

REPORT NUMBER

CONTR	RACT	D	ublin	Central Deve	elopmer	nt - Draf	t					DRILLI SHEET	HOLE NO)	RC08	3 20 of 33
CO-OR	RDINA	TES(_)					ORE DIAM	EVEL (m) /IETER (mm)		02		STARTEI COMPLE		13/09/ 14/09/	
CLIEN' ENGIN				Central Deve onsulting Engi		nts Ltd.		ICLINATIC LUSH	N		90 Polymer Ge	DRILLI LOGG			Millenr A. Mah	
Downhole Depth (m) Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	500	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)
19	100	0	0					predomir angular t and local (continue	CLAY (grave nantly fine, to sub-rounde lly rounded)	19.40						
19.9	100	0	0			× × × × × × × × × × × × × × × × × × ×		Firm slig green br	htly gravelly own CLAY	19.90						
REMA Hand o		pecti	on pi	t to 1.2m.					INSTALLA Headworks		ARKS					
		•														
									GROUNDV			D. "				
									Date	Hole Depth	Casing Depth	Depth to Water	Comme	ents		
INIOT :		01:														
INSTA Dat		ON D		the second	Z Base	-	Гуре									
14-09	-08	13.0	00	6.00 1	3.00	50r	nm S	SP								
14-09	-08	32.5	50	26.50 3	2.50	50r	nm S	SP								



GDT 11/11/08

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NEWLOG 1M PER PG

RC

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GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

13696

CONTRACT **DRILLHOLE NO** Dublin Central Development - Draft RC08 SHEET Sheet 21 of 33 GROUND LEVEL (m) CO-ORDINATES(_) DATE STARTED 13/09/2008 CORE DIAMETER (mm) 102 DATE COMPLETED 14/09/2008 INCLINATION -90 CLIENT Dublin Central Developments Ltd. **DRILLED BY** Millennium **ENGINEER** AGL Consulting Engineers **FLUSH** Polymer Gel LOGGED BY A. Mahony E E Non-intact zones (shaded) Details Downhole Depth Depth Fracture SPT (N Value) Spacing Description Discontinuities Standpipe Core Run % (E Elevation (mm) Legend R.Q.D. Depth (ď 0 S.C. O 250 500 uuuuluuuuu 20 20.00 o÷. Mottled brown black N = 39/30clayey, very gravelly SAND (medium (25, 61, 39)0 grained) with local cobbles. Gravel is predominantly coarse 0. and rounded to sub-angular. 100 31 26 20.80 Discontinuities are smooth and planar and clay smeared. Dips are sub-10° REMARKS **INSTALLATION REMARKS** Hand dug inspection pit to 1.2m. Headworks. **GROUNDWATER DETAILS** Casing Hole Depth to Water Date Comments Depth Depth **INSTALLATION DETAILS** Date Tip Depth RZ Top RZ Base Type 13.00 14-09-08 13.00 6.00 50mm SP 14-09-08 32.50 26.50 32.50 50mm SP



REPORT NUMBER

CONTRA	СТ	Di	ublin	Central De	evelopmer	nt - Draf	t						Commission (Commission	IOLE NO)	RC08	
CO-ORD	INA	res(_)					ROUND L	EVEL (m) IETER (mm)		1	02		STARTE		13/09/ 14/09/	
CLIENT	R			Central De		nts Ltd.	IN	CLINATIC LUSH			-6	90 olymer Ge	DRILLE	ED BY		Millen	
Downhole Depth (m) Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fractu Spacii (mm	ng i) 500	Legend	Non-intact zones (shaded)	Des	scription		Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)
21.50								strong, the bedded, black, fin ARGILLA LIMEST slightly a moderate Pyrite disthrougho calcite ve (continue)	ely strong to	to d.	21.87	Disconting and plans	nuities are si ar and clay . Dips are (continued)	mooth		I KATI KATI KATI KATI KATI KATI KATI KAT	
								black, ca SHALE.	o laminated, lcareous Fresh to and locally			are sub- and insip fractures	I throughout 10° with hai pient clay sn throughout	rline neared			
REMARI Hand du		pecti	on ni	t to 1.2m.					INSTALLA		REMA	ARKS					
i iaiiu uu	9 1110	pcou	on pi	1.2111.					Headworks								
									GROUNDV	VATE	R DET	AILS					
									Date		ole epth	Casing Depth	Depth to Water	Comm	ents		
	-																
INSTALI					R7 Rose		Гуре	1									
Date 14-09-0		Tip D 13.0		6.00	13.00	50n	nm S	SP									
14-09-0		32.5	50	26.50	32.50		nm S										

13/12/2022 REPORT NUMBER GEOTECHNICAL CORE LOG RECORD 13696 ICS **DRILLHOLE NO** CONTRACT Dublin Central Development - Draft **RC08** SHEET Sheet 23 of 33 GROUND LEVEL (m) CO-ORDINATES(_) **DATE STARTED** 13/09/2008 CORE DIAMETER (mm) 102 DATE COMPLETED 14/09/2008 INCLINATION -90 CLIENT Dublin Central Developments Ltd. DRILLED BY Millennium **ENGINEER** AGL Consulting Engineers FLUSH Polymer Gel LOGGED BY A. Mahony E E Standpipe Details Downhole Depth (Core Run Depth SPT (N Value) Fracture zones Spacing Description Discontinuities Depth (m) Elevation (mm) Legend R.Q.D. C.R. œ S.C. 250 500 <u>.....uhuuuuu</u> 22 Discontinuities are smooth moderately weathered. Pyrite dispersed. and planar, and clay Incipient fractures smeared throughout. Dips are sub-10° with hairline common. Moderately strong to moderately weak, thinly and insipient clay smeared fractures throughout. bedded to laminated, (continued) 100 0 0 black, calcareous SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures common. (continued) 22.80 100 0 0 INSTALLATION REMARKS REMARKS Hand dug inspection pit to 1.2m. Headworks. **GROUNDWATER DETAILS** Casing Hole Depth to Water Date Comments Depth Depth **INSTALLATION DETAILS** Tip Depth RZ Top RZ Base Date Type 14-09-08 13.00 6.00 13.00 50mm SP 14-09-08 50mm SP

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REPORT NUMBER

COI	NTRA	ACT	D	ublin	Central Developme	ent - Dra						DRILL SHEET	HOLE N	0	RC0	8 24 of 33
00-	ORD	OINA"	TES(_)			C	ORE DIA	LEVEL (m) METER (mm)		02		STARTE		13/09/ 14/09/	
	ENT	ER			Central Developme onsulting Engineers	ents Ltd.		LUSH	ON		90 Polymer Gel	DRILL	ED BY ED BY		Millen A. Ma	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Plegend	Non-intact zones (shaded)		escription	Depth (m)		ntinuities		Elevation	Standpipe Details	SPT (N Value)
23	23.10							moderate bedded black, can SHALE. slightly a moderate lincipient	tely strong to tely weak, thinly to laminated, alcareous Fresh to and locally tely weathered. spersed. t fractures in. (continued)	23.46	Discontinu and planar smeared the are sub-10 and insipie fractures the (continued	, and clay proughout or with hai ent clay sn proughout	Dips rline		KIN	
		100	57	50	54			thin to m grey to d grained LIMEST slightly a moderat Pyrite di	out. Local	23.40	Discontinu and planar sub-10° wi calcite frac	Dips are	e			
	/ARI		nectio	on nit	to 1.2m.				INSTALLATIO	N REMA	ARKS				IVZ) N	
idil	u uu	y IIIS	pecil	on pil	to 1.211.				Headworks.							
									GROUNDWAT	Hole		Depth to Water	Comm	onte		
										epth	Depth	Water	Comm	EIIIS		
				ETA	1100 1100		T									
_ [Date 09-0		13.0		RZ Top RZ Base 6.00 13.00		Type mm \$									



CORE DIAMETER (mm) INCLINATION ROLLINATION Fracture Spacing (mm) Performed and performed by a continuities of the contin	EET		RC08 Sheet 25 of 33
NOINEER AGL Consulting Engineers Fracture Spacing (mm) Strong to very strong, thin to medium bedded, grey to dark grey, fine grained SILICEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcide verining. AGL Consulting Engineers Fracture Spacing (mm) Polymer Gel Live Strong to very strong, the dark grey, fine grained SILICEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcide verining. Continued) Moderately strong to moderately strong to moderately weathered. Pyrite dispersed. Incipient fractures. LIMESTONE Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcide verining. Continued) Discontinuities and planar and smeared. Dips strong, thin to medium bedded, dark grey to black, fine grained ARGLILACEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcide verining. Calcide verining. AGL Consulting Engineers FLUSH Polymer Gel Live Factures Discontinuities and planar. Dispersion of the properties o	TE STARTE	ED 1	13/09/2008 14/09/2008
Discontinuities Discontinu	GGED BY		Millennium A. Mahony
Strong to very strong, thin to medium bedded, grey to dark grey, fine grained SILICEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcite vening. (continued) Moderately strong to moderately weak, thinly bedded to laminated, black, calcareous SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures. Strong to moderately weathered. Pyrite dispersed. Incipient fractures and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Pyrite dispersed. Incipient fractures and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10° with the fractures. Discontinuities and planar and smeared. Dips sub-10°. Strong to moderately weathered. Pyrite dispersed throughout. Local calcite veining. 24.80 Moderately strong to calcite veining. 24.80 Moderately weathered. Pyrite dispersed throughout. Local calcite veining. Pyrite dispersed. Incipient fractures common. Strong to moderately weathered. Pyrite dispersed. Incipient fractures common. Strong to moderately weathered. Pyrite dispersed. Incipient fractures common. Strong to moderately weathered. Pyrite dispersed. Incipient fractures common. Strong to moderately weathered. Pyrite dispersed. Incipient fractures common.	iies	Elevation	Standpipe Details SPT (N Value)
Moderately strong to moderately weak, thinly bedded to laminated, black, calcareous SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures. 24.60 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 100 0 0 0 100 0 0 0	s are		KALI KALI KALI KALI KALI KALI KALI KALI
Strong to moderately strong, thin to medium bedded, dark grey to black, fine grained ARGILLACEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcite veining. 24.80 Moderately strong to moderately weathered. Pyrite dispersed throughout. Local calcite veining. 24.80 Moderately strong to moderately weathered. Pyrite dispersed and planar and smeared. Dips sub-10°. Strong to moderately to medium bedded, dark grey to black, including the price of the pri	ocally clay are rline re smooth clay	-	
Moderately strong to moderately weak, thinly bedded to laminated, black, calcareous SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures common. EEMARKS INSTALLATION REMARKS	vertical		
land dug inspection pit to 1.2m	lay		ST. I SKILL SKILLS
Headworks.			
GROUNDWATER DETAILS			
Date Hole Casing Depth Depth Depth Wat	to Comm	nents	
ISTALLATION DETAILS			
Date Tip Depth RZ Top RZ Base Type 14-09-08 13.00 6.00 13.00 50mm SP			



REPORT NUMBER

CO				Service Co.			B 25 1						DBILLI	HOLE NO	_	RC0	.0
	NTRA	ACT	Di	ublin	Central De	evelopme	nt - Draf	t					SHEET		5		t 26 of 33
со	-ORE	INAT	TES(_)						EVEL (m) IETER (mm)		102	DATE	STARTE COMPLE			9/2008 9/2008
	ENT	ER			Central De	-	nts Ltd.	INC	LINATIO JSH	N		-90 Polymer Ge	DRILLI LOGG				nnium ahony
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fractu Spaci (mm	ng n) 500	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)
25									moderate bedded to black, ca SHALE. slightly ar moderate Pyrite dis Incipient	Fresh to nd locally ely weathered	d.	and plan smeared sub-10°.	nuities are s ar and clay . Dips are (continued,				
		100	75	45					strong, the bedded, of black, fin ARGILLA LIMESTO slightly a moderate Pyrite dis	ut. Local	n to	Disconting and plan	nuities are s ar and clay l. Dips are	mooth			
				45					thin to me grey to d grained S LIMESTO slightly a moderate Pyrite dis	ut. Local	ed, e to	Disconting and plan	nuities are s ar and clay l. Dips are				
RF	MAR	KS	<u> </u>		10 10					INSTALLA	TION REM	IARKS				K// K	
		701/72 To 1	pecti	on pi	t to 1.2m.					Headworks							
										CDCUIND	VATER RE	TAUC					
										GROUNDW	Hole	Casing	Depth to Water	Comm	ente		
										Date	Depth	Depth	Water	COMMI	CHILD		
											Depui	Depui	VVator		50/00/00/00		
INS	STAL	LATI	ON E	DETA	ILS						Depar	Бери	vuici				
	Date	-		epth	RZ Top	RZ Base		Type nm SP			Бери	Берит	VVator				



REPORT NUMBER

	NTR/				Central Developm	ent - Dra	+	GROUND LEVEL (m)			SHEE				27 of 33
	-OKL	INA	i ES(_/				CORE DIAMETER (mm)		102		STARTE		13/09/ 14/09/	
	ENT				Central Developm		II	NCLINATION		-90	DRILL	ED BY		Millen	nium
	SINE	ER	A	GL Co	onsulting Engineers		F	LUSH		Polymer Gel	LOGG	ED BY		A. Ma	hony
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Description	Depth (m)	Discontinuit	ntinuities		Elevation	Standpipe Details	SPT (N Value)
	26.30	100	30	0				Moderately strong to moderately weak, thinl bedded to laminated, black, calcareous SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures common. Strong to moderately strong, thin to medium bedded, dark grey to black, fine grained ARGILLACEOUS LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. Local calcite veining.	26.32	and planar smeared. [sub-10°. (co	and clay Dips are continued ties are sough and s are su ties are su	smooth is b-10°.			
	//AR							INSTALLAT	ON REMA	ARKS				IX::H1	
lan	d du	j insp	ectio	n pit	to 1.2m.			Headworks.							
								GROUNDWA	TER DET	AILS					
								Date	Hole Depth	Casing Depth	epth to Water	Comme	ents		
	TALL Date			ETAII	L S RZ Top RZ Base		уре		- FNI						



