Sa	erence: 41380 lumber: 21-65 ampled: 23/02/	451 /2021
	Address:	ut at i2	Martin Dorfling The Mole, Barr 2 Analytical Limit	гу	nierow 39, -	41-711 Ruda	Slaska, Po	bland	Date	eceived: 01/03/ Tested: 14/04/ bled By: Client	/2021
Labo Hole Sam Sam	at Results: oratory Refer No.: nple Reference nple Descript	ce: ion:	CPBH03 Not Given Brown clayey s	0,					Depth Ba	^r op [m]: 3.00 ase [m]: Not G e Type: B	iven
	nple Preparat	tion: Fine	SILT	hole tested	d, oven dried Fine	d at 106.0 °C : SAND Medium	and broke Coarse	n down by hand. GRAV Fine Mediu		COBBLES	BOULDERS
centage Passing %	100 90 80 70 60 50 40 30 20 10 0 0.001		0.01		0.1						
		Sie	ving		Sedimer			nm Sample Pro	oportions	%	dry mass

Sievi	ng	Sedimentation		
Particle Size mm	% Passing	Particle Size mm	% Passing	
500	100			
300	100			
150	100			
125	100			
90	100			
75	100			
63	79			
50	71			
37.5	59			
28	47			
20	38			
14	33			
10	29			
6.3	26			
5	23			
3.35	20			
2	16			
1.18	14			
0.6	12			
0.425	12			
0.3	11			
0.212	11			
0.15	11			
0.063	11			
Tested in Accordar	nce with BS137	7:Part 2:1990, clause	9.2	

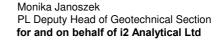
Sample Proportions	% dry mass
Very coarse	21
Gravel	63
Sand	5
Fines <0.063mm	11

Grading Analysi	s	
D100	mm	75
D60	mm	38.7
D30	mm	10.9
D10	mm	
Uniformity Coefficient		> 610
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Date Reported: 20/04/2021



		<u>TE</u>	ST CERTIFIC		i2 Analytical Ltd Unit 8 Harrowden Road		
≯≮) <u>∎</u>		Pa	rticle Size Distribu	ution Brack	mills Industrial Estat ampton NN4 7EB		
4041		Tested in A	Accordance with: BS	1377-2: 1990		Environmental Scie	
Client:	TRC Companies Ltd			CI	ient Reference: 413	800	
Client Address:					Job Number: 21-6	65451	
	20 Red Lion Street, Long	don, WC1R 4P	Q		Date Sampled: 23/0		
Contact:	Martin Dorfling				Date Received: 01/0 Date Tested: 14/0		
Site Address:	The Mole, Barry				Sampled By: Clie		
	? Analytical Limited, ul. Pi	onierow 39, 41	-711 Ruda Slaska, Po	bland	Campica By. One		
Test Results:	,		, - -				
_aboratory Reference:	1819087				Depth Top [m]: 6.50)	
Hole No.:	CPBH03			Γ	Depth Base [m]: Not	Given	
Sample Reference:	Not Given				Sample Type: B		
Sample Description:	Brownish grey slightly sa		-				
Sample Preparation:	Sample was whole teste	d, oven dried a					
CLAY	SILT Medium Coarse	Fine	SAND Medium Coarse	GRAVEL Fine Medium C	COBBLES	BOULDERS	
100							
90		_					
80							
70							
ກ 60 -							
50							
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10							
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Sie	ving	Sedimenta	tion	Sample Proportio	no 0/	o dry mass	

Siev	ing	Sedimentation				
Particle Size mm	% Passing	Particle Size mm	% Passing			
500	100					
300	100					
150	100					
125	100					
90	100					
75	100					
63	100					
50	100					
37.5	95					
28	89					
20	79					
14	70					
10	63					
6.3	57					
5	53					
3.35	48					
2	42					
1.18	39					
0.6	36]				
0.425	36					
0.3	35					
0.212	34					
0.15	34					
0.063	33					
: Tested in Accordar	nce with BS1377	Part 2:1990, clause	9.2			

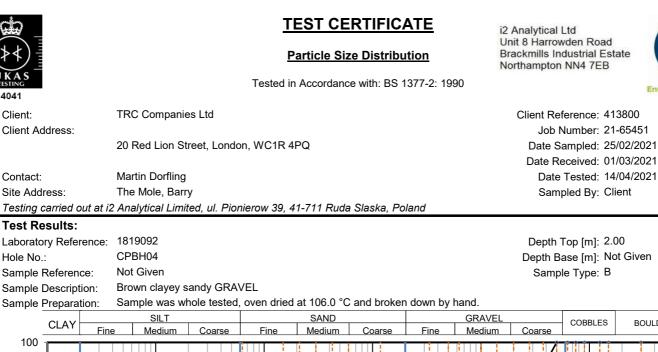
Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	9
Fines <0.063mm	33
	1 30

