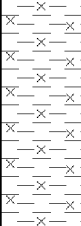
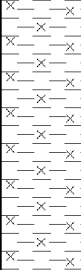
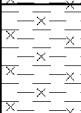
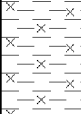
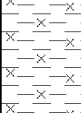
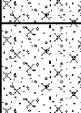
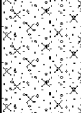
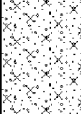
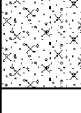
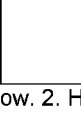


 GEG Environmental Group				Trial Pit Log			Trial Pit No TP39 Sheet 1 of 1		
Project Name: Hook Lane, Pagham				Project No. GEG-19-623		Co-ords: 489401.78 - 98922.29 Level:		Date 24/10/2019	
Location: Hook Lane, Pagham, PO21 3PD						Dimensions (m): 2.00 0.90		Scale 1:25	
Client: Brookbanks / Hallam Land Management						Depth 3.90		Logged NN	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.00			(Firm) dark brown slightly sandy silty CLAY. (TOPSOIL)		
	0.20	D		0.40			(Firm) yellowish brown silty CLAY. (RIVER TERRACE DEPOSITS)		
	0.80	HVP	76			0.80-1.60m Becoming stiff 			
	0.80	HVP	76						
	0.80	HVP	76						
	1.00	D							
				1.60			(Medium dense) yellowish brown silty SAND & GRAVEL of medium sub-rounded flint and quartzite. (RIVER TERRACE DEPOSITS)		
	2.55	HVP	50	2.50			Firm greyish brown silty CLAY. (LONDON CLAY FORMATION)		
	2.55	HVP	50						
	2.55	HVP	50						
	3.00	HVP	50						
	3.00	HVP	56						
	3.00	HVP	58						
	3.20	HVP	70						
	3.20	HVP	70						
3.20	HVP	70							
3.20	HVP	70							
			3.50		(Stiff dark brown silty CLAY. (LONDON CLAY FORMATION))				
3.70	HVP	116							
3.70	HVP	116							
3.70	HVP	118							
			3.90		End of Pit at 3.900m				

Remarks: 1. Groundwater encountered at 2.00m as slow flow. 2. HVP=Uncorrected Hand Vane Measurement. 3. Upon completion trial pit backfilled with arisings.

Stability: Unstable from 2.00m



 Geot Environmental Group				Trial Pit Log			Trial Pit No TP44 Sheet 1 of 1		
Project Name: Hook Lane, Pagham				Project No. GEG-19-623		Co-ords: 489612.93 - 99088.79 Level:		Date 24/10/2019	
Location: Hook Lane, Pagham, PO21 3PD						Dimensions (m): 2.50 0.00 		Scale 1:25	
Client: Brookbanks / Hallam Land Management						Depth 4.00		Logged NN	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
▼				0.00			(Firm) dark brown slightly sandy silty CLAY. (TOPSOIL)		
				0.40			(Soft to firm) orangish brown silty CLAY. (RIVER TERRACE DEPOSITS)		
	0.80	HVP	50				0.80-1.30m Becoming firm		
	0.80	HVP	50						
	0.80	HVP	50						
							1.30-1.60m Becoming very soft		
	1.30	HVP	16						
	1.30	HVP	20						
							1.90-2.30m With occasional lenses of (soft) clay		
									
									
				1.60			(Soft) orangish brown SILT. (RIVER TERRACE DEPOSITS)		
				1.80			(Loose to medium dense) light grey silty gravelly medium to coarse SAND. Gravel is fine sub-angular flint and chalk. (RIVER TERRACE DEPOSITS)		
				2.30			(Loose) grey silty gravelly medium SAND. Gravel is fine sub-angular flint and chalk. (RIVER TERRACE DEPOSITS)		
				4.00			End of Pit at 4.000m		

Remarks: 1. Groundwater encountered at 2.00m as moderate flow. 2. HVP=Uncorrected Hand Vane Measurement.
3. Upon completion trial pit backfilled with arisings.