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СО	NTR	ACT	D	ublin (Central Developme	ent - Dra	ft					DRI	LLHOLE N	10	RC08	B 28 of 33
со	-ORE	OINA	res(_)			: .	GROUND L	EVEL (m) (IETER (mm)		102	12-77-0000	E START		13/09/ 14/09/	
	ENT	ER			Central Developme onsulting Engineers	ents Ltd.		LUSH	ON		-90 Polymer G	(5000000	LLED BY GED BY		Millen A. Ma	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)	Dis	continuiti	es	Elevation	Standpipe Details	SPT (N Value)
27		100	61	7				strong, the bedded, black, fin ARGILL/LIMEST's slightly a moderate Pyrite dist throughout calcite very (continue). Moderate moderate bedded in black, calcite very black, calcite very personal production of the black of the bl	ely strong to ely weak, thinly to laminated, alcareous Fresh to ned to cally ely weathered. spersed.	27.5	and plar smeared sub-10° stained fracture.	nar and sld. Dips all with iron sub-vertice (continual continual c	e smooth			
	MAR			:4	An 4 2m				INSTALLAT	ON REI	MARKS				<u> - : ⊞-</u>	
на	na ai	ig ins	pect	on pit	to 1.2m.				Headworks.	TED 01	-TAIL 0					
									GROUNDWA Date	Hole	Casing	Depth Wate	to Comr	nents		
14	Date 1-09-(08		00	RZ Top RZ Base 6.00 13.00 26.50 32.50	50	Type mm mm	SP	Sato	Depth	Depth	vvate				



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GEOTECHNICAL CORE LOG RECORD

DDC PLAN NO 5432/22 REPORT NUMBER
DRD FD: 13/12/2022 13696 CONTRACT **DRILLHOLE NO Dublin Central Development - Draft** RC08 SHEET Sheet 29 of 33 GROUND LEVEL (m) CO-ORDINATES(_) DATE STARTED 13/09/2008 CORE DIAMETER (mm) 102 DATE COMPLETED 14/09/2008 INCLINATION -90 CLIENT Dublin Central Developments Ltd. DRILLED BY Millennium **ENGINEER** AGL Consulting Engineers **FLUSH** Polymer Gel LOGGED BY A. Mahony Œ (H Non-intact zones (shaded) Details Downhole Depth Core Run Depth SPT (N Value) Fracture Spacing Description Discontinuities Standpipe Œ % % (mm) Elevation Legend ď S.C. R.O. O 250 500 uuuuluuuuu 28 28.00 Moderately strong to Discontinuities are smooth moderately weak, thinly and planar and clay bedded to laminated, smeared. Dips are black, calcareous sub-10°. (continued) SHALE. Fresh to slightly and locally moderately weathered. Pyrite dispersed. Incipient fractures common. (continued) 100 58 0 28.40 28.42 Strong to very strong, thin to medium bedded, Discontinuities are smooth and planar. Dips are grey to dark grey, fine grained SILICEOUS sub-10°. LIMESTONE. Fresh to slightly and locally moderately weathered. Pyrite dispersed throughout. 100 83 69 REMARKS INSTALLATION REMARKS Hand dug inspection pit to 1.2m. Headworks. **GROUNDWATER DETAILS** Casing Hole Depth to Water Date Comments Depth Depth **INSTALLATION DETAILS** Date Tip Depth RZ Top RZ Base Type 14-09-08 13.00 6.00 13.00 50mm SP 14-09-08 32.50 26.50 32.50 50mm SP



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		ACT			Central Dev	elopme	nt - Draf		ROUND L	.EVEL (m)			SHEET	HOLE NO		Sheet	30 of 33
-	OIL	MA	. 23(_'						METER (mm)	1	02	The state of the s	COMPLI		14/09/	
	ENT	ER			Central Dev		nts Ltd.		CLINATIC USH	ON		90 Polymer Ge	DRILL			Millen A. Ma	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fractur Spacin (mm) 0 ²⁵⁰	g 500	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)		continuities		Elevation	Standpipe Details	SPT (N Value)
29										ely strong to	29.17	and plansub-10°. Discontinand plans	uities are s ar. Dips are (continued, uities are s ar and clay				
									bedded t black, ca SHALE. slightly a moderate Pyrite dis Incipient common Strong to thin to m grey to d grained s	to laminated, alcareous Fresh to mid locally lely weathered. spersed. fractures ledium bedded, lark grey, fine SILICEOUS	29.28	sub-10°. Discontir and plans	Dips are suities are sar and clay Dips are	mooth			
	29.50								slightly a moderate Pyrite dis througho Strong to strong, the bedded, black, fir ARGILL	out. o moderately hin to medium dark grey to ne grained ACEOUS		to slightly smeared	nuities are s rough and . Non-intac	clay			
-									slightly a		29.79		nuities are s tly undulos sub-10°.				
		100	27	27					thin to m grey to d grained : LIMEST slightly a			and plan sub-10°	nuities are s ar. Dips ar with undulo cal fracture	e se			
_	WAR									INSTALLATIO	ON REM	ARKS					
Har	nd du	ıg ins	pecti	on pi	t to 1.2m.					Headworks.							
										GROUNDWA	TER DET	AILS					
										Date	Hole Depth	Casing Depth	Depth to Water	Comm	nents		
											Debut	Бериі	. 1 50.001				
		-		DETA													
	Date -09-0		Tip D 13.0			Z Base 13.00		ype nm SF	P								
	-09-0		32.			32.50		nm SF									



REPORT NUMBER

	NIKA	ACT	D	ublin (Central Developme	ent - Dra	ft						HOLE NO		RC08	
СО	-ORE	INA	ES(_)				GROUND L	EVEL (m)	1	02		STARTED		13/09/ 14/09/	
	ENT	FR			Central Developmensulting Engineers	ents Ltd.	"	NCLINATIO LUSH		-6	90 olymer Ge	DRILL	ED BY		Milleni A. Mal	nium
				000	Albumy Engineers			LUSH			Olymbil Ge	LOGG	LUBI			ЮПУ
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)
30	30.10							thin to me grey to de grained S LIMESTO slightly a moderate Pyrite dis	o very strong, edium bedded, ark grey, fine BILICEOUS DNE. Fresh to nd locally ely weathered. spersed out. (continued)		and plan sub-10°	nuities are s ar. Dips are with undulo cal fracture.	se e			
								moderate bedded to black, ca SHALE. slightly a moderate Pyrite dis	Fresh to nd locally ely weathered. spersed. fractures	30.26	and plan gravel in	nuities are s ar with loca fill (30.32-3 0.48m). Dip	clay 0.34m,			
		100	76	58	5			strong, the bedded, which bedded, so black, fin ARGILLA LIMESTO slightly a moderate Pyrite dis	ONE. Fresh to nd locally ely weathered. spersed ut. Local	30.51	and plan	nuities are s ar, slightly c i. Dips are				
										30.95						
	WAR							1	INSTALLATIO	N REMA	RKS				<u> </u>	
Har	nd du	g ins	pection	on pit	to 1.2m.				Headworks.							
									GROUNDWAT	ER DET	AILS					
										Hole Depth	Casing Depth	Depth to Water	Comme	nts		
			ON D	CTAI	1.0											
INS	TAL	LATIC	ט אכ	EIAI	LS											



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CO-ORI	OINA"	TES(_)				GROUND L	EVEL (m) METER (mm)		102			STARTE		13/09/	
LIENT				Central Developme	ents Ltd		NCLINATIO	ON		-90 Polymer G	Sel	DRILLI			Millen A. Ma	
Core Run Depth (m)	T.C.R.%	S.C.R.%		Fracture Spacing (mm)	Legend	Non-intact zones (shaded)		scription	Depth (m)		sconti	inuities		Elevation	Standpipe Details	SPT (N Value)
31.70	100	17	0				thin to m grey to o grained i LIMEST slightly a moderate Pyrite dist throughe Strong to strong to bedded, black, fir ARGILL LIMEST slightly a moderate Pyrite dist throughe Strong to thin to m grey to o grained i throughe Strong to strong to the strong to strong to the strong to	redium bedde lark grey, fine SILICEOUS ONE. Fresh and locally lely weathered spersed out. (continue to be grained locally lely weathered spersed out. (continue to be grained locally lely weathered spersed out. (continue to be grained locally lely weathered spersed out. (continue to locally lely lely weathered spersed out. (continue to locally lely lely weathered spersed out. (continue to locally lely lely lely lely lely lely lely	d, to l. 31.19 to l. 31.72 d, to d. 31.72	Discont to slight smeare Discont and pla sub-10 sub-ver fracture Discont and pla sub-10 sub-ver fracture	inuitie nar. I with tical c	es are sigh and on-intace es are sigh and on-intace es are sight and on-int	mooth seein			
REMAR					Н			INSTALLA	31.99					1	<u> </u>	
Hand du	ıg ins	pecti	on pit	to 1.2m.				Headworks.								
								GROUNDW				2				
								Date	Hole Depth	Casing Depth	De V	epth to Vater	Comm	ents		
Date 14-09-0	08		epth 00	LS RZ Top RZ Base 6.00 13.00 26.50 32.50	50	Type mm mm	SP									



REPORT NUMBER

O-ORDINA			Central Develo	opmer	nt - Drafi	G	ROUND L				DATE S	STARTE	D	13/09/	33 of 33 2008
CLIENT			Central Develo		nts Ltd.	11	ORE DIAN NCLINATIO LUSH	METER (mm) DN	-	02 90 Polymer Gel	DRILLE LOGGE		TED	Milleni A. Mal	nium
Core Run Depth (m) T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm) 0 ²⁵⁰ 50	00 00	Legend	Non-intact zones (shaded)		scription	Depth (m)		ntinuities	mooth	Elevation	Standpipe Details	SPT (N Value)
32.50	0 50	50					strong, the bedded, black, fin ARGILLA LIMEST slightly a moderate value of the black for the black for the black, fin ARGILLA LIMEST slightly a moderate value of the black, fin ARGILLA LIMEST slightly a moderate value of the black, fin ARGILLA LIMEST slightly a moderate value of the black for th	out. Local eining. ed) o very strong, edium bedded, lark grey, fine SILICEOUS ONE. Fresh to ind locally ely weathered. spersed out. Local eining. o moderately hin to medium dark grey to le grained ACEOUS ONE. Fresh to ind locally ely weathered. spersed out. Local eining.	32.35	Discontinu and planar sub-10°.	ties are si Dips are th sub-ver fracture. e 32.34m	mooth tical			
REMARKS Hand dug ir	nspection	on pit	to 1.2m.					INSTALLATION Headworks. GROUNDWA							
								Date	Hole Depth		Depth to Water	Comme	ents		
NSTALLA'	TION E	DETA	ILS												
Date 14-09-08 14-09-08	1000 T. S. C. S. C.	epth	RZ Top RZ I 6.00 13	Base .00 .50	50r	Type nm nm	SP								



00	38					0_0	-01		12 00.	(L L00								136	96
СО	NTR	ACT	D	ublin	Central [Developme	ent - Dra	ft								HOLE N	10	RC1	
_	_		_					Τ,		EVE. ()					EET				1 of 15
CO	-ORI	DINA.	TES(_)						LEVEL (m)		10	02	2000		STARTI		18/11	2008
			200	10 -607				_	NCLINATION	METER (mm	1)	-9					EIED	19/11 Millen	2008
	ENT GINE				Central Donsulting	Developme	ents Ltd			JN				11 11 11 11 11		ED BY		Millen A. Ma	
		EK	A	GL C	onsulting	Lia	Т		LUSH			P	olymer Ge	el LO	GGI	EDBY		A. Ma	попу
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa (m	m) ₅₀₀	Legend	Non-intact zones (shaded)	De	scription	Denth (m)	(111) 111/20	Disc	continuit	ties		Elevation	Standpipe Details	SPT (N Value)
0									HOLE C Observe returns brick, bla	TRIX OPEN PRILLING: Individual by driller a Individual fill (concre Individual fill (concre	is ste, ay	20							
	VIAR					1777-00-2				INSTALLA	ATION RE	MA	RKS						
						anks, load													
	tion.		(wide	. iou	ado to pip	o, and me	oqui	J.1161	01110	0000									
										GROUND		_		,					
										Date	Hole Depth		Casing Depth	Depth Wate	to	Comm	ents		
											Depui		Dopui						
ıs	TALI	LATIC	ON D	ETA	ILS														
_	Date		Tip De			RZ Base		Гуре											
19.	-11-0 -11-0		8.00 25.0		4.50 20.00	8.00 25.00	50n	nm S	SP										