Grading Analysis		
D100	mm	50
D60	mm	7.7
D30	mm	
D10	mm	
Uniformity Coefficient		> 120
Curvature Coefficient		

Remarks:

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4041 Client:

Contact:

Sample Description: Brown clayey sandy GRAVEL Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand. CLAY SILT SAND GRAVEL COBBLES BOULDERS 100 90 <t< th=""><th></th></t<>	
CLAY Fine Medium Coarse Fine Medium Coarse Fine Medium Coarse 100 90 80 90 <	
100 90 80 70 8 8 90 8 90 8 90 90 90 90 90 90 90 90 90 90	
90 80 70 80	
80 70 80 80 80 80 80 80 80 80 80 80 80 80 80	
× 70	Ħ
8	
50 40 30	
40 30	
	++
	Щ
0.001 0.01 0.1 Particle Size mm 10 100	1000

Sievi	ing	Sedime	ntation
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	88		
28	85		
20	77		
14	70		
10	62		
6.3	54		
5	49		
3.35	44		
2	35		
1.18	29		
0.6	23		
0.425	20		
0.3	17		
0.212	15		
0.15	14		
0.063	12		
Tested in Accordar	nce with BS1377		e 9.2

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	23
Fines <0.063mm	12

Grading Analysis		
D100	mm	50
D60	mm	9.04
D30	mm	1.31
D10	mm	
Uniformity Coefficient		> 140
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

Date Reported: 20/04/2021

Page 1 of 1



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(*	(\mathbf{A})							<u>Pa</u>	article	Size	<u>Distri</u>	bι	<u>ution</u>		Br	ackmill	Is Inc	den Roa Justrial E NN4 7EE	state		Analytic 2
U R TES 40	CAS STING 041						Tes	ted in	Accord	lance	with: B	Sŕ	1377-2: 19	90						Envin	onmental So
C	Client: Client Ad	dress:			Compani ed Lion S	es Ltd treet, Lonc	lon, WC	C1R 4F	۶Q							J Da	ob N te Sa	erence: 4 lumber: 2 ampled: 2 cceived: 0	21-654 25/02/2	51 2021	
S	Contact: Site Addr Tes <i>ting c</i>		ut at i2	The I	n Dorfling Mole, Bari vtical Limi		onierow	39. 41	1-711 R	luda :	Slaska.	Pc	bland			0	Date [·]	Tested: 1 bled By: 0	4/04/2		
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	ample F	•			ple was w		-		-				n down by								
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	0.0	001	Sie	ving	0.01		_	iment		Partic	le Size	n [nm Sar		0 Propo	rtions		100	% d	ry mas	1000 ss

Siev	ing	Sedime	ntation
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	91		
63	83		
50	78		
37.5	75		
28	72		
20	67		
14	64		
10	63		
6.3	60		
5	58		
3.35	55		
2	50		
1.18	47		
0.6	45]	
0.425	44		
0.3	44		
0.212	43		
0.15	43		
0.063	42		

Sample Proportions	% dry mass
Very coarse	17
Gravel	33
Sand	9
Fines <0.063mm	41

Grading Analysis		
D100	mm	90
D60	mm	6.13
D30	mm	
D10	mm	
Uniformity Coefficient		> 97
Curvature Coefficient		

Remarks:

The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd Unit 8 Harrowden Road Brackmills Industrial Estate Northampton NN4 7EB



Client Reference: 413800 Job Number: 21-65451 Date Sampled: 17/02 - 24/02/2021 Date Received: 01/03/2021 Date Tested: 13/04/2021 Sampled By: Client

TRC Companies Ltd

Client Address:

4041 Client:

20 Red Lion Street, London, WC1R 4PQ

Contact:Martin DorflingSite Address:The Mole, BarryTesting carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

			Sample	2				rence		Type ISRM			Dime	nsions			nt De		t Load th Index
Laboratory Reference	Hole No.	Reference	Depth Top m	Depth Base m	Туре	Description	Remarks # (including water content if measured)	Specimen Reference	Type (D, A, I, B)	Direction (L, P or U)	Failure Valid (Y/N)	Lne mm	w	Dps mm	Dps' mm	Force P kN	 Equivalent diameter, De 	ls MPa	ls(50) MPa
1819077	CPBH01	Not Given	23.50	Not Given	В	Brown SANDSTONE	WC = 8.5%	1	I	U	YES	28.0	36.2	32.0	28.0	1.6	35.9	1.20	1.04
1819091	CPBH03	Not Given	23.00	Not Given	В	Grey SILTSTONE	WC = 0.5%	1	Ι	U	YES	55.3	101.3	68.0	48.0	22.1	78.7	3.56	4.37
						ndicular to planes of weakness, U - unknown or random;													