Stability: Unstable below 1.00m. Sides collapsed to 2.50m at 4.00m





APPENDIX D

INFILTRATION TEST DATA

Appendix D

Infiltration Tests

Project Name: Hook Lane, Pagham
Project Ref.: GEG-19-623
Trial Pit: IT41
Test No.: Test 1 of 1

Depth of Pit (cm):	200.00
Depth of Water at Start of Depth (cm):	79.00
Date of Test:	23 October 2019

[illegible]

Parameter	Symbol	Calculation	Units	IT41
Effective Depth of Trial Pit	d_p		m	1.21
Width of Trial Pit	w		m	0.90
Length of Trial Pit	l		m	2.00
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	2.18
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	1.089
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	5.31
Time to reach 75% Effective Depth	$T_{p75\%}$		min	N/A
Time to reach 25% Effective Depth	$T_{p25\%}$		min	N/A
Time 25% - 75%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	N/A
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	N/A

*To 50% Effective Depth (including base)

With Reference to: **Figure D-1**

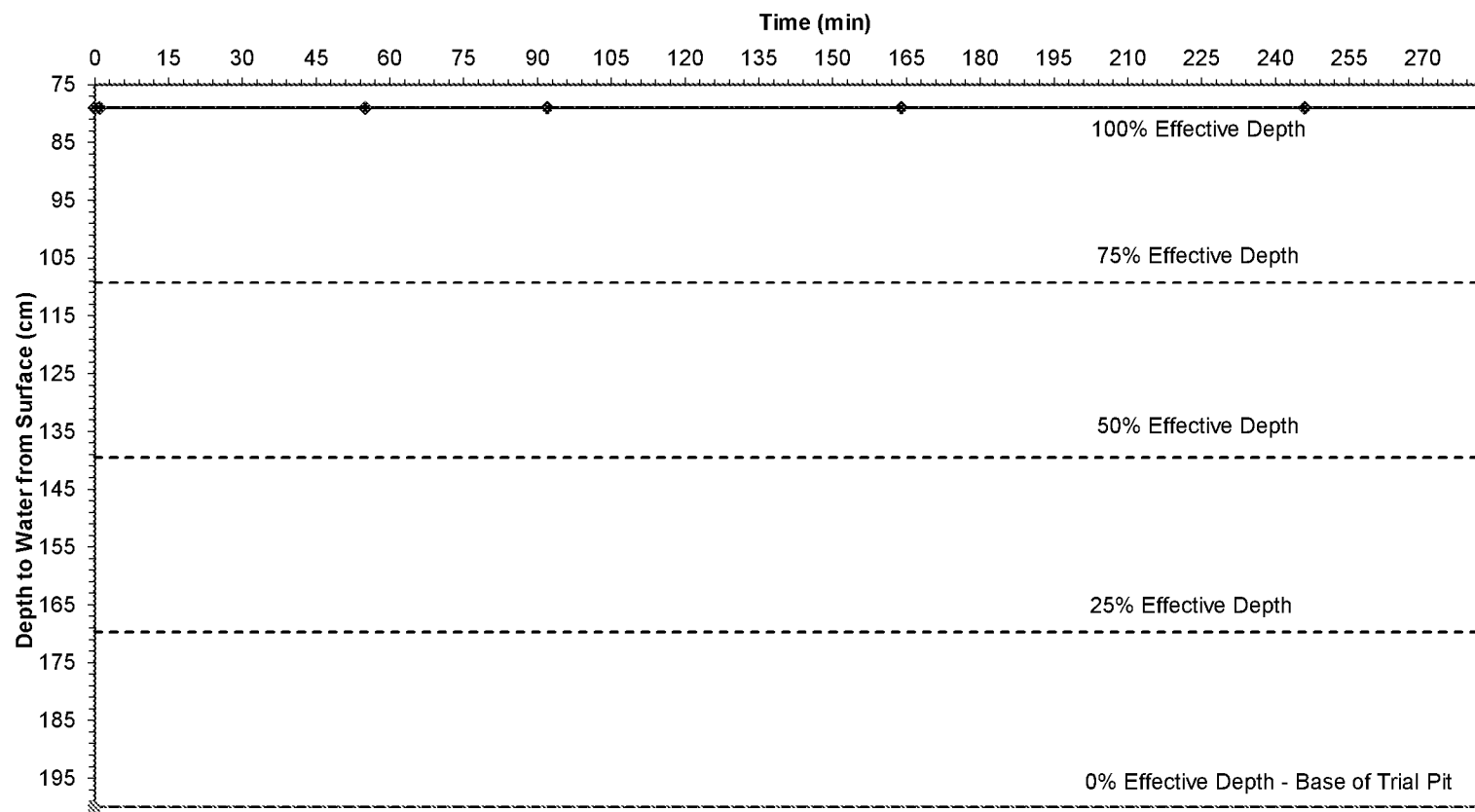
Engineer: NN
Checked: MP

Figure D-1

GEG-19-623

Hook Lane, Pagham

IT41



Appendix D

Infiltration Tests

Project Name:	Hook Lane, Pagham
Project Ref.:	GEG-19-623
Trial Pit:	IT42
Test No.:	Test 1 of 1

Depth of Pit (cm):	180.00
Depth of Water at Start of Depth (cm):	52.00
Date of Test:	23 October 2019

[illegible]

Parameter	Symbol	Calculation	Units	IT42
Effective Depth of Trial Pit	d_p		m	1.28
Width of Trial Pit	w		m	0.90
Length of Trial Pit	l		m	2.00
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	2.30
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	1.152
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	5.51
Time to reach 75% Effective Depth	$T_{p75\%}$		min	N/A
Time to reach 25% Effective Depth	$T_{p25\%}$		min	N/A
Time 25% - 75%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	N/A
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	N/A

*To 50% Effective Depth (including base)