O	38	L)				GEOI	ECHN	IIC	AL CO	RE LOG	RECO	RD				136	696
COI	NTR/	ACT	D	ublin	Central	Developn	nent - Dra	aft .					DRIL	LHOLE N	10	RC1	6 t 2 of 15
co-	ORE	INA	TES(_)						EVEL (m))	102	DAT	E STARTI E COMPL		18/11	/2008
	ENT				Central onsulting	Developn Ltd	nents Ltd	11	NCLINATIO			-90 Polymer G		LED BY	П	19/11 Miller A. Ma	/2008 Inium ahony
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Spa (m	cture acing nm) ⁵⁰ 500	Legend	Non-intact zones (shaded)		scription TRIX OPEN	Depth (m)	Dis	scontinuitie	s	Elevation	Standpipe Details	SPT (N Value)
3							PLO 0.000 DOMINICATION OF THE PROPERTY OF THE		HOLE D Observe returns of gravelly (continual)	RILLING: d by driller a of clayey cobbles	2.50					XVI, KVI, KVI, KVI, KVI, KVI, KVI, KVI, K	N = 4 (20, 5, 1, 1 1, 1)
_	IARI	_	hrs U	nload	d sludae	tanks, loa	ad & erec	t fen	cing. dia	INSTALLA	TION REM	MARKS				INI IVI	
sp						pe) and n											
										GROUNDV	200000000000000000000000000000000000000	200000000000000000000000000000000000000					
										Date	Hole Depth	Casing Depth	Depth to Water	Comm	nents		
							+	+									
le.	TA1 1	ATI	ם ואכ	ETA	II S												
	TALI Date	LATIC			RZ Top	RZ Bas	е	Туре									



CONTRACT Dublin Central Development - Draft CO-ORDINATES(_) GROUND LEVEL (m) CORE DIAMETER (mm) 102 DATE STARTED DATE COMPLETED DISCONTINUITIES CLIENT AGA Consulting Ltd CLIENT ENGINEER AGA Consulting Ltd Fracture Spacing (mm) Description Fracture Spacing Description	3 of 15 2008 2008 2008 Jum Jum
GROUND LEVEL (m) CORE DIAMETER (mm) ID2 DATE STARTED DATE COMPLETED IR/11/201 DATE STARTED DATE COMPLETED IR/11/201 DATE STARTED DATE COMPLETED IR/11/201 DATE STARTED DATE	2008 2008 Jum ony
NGINEER AGL Consulting Ltd FLUSH Polymer Gel LOGGED BY A. Mahon Silvand Graph of the state	ony
SYMMETRIX OPEN HOLE DRILLING: Observed by driller as returns of gravelly clay (continued) To	alue)
SYMMETRIX OPEN HOLLE DRILLLING: Observed by driller as returns of gravelly clay (continued)	SPT (N Value)
	N = 22 (1, 12, 8, 6 1, 7) N = 45 (1, 4, 7, 9, 12, 17)
EMARKS INSTALLATION REMARKS 8/11/08- 63/4hrs Unload sludge tanks, load & erect fencing, dig	
spection pit (widened due to pipe) and move equipment onto cation.	
GROUNDWATER DETAILS Hole Casing Depth to Comments	
Date Hole Casing Depth to Comments Depth Depth Water Comments	
ISTALLATION DETAILS	
Date Tip Depth RZ Top RZ Base Type	
9-11-08 8.00 4.50 8.00 50mm SP 9-11-08 25.00 20.00 25.00 50mm SP	



00	38	4	h			GEOII	ECHN	IC	AL COI	RE LOG	RE(JOR	D				13	696
COI	NTR	ACT	D	ublin	Central I	Developm	ent - Dra	ft						DRIL	LHOLE N	Ю	RC'	16 et 4 of 15
co-	ORE	OINA'	TES(_)						LEVEL (m) METER (mn	n)	1	02	DATI	E START E COMPL			1/2008
	ENT	ER			Central I	Developm Ltd	ents Ltd		NCLINATION	ON			90 Polymer G		LED BY GED BY			1/2008 nnium ahony
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Spa (m	cture icing im)	Legend	Non-intact zones (shaded)	De	escription		Depth (m)	Dis	continuitie	S	Elevation	Standpipe Details	SPT (N Value)
7									HOLE D	TRIX OPEN PRILLING: ad by driller a of gravelly cl ed)	as				DDC			5432/22 B/12/202 N = 41 (1, 2, 2, 4, 15, 20)
	/AR	-					10			INSTALL	ATION	REMA	ARKS					
insp	ectic					tanks, loa pe) and m												
oca	tion.									GROUND	WATE	R DET	AILS					
										Date	Н	ole epth	Casing Depth	Depth to Water	Comn	nents		
		منواو																
		LATI			0000000	D7 D		Ti en										
	Date -11-0		8.0		RZ Top 4.50	RZ Base 8.00		Type nm										
	11-0		25.0	00	20.00	25.00	50r	nm	SP									



REPORT NUMBER

100	38	4															130	90	
со	NTR	ACT	D	ublin	Central D	evelopme	nt - Draf	ft						DRILLI	HOLE NO)	RC1	6 5 of 15	
со	-ORE	DINA	TES(_)				- 1	GROUND I				102	DATE	STARTE		18/11	Walter State of State	
	ENT					evelopme	nts Ltd		INCLINATIO	METER (mm ON)	+	90 90	DRILLI		IED	19/11 Millen		
EN	GINE	ER	A	GL C	onsulting l	_td			FLUSH			F	Polymer Gel	LOGG	ED BY		A. Ma	hony	-
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spac (mi	cing m)	Legend	Non-intact zones (shaded)	De	scription	Don'th (m)	nebili (III)	Disco	ntinuities		Elevation	Standpipe Details	SPT (N Value)	
8									HOLE D		10	.00	***************************************					N = 46 (2, 4, 8, 10, 12, 16)	
	MAR		V 0-							INSTALLA	TION RI	EM	ARKS						
18/ ins	11/08 pection	3- 63/2	hrs L	Inloa	d sludge to pir	tanks, load be) and mo	l & erect	t fe	ncing, dig ent onto										
	ation.		(-00 to bit	. 5) Sind in	oqui			CROUNE	VATER	25.	TAIL C						
										GROUNDV Date	Hole		Casing	Depth to Water	Comme	ents			
										Date	Depth	1	Depth	Water	COMMINE	JI ILO			
INS	STAL	LATI	ON D	ETA	ILS														
	Date		Tip D	epth	RZ Top	RZ Base		Гур											
	19-11-08 8.00 4.50 8.00 50mm SP 19-11-08 25.00 20.00 25.00 50mm SP																		



08	36				GEOTI	CHN	ICAL CC	RE LOG R	ECOR	D				136	696	
ONTE	RACT	D	ublin	Central	Developm	ent - Dra	ft				DRILL SHEET	HOLE N	10	RC1	6 t 6 of 15	
O-OR	DINA	TES(_)					LEVEL (m) AMETER (mm)	1	102	DATE	STARTI COMPL		18/11	/2008	
JEN'				Central	Developm	ents Ltd	INCLINAT FLUSH	TION		90 Polymer Ge	DRILL			19/11 Miller A. Ma	/2008 inium	
	T		GL C	Orisulari	y Liu		1			olymer Ge	LOGG	ED B1		A. IVIC	ariony	
Core Run Depth (m)		S.C.R.%	R.Q.D.%	Sp (I	acture acing mm)	Legend	Non-intact z	Description	Depth (m)	Disc	ontinuities		Elevation	Standpipe Details	SPT (N Value)	
10.0	87	0	0			000	(round	ed and coarse).	10.20						N = 50 (2, 3, 3, 17, 19)	11
10.4	0					0	gravell is roun graine	orown, firm, sandy y CLAY. Gravel ided and medium d.			DDC F	IVED	NO : 13		2022 2022	
							gravel	orown, slightly ly (fine) SAND um to fine)	10.85							
	100	0	0				slightly CLAY mediu	orown, firm to stiff or sandy, gravelly or Gravel is fine to m, sub-angular to unded.								
11.9								INCTALLATI	11.90							
MAI /11/0	8- 63/4	hrs L	Inloa	d sludge	e tanks, loa	d & erect	fencing, dig	INSTALLATIO	ON REMA	ARKS						
pect atior		(wide	ened	due to p	ope) and m	ove equi	pment onto	CROUNDIANA	TED DE	TAILC						_
								GROUNDWA	Hole	Casing	Depth to	0				_
								Date	Depth	Depth	Depth to Water	Comm	ients			_
STA	LLATI	ON E	ETA	ILS												
Dat					RZ Base		Гуре									
-11- -11-		8.0 25.0		4.50 20.00	8.00 25.00		nm SP nm SP									



O	NTR	ACT	D	ublin	Central Developme	ent - Dra	aft					DRILL	HOLE NO	0	RC16	7 of 15
0-	ORE	INA	TES(_)					LEVEL (m) METER (mm)	1	02	DATE	STARTE		18/11/	2008
	ENT	ER			Central Developme onsulting Ltd	nts Ltd		NCLINATION TUSH	ON		90 Polymer Ge		ED BY ED BY		19/11/: Millenr A. Mah	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	De	scription	Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)
12	12.30	100	0	0				slightly s CLAY w cobbles. to coarse								
						0 0		Very cla	yey	12.60						
								cobbles LIMEST moderat	olack) gravelly of argillaceous ONE (probable e to highly ed bedrock).							
3		100	41	9				moderat bedded black, ca SHALE. slightly v	ely strong to ely weak, thinly to laminated, alcareous Fresh to veathered with fractures.	13.03	and plan	nuities are s ar. Clay sm tly iron oxid 13.51m-13 sub-10°.	eared le			
										13.70						
	13.90							to mediu to dark g grained LIMEST	ely strong, thin im bedded, grey grey, fine SILICEOUS ONE. Fresh to veathered.		to slightly planar. Ir 13.7m-1 clay sme 13.9m-1 sub-10°.	nuities are s / rough and on oxide st 3.9m. Headared 4.02m. Dip	l ained vily			
8/1	1/08	- 63/4	hrs L	Inload	d sludge tanks, load	& erec	t fen	cing, dig	INSTALLATION	REMA	ARKS					
	ection.	n pit	(WIGE	nea	uue to pipe) and mo	ve equ	ртте	ant Onto	GROUNDWATI	R DET	AILS					
										lole epth	Casing Depth	Depth to Water	Comme	ents		
	TAL I			ETA	ILS RZ Top RZ Base		Type									



co	NTR	ACT	D	ublin	Central Developme	ent - Dra	ıft					DRILL SHEE	HOLE NO)	RC1	6 8 of 15
co	-ORE	OINA	res(_)					LEVEL (m) METER (mm)		102		STARTE		18/11/	
	ENT	ER			Central Developmensulting Ltd	ents Ltd		NCLINATIO	ON		-90 Polymer G		ED BY ED BY		19/11/ Millen A. Ma	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Puegend	Non-intact zones (shaded)	De	scription	Depth (m)	Dis	continuities		Elevation	Standpipe Details	SPT (N Value)
14								moderat bedded black, ca SHALE. slightly v	ely strong to sely weak, thinl to laminated, alcareous Fresh to veathered with fractures.		Disconti and plar smeared with vari	nuities are s lar and heav d. Dips are s able fracture	vily clay sub-10° es.			
								Strong to thin to m grey to d grained LIMEST	o very strong, nedium bedded dark grey, fine SILICEOUS ONE. Fresh.	14.48	and plar sub-10°	nuities are s nar. Dips are				
		100	43	29				moderat bedded	ely strong to lely weak, thinl to laminated, alcareous Fresh	у		ar. Clay sm 14.71m. D				
					-				o moderately	14.90	Disconti	nuities are s				
15								bedded, grained ARGILL LIMEST locally s weather		0 15.01	15.01m. sub-10° Disconti to slightl planar. I	nar. Clay sn Dips are nuities are s y rough and Dips are sub	smooth			
	15.40							bedded, grey, fin SILICEC LIMEST slightly v Pyrite le Moderat moderat bedded black, ca	grey to dark e grained	o y	Disconti	nuities are s nar. Dips are				
								lense 15		15.84	Disconti	nuities are s nar. Dips ar				
REI	MAR	KS				Н			INSTALLAT	TON REM						
insp					sludge tanks, load due to pipe) and m											
									GROUNDW	12/40/2015 15/6	1	D. ".				
									Date	Hole Depth	Casing Depth	Depth to Water	Comme	ents		
	TALI Date	1			LS RZ Top RZ Base 4.50 8.00		Type									