Note # not activation; type: D - ulametral, A - Avail, - I megual Lump, D - Block, literatori. L - paraterio to parters of weakness, P - perpendicular to parters of weakness, D - parterial parters of the parters of t

Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

Signed:

Monika Janoszek PL Deputy Head of Geotechnical Section for and on behalf of i2 Analytical Ltd

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Annex H: Budgetary Cost Estimates for Site

Remediation & Enabling Works



THE MOLE, BARRY

BUDGETARY COST ESTIMATES FOR SITE REMEDIATION & ENABLING

For ABP DevCo

23 AUGUST 2021 U202115_005 DRAFT FOR COMMENT



Budgetary Cost Estimates for Site Remediation & Enabling issued for: ABP Development Company Ltd 25 Bedford Street London WC2E 9ES

Document Information

Report Title	Budgetary Cost Analysis for	Budgetary Cost Analysis for	
	Site Remediation &	Site Remediation &	
	Enabling, The Mole, Barry	Enabling, The Mole, Barry	
Ref.	U2021015_005	U2021015_005	
Report Status	Draft for Comment	Version 1	
Date	23 rd August 2021	26 th August 2021	
Project No.	U2021015	U2021015	
Additional			
Comments			

Quality Control

	•		
Prepared by	TM/RP	ТМ	
Date	20 th August 2021	25 th August 2021	
Review by	RP	RP	
Date	20 th August 2021	26 th August 2021	
Approved by	RP	RP	
Date	23 rd August 2021	26 th August 2021	



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1	INTF	RODUCTION	2
	1.1	AUTHORISATION	2
	1.2	BACKGROUND INFORMATION	2
	1.3	FOUNDATION OPTIONS	3
2	PRO	VISIONAL SCOPE OF WORKS	5
	2.1	DESIGN & PERMITTING	5
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Appendices

APPENDIX A: Cost Tables



1 INTRODUCTION

1.1 Authorisation

EESI Remediation Limited (EESI) has been instructed by ABP Development Company Ltd (ABP DevCo) to provide budgetary cost estimates for different remediation and enabling strategies at The Mole, Neptune Road, Barry, CF26 5BR (hereafter referred to as the Site). The main objectives of the remediation and enabling activities are:

- To prepare a suitable working platform for the redevelopment of the site for a residential or mixed end-use;
- Ensure the integrity of the existing remediation cover layer; and
- To raise levels by an average 0.5 m for flood risk alleviation.

The budgetary cost models presented in this report reflect regional competitive market rates at the time of preparing this report. This report provided for illustrative purposes only.

1.2 Background Information

EESI have been provided with the following reports:

- An interim report for ground investigation and site appraisal findings, produced by TRC Companies Limited (16th March 2021): This report provides a peer review of historical reports and site information combined with contemporary data from a site investigation undertaken by TRC in January 2021. The report identifies a number of constraints relating to ground conditions and concludes with a recommendation for the use of Controlled Modulus Columns (CMC) to improve geotechnical ground conditions.
- Raft Feasibility Report, The Mole, Barry, CF62 5BR, produced by Parmarbrook Limited (August 2021): This report presents the findings of modelling work used to assess different foundation solutions, with focus on a reinforced concrete raft option. Structural assessment models for different building designs and associated foundation design parameters are presented, which conclude with the recommendation for use of a 500 mm thick reinforced concrete raft.
- Raft Feasibility Assessment Revision 1, The Mole, Neptune Road, Barry, produced by Card Geotechnical Limited (August 2021): This report was commissioned by Parmarbrook to complete a review of ground conditions in context of the recommended raft foundation solution.

Additional information has been provided to EESI from consultation with TRC, Parmarbrook and ABP DevCo to confirm the scope of works required to complete preparatory activities associated with the different foundation options.

In summary we understand the following:



- The site is a parcel of reclaimed land approximately 400 m long and 75 m wide, which extends into Barry Docks waterway.
- The Mole was constructed using locally won materials, which included both granular and cohesive material that were infilled at various thicknesses to level out the existing topography of the site;
- Underlying natural ground comprises Tidal Flat Deposits over a bedrock (Blue Anchor Formation and the Penarth Group);
- It is anticipated that a number of 'soft spots' will be present across the site due to the variations in quality of the capping layer and the use of both granular and cohesive material used to build up the original site;
- The site is generally grass or scrub covered with an area of hardstanding at the eastern end of the site where a single-story portacabin type building, steel shipping containers and jetty are located;
- An asphalt/compacted stone narrow access road runs along the northern boundary of the site;
- Ground level typically ranges between 8.5 and 8.8 mAOD with a raised bund (9.2 mAOD) running parallel with the access road and another soil mound (~ 11.5 mAOD) adjacent to the portacabins;
- Historical remediation has been completed across the site, which comprised the excavation and offsite disposal of contaminant soil hotspots and the installation of a site wide capping layer;
- 18no. tanks bases (ranging between 5 and 30 metre dia.) remain in-situ and typically comprise 300 mm thick slabs sat on either ring beam or raft foundations (estimated total area 5,730 m², total volume (including foundations) 2,200 m³);
- No significant contamination issues have been identified and no significant constraints relating to groundwater have been reported in the recent investigation findings;
- The recent site investigation reports that the remediation capping layer typically comprised a non-engineered fill over a geomembrane and Type 1 gravel layer (capillary break layer) of combined 0.6 to 0.8 m thickness; and
- A majority of the site needs to be raised an average 0.5 m for flood protection purposes (17,000 m³ of material import has been estimated).