With Reference to: **Figure D-2**

Engineer: NN

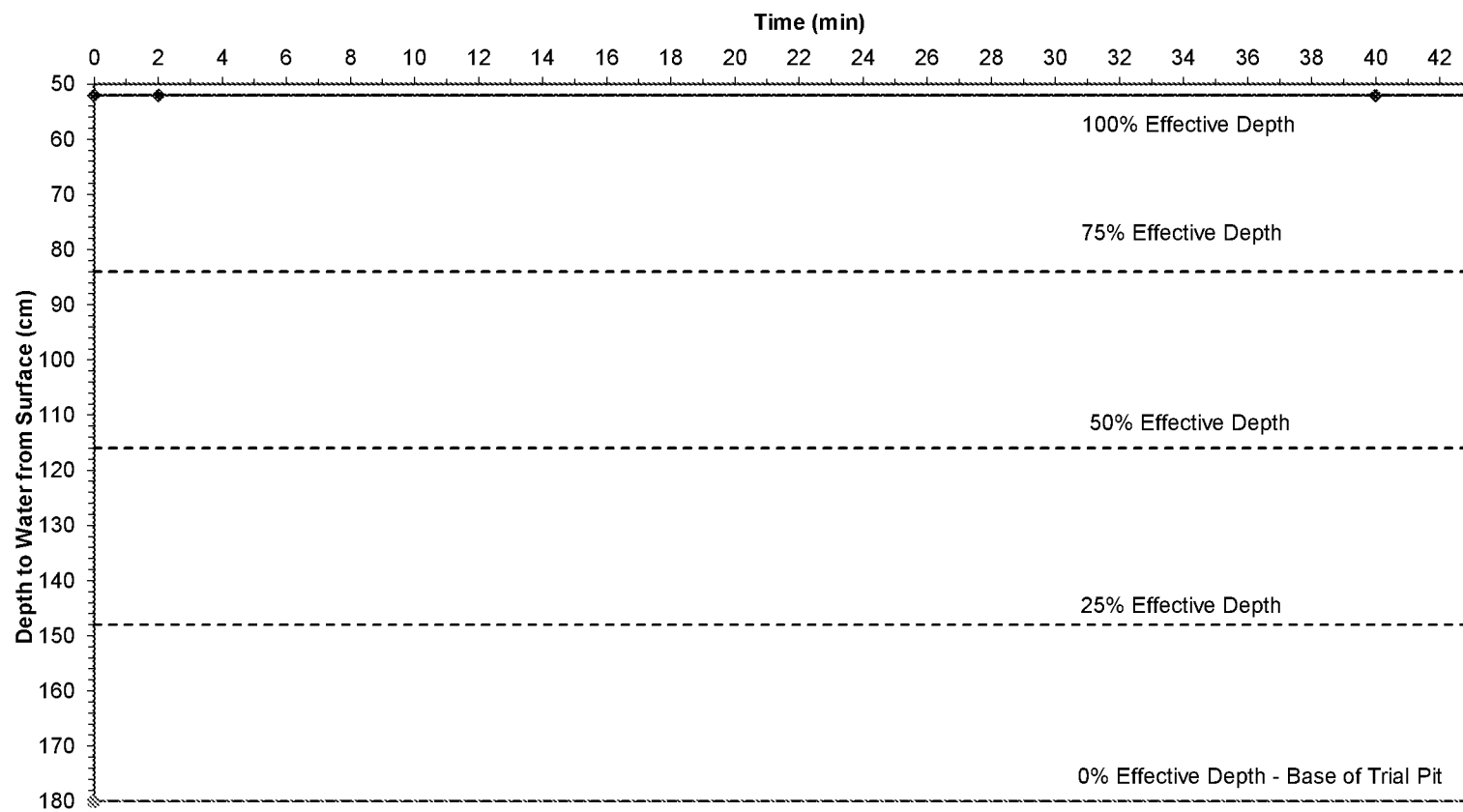
Checked: MP

Figure D-2

GEG-19-623

Hook Lane, Pagham

IT42



Appendix D

Infiltration Tests

Project Name:	Hook Lane, Pagham
Project Ref.:	GEG-19-623
Trial Pit:	IT43
Test No.:	Test 1 of 1

Depth of Pit (cm):	200.00
Depth of Water at Start of Depth (cm):	55.00
Date of Test:	23 October 2019

[illegible]

Parameter	Symbol	Calculation	Units	IT43
Effective Depth of Trial Pit	d_p		m	1.45
Width of Trial Pit	w		m	0.90
Length of Trial Pit	l		m	2.00
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	2.61
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	1.305
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	6.01
Time to reach 75% Effective Depth	$T_{p75\%}$		min	N/A
Time to reach 25% Effective Depth	$T_{p25\%}$		min	N/A
Time 25% - 75%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	N/A
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	N/A

*To 50% Effective Depth (including base)