			/																596
(CON	TR/	ACT	D	ublin	Central D	Developme	ent - Dra	aft						DRIL	LHOLE N	0	RC1	6 9 of 15
(0-0	ORD	INA	res(_)					GROUND L	EVEL (m))	1	02	DATE	STARTE COMPL		18/11	/2008
	LIE		ER			Central Consulting L	Developme Ltd	ents Ltd		INCLINATION FLUSH	ON			90 Polymer Ge		LED BY GED BY		19/11 Millen A. Ma	/2008 nium hony
	lole lole	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spac (mr	cing m)	Pugend	Non-intact zones (shaded)	De	scription	:	Depth (m)	Disc	continuities	5	Elevation	Standpipe Details	SPT (N Value)
	17 17	7.10	100	94	82					strong, to bedded, grained ARGILL LIMEST locally sl	o moderately hin to mediun dark grey, fir ACEOUS ONE. Fresh ightly ed. (continue	n ne to		and plan	nuities are ar. Dips a (continue	re			
-	REM/			100		d sludge t	tanks, load	& erec	t fen	to mediu to dark g grained: LIMEST argillace Slightly v sub-verti througho	ely strong, the bedded, go grey, fine SILICEOUS ONE with ous zones. Weathered with calcite versions and the strong strong the strong	in rey th	.20	to slightly planar. E with sub- fracture t	nuities are y rough an y rough an vertical ca vertical ca throughou	d b-10° alcite			
it	8/11 spe ocatio	ctio	n pit	(wide	ned (due to pip	e) and mo	ve equ	ipme	ent onto									
1	-Cau	OH.									GROUNDV								
											Date	Hole Depti		Casing Depth	Depth to Water	Comm	ents		
-	ue T	A	A 714	2110	ETA	11 C													
-		ate		D NC			RZ Base		Туре	9									
	19-1 19-1	1-0	8	8.00)	4.50 20.00	8.00 25.00	50	mm mm	SP									



es	5/															136	96
CONTRA	СТ	D	ublin	Central [Developme	ent - Draf	t						DRILL	HOLE N	0	RC16	10 of 15
O-ORD	INA	ΓES(_)						EVEL (m) METER (mm))	1	02	DATE	STARTE		18/11/2	2008
LIENT NGINEE	R			Central [onsulting	Developme Ltd	ents Ltd		ICLINATIO LUSH	ON			90 olymer G		ED BY		19/11/2 Millenr A. Mah	
Core Run Depth (m)	T.C.R.%	S.C.R.%			cing m)	Puegend	Non-intact zones (shaded)	Des	scription		Depth (m)	Dis	continuities		Elevation	Standpipe Details	SPT (N Value)
18.20	100	100	91					to mediu to dark g grained S LIMESTO argillaceo Slightly v sub-verti	ely strong, the m bedded, gr	th in		to slightly planar. I with sub	nuities are s y rough and Dips are sub- -vertical cal throughout ed)	b-10° cite			
9 19.00	100	43	33					strong, the bedded, grained ARGILLA LIMESTO siliceous locally sli	ONE (slightly). Fresh to	n ne	18.92	and plan sub-10°	nuities are s ar. Dips ar with sub-ve s 19.14m-1	e ertical			
19.80								moderate bedded t black, ca SHALE. slightly w		ally	19.68	and plan sub-10°. Disconti to slightl planar. [nuities are s lar. Dips are nuities are s y rough and Dips are sul	smooth			
8/11/08-		nrs I I	nload	sludge t	tanks, load	& erect	fenc	cina dia	INSTALLA	TION	REMA	RKS					
spection					be) and mo												
cation.									GROUNDW	/ATE	R DET	AILS					
									Date	Н	ole epth	Casing Depth	Depth to Water	Comm	ents		
ISTALL	ΔΤΙ	ם אכ	FTAI	S													
Date				RZ Top	RZ Base	Т	ype										
19-11-08 19-11-08	3	8.00)	4.50 20.00	8.00 25.00	50n	nm S										



REPORT NUMBER

IGSL	/														130	90
ONTRACT	r c	ublin (Central De	evelopme	nt - Draf	t						DRILL SHEE	HOLE N	0	RC1	6 11 of 15
O-ORDINA	ATES(_)						EVEL (m))	1	02	DATE	STARTE		18/11	
LIENT NGINEER			Central De		nts Ltd	INC	CLINATIC USH				90 olymer Ge		ED BY		19/11 Millen A. Ma	/2008 Inium Ihony
Core Run Depth (m) T.C.R.%	S.C.R.%		Fracti Spac (mn	ing n) 500	Legend	Non-intact zones (shaded)	Des	scription		Depth (m)	Dise	continuities		Elevation	Standpipe Details	SPT (N Value)
00				61	0		thin to m grey to d grained S LIMESTO argillaceo	o very strong, edium bedde lark grey, fine SILICEOUS ONE, locally ous zones. continued)	ed,	20.41	to slightly	nuities are s y rough and Dips are sul ed)	d			
100	59	57					strong, the bedded, grained ARGILLA		n ne to		and plan sub-10°	nuities are iar. Dips ar with sub-ve s 20.7m-20	e ertical			
21							thin to m grey to d grained S LIMEST	o very strong edium bedde lark grey, fine SILICEOUS ONE. Fresh nse 20.93 &	ed,	21.14	to slightly planar. I with sub 20.88m-	nuities are sy rough and pips are sulty-vertical fra 20.97m.	d o-10° octure			
21.20							Moderate moderate bedded, calcareo Fresh to weathere	us SHALE. locally slight ed with incipi	ly	21.42	and plan infilled 2	nuities are nar. Black c 1.2m-21.24 sub-10°.	ay			
							strong, to bedded, grained ARGILL	o moderately hin to mediu dark grey, fir ACEOUS ONE. Fresh ightly	m ne		and plar sub-10° fractures 21.76m-	nuities are nar. Dips an with sub-vo s 21.51-21. 21.92m an 22.69m-cla	re ertical 68m, d			
REMARKS			1310					INSTALLA	TION	REMA	ARKS				· = ·	
8/11/08- 6	3/4hrs l	Jnload ened	d sludge ta	anks, load e) and mo	& erect	fenci	ng, dig t onto									
ocation.	· (····a		ie bib	,	- 444			GROUNDY	VATER	RDET	AILS					
								Date	Но	ole	Casing	Depth to Water	Comm	ents		
								Date	Dep	oth	Depth	vvater	30000	one store		
NSTALLA	TION	DETA	ILS													
Date	_			RZ Base		Гуре	D.									
19-11-08 19-11-08	8.0 25.		4.50 20.00	8.00 25.00		nm Si nm Si										

00	GS				GEOTI	ECHN	IIC	AL CORE LOG RE	COR	RD.		REP	136	
00	NTR	ACT	D	ublin	Central Developm	ent - Dra	aft				DRILLHOLE N	0	RC1	6 12 of 15
co	-ORI	OINA.	TES(_)				GROUND LEVEL (m) CORE DIAMETER (mm)	1	102	DATE STARTE		18/11	
	IENT GINE	ER			Central Developmonsulting Ltd	ents Ltd		NCLINATION FLUSH		90 Polymer Gel	DRILLED BY LOGGED BY		19/11 Millen A. Ma	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm)	Legend	Non-intact zones (shaded)	Description	Depth (m)	Discor	ntinuities	Elevation	Standpipe Details	SPT (N Value)
22		100	55	47				Strong to moderately strong, thin to medium bedded, dark grey, fine grained ARGILLACEOUS LIMESTONE. Fresh to locally slightly weathered. (continued)	00.70	and planar. sub-10° wit	h sub-vertical 1.51-21.68m, 92m and 69m-clay			
23	22.90	100	100	87				Strong to very strong, thin to medium bedded, grey to dark grey, fine grained SILICEOUS LIMESTONE. Fresh to locally slightly weathered.	22.70	to slightly ro	ies are smooth ough and s are sub-10°.		F: ⊟-: 1	
	23.50							Strong to moderately strong, thin to medium bedded, dark grey, fine grained ARGILLACEOUS LIMESTONE. Fresh to locally slightly weathered. Pyrite lense 23.95m.	23.50	and planar.	ies are smooth Clay smeared 8m. Dips are			

REMARKS

18/11/08- 6¾hrs Unload sludge tanks, load & erect fencing, dig inspection pit (widened due to pipe) and move equipment onto location.

INSTALLATION DETAILS

Date Tip Depth RZ Top RZ Base Type
19-11-08 8.00 4.50 8.00 50mm SP
19-11-08 25.00 20.00 25.00 50mm SP

INSTALLATION REMARKS

23.99

	GROUND	WATER DE	TAILS		
ĺ	Date	Hole	Casing	Depth to	Comments

					Dute	Depth	Depth	Water	Comments
INSTALLA'	TION DETA	AILS							
Date	Tip Depth	RZ Top	RZ Base	Type					
19-11-08 19-11-08	8.00 25.00	4.50 20.00	8.00 25.00	50mm SP 50mm SP					



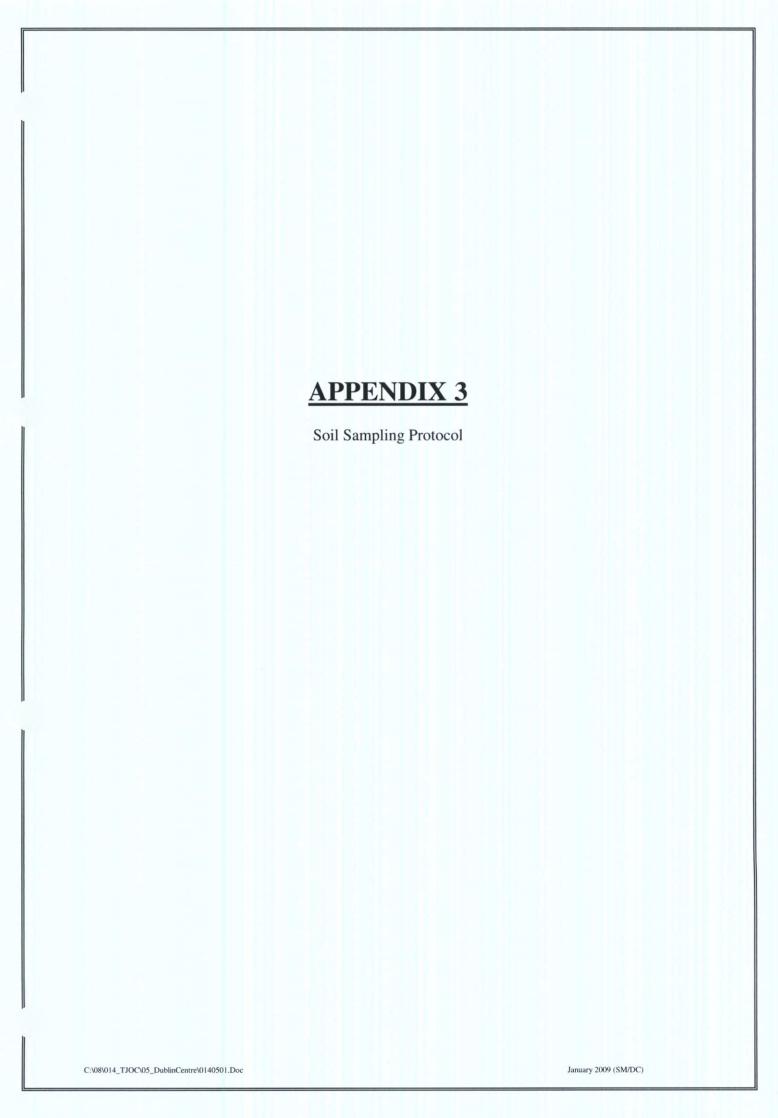
0	NTR/	ACT	D	ublin	Central Developme	ent - Draf	t	DRILLHOLE N						NO RC16		
00 010117120(_)								SHEET								
								Control of the second of the s	500 (Sec.)			ED BY		19/11/ Milleni A. Mal		
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing (mm) 0 250 500	Legend	Non-intact z	Description	Depth (m)		ntinuities	month	Elevation	Standpipe Details	SPT (N Value)	
24	24.90	100 91 73		moder bedde black, SHAL (continuation of the strong strong bedde graine ARGII LIMES locally) weath 24.35	g to moderately g, thin to medium ed, dark grey, fine	24.21	Discontinuities are smooth and planar. Dips are sub-10°.									
	MAR		9.00	95	d eludge tanks lea	d & 2000	t fancing dist	INSTALLATIO	26.00 N REM	-						
ins		on pit			d sludge tanks, loa due to pipe) and m					FA 11 0						
								GROUNDWAT	Hole	Casing	Depth to	Comme	ante			
									epth	Depth	Depth to Water	Cornme	ะเปร			
INS	STAL Date	LATI			ILS RZ Top RZ Base		Type mm SP									

(I)	١
IGSL	

CO	NTR	ACT	D	ublin	Central Develop	ment - Draf	t					DRILLHOLE NO SHEET			RC16 Sheet 14 of 15		
								ND LEVEL (m) DIAMETER (mm)	, ,			DATE STARTED DATE COMPLETED			18/11/2008 D		
CLIENT Dublin Central Developments Ltd ENGINEER AGL Consulting Ltd FLUSH							ATION		-90 Polymer Ge		ED BY		19/11 Millen A. Ma				
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%		Fracture Spacing (mm)	Puegend	Non-intact zones (shaded)	Description	Depth (m)	Dis	continuities		Elevation	Standpipe Details	SPT (N Value)		
26							stron bedd grain ARG LIME Stror thin t grey grain	ng to moderately ng, thin to medium led, dark grey, fine led silLLACEOUS ESTONE. Fresh. ng to very strong, o medium bedded, to dark grey, fine led SILICEOUS ESTONE. Fresh.		and plan sub-10°. Discontii to slightly planar. E	nuities are s ar. Dips an nuities are s y rough and Dips are sub	e smooth					
27	26.50						mode bedd calca Fresi Stror stron bedd grain ARG LIME intert limes	ng to moderately ng, thin to medium led, dark grey, fine	26.50	Disconting and plan sub-10°. Disconting and plan sub-10°.	nuities are s ar. Dips ar	smooth					
		100	97	87			mode bedd calca Fresl Stror stron bedd grain ARG LIME	ng to moderately g, thin to medium led, dark grey, fine led ilLLACEOUS STONE. Fresh.		Disconting and plan sub-10°. Disconting and plan sub-10°.	nuities are s ar. Dips an	smooth e					
	44.00						thin t grey grain	ng to very strong, o medium bedded, to dark grey, fine led SILICEOUS ESTONE. Fresh.		to slightly planar. D	nuities are s y rough and Dips are sub						
18/1 nsp		- 6¾			d sludge tanks, lo due to pipe) and i				ON KEM	СЛЛМ							
000	JOH.							GROUNDWA	TER DET	TAILS							
								Date	Hole Depth	Casing Depth	Depth to Water	Comme	ents				
	TALI Date	٦			LS RZ Top RZ Bas 4.50 8.00		ype m SP										



(S	4														130	90	
ONTR	ACT	D	ublin (Central D	Developme	ent - Dra	ft						HOLE N	0	RC16		
00 01(2)(2)												DATE				Sheet 15 of 15 18/11/2008	
CLIENT Dublin Central Developments Ltd ENGINEER AGL Consulting Ltd INCLINATION FLUSH								CLINATIO				DRILL			19/11/2008 Millennium A. Mahony		
Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa (m 0 ²⁵	cing m)	Legend	Non-intact zones (shaded)	Des	scription	Depth (m)	Disc	continuities		Elevation	Standpipe Details	SPT (N Value)	
28										28.10							
28.10								strong, to bedded, grained ARGILL	o moderately hin to medium dark grey, fine ACEOUS ONE. Fresh.	28.48	and plana sub-10°.	uities are s ar. Dips are					
								moderat bedded,	ely strong to ely weak, thinly black, us SHALE.	28.70	and plans sub-10°.	uities are s ar. Dips are					
29	100	86	74					thin to m grey to d grained	o very strong, ledium bedded, dark grey, fine SILICEOUS ONE. Fresh.		to slightly	uuities are s r rough and rips are sub					
								Strong to	o moderately	29.25		nuities are s					
								bedded, grained ARGILL	ACEOUS ONE. Fresh to lightly		and plan sub-10°.	ar. Dips ar	Э				
29.80								End of 0 (m)	Corehole at 29.8	29.80							
REMAR	KS								INSTALLATION	ON REMA	ARKS						
8/11/0	B- 63/4	hrs L	Inload	d sludge due to pi	tanks, load	d & erec	t fenci	ng, dig t onto									
ocation		-217				***			GROUNDWA	TER DET	AILS						
									Date	Hole Depth	Casing Depth	Depth to Water	Comm	ents			
NSTAL	LATI	ON F	ΕΤΔΙ	LS													
Date		Tip D	epth	RZ Top	RZ Base		Туре										
19-11-		8.0 25.0		4.50 20.00	8.00 25.00		mm Si mm Si										





STANDARD OPERATING PROCEDURE

SOIL SAMPLING

The soil sampling technique described below will be followed to ensure that soil samples are representative of the environment which they are intended to characterise.