It is understood that planning is in place for the redevelopment of the site to residential or mixed end-use, comprising the construction of 3 or 4 story apartment blocks or similar sized office units. A marina complex will also be built as part of the development scheme.

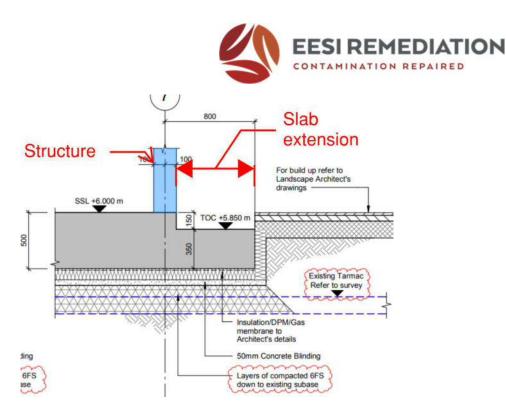
1.3 Foundation Options

Two foundations options have been put forward by TRC and Parmarbrook; Controlled Modulus Columns (CMC) and reinforced concrete raft foundations (concrete raft) respectively. Both options will require similar improvement of ground conditions, although the raft foundations can be constructed without the need to remove the concrete tank bases that remain in-situ.

A summary of the preparatory scope of works that will be required for both foundation options is provided in Section 2.2.

1.3.1 Concrete Raft Foundations

It is understood that the preferred raft solution will comprise a 500 mm thick reinforced concrete raft slab. Sub-base construction will comprise a compacted 200 mm layer of 6F5 aggregate beneath a 50 mm concrete binding layer and DPM/Gas membrane. No specific geotechnical criteria were put forward for land raising areas surrounding the building footprints. A construction schematic provided by Parmarbrook is enclosed overleaf.



1.3.2 CMC Foundation Solution

The CMC foundation solution will require the installation of 320 mm diameter pre-cast concrete modular block columns to a typical depth 21 m bgl. The CMC's would be installed on a 4 to 6.25 m² centres. A minimum 500 mm Load Distribution Platform will need to be installed within the CMC piling rig working areas; it is understood that this will need to be constructed from 6F2/6F5 aggregates.

In advance of installing the CMC, it will be necessary to remove the concrete tank bases with void spaces infilled with suitable granular fill. Geotechnical testing of conditions beneath the removed tank bases will also need to be completed to validate the CMC design; this will comprise CPT testing of cleared areas.



2 PROVISIONAL SCOPE OF WORKS

Our provisional scope of works has been primarily designed using information provided by Parmarbrook and TRC for the two different foundation options. However, consideration has also been given to the Site's extensive brownfield legacy and sensitive environmental setting. The design also considers waste minimisation through recovery and re-use of material generated during the enabling work and the use of secondary aggregates for import; noting that significant material import will be required to raise site levels for flood protection.

Based on these criteria we have considered and included cost allowances for the:

- design and permitting of the works,
- initial site preparatory works,
- reprofiling,
- material break-out, processing and recovery,
- reprofiling, backfilling and making good,
- construction of working layers and land raising; and
- geotechnical/geo-environmental verification testing.

Details relating to some of these activities are provided below, with additional information provided in Tables A1 to A3 in **Appendix A**.

2.1 Design & Permitting

The cost models include for the following design and permitting options, noting that regulatory consultation will be required to confirm what design and permitting documentation will be required.