With Reference to: **Figure D-3**

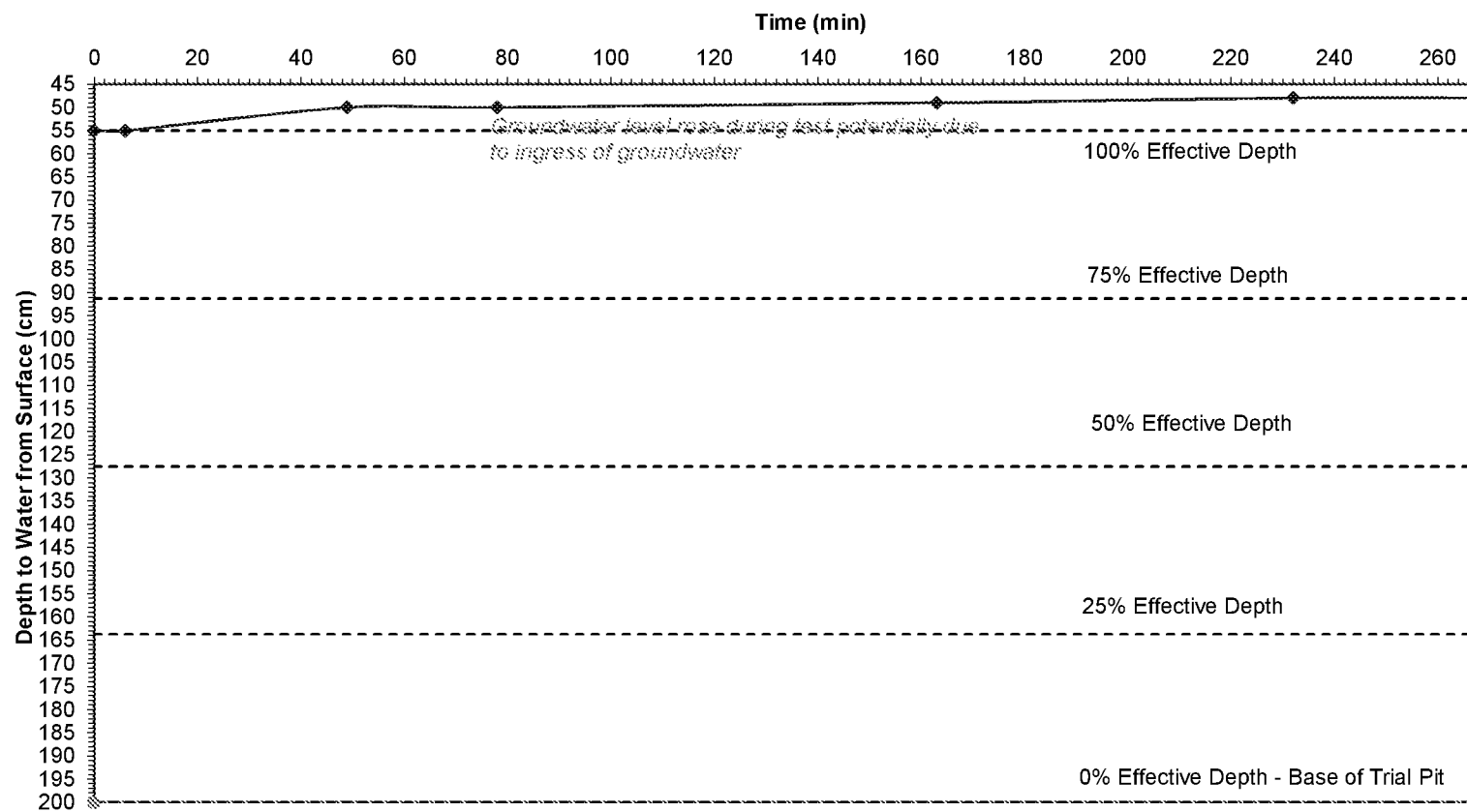
Engineer: NN
Checked: MP

Figure D-3

GEG-19-623

Hook Lane, Pagham

IT43





APPENDIX E

CHEMICAL ANALYSIS RESULTS



Nick Needham
Geo Environmental Group
GEG House,
17 Graham Road
Malvern
WR14 2HR

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent



DETS Report No: 19-15295

Site Reference: Hook Lane, Paqham

Project / Job Ref: GEG-19-623

Order No: 3531

Sample Receipt Date: 29/10/2019

Sample Scheduled Date: 29/10/2019

Report Issue Number: 2

Reporting Date: 10/12/2019

Authorised by:



Dave Ashworth
Technical Manager

This report supersedes 19-15295, issue no.1.
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DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP01	TP05	TP05	TP10	TP10
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	0.20	1.20	0.10	1.20
Reporting Date: 10/12/2019	DETS Sample No	444342	444343	444344	444345	444346