1.0 SAMPLING

- (A) Locate the soil sampling station in accordance with the workplan which will specify the number and type of samples to be taken. Place a wooden stake into the ground one metre from the sample location and record sample location on the stake.
- (B) Record the location in the field logbook and, if possible, photograph the location.
- (C) Collect soil samples from the depth specified in the workplan and record the depth in the field notebook. Describe the colour and texture of each sample and record in notebook.
- (D) Wear appropriate level of protection when taking samples (gloves, safety glasses, hard hat etc.) as specified in the workplan. Collect soil samples as specified in the workplan using decontaminated stainless steel trowel, soil corer, or similar device. Collect discrete soil samples from each station.
- (E) If required by the workplan, composite discreet soil samples by placing equal volumes of soil into the container and mixing thoroughly to a homogenous mixture. Samples may be hand picked, if necessary, to remove larger materials, such as leaves, sticks, gravel, rocks etc., if specified in the workplan. Record in notebook the nature of any materials removed from soil samples.
- (F) Deposit each soil sampled into a (clean, pre-washed) container. At the time of collection, the sample bottle will be filled to the top with soil sample.
- (G) Fill out labels with waterproof ink and attach to the sample container. The following information will be recorded on each sample label: -
 - Client/Site Name
 - Date Collected
 - Time Collected
 - Analysis
 - Preservative
 - Sample Identification Number

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- (H) Decontaminate sampling equipment as described below unless otherwise specified in the site workplan. When using stainless steel sampling equipment: -
 - wash with non-phosphate detergent in potable water,
 - rinse sequentially in potable water, methanol, acetone, methanol and D1 water and;
 - allow to air dry in a containment free area.
- (I) Wrap the decontaminated sampling equipment in aluminium foil which has been decontaminated in accordance with Section H.

2.0 FIELD DOCUMENTATION

Record sample information in the field notebook. Provide a complete description of the sample location, and a photograph, if necessary. Describe the soil appearance, especially if the presence of oil or an odour is noted. Document the sample bottle lot numbers in the field notebook. Record weather conditions at the time of sampling. The Field Team Leader will initial the logbook entries for correctness.

3.0 FIELD QA/QC SAMPLES

See the separate SOP on Field QA/QC samples for appropriateness and preparation of D1 Water Field Blanks, Cross-contamination Field Blanks, Trip Blanks and Field Duplicate Samples.

4.0 PACKAGING AND TRANSPORT

Check to be sure that all necessary information is on the sample container label. Complete the chain-of custody form. Package, label and transport the samples to the testing laboratory in accordance with requirements for packing, shipping and labelling environmental samples.

END.

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APPENDIX 4 Groundwater Sampling Protocol



STANDARD OPERATING PROCEDURE

GROUNDWATER SAMPLING

The primary objective of groundwater sampling is to evaluate whether the potential contaminant sources at a site have impacted the quality of the groundwater in the underlying aquifer. The additional objective is to measure hydraulic gradient, or slope, of the water table in the shallow aquifer in an effort to evaluate the direction of groundwater flow.

The purpose of this procedure is to ensure that representative samples of groundwater are collected and documented using consistent methods to ensure sample integrity.

1.0 SAMPLING PROCEDURES

1.1 Well Operating and Purging Procedures

All groundwater sampling will be conducted after the installed and developed wells have been allowed to equilibrate for at least 2 to 3 days. A Field Data Sheet for Well Sampling will be completed for each well.

Groundwater sampling teams will use to following procedure for approaching, opening, purging and sampling all wells unless directed otherwise by the workplan.

- 1) Prior to placing any equipment into the well, decontaminate the sampling equipment according to standard decontamination protocol.
- 2) Approach the well with a working FID/PID, a well key, and a depth-to-water meter.
- 3) Unlock and open the well cap just enough to insert the probe of the PID/FID. Take and record a reading. A decision to upgrade PPE may be necessary based on the FID/PID readings in the breathing zone.
- 4) Where practical, the surface water column will be visually examined for the presence of hydrocarbons, if present or suspected, the thickness of the hydrocarbon layer will be measured using an oil/water interface probe prior to taking the depth-to-water measurement.
- 5) Insert the water level probe into the well and measure and record the static water level to the nearest 0.01 m with respect to the established survey point on top of the well casing.

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- 6) Decontaminate the water level probe with DDI water (Do not rinse with any solvents unless product was encountered).
- 7) Calculate and record the minimum volume of water to be purged according to the following conversion factors: -

1 well volume	=	water column in metres x litres/linear metre
2 inch casing 4 inch casing	=	2.0 LPM 8.1 LPM
6 inch casing	=	18.2 LPM
8 inch casing	=	32.4 LPM

- Purge the well of at least 3 casing volumes by pumping using a peristaltic pump with flow controller or bailing with a decontaminated submersible pump or PVC bailer equipped with a bottom filling check valve (if the purge volume is low, generally less than 100 litres, the sampling team might find it more efficient to purge with a bailer than a pump). Use a graduated bucket to track the amount of water removed from the well. The determination of purging and sampling will depend on parameters being analysed. Where VOCs or SVOCs are required it is recommended that slow purging using peristaltic pumping be undertaken. Periodically determine the pH, temperature and specific conductance of the purged water. Continue purging until the well has been completely evacuated or until the pH and specific conductance measurements have stabilised for at least one well volume. Wells that become dewatered prior to producing three casing volumes will be sampled as soon as practical once they recover sufficiently.
- 9) Dispose of purge water collected in the graduated bucket by dumping onto the ground at a distance of 50 to 60 metres from the vicinity of the well. If the water is known or suspected to be significantly contaminated, it may be necessary to store the purge water in a secure container, such as a drum, pending proper disposal.
- 10) Be aware and record any unusual occurrence during purging such as cascading (a shallow water entry zone that trickles into the borehole).

1.2 Field Parameter Measurement

Measurements of field parameters of pH, temperature and electrical conductivity are collected and organic vapour screening is conducted while the well is purged. To facilitate the collection of basic field parameters, the field team needs to: -

- Purge three well volumes of water from the well and measure field parameters for each well volume removed.
- Collection of water samples should take place after stabilisation of the following parameters: -
 - Temperature +/- 1°C
 - pH (meter or paper) +/- 0.2 units
 - Specific conductivity +/- 5%

- If the aforementioned parameters do not stabilise within three purge volumes, the well will be purged up to a maximum of six borehole volumes unless two consecutive sets of stabilised parameters are obtained.
- Note any observations in the field logbook.

1.3 Collection of Water Samples

All samples or chemical analysis will be placed in laboratory prepared bottles. The types of sample containers and preservative required for each type of analysis are described in the workplan. Where product layers are present a procedure and rational for the collection of such layers should be outlined in the site specific work plan. If required, preservatives will be placed in the sample containers prior to collecting the samples.

The following procedure will be used to sample a well: -

- After the well has been purged and allowed to recover, sample the well using a properly decontaminated or dedicated disposable bailer. Gently lower the bailer into the water column. Allow the bailer to sink and fill with a minimum of surface disturbance.
- Slowly raise the bailer out of the well. Do not allow the bailer line to contact the ground, either by coiling it on a clean plastic sheet or by looping it from arm to arm as the line is extracted from the well.
- Samples will be collected for VOCs analysis immediately after purging is complete and before other samples are collected. Pour the samples slowly into the laboratory prepared 40 ml glass vial. Overfill each vial slightly to eliminate air bubbles, a convex meniscus should be present at the top of the vial. Ensure that the Teflon liner of the septum cap is facing inward and that no bubbles are entrapped. After capping securely, turn bottle upside-down, tap it against your other hand, and observe sample water for bubbles. If bubbles are observed, remove the cap, overfill the vial and reseal. Repeat this step for each vial until the samples with no bubbles are obtained.
- 4) Place a label on the container and enter the following information: -

Client/Site Name
Date Collected
Time Collected
Analysis
Preservative
Sample Identification Number

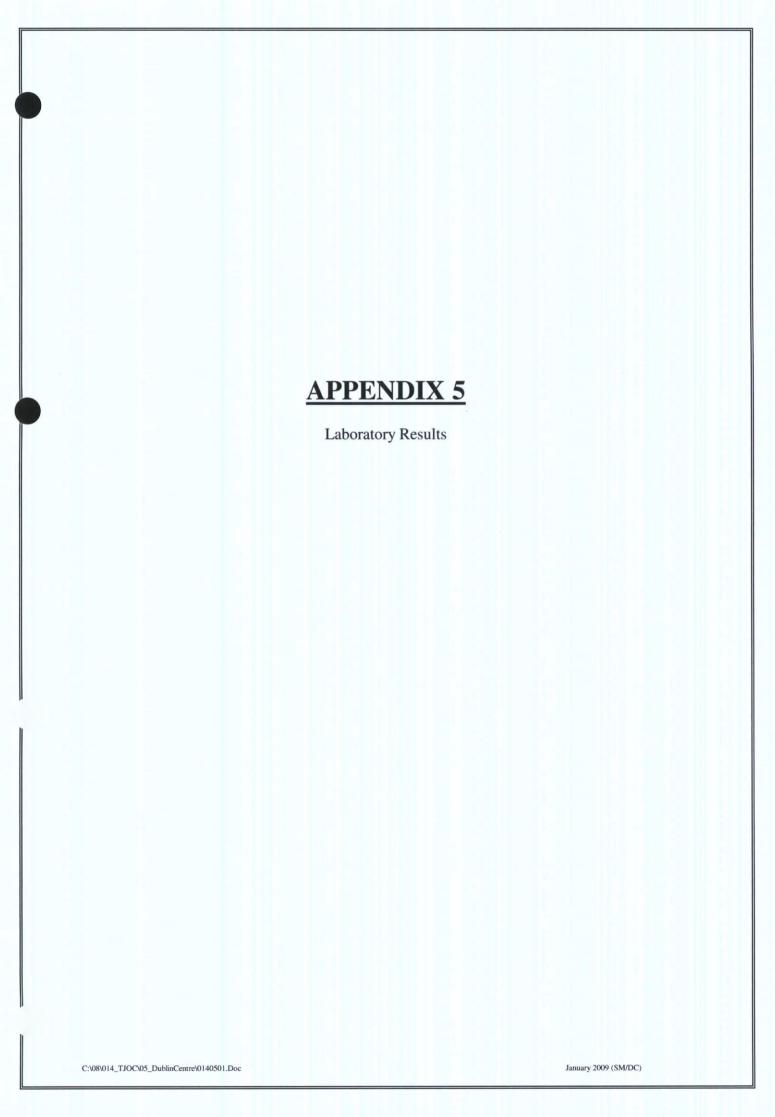
- 5) Record pertinent information in the field logbook and on the Field Data Sheet for Well Sampling. Complete chain-of-custody form.
- 6) Place custody seals on the container caps. As soon as possible, place sample containers in a cooler with bagged ice and maintain at 4°C until extraction. Surround the bottles with vermiculite.

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- 7) Obtain the semi-volatile compound/pesticides/PCBs sample(s) by transferring the water to a laboratory prepared 1000 ml amber glass bottle with Teflon-lined cap. Fill the bottle to the bottom of the neck and follow steps 4, 5 and 6 above.
- 8) Dissolved metals (if necessary) requires the team to filter the sample water through a .45 micron filter. The water is collected in a 1 litre, unpreserved, plastic or glass bottle with HNO₃ preservative. Filtering must be done within 15 minutes of sample collection.
- 9) Obtain the total metals sample by directly transferring the water from the bailer into a laboratory prepared 1000 ml plastic or glass bottle with HNO₃ preservative.
- 10) Be sure the pH of the metals sampled is less than 2 by pouring off an aliquot in a clean jar and testing for pH using litmus paper. Dispose of this water and rinse the jar.
- 11) Collect and prepare Field QA/QC samples in accordance with separate SOP.
- 12) Be sure to record all data required on the Field Data Sheet or Well Sampling and appropriate entries into the field logbook.
- 13) Secure the well cap and replace the locking cover.
- 14) Decontaminate all sampling equipment according to procedure.
- 15) Decontaminate submersible pumps as follows: -

Scrub pump and cord in a tub of Liquinox/or similar and potable water Pump at least 80 litres of soapy water through pump Rinse with potable water Pump at least 80 litres of rinse water through the pump Rinse with D1 water before lowering pump into the next well.