- An **Earthworks Design** to provide site-specific details for material classification, methods of compaction and a geotechnical verification test regime for the chosen foundation solution. It is recognised that each foundation solution will require different levels of precommencement design input to validate and confirm modelled design parameters.
- A Detailed **Remediation Method Statement** that details a regulatory compliant strategy for the recovery and re-use of site won materials, use of imported material and methods for ensuing the integrity of the existing clean cover layer in the context of Land Condition Remediation Management guidelines. The RMS should also either incorporate or reference a **Construction Environmental Management Plan** that considers controls for managing potential environmental impacts e.g. run-off into the surrounding waterways.
- A Material Management Plan (MMP) that evidences the recovery and use of materials and soil excavated and processed on site in compliance with the Definition of Waste: Code of Practice. The MMP will also provide a framework for possible import of lower cost material from Donor sites, including waste materials that could be recovered through processing either on the site or at another facility within a Cluster arrangement defined within the MMP



- Subject to the extent of on-site treatment to recover and re-use site won waste, it may be necessary to deploy a **Mobile Plant Environmental Permit** for Remediation/Treatment of recovered waste material.
- Health and Safety management via a **Construction Phase Plan**, site specific Risk Assessments and Method Statements (RAMS) and control permits that consider risks such as working adjacent to waterways, traffic/person interfaces and COSHH.

2.2 Enabling Specification

Below is a summary of the key assumption used to develop a provisional scope of works for the enabling of the site. Additional, itemised, activities used to build up the cost models are provided in **Table A1** of **Appendix A**.

2.2.1 Concrete Raft Foundation

It is assumed that the total raft footprint will be $10,000 \text{ m}^2$ with an additional $5,000 \text{ m}^2$ of roadways, pavements, and car parking areas. We also assume that garden and green spaces will require a minimum of 300 mm of subsoil and topsoil for horticultural purposes (to be provided by others during the construction phase).

It is assumed that soft spot excavations will be limited to the top 0.5 to 1.5 metres of the site, covering of the raft footprint area 10,000 m². A total excavation volume of 8,000 m³ of soft material has been used in the budget cost models. In relation to material reuse and import requirements, the cost models also include for:

- Pre-commencement geotechnical characterisation and feasibility assessment, including the installation of additional Cable Percussion Boreholes, CPT's and groundwater monitoring.
- Re-use of stripped soils during grass/vegetation clearance, excavated soft spot soil and bund materials as subsoil/topsoil during the construction programme.
- Re-use of existing site material (bunds, high points, etc.) for reprofiling and levelling the site as a general fill;
- Re-use of existing capping material for backfilling excavated soft spot voids and the reinstatement of the capillary break layers (using comparable material).
- Reprofiling will lower the existing site level by 200 to 250 mm prior to placement of subbase and raft foundation (some material may require import to build up level for flood protection).
- Import of 200 mm thick 6F5 subbase layers will be placed beneath raft foundation, roadways, pavements and carparks.
- Other areas will be brought up to the level of raft and roadway sub-base using clean, imported, cohesive materials (specification subject to local material availability) that comply with the specification provided in the CGL report (Section 5.1.5).



- Backfilling and compaction work associated with reprofiling, levelling and formation buildup will be completed in accordance to SHW Series 600 (Earthworks) methods.
- It is assumed that the 500 mm raft will bring site levels up to the required flood protection levels.
- A separate cost option that includes for the removal of the Tank Bases to be included (although it is understood that this is not required as part of this foundation solution option).

2.2.2 CMC Foundations

It is also understood that the CMC solution will require the removal of soft spots in advance of mobilising the piling rigs. The CMC will be placed beneath the footprint of the buildings with an additional 2 metre curtilage (10,000 m²). A 500 mm Load Distribution Platform will be constructed over the CMC area for piling rigs access.

Prior to mobilisation of piling plant, all concrete tank bases and foundations will be broken out and excavated. The total volume of concrete structures is estimated at 2,200 m³. At this stage it is assumed that all concrete bases will be removed. In relation to material reuse and import requirements, the cost models are based on the following:

- Re-use of stripping soils during grass/vegetation clearance, excavated soft spot soil and bund materials can be retained for use as subsoil/topsoil during the construction programme.
- Re-use of existing site material (bunds, high points, etc.) for reprofiling and levelling the site.
- All buried concrete tank bases and foundations will be excavated and removed.
- Re-use of recovered overburden from the tank removal and imported Type 2/3 aggregate fill for infilling excavated soft spot and tank base excavation voids.
- 500 mm 6F5/6F2 load distribution platform will be placed across building footprint area in advance of the CMC piling rigs being mobilised
- Recovered concrete will be crushed to create a suitable 6F5/6F2 aggregate for use in load distribution platform construction.
- Following CMC installations, the load distribution platform will be reduced to 300 mm with surrounding areas raised to 200 mm to form a raised formation level for future construction
- It is assumed that the construction of rafts, roadways and greenspaces will increase site levels >300 mm to meet flood protection.

2.3 General Scope of Works

Table 1 overleaf provides a summary of the site preparatory scope of work for each foundation design.