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	6.2	5.9	7.9	6.1	7.2
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2	
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2	
Total Sulphate as SO ₄	mg/kg	< 200	NONE	< 200	278		337	
Total Sulphate as SO ₄	%	< 0.02	NONE	< 0.02	0.03		0.03	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	12	13	< 10	16	17
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	0.01	< 0.01	0.02	0.02
Sulphide	mg/kg	< 5	NONE	< 5	< 5		< 5	
Organic Matter	%	< 0.1	MCERTS	< 0.1	1.8		1.6	
W/S Chloride (2:1)	mg/kg	< 1	MCERTS			16		15
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS			8.2		7.7
Antimony (Sb)	mg/kg	< 1	NONE	< 1	1.1		1.1	
Arsenic (As)	mg/kg	< 2	MCERTS	6	7		7	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1		< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.2		< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	8	21		18	
Chromium (III)	mg/kg	< 2	NONE	8	21		18	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2		< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	< 4	13		11	
Lead (Pb)	mg/kg	< 3	MCERTS	4	16		17	
W/S Magnesium	mg/l	< 0.1	NONE			1.9		2.8
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1		< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	5	12		10	
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3		< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	13	39		37	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2		< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

Subcontracted analysis (S)



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP14	TP14	TP20	TP20	TP23
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	1.00	0.20	1.20	1.00
Reporting Date: 10/12/2019	DETS Sample No	444347	444348	444349	444350	444352

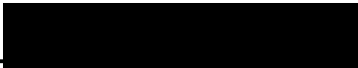
Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	6.6	8.1	7.1	8.0	8.2
Total Cyanide	mg/kg	< 2	NONE	< 2		< 2		
Free Cyanide	mg/kg	< 2	NONE	< 2		< 2		
Total Sulphate as SO ₄	mg/kg	< 200	NONE	320		1552		
Total Sulphate as SO ₄	%	< 0.02	NONE	0.03		0.16		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	< 10	< 10	555	33	15
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	0.56	0.03	0.01
Sulphide	mg/kg	< 5	NONE	< 5		< 5		
Organic Matter	%	< 0.1	MCERTS	2		2		
W/S Chloride (2:1)	mg/kg	< 1	MCERTS		18		14	14
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS		8.8		6.9	7.1
Antimony (Sb)	mg/kg	< 1	NONE	1.3		1.2		
Arsenic (As)	mg/kg	< 2	MCERTS	7		7		
W/S Boron	mg/kg	< 1	NONE	< 1		< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2		< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	20		22		
Chromium (III)	mg/kg	< 2	NONE	20		22		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	11		12		
Lead (Pb)	mg/kg	< 3	MCERTS	19		15		
W/S Magnesium	mg/l	< 0.1	NONE		2.4		3.1	2.6
Mercury (Hg)	mg/kg	< 1	NONE	< 1		< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	12		13		
Selenium (Se)	mg/kg	< 3	NONE	< 3		< 3		
Zinc (Zn)	mg/kg	< 3	MCERTS	41		38		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2		< 2		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

Subcontracted analysis (S)



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP24	TP24	TP27	TP27	TP30
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	1.00	0.10	1.00	0.20
Reporting Date: 10/12/2019	DETS Sample No	444353	444354	444355	444356	444357