END.





Mr Crean O Callaghan Moran & Assoc. **Granary House** Rutland Street Cork

14 August 2008

Test Report: MID/538002/2008

Dear Mr Crean

Analysis of your sample(s) submitted on 11 August 2008 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7658 4800 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using STL and we look forward to receiving your next samples.

Yours Sincerely,

Signed: N. Ellas

Name: L. Ellis

Title: Team Leader

STL Midlands

Tel: +44 (0)24 7658 4800

Rayner House, 80 Lockhurst Lane, Coventry, CV6 5PZ

Fax: +44 (0)24 7658 4848

www.stl-ltd.com













Report Summary





DDC PLAN NO 5432/22

Mr Donal Crean O Callaghan Moran & Assoc. **Granary House Rutland Street** Cork

Date of Issue:

14 August 2008

Report Number: MID/538002/2008 Issue

Job Description:

Donal Crean

Number of Samples included in this report Job Received:

11 August 2008

Number of Test Results included in this report 117

Analysis Commenced: 11 August 2008

Signed: X. Ellis

Name: L. Ellis

Date: 14 August 2008

Title:

Team Leader

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.





Report Number:

MID/538002/2008

Issue

Sample 1 of 3

Sample Source:

O Callaghan Moran & Assoc.

Laboratory Number: 10715372

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH7 0.50m-1.00m

Sample Date:

Sample Received

11 August 2008

Analysis Complete:

14 August 2008

Test Description	Result	Units	Accreditation	Method
Antimony as Sb, dry weight	1.6	mg/kg	Y Mid	30C
Arsenic as As, dry weight	16	mg/kg	Y Mid	30/30C
Barium as Ba, dry weight	150	mg/kg	Y Mid	30
Cadmium as Cd, dry weight	0.65	mg/kg	Y Mid	30
Chromium as Cr, dry weight	11	mg/kg	Y Mid	30
Copper as Cu, dry weight	19	mg/kg	Y Mid	30
Iron as Fe, dry weight	8900	mg/kg	Y Mid	30
Lead as Pb, dry weight	42	mg/kg	Y Mid	30
Manganese as Mn, dry weight	830	mg/kg	Y Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	Y Mid	30C
Nickel as Ni, dry weight	24	mg/kg	Y Mid	30
Tin as Sn,dry weight	<2.0	mg/kg	Y Mid	30
Zinc as Zn, dry weight	68	mg/kg	Y Mid	30
TPH >C6 - C10	<50	mg/kg	Y Mid	317
TPH >C10 - C20	<50	mg/kg	Y Mid	317
TPH >C20 - C40	180	mg/kg	Y Mid	317
TPH >C6 - C40, Total	180	mg/kg	Y Mid	317
naphthalene	0.80	mg/kg	Y Mid	307
acenaphthylene	<0.10	mg/kg	Y Mid	307
acenaphthene	0.48	mg/kg	Y Mid	307
fluorene	0.32	mg/kg	Y Mid	307
phenanthrene	4.0	mg/kg	Y Mid	307
anthracene	0.92	mg/kg	Y Mid	307
fluoranthene	4.0	mg/kg	Y Mid	307
pyrene	3.7	mg/kg	Y Mid	307
benzo(a)anthracene	1.7	mg/kg	Y Mid	307
chrysene	1.6	mg/kg	Y Mid	307
benzo(b)fluoranthene	1.4	mg/kg	Y Mid	307
benzo(k)fluoranthene	0.70	mg/kg	Y Mid	307
benzo(a)pyrene	1.6	mg/kg	Y Mid	307
Dibenz(a,h)anthracene	0.17	mg/kg	Y Mid	307
Benzo(g,h,i)perylene	1.1	mg/kg	Y Mid	307
Indeno(1,2,3-c,d)pyrene	0.83	mg/kg	Y Mid	307
PAH, Total of 16 EPA	23	mg/kg	Y Mid	307
benzene	<0.10	mg/kg	Y Mid	327





Report Number: MID/538002/2008 Issue

Laboratory Number: 10715372

Sample 1 of 3

Sample Source:

O Callaghan Moran & Assoc.

DDC PLAN NO 5432/22 RECEIVED: 13/12/2022

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH7 0.50m-1.00m

Sample Date:

Sample Received

11 August 2008

Analysis Complete:

14 August 2008

Test Description	Result	Units	Accreditation	Method 327
toluene	<0.10	mg/kg	Y Mid	
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327

Analyst Comments for 10715372:

No Analyst Comment





Report Number:

MID/538002/2008

Laboratory Number: 10715373

Issue

Sample 2 of 3

Sample Source:

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH9 0.50m-1.00m

Sample Date:

Sample Received

11 August 2008

Analysis Complete:

14 August 2008

Test Description	Result	Units	Accreditation	Method
Antimony as Sb, dry weight	1.6	mg/kg	Y Mid	30C
Arsenic as As, dry weight	12	mg/kg	Y Mid	30/30C
Barium as Ba, dry weight	72	mg/kg	Y Mid	30
Cadmium as Cd, dry weight	1.2	mg/kg	Y Mid	30
Chromium as Cr, dry weight	14	mg/kg	Y Mid	30
Copper as Cu, dry weight	28	mg/kg	Y Mid	30
ron as Fe, dry weight	20000	mg/kg	Y Mid	30
ead as Pb, dry weight	79	mg/kg	Y Mid	30
Manganese as Mn, dry weight	1100	mg/kg	Y Mid	30
Mercury as Hg, dry weight	0.34	mg/kg	Y Mid	30C
Nickel as Ni, dry weight	31	mg/kg	Y Mid	30
in as Sn,dry weight	3.5	mg/kg	Y Mid	30
Zinc as Zn, dry weight	86	mg/kg	Y Mid	30
ΓPH >C6 - C10	<50	mg/kg	Y Mid	317
TPH >C10 - C20	<50	mg/kg	Y Mid	317
TPH >C20 - C40	150	mg/kg	Y Mid	317
PH >C6 - C40, Total	150	mg/kg	Y Mid	317
naphthalene	0.24	mg/kg	Y Mid	307
acenaphthylene	<0.10	mg/kg	Y Mid	307
acenaphthene	<0.10	mg/kg	Y Mid	307
luorene	<0.10	mg/kg	Y Mid	307
phenanthrene	0.62	mg/kg	Y Mid	307
anthracene	0.13	mg/kg	Y Mid	307
luoranthene	0.63	mg/kg	Y Mid	307
pyrene	0.51	mg/kg	Y Mid	307
penzo(a)anthracene	0.27	mg/kg	Y Mid	307
chrysene	0.26	mg/kg	Y Mid	307
penzo(b)fluoranthene	0.25	mg/kg	Y Mid	307
penzo(k)fluoranthene	0.13	mg/kg	Y Mid	307
penzo(a)pyrene	0.25	mg/kg	Y Mid	307
Dibenz(a,h)anthracene	<0.10	mg/kg	Y Mid	307
Benzo(g,h,i)perylene	0.25	mg/kg	Y Mid	307
ndeno(1,2,3-c,d)pyrene	0.22	mg/kg	Y Mid	307
PAH, Total of 16 EPA	3.7	mg/kg	Y Mid	307
penzene	<0.10	mg/kg	Y Mid	327





Report Number: MID/538002/2008

Issue '

Laboratory Number: 10715373

Sample 2 of 3

Sample Source: O Callaghan Moran & Assoc.
Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: BH9 0.50m-1.00m

Sample Date: Sample Received 11 August 2008 Analysis Complete: 14 August 2008

Test Description	Result	Units	Accreditation	Method
toluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327

Analyst Comments for 10715373:

No Analyst Comment





Report Number: MID/538002/2008

Issue

Laboratory Number: 10715374 Sample 3 of 3

O Callaghan Moran & Assoc. Sample Source: Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: BH10 1.70m-2.50m

14 August 2008 11 August 2008 Analysis Complete: Sample Date: Sample Received

Test Description	Result	Units	Accreditation	Method
Antimony as Sb, dry weight	1.7	mg/kg	Y Mid	30C
Arsenic as As, dry weight	13	mg/kg	Y Mid	30/30C
Barium as Ba, dry weight	79	mg/kg	Y Mid	30
Cadmium as Cd, dry weight	1.6	mg/kg	Y Mid	30
Chromium as Cr, dry weight	14	mg/kg	Y Mid	30
Copper as Cu, dry weight	30	mg/kg	Y Mid	30
Iron as Fe, dry weight	25000	mg/kg	Y Mid	30
Lead as Pb, dry weight	59	mg/kg	Y Mid	30
Manganese as Mn, dry weight	1500	mg/kg	Y Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	Y Mid	30C
Nickel as Ni, dry weight	37	mg/kg	Y Mid	30
Tin as Sn,dry weight	3.7	mg/kg	Y Mid	30
Zinc as Zn, dry weight	94	mg/kg	Y Mid	30
TPH >C6 - C10	<50	mg/kg	Y Mid	317
TPH >C10 - C20	<50	mg/kg	Y Mid	317
TPH >C20 - C40	<50	mg/kg	Y Mid	317
TPH >C6 - C40, Total	<50	mg/kg	Y Mid	317
naphthalene	<0.10	mg/kg	Y Mid	307
acenaphthylene	<0.10	mg/kg	Y Mid	307
acenaphthene	<0.10	mg/kg	Y Mid	307
fluorene	<0.10	mg/kg	Y Mid	307
phenanthrene	0.20	mg/kg	Y Mid	307
anthracene	<0.10	mg/kg	Y Mid	307
fluoranthene	0.13	mg/kg	Y Mid	307
pyrene	<0.10	mg/kg	Y Mid	307
penzo(a)anthracene	<0.10	mg/kg	Y Mid	307
chrysene	<0.10	mg/kg	Y Mid	307
penzo(b)fluoranthene	<0.10	mg/kg	Y Mid	307
penzo(k)fluoranthene	<0.10	mg/kg	Y Mid	307
penzo(a)pyrene	<0.10	mg/kg	Y Mid	307
Dibenz(a,h)anthracene	<0.10	mg/kg	Y Mid	307
Benzo(g,h,i)perylene	<0.10	mg/kg	Y Mid	307
ndeno(1,2,3-c,d)pyrene	<0.10	mg/kg	Y Mid	307
PAH, Total of 16 EPA	<1.0	mg/kg	Y Mid	307
benzene	<0.10	mg/kg	Y Mid	327





Report Number: MID/538002/2008 Issue

Laboratory Number: 10715374

Sample 3 of 3

Sample Source:

O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH10 1.70m-2.50m

Sample Date:

Sample Received 11 August 2008

Analysis Complete:

14 August 2008

Test Description	Result	Units	Accreditation	Method
toluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327

Analyst Comments for 10715374:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.

Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. I/S=Insufficient sample

Signed: X. Ellas

Name: L. Ellis

Date: 14 August 2008

Title:

Team Leader



Mr Crean O Callaghan Moran & Assoc. Granary House Rutland Street Cork

19 November 2008

Test Report: COV/558587/2008

Dear Mr Crean

Analysis of your sample(s) submitted on 31 October 2008 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out is included with this report.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using STL and we look forward to receiving your next samples.

Yours Sincerely,

Signed: X. Ellas

Name: L. Ellis

Title: Team Leader

STL Coventry

STL Business Centre, Torrington Avenue, Coventry, CV4 9GU

Tel: +44 (0)24 7642 1213 Fax: +44 (0)24 7685 6575

www.stl-ltd.com









Report Summary





Mr Donal Crean O Callaghan Moran & Assoc. Granary House Rutland Street Cork

Date of Issue: 19 November 2008

Report Number: COV/558587/2008 Issue 1

Job Description: Donal Crean

Job Location: 08-014-05

Number of Samples Job Received: 31 October 2008

included in this report 16

Number of Test Results Analysis Commenced: 31 October 2008

included in this report 400

Name: L. Ellis Date: 19 November 2008

Signed: X. Ellas Title: Team Leader

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

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

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.