Table 1: General Scope of Works

Table 1: General Scope of Works	
Both Foundation Options	
 Reprofile and level site, relocate surface bun Complete site wide 'proof rolling' to identify s Concrete Raft Foundation 	site; ng infrastructure; te vegetative strip and undertake surface clearance; ds and break-out surface features; and, oft spots. CMC Supported Foundations
 Complete supplementary site investigation and feasibility design Excavate soft spots (assume 8,000 m³), backfill with site won compactable fill, making good to surface in accordance to Earthworks Design (reinstate existing capping layer and geomembrane); Set-out building footprints, place and compact 200 mm sub-base layer (6F5); Build-up surrounding levels using site won material or compactable fill to 200 mm above existing level; and, Complete geotechnical testing. 	 Excavate soft spots (assuming 8,000 m³ in total), replace with site won aggregates; Excavate overburden soil above tank bases at eastern end of site (33% of site, first third), locally stockpiling soil (segregating different material types); Break-out and crush concrete tank bases and foundations to produce a 6F2/6F5 aggregate for use in the Load Distribution Platform; Backfill and compact in accordance with Earthwork Design, reinstating the historical capping layer and raise area to final levels; Complete geotechnical testing and validation; and, Install 500 mm Load Distribution Platform. Install CMC piles Reprofile Load Distribution Platform to 300 mm and import additional fill to raise surrounding site levels by 200 mm.

Estimated quantities, where applicable, for the above scope of works are provided in **Tables A1** to A3 in **Appendix A**.

2.4 Programme

2.4.1 Reinforced Concrete Raft Foundations

The programme of site works is estimated at 16 weeks from the point of mobilisation.

The pre-commencement design work and permitting would require between 12 and 16 weeks, including the supplementary investigation work.

2.4.2 CMC Foundations

The programme of site works is estimated at 18 weeks from the point of mobilisation.

The pre-commencement design work and permitting would require between 8 and 12 weeks.



3 BUDGETARY COST ESTIMATES

Budgetary costs are enclosed in **Tables A2** to **A3** in **Appendix A** for the following three scenarios:

- Remediation and enabling to support the installation of concrete raft foundations, leaving tanks bases in-situ;
- Option for removing tank bases as part of raft foundation solution; and,
- Remediation and enabling to support the installation of a CMC supported foundation.

The total budget cost estimate for each scenario is presented in Table 2 below.

Scenario	Total Cost
Concrete Raft Foundation (leaving tank bases in-situ)	£593,640
Concrete Raft Foundation (additional cost option to remove concrete tank bases)	£80,415
CMC Foundation	£663,105

Table 2: Remediation & Enabling Budget Total Cost for each Foundation Scenario

It should be noted that these costs are based on a series of assumptions and estimates that will require further detailed assessment. We would highlight the following:

- The extent and depth of soft spot soil excavation will need further evaluation to confirm the excavation depths to mitigate these risks;
- No allowances have been made for the installation of clean service/utility corridors;
- The programme of works will be sensitive to the quantity of material that can be sourced and imported onto site; and
- Material import costs appear to be driven by regional supply and demand, costs are currently based on General Fill (compactable material) Rates of £6/tonne and 6F5 rates of £7.15/tonne (cost include site delivery).

To confirm, specific to the concrete raft foundation solution, no costs have been included for the construction of the raft foundations or any materials required to finish roadways, pavements, or build up topsoil/subsoil layers for green spaces.

With regards to the CMC foundation solution, the enclosed cost estimates do not include for the installation of the CMC's or import of any materials to construction foundations, slabs, roadways/pavements or green spaces.



3.1 Concrete Raft Foundation

In relation to remediation and enabling costs, the raft foundation offers to most cost-effective solution. This is principally driven by a reduced material import requirement as it is assumed the 500 mm thick raft slab will meet the required 0.5 m increase in elevation for flood protection. In addition, this solution can be completed without need to remove the concrete tanks bases; separate analysis of these costs indicates a potential saving of £80,415.

3.2 CMC Foundation

This option is more expensive due to the requirement to install a 500 mm thick Load Distribution Platform (although these costs are offset by reducing the platform to 300 mm thickness post CMC installation and using the surplus to built-up surrounding levels) and break-out the concrete tank bases, which also increases the works programme by an estimated 2 weeks.

3.3 Opportunities for Cost Savings

The provisional scope of works has been designed to produce reasonable case cost estimates for the preparation of the site for construction. In doing so, EESI has identified additional recommendations and opportunities that may lead to significant cost savings. These include:

Detailed Material Balance: Completing a more detailed analysis of material import requirements that includes analysis of the suitability of existing bunded material or site won soft material for reuse within the overall scheme should help further refine the overall material import requirements.

Geosynthetics: The use of geosynthetic strengthen products (e.g. geogrids) to maximise the reuse potential of less geotechnical suitable materials and/or reduce the extent of soft spot excavations.

MMP Cluster Arrangement: Options for importing materials, including the recovery of waste materials, from other donor sites could also be considered within a MMP Cluster arrangement. EESI can provide options for screening, sorting and structurally improving materials for use as a geotechnically competent general fill. For the Mole, this would probably be limited to the infilling of deeper soft spot voids or tank base excavations at depth, noting that these voids will have a capacity of 6,000 to 10,000 m³. The typical cost for treating material to make them suitable for reuse will be dependent on the material being brought onto site; £2.5/tonne for material that require simple sorting and screening through to £10/tonne for material that requires pre-treatment, screening, and stabilisation.

Reduce Tank Base Removal Programme (CMC option only): It is currently assumed that all concrete tank bases will be removed. It is possible that some tanks could remain in-situ or only partially removed. A 50% reduction in the scope of these works could reduce the cost of this option by circa £40,000.



APPENDIX A: COST TABLES



Table A 1 Cost Model Details

Action	Concrete Raft Foundation	CMC Foundation
cluded within cost model	 Prepare Construction Phase Plan, Construction Environmental Management Plan, MMP (QP Sign- off by others), RAMS, Traffic Management Plan, Works Sequence, Control Permits and Waste Register. Earthworks and Foundation Design Specification by others. Prepare and deploy Environmental Permit for Remediation (subject to treatment of any materials), establish crushing permit and discharge to sewer permit (if available) Set-up a bunds at boundary to control run-off (excludes use of geotextile membranes or pumping equipment) Establish haul routes using existing roadways, including allowance for road sweepers and wheel wash (at site entrance) Fence off entrance to site and establish fencing around excavation and works areas Set-up boundary monitoring stations for dust and noise (vibration monitoring to be completed by others) Establish Welfare (Site Office, Canteen/Meeting Room, Storage Units, Refuelling Area, Laydown Area, CCTV Security and Carparking) Construct bunded area for crushing and material processing Vegetation Strip, clearance of surface waste, building demolition and removal of redundant shipping containers Utility surveys, isolation of surveys and clearance/setting of easements Proof rolling, soft spot excavation and haulage to stockpile area Reinstate capping layer following backfill and compaction methodology prescribed in earthwork and foundation design specifications to complete installation of 2000 mm sub-base beneath buildings, roads and hardstanding areas and 200 mm general fill area in green spaces. Deployment of full-time site team comprising Site Manager, Site Engineer, Foreman and part- time Labourer and Gate Man (to manage plant, undertake regular topographical surveys, collect samples, track material movements and oversee environmental compliance monitoring) Project Management (including allowance for Project Direct	 Prepare Construction Phase Plan, Construction Environmental Management Plan, MMP (QP Sig off by others), RAMS, Traffic Management Plan, Works Sequence, Control Permits and Waste Register. Earthworks and Foundation Design Specification by others. Prepare and deploy Environmental Permit for Remediation (subject to treatment of any materials), establish crushing permit and discharge to sewer permit (if available) Set-up a bunds at boundary to control run-off (excludes use of geotextile membranes or pumping equipment) Establish haul routes using existing roadways, including allowance for road sweepers and whee wash (at site entrance) Fence off entrance to site and establish fencing around excavation and works areas Set-up boundary monitoring stations for dust and noise (vibration monitoring to be completed others) Establish Welfare (Site Office, Canteen/Meeting Room, Storage Units, Refuelling Area, Laydowr Area, CCTV Security and Carparking) Construct bunded area for crushing and material processing Vegetation Strip, clearance of surface waste, building demolition and removal of redundant shipping containers Utility surveys, isolation of surveys and clearance/setting of easements Excavation, haulage, and temporary stockpile of overburden soil (assume all tanks remain in-sit area cleared based on all tank areas + 20% for battering excavation faces) Proof rolling, soft spot excavation and haulage to stockpile area Break-out, excavation and haulage of concrete pads, ring foundations and raft foundations associated with former tank bases Crushing and processing of concrete to produce suitable aggregate end product. Reinstatement of engineer capping layer (where removed) and reprofiling existing fill (including existing bunds and stockpiles) that will remain in-situ to support backfilling of site won/importe fill. P