Issue

Report Number: COV/558587/2008

Sample 1 of 16 Laboratory Number: 10888346

Sample Source: O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

BH7 13.0-14.00m Sample Description:

Analysis Complete: 13 November 2008 Sample Date: Sample Received 31 October 2008

Test Description	Result	Units	Accreditation	Method EN12457-3
EN 12457-3 Leachate	Y		N Mid	
Moisture Content Ratio at 105C	1.19	% ratio	N Mid	33
Moisture at 105c	1.2	%	N Mid	33
TOC by Ignition in O2	0.52	%	N Mid	27
PCB, Total of 7 Congeners	<0.010	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	<50	mg/kg	Y Mid	317
Naphthalene	<0.10	mg/kg	N Mid	307
Acenaphthylene	<0.10	mg/kg	N Mid	307
Acenaphthene	<0.10	mg/kg	N Mid	307
Fluorene	<0.10	mg/kg	N Mid	307
Phenanthrene	<0.10	mg/kg	N Mid	307
Anthracene	<0.10	mg/kg	N Mid	307
Fluoranthene	<0.10	mg/kg	N Mid	307
Pyrene	<0.10	mg/kg	N Mid	307
Benzo(a)anthracene	<0.10	mg/kg	N Mid	307
Chrysene	<0.10	mg/kg	N Mid	307
Benzo(b)fluoranthene	<0.10	mg/kg	N Mid	307
Benzo(k)fluoranthene	<0.10	mg/kg	N Mid	307
Benzo(a)pyrene	<0.10	mg/kg	N Mid	307
Dibenz(a,h)anthracene	<0.10	mg/kg	N Mid	307
Benzo(g,h,i)perylene	<0.10	mg/kg	N Mid	307
Indeno(1,2,3-c,d)pyrene	<0.10	mg/kg	N Mid	307
Coronene	<0.10	mg/kg	N Mid	307
PAH, Total of 17 WAC	<1.0	mg/kg	N Mid	307
benzene	<0.10	mg/kg	Y Mid	327
toluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	98.83	%	N Mid	Calculated

Analyst Comments for 10888346:

No Analyst Comment





Report Number: COV/558587/2008 Issue

Laboratory Number: 10888347

Sample 2 of 16

Sample Source: O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: BH15 0.5-1.00m

Analysis Complete: 13 November 2008 Sample Date: Sample Received 31 October 2008

Test Description	Result	Units	Accreditation	Method
EN 12457-3 Leachate	Y		N Mid	EN12457-3
Moisture Content Ratio at 105C	2.13	% ratio	N Mid	33
Moisture at 105c	2.1	%	N Mid	33
TOC by Ignition in O2	3.6	%	N Mid	27
PCB, Total of 7 Congeners	<0.010	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	120	mg/kg	Y Mid	317
Naphthalene	0.20	mg/kg	N Mid	307
Acenaphthylene	<0.10	mg/kg	N Mid	307
Acenaphthene	<0.10	mg/kg	N Mid	307
Fluorene	<0.10	mg/kg	N Mid	307
Phenanthrene	0.44	mg/kg	N Mid	307
Anthracene	0.10	mg/kg	N Mid	307
Fluoranthene	0.50	mg/kg	N Mid	307
Pyrene	0.43	mg/kg	N Mid	307
Benzo(a)anthracene	0.34	mg/kg	N Mid	307
Chrysene	0.63	mg/kg	N Mid	307
Benzo(b)fluoranthene	0.41	mg/kg	N Mid	307
Benzo(k)fluoranthene	0.21	mg/kg	N Mid	307
Benzo(a)pyrene	0.39	mg/kg	N Mid	307
Dibenz(a,h)anthracene	<0.10	mg/kg	N Mid	307
Benzo(g,h,i)perylene	0.35	mg/kg	N Mid	307
ndeno(1,2,3-c,d)pyrene	0.18	mg/kg	N Mid	307
Coronene	<0.10	mg/kg	N Mid	307
PAH, Total of 17 WAC	4.2	mg/kg	N Mid	307
penzene	<0.10	mg/kg	Y Mid	327
oluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	97.91	%	N Mid	Calculated

Analyst Comments for 10888347:

No Analyst Comment





Report Number:

COV/558587/2008

Laboratory Number: 10888348

Issue

of 16 Sample 3

Sample Source:

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH15 1.0-2.00m

Sample Date:

Sample Received

31 October 2008 Analysis Complete: 13 November 2008

Sample Date.	Sample Received	JI OCIODEI ZUI	7 Tilaly 313 CO	mproto.	101101	0111201 2000
Test Description		Result	Units	Accred	litation	Method
EN 12457-3 Leachate		Υ		N	Mid	EN12457-3
Moisture Content Ratio at 105C		1.51	% ratio	N	Mid	33
Moisture at 105c		1.5	%	N	Mid	33
TOC by Ignition in O2		5.2	%	N	Mid	27
PCB, Total of 7 Congeners		<0.010	mg/kg	N	Mid	312
Mineral Oils, >C10 - C40		86	mg/kg	Y	Mid	317
Naphthalene		0.16	mg/kg	N	Mid	307
Acenaphthylene		<0.10	mg/kg	N	Mid	307
Acenaphthene		<0.10	mg/kg	N	Mid	307
Fluorene		<0.10	mg/kg	N	Mid	307
Phenanthrene		0.42	mg/kg	N	Mid	307
Anthracene		<0.10	mg/kg	N	Mid	307
Fluoranthene		0.14	mg/kg	N	Mid	307
Pyrene		0.12	mg/kg	N	Mid	307
Benzo(a)anthracene		0.12	mg/kg	N	Mid	307
Chrysene		0.32	mg/kg	N	Mid	307
Benzo(b)fluoranthene		0.13	mg/kg	N	Mid	307
Benzo(k)fluoranthene		<0.10	mg/kg	N	Mid	307
Benzo(a)pyrene		<0.10	mg/kg	N	Mid	307
Dibenz(a,h)anthracene		<0.10	mg/kg	N	Mid	307
Benzo(g,h,i)perylene		<0.10	mg/kg	N	Mid	307
Indeno(1,2,3-c,d)pyrene		<0.10	mg/kg	N	Mid	307
Coronene		<0.10	mg/kg	N	Mid	307
PAH, Total of 17 WAC		1.4	mg/kg	N	Mid	307
benzene		<0.10	mg/kg	Y	Mid	327
toluene		<0.10	mg/kg	Y	Mid	327
ethylbenzene		<0.10	mg/kg	Y	Mid	327
m&p-Xylene		<0.20	mg/kg	Y	Mid	327
o-xylene		<0.10	mg/kg	Y	Mid	327
Dry Ratio (BSEN 12457)		98.51	%	N	Mid	Calculated

Analyst Comments for 10888348:

No Analyst Comment





Report Number: COV/558587/2008

Laboratory Number: 10888349

Issue 1

Sample 4 of 16

DDC PLAN NO 5432/22

Sample Source: O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: BH15 12.0-13.00m

Sample Date: Sample Received 31 October 2008 Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation	on Method
EN 12457-3 Leachate	Y		N Mid	EN12457-3
Moisture Content Ratio at 105C	0.79	% ratio	N Mid	33
Moisture at 105c	0.79	%	N Mid	33
TOC by Ignition in O2	0.34	%	N Mid	27
PCB, Total of 7 Congeners	<0.010	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	<50	mg/kg	Y Mid	317
Naphthalene	<0.10	mg/kg	N Mid	307
Acenaphthylene	<0.10	mg/kg	N Mid	307
Acenaphthene	<0.10	mg/kg	N Mid	307
Fluorene	<0.10	mg/kg	N Mid	307
Phenanthrene	<0.10	mg/kg	N Mid	307
Anthracene	<0.10	mg/kg	N Mid	307
Fluoranthene	<0.10	mg/kg	N Mid	307
Pyrene	<0.10	mg/kg	N Mid	307
Benzo(a)anthracene	<0.10	mg/kg	N Mid	307
Chrysene	<0.10	mg/kg	N Mid	307
Benzo(b)fluoranthene	<0.10	mg/kg	N Mid	307
Benzo(k)fluoranthene	<0.10	mg/kg	N Mid	307
Benzo(a)pyrene	<0.10	mg/kg	N Mid	307
Dibenz(a,h)anthracene	<0.10	mg/kg	N Mid	307
Benzo(g,h,i)perylene	<0.10	mg/kg	N Mid	307
ndeno(1,2,3-c,d)pyrene	<0.10	mg/kg	N Mid	307
Coronene	<0.10	mg/kg	N Mid	307
PAH, Total of 17 WAC	<1.0	mg/kg	N Mid	307
benzene	<0.10	mg/kg	Y Mid	327
oluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	99.21	%	N Mid	Calculated

Analyst Comments for 10888349:

No Analyst Comment





Report Number:

COV/558587/2008

Laboratory Number: 10888350

Issue

Sample 5 of 16

Sample Source:

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

W2 0.50-1.00m

Sample Date:

Sample Received

31 October 2008

Analysis Complete: 13 November 2008

Sample Date.	Sample Received	31 October 200	o Analysis O	implete.	10 1404	0111001 2000
Test Description	The state of the s	Result	Units	Accred	litation	Method
EN 12457-3 Leachate		Y		N	Mid	EN12457-3
Moisture Content Ratio at 105C		0.99	% ratio	N	Mid	33
Moisture at 105c		0.98	%	N	Mid	33
TOC by Ignition in O2		5.6	%	N	Mid	27
PCB, Total of 7 Congeners		<0.010	mg/kg	N	Mid	312
Mineral Oils, >C10 - C40		150	mg/kg	Y	Mid	317
Naphthalene		5.5	mg/kg	N	Mid	307
Acenaphthylene		0.11	mg/kg	N	Mid	307
Acenaphthene		7.1	mg/kg	N	Mid	307
Fluorene		4.4	mg/kg	N	Mid	307
Phenanthrene		40	mg/kg	N	Mid	307
Anthracene		13	mg/kg	N	Mid	307
Fluoranthene		38	mg/kg	N	Mid	307
Pyrene		34	mg/kg	N	Mid	307
Benzo(a)anthracene		18	mg/kg	N	Mid	307
Chrysene		17	mg/kg	N	Mid	307
Benzo(b)fluoranthene		14	mg/kg	N	Mid	307
Benzo(k)fluoranthene		7.7	mg/kg	N	Mid	307
Benzo(a)pyrene		19	mg/kg	N	Mid	307
Dibenz(a,h)anthracene		1.1	mg/kg	N	Mid	307
Benzo(g,h,i)perylene		6.9	mg/kg	N	Mid	307
Indeno(1,2,3-c,d)pyrene		6.9	mg/kg	N	Mid	307
Coronene		1.5	mg/kg	N	Mid	307
PAH, Total of 17 WAC		230	mg/kg	N	Mid	307
benzene		<0.10	mg/kg	Y	Mid	327
toluene		<0.10	mg/kg	Y.	Mid	327
ethylbenzene		<0.10	mg/kg	Y	Mid	327
m&p-Xylene		<0.20	mg/kg	Y	Mid	327
o-xylene		<0.10	mg/kg	Y	Mid	327
Dry Ratio (BSEN 12457)		99.02	%	N	Mid	Calculated

Analyst Comments for 10888350:

No Analyst Comment





Report Number: COV/558587/2008

Issue

Laboratory Number: 10888351

Sample 6 of 16

Sample Source: O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

W2 1.00-2.00m

Sample Date:

31 October 2008 Sample Received

Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation	Method
EN 12457-3 Leachate	Y		N Mid	EN12457-3
Moisture Content Ratio at 105C	2.00	% ratio	N Mid	33
Moisture at 105c	2.0	%	N Mid	33
TOC by Ignition in O2	5.4	%	N Mid	27
PCB, Total of 7 Congeners	<0.010	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	5000	mg/kg	Y Mid	317
Naphthalene	16	mg/kg	N Mid	307
Acenaphthylene	0.29	mg/kg	N Mid	307
Acenaphthene	16	mg/kg	N Mid	307
Fluorene	8.1	mg/kg	N Mid	307
Phenanthrene	97	mg/kg	N Mid	307
Anthracene	25	mg/kg	N Mid	307
Fluoranthene	87	mg/kg	N Mid	307
Pyrene	88	mg/kg	N Mid	307
Benzo(a)anthracene	44	mg/kg	N Mid	307
Chrysene	42	mg/kg	N Mid	307
Benzo(b)fluoranthene	35	mg/kg	N Mid	307
Benzo(k)fluoranthene	19	mg/kg	N Mid	307
Benzo(a)pyrene	47	mg/kg	N Mid	307
Dibenz(a,h)anthracene	3.0	mg/kg	N Mid	307
Benzo(g,h,i)perylene	20	mg/kg	N Mid	307
ndeno(1,2,3-c,d)pyrene	18	mg/kg	N Mid	307
Coronene	4.0	mg/kg	N Mid	307
PAH, Total of 17 WAC	570	mg/kg	N Mid	307
penzene	<0.10	mg/kg	Y Mid	327
oluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
n&p-Xylene	<0.20	mg/kg	Y Mid	327
p-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	98.04	%	N Mid	Calculated

Analyst Comments for 10888351:

{/*}TPH soils: detection limits raised due to original sample being over-range.{*/}





Report Number:

COV/558587/2008

Laboratory Number: 10888352

Issue

Sample 7 of 16

Sample Source:

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

BH8 0.50-1.00m

Sample Date:

Sample Received

31 October 2008

Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation	Method EN12457-3
EN 12457-3 Leachate	Y		N Mid	
Moisture Content Ratio at 105C	2.38	% ratio	N Mid	33
Moisture at 105c	2.3	%	N Mid	33
TOC by Ignition in O2	3.1	%	N Mid	27
PCB, Total of 7 Congeners	0.028	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	510	mg/kg	Y Mid	317
Naphthalene	1.3	mg/kg	N Mid	307
Acenaphthylene	<0.10	mg/kg	N Mid	307
Acenaphthene	0.56	mg/kg	N Mid	307
Fluorene	1.3	mg/kg	N Mid	307
Phenanthrene	5.3	mg/kg	N Mid	307
Anthracene	1.7	mg/kg	N Mid	307
Fluoranthene	8.4	mg/kg	N Mid	307
Pyrene	6.4	mg/kg	N Mid	307
Benzo(a)anthracene	3.8	mg/kg	N Mid	307
Chrysene	3.4	mg/kg	N Mid	307
Benzo(b)fluoranthene	2.9	mg/kg	N Mid	307
Benzo(k)fluoranthene	1.6	mg/kg	N Mid	307
Benzo(a)pyrene	3.8	mg/kg	N Mid	307
Dibenz(a,h)anthracene	0.23	mg/kg	N Mid	307
Benzo(g,h,i)perylene	1.4	mg/kg	N Mid	307
Indeno(1,2,3-c,d)pyrene	1.3	mg/kg	N Mid	307
Coronene	0.52	mg/kg	N Mid	307
PAH, Total of 17 WAC	44	mg/kg	N Mid	307
benzene	<0.10	mg/kg	Y Mid	327
toluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
m&p-Xylene	<0.20	mg/kg	Y Mid	327
o-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	97.67	%	N Mid	Calculated