	Assumed works programme 18 weeks.				
Excluded from cost model (and	Exclusions				
design assumptions)	1. Provision of generators and fuel (we assume power connections for welfare will be available)				
	2. Water supply, sewer disposal or offsite disposal charges for wastewater				
	3. Fencing off full site perimeter (approximately 1,000 m)				
	4. Assessment of 'waste' material sourced from another third party or preparation of associated Cluster arrangement	. Assessment of 'waste' material sourced from another third party or preparation of associated Cluster arrangement			
	5. Preparation of Outline Remediation Strategy and associated Regulatory Liaison				
	6. Preparation of Earthwork and/or Foundation Design				
	7. Construction or renovation of revetments, retaining walls or other structures				
	8. Any temporary works				
	9. Costs for operating during winter months (October to March) e.g. surface water management, reduced daylight working hours, impact of weather, et	tC.			
	10. Ecological management				
	11. Any construction work, including raft foundations, surface features, utilities, services, roadways, pavements, etc.				
	12. Material Management Costs during subsequent Construction Phase.				
	13. Any offsite disposal				
	14. Management of any encountered contamination, including asbestos containing materials				
	Design Assumptions				
	15. A Principal Designer will be appointed by the client				
	16. Suitable easements will be placed around the perimeter of the site boundaries that adjacent to water				
	17. No contamination requiring treatment, management or use of control measures will be encountered during excavations				
	18. No asbestos impacted materials will be encountered e.g. no control measures specific to asbestos management (licensed or non-licensed) will be req	uired			
	19. Any historical foundation structures that our not associated with the 18no. tanks bases can be retained in the ground				
	20. All tank slabs and foundation have no or standard levels of steel reinforcement				
	21. All site won material will be retained on site, included segregated fines/cohesive material				
	22. The finish platform will comprise a single level graded down to existing level 3 metres from edge of site				
	23. The edges of the raised areas will comprise a 1 in 3 battered gradients to existing ground level				
	24. Any recovered green waste can be stockpiled and composted on site for future use in garden spaces				

TABLE A2.1 Concrete Raft Foundation, Remediation & Enabling Budget Cost Estimates

Item	Activity	Cost		
1	Pre-commencement, Design and Procurement	£10,725		
	Supplementary Site Investigation and Geotechnical Feasibility Testing	£48,000	Cable Percussion Drilling, CPT, GW Monitoring and Analysis	
2	Site Set-up and Mobilisation	£14,750		
3	Demolition and Site Clearance	£8,250		
4	Preliminary Costs	£78,500	Based on CDM requirements as Principal Contractor	
5	Site Attendance and Project Management	£148,600	16 week programme	
6	Proof Rolling and soft spot excavation	£36,175	Soft spot materials retained on site for use during construction phase	
8	Stockpile Management	£15,730		
14	Material Import	£98,610	Based on 5,400 tonnes of secondary 6F5 for building and road sub-base construction and 10,000 tonnes of cohesive, gran cover areas and part infilling soft spots Sub-soil and Top-soil (8,000 tonnes est.) and pavement construction materials a materials required to meet flood alleviation land raise)	
11	Reprofiling, Backfilling and Compaction	£66,300	Includes for placement of geomembrane fabrics between granular and cohesive layers	
15	Verification Testing (Lab and Field Testing)	£51,445	Includes for additional CPT and in-situ testing of infilled soft spot areas and sub-base platform	
13	Finishing	£8,075		
17	Demobilisation	£6,380		
18	Validation Reporting	£2,100		
	TOTAL	£593,640		



ranular, general fill for building up remaining s are not included in this line item (NB.



TABLE A2.2 (Removal of Concrete Slabs Option, running concurrent to other site enabling works)

Item	Activity	Cost	
4	Preliminary Costs	£9,800	
5	Site Attendance and Project Management	£18,575	
6	Excavation of Slab Overburden	£16,950	
8	Break-out and Processing Slabs and Foundations	£39,690	
14	Material Import	(£4,600)	Saving accrued from site won 6F5
	TOTAL	£80,415	

Table A3 CMC Foundation, Remediation & Enabling Budget Cost Estimates

Item	Activity	Cost	Comments	
1	Pre-commencement, Design and Procurement	£10,725		
2	Site Set-up and Mobilisation	£14,150		
3	Demolition and Site Clearance	£8,250		
4	Preliminary Costs	£88,300	Based on CDM requirements as Principal Contractor	
5	Site Attendance and Project Management	£167,175	Based on an 18 week programme	
6	Proof Rolling and soft spot excavation	£36,175	Soft spot materials retained on site for use during construction phase	
6	Excavation of slab Overburden	£16,950		
8	Break-out and Processing Slabs and Foundations	£39,690		
7	Stockpile Management	£23,600		
11	Material Import (Provisional Sum)	£114,750	Based on 9,000 tonnes of secondary 6F2/6F5 import to construct 500 mm load distribution platform and 8,400 tonnes of	
			remaining cover areas and part infilling soft spots. Sub-soil and Top-soil (8,000 tonnes est.) and pavement construction	
9	Reprofiling, Backfilling and Compaction	£90,300	Includes for placement of geomembrane fabrics between granular and cohesive layers	
12	Verification Testing (Lab and Field Testing)	£35,620	Includes for CPT testing beneath for tank bases	
10	Finishing	£8,075		
13	Demobilisation	£7,245		
14	Validation Reporting	£2,100		
	TOTAL	£663,105		



of cohesive, granular, general fill for building up n materials are not included in this line item.