Analyst Comments for 10888352:

No Analyst Comment





Report Number: COV/558587/2008

Issue Laboratory Number: 10888353 Sample 8

O Callaghan Moran & Assoc. Sample Source: Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: BH8 1.00-2.00m

Sample Date: 31 October 2008 Sample Received Analysis Complete: 13 November 2008

of 16

Test Description	Result	Units	Accreditation	Method
EN 12457-3 Leachate	Y		N Mid	EN12457-3
Moisture Content Ratio at 105C	1.50	% ratio	N Mid	33
Moisture at 105c	1.5	%	N Mid	33
TOC by Ignition in O2	3.0	%	N Mid	27
PCB, Total of 7 Congeners	<0.010	mg/kg	N Mid	312
Mineral Oils, >C10 - C40	1800	mg/kg	Y Mid	317
Naphthalene	11	mg/kg	N Mid	307
Acenaphthylene	<0.10	mg/kg	N Mid	307
Acenaphthene	3.3	mg/kg	N Mid	307
Fluorene	4.6	mg/kg	N Mid	307
Phenanthrene	33	mg/kg	N Mid	307
Anthracene	13	mg/kg	N Mid	307
Fluoranthene	52	mg/kg	N Mid	307
Pyrene	43	mg/kg	N Mid	307
Benzo(a)anthracene	23	mg/kg	N Mid	307
Chrysene	21	mg/kg	N Mid	307
Benzo(b)fluoranthene	16	mg/kg	N Mid	307
Benzo(k)fluoranthene	9.5	mg/kg	N Mid	307
Benzo(a)pyrene	24	mg/kg	N Mid	307
)ibenz(a,h)anthracene	1.1	mg/kg	N Mid	307
Benzo(g,h,i)perylene	8.7	mg/kg	N Mid	307
ndeno(1,2,3-c,d)pyrene	9.2	mg/kg	N Mid	307
Coronene	1.8	mg/kg	N Mid	307
PAH, Total of 17 WAC	280	mg/kg	N Mid	307
penzene	<0.10	mg/kg	Y Mid	327
oluene	<0.10	mg/kg	Y Mid	327
ethylbenzene	<0.10	mg/kg	Y Mid	327
n&p-Xylene	<0.20	mg/kg	Y Mid	327
p-xylene	<0.10	mg/kg	Y Mid	327
Dry Ratio (BSEN 12457)	98.53	%	N Mid	Calculated

Analyst Comments for 10888353:

No Analyst Comment





COV/558587/2008 Report Number:

Issue

Laboratory Number: 10888354

Sample 9 of 16

Sample Source: Sample Point Description: O Callaghan Moran & Assoc.

O Callaghan Moran & Assoc.

Sample Description:

BH7 13.0-14.00m 10:1

Sample Date:

Sample Received

31 October 2008

Analysis Complete: 13 November 2008

Test Description	Result	Units	Accre	ditation	Method
Leachate BSEN 10:1 extract	Y		N	Mid	EN12457-3 10:1
Antimony, Soluble	<0.030	mg/l	N	Mid	25C
Arsenic, Soluble	<50	ug/l	N	Mid	25C
Barium, Soluble	0.014	mg/l	Y	Mid	54F
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56
Calcium, Soluble	12	mg/l	Y	Mid	53F
Chromium, Soluble	<10	ug/l	Y	Mid	53F
Copper, Soluble	<10	ug/l	Y	Mid	53F
Lead, Soluble	<10	ug/l	Y	Mid	53F
Mercury, Soluble	0.38	ug/l	Y	Mid	56
Molybdenum, Soluble	0.0085	mg/l	N	Mid	68
Nickel, Soluble	<10	ug/l	Y	Mid	53F
Selenium, Soluble	<6.0	ug/l	N	Mid	25C
Zinc, Soluble	<10	ug/l	Y	Mid	53F
Phenol Index	<0.050	mg/l	N	Mid	32A
Sulphate as SO4	<11	mg/l	Y	Mid	60
Chloride as Cl	7.1	mg/l	Y	Mid	60
Dissolved Solids	<200	mg/l	N	Mid	18
Fluoride as F-	0.42	mg/l	Y	Mid	20
TOC (Filtered)	3.9	mg/l	Y	Mid	41

Analyst Comments for 10888354:

No Analyst Comment





Report Number:

Laboratory Number: 10888355

COV/558587/2008

Issue

Sample 10 of 16

Sample Source:

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

Sample Date:

BH15 0.5-1.00m 10:1

Sample Received

31 October 2008 Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation		Method
Leachate BSEN 10:1 extract	Y		N	Mid	EN12457-3 10:1
Antimony, Soluble	<0.030	mg/l	N	Mid	25C
Arsenic, Soluble	<50	ug/l	N	Mid	25C
Эarium, Soluble	0.0060	mg/l	Y	Mid	54F
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56
Calcium, Soluble	54	mg/l	Y	Mid	53F
Chromium, Soluble	18	ug/l	Y	Mid	53F
Copper, Soluble	36	ug/l	Y	Mid	53F
Lead, Soluble	42	ug/I	Y	Mid	53F
Mercury, Soluble	0.35	ug/l	Y	Mid	56
Molybdenum, Soluble	0.016	mg/l	N	Mid	68
Nickel, Soluble	15	ug/l	Y	Mid	53F
Selenium, Soluble	<6.0	ug/l	N	Mid	25C
Zinc, Soluble	<10	ug/l	Y	Mid	53F
Phenol Index	<0.050	mg/l	N	Mid	32A
Sulphate as SO4	50	mg/l	Y	Mid	60
Chloride as Cl	<2.5	mg/l	Y	Mid	60
Dissolved Solids	420	mg/l	N	Mid	18
Fluoride as F-	0.23	mg/l	Y	Mid	20
TOC (Filtered)	6.2	mg/l	Y	Mid	41

Analyst Comments for 10888355:

No Analyst Comment





Report Number:

COV/558587/2008

Issue

Laboratory Number: 10888356

Sample 11 of 16

Sample Source:

O Callaghan Moran & Assoc.

Sample Received

Sample Description:

Sample Point Description: O Callaghan Moran & Assoc.

Sample Date:

BH15 1.0-2.00m 10:1

31 October 2008

Analysis Complete: 13 November 2008

Test Description	Result	Units	Accre	ditation	Method EN12457-3 10:1
Leachate BSEN 10:1 extract	Y		N	Mid	
Antimony, Soluble	<0.030	mg/l	N	Mid	25C
Arsenic, Soluble	<50	ug/l	N	Mid	25C
Barium, Soluble	0.0055	mg/l	Y	Mid	54F
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56
Calcium, Soluble	26	mg/l	Y	Mid	53F
Chromium, Soluble	<10	ug/l	Y	Mid	53F
Copper, Soluble	28	ug/l	Y	Mid	53F
Lead, Soluble	43	ug/l	Y	Mid	53F
Mercury, Soluble	0.49	ug/l	Y	Mid	56
Molybdenum, Soluble	0.013	mg/l	N	Mid	68
Nickel, Soluble	14	ug/l	Y	Mid	53F
Selenium, Soluble	<6.0	ug/l	N	Mid	25C
Zinc, Soluble	13	ug/i	Y	Mid	53F
Phenol Index	<0.050	mg/l	N	Mid	32A
Sulphate as SO4	19	mg/l	Y	Mid	60
Chloride as Cl	<2.5	mg/l	Y	Mid	60
Dissolved Solids	<200	mg/l	N	Mid	18
Fluoride as F-	<0.20	mg/l	Y	Mid	20
TOC (Filtered)	3.6	mg/l	Y	Mid	41

Analyst Comments for 10888356:

No Analyst Comment





Report Number: COV/558587/2008 Issue 1

Laboratory Number: 10888357

Sample 12 of 16

Sample Source: Sample Point Description: O Callaghan Moran & Assoc.

O Callaghan Moran & Assoc.

Sample Description:

BH15 12.0-13.00m 10:1

Sample Date:

Sample Received

31 October 2008 Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation		Method	
Leachate BSEN 10:1 extract	Y		N	Mid	EN12457-3 10:1	
Antimony, Soluble	<0.030	mg/l	N	Mid	25C	
Arsenic, Soluble	<50	ug/l	N	Mid	25C	
Barium, Soluble	0.017	mg/l	Y	Mid	54F	
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56	
Calcium, Soluble	17	mg/l	Y	Mid	53F	
Chromium, Soluble	<10	ug/l	Y	Mid	53F	
Copper, Soluble	15	ug/l	Y	Mid	53F	
Lead, Soluble	41	ug/l	Y	Mid	53F	
Mercury, Soluble	<0.30	ug/l	Y	Mid	56	
Molybdenum, Soluble	0.0046	mg/l	N	Mid	68	
Nickel, Soluble	14	ug/l	Y	Mid	53F	
Selenium, Soluble	<6.0	ug/l	N	Mid	25C	
Zinc, Soluble	<10	ug/l	Y	Mid	53F	
Phenol Index	<0.050	mg/l	N	Mid	32A	
Sulphate as SO4	13	mg/l	Y	Mid	60	
Chloride as Cl	10	mg/l	Y	Mid	60	
Dissolved Solids	<200	mg/l	N	Mid	18	
Fluoride as F-	0.47	mg/l	Y	Mid	20	
TOC (Filtered)	3.7	mg/l	Y	Mid	41	

Analyst Comments for 10888357:

No Analyst Comment





Report Number: COV/558587/2008

Issue

Sample 13 of 16

Laboratory Number: 10888358

O Callaghan Moran & Assoc.

Sample Point Description: O Callaghan Moran & Assoc.

Sample Description:

Sample Source:

W2 0.50-1.00m 10:1

Sample Date:

Sample Received

31 October 2008

Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation		Method	
Leachate BSEN 10:1 extract	Y		N	Mid	EN12457-3 10:1	
Antimony, Soluble	0.036	mg/l	N	Mid	25C	
Arsenic, Soluble	<50	ug/l	N	Mid	25C	
Barium, Soluble	0.024	mg/l	Y	Mid	54F	
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56	
Calcium, Soluble	43	mg/l	Y	Mid	53F	
Chromium, Soluble	21	ug/l	Y	Mid	53F	
Copper, Soluble	34	ug/l	Y	Mid	53F	
Lead, Soluble	43	ug/l	Y	Mid	53F	
Mercury, Soluble	<0.30	ug/l	Y	Mid	56	
Molybdenum, Soluble	0.0066	mg/l	N	Mid	68	
Nickel, Soluble	13	ug/l	Y	Mid	53F	
Selenium, Soluble	<6.0	ug/l	N	Mid	25C	
Zinc, Soluble	11	ug/l	Y	Mid	53F	
Phenol Index	<0.050	mg/l	N	Mid	32A	
Sulphate as SO4	44	mg/l	Y	Mid	60	
Chloride as Cl	2.7	mg/l	Y	Mid	60	
Dissolved Solids	210	mg/l	N	Mid	18	
Fluoride as F-	0.41	mg/l	Y	Mid	20	
TOC (Filtered)	4.5	mg/l	Y	Mid	41	

Analyst Comments for 10888358:

No Analyst Comment





Report Number: COV/558587/2008

Laboratory Number: 10888359

Issue

Sample 14 of 16

Sample Source: O Callaghan Moran & Assoc. Sample Point Description: O Callaghan Moran & Assoc.

Sample Description: W2 1.00-2.00m 10:1

Sample Date: Sample Received 31 October 2008 Analysis Complete: 13 November 2008

Test Description	Result	Units	Accreditation		Method	
Leachate BSEN 10:1 extract	Y		N	Mid	EN12457-3 10:1	
Antimony, Soluble	<0.030	mg/l	- N	Mid	25C	
Arsenic, Soluble	<50	ug/l	N	Mid	25C	
Barium, Soluble	0.018	mg/l	Y	Mid	54F	
Cadmium, Soluble	<0.10	ug/l	Y	Mid	56	
Calcium, Soluble	110	mg/l	Y	Mid	53F	
Chromium, Soluble	<100	ug/l	Y	Mid	53F	
Copper, Soluble	<100	ug/l	Y	Mid	53F	
Lead, Soluble	<100	ug/l	Y	Mid	53F	
Mercury, Soluble	<0.30	ug/l	Y	Mid	56	
Molybdenum, Soluble	0.0081	mg/l	N	Mid	68	
Nickel, Soluble	<100	ug/l	Y	Mid	53F	
Selenium, Soluble	<6.0	ug/l	N	Mid	25C	
Zinc, Soluble	<100	ug/l	Y	Mid	53F	
Phenol Index	<0.050	mg/l	N	Mid	32A	
Sulphate as SO4	160	mg/l	Y	Mid	60	
Chloride as C!	14	mg/l	Y	Mid	60	
Dissolved Solids	420	mg/l	N	Mid	18	
Fluoride as F-	<0.20	mg/l	Y	Mid	20	
TOC (Filtered)	6.0	mg/l	Y	Mid	41	

Analyst Comments for 10888359:

No Analyst Comment