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	7.5	7.5	7.1	7.5	7.3
Total Cyanide	mg/kg	< 2	NONE	< 2		< 2		< 2
Free Cyanide	mg/kg	< 2	NONE	< 2		< 2		< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE	395		393		315
Total Sulphate as SO ₄	%	< 0.02	NONE	0.04		0.04		0.03
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	12	1160	64	18	22
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	1.16	0.06	0.02	0.02
Sulphide	mg/kg	< 5	NONE	< 5		< 5		< 5
Organic Matter	%	< 0.1	MCERTS	1.8		1.6		1.6
W/S Chloride (2:1)	mg/kg	< 1	MCERTS		20		13	
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS		9.9		6.3	
Antimony (Sb)	mg/kg	< 1	NONE	< 1		1.1		1.1
Arsenic (As)	mg/kg	< 2	MCERTS	7		7		7
W/S Boron	mg/kg	< 1	NONE	< 1		< 1		< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2		0.2		0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	20		22		21
Chromium (III)	mg/kg	< 2	NONE	20		22		21
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2		< 2
Copper (Cu)	mg/kg	< 4	MCERTS	11		14		11
Lead (Pb)	mg/kg	< 3	MCERTS	15		17		16
W/S Magnesium	mg/l	< 0.1	NONE		6.5		2.1	
Mercury (Hg)	mg/kg	< 1	NONE	< 1		< 1		< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	11		13		13
Selenium (Se)	mg/kg	< 3	NONE	< 3		< 3		< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	40		42		40
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2		< 2		< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

Subcontracted analysis (S)



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19		
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Hook Lane, Pagham	TP / BH No	TP30	TP39	TP39		
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 3531	Depth (m)	1.00	0.20	1.00		
Reporting Date: 10/12/2019	DETS Sample No	444358	444359	444360		

Determinand	Unit	RL	Accreditation			
pH	pH Units	N/a	MCERTS	7.9	6.8	8.2
Total Cyanide	mg/kg	< 2	NONE		< 2	
Free Cyanide	mg/kg	< 2	NONE		< 2	
Total Sulphate as SO ₄	mg/kg	< 200	NONE		302	
Total Sulphate as SO ₄	%	< 0.02	NONE		0.03	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	14	< 10	12
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	< 0.01	0.01
Sulphide	mg/kg	< 5	NONE		< 5	
Organic Matter	%	< 0.1	MCERTS		2.1	
W/S Chloride (2:1)	mg/kg	< 1	MCERTS	12		15
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS	6		7.7
Antimony (Sb)	mg/kg	< 1	NONE		1.1	
Arsenic (As)	mg/kg	< 2	MCERTS		7	
W/S Boron	mg/kg	< 1	NONE		< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS		0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS		21	
Chromium (III)	mg/kg	< 2	NONE		21	
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2	
Copper (Cu)	mg/kg	< 4	MCERTS		13	
Lead (Pb)	mg/kg	< 3	MCERTS		18	
W/S Magnesium	mg/l	< 0.1	NONE	2.2		2.2
Mercury (Hg)	mg/kg	< 1	NONE		< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS		13	
Selenium (Se)	mg/kg	< 3	NONE		< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS		38	
Total Phenols (monohydric)	mg/kg	< 2	NONE		< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)



DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP01	TP05	TP10	TP14	TP20
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	0.20	0.10	0.20	0.20
Reporting Date: 10/12/2019	DETS Sample No	444342	444343	444345	444347	444349

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP24	TP27	TP30	TP39
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	0.10	0.20	0.20
Reporting Date: 10/12/2019	DETS Sample No	444353	444355	444357	444359

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - EPH Texas Banded						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	25/10/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP01	TP05	TP10	TP14	TP20
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3531	Depth (m)	0.20	0.20	0.10	0.20	0.20
Reporting Date: 10/12/2019	DETS Sample No	444342	444343	444345	444347	444349

Determinand	Unit	RL	Accreditation					
EPH Texas (C6 - C8)	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
EPH Texas (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C12 - C16)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C16 - C21)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C21 - C40)	mg/kg	< 6	MCERTS	< 6	< 6	< 6	< 6	< 6
EPH Texas (C6 - C40)	mg/kg	< 6	NONE	< 6	< 6	< 6	< 6	< 6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - EPH Texas Banded						
DETS Report No: 19-15295	Date Sampled	25/10/19	25/10/19	25/10/19	25/10/19	
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Hook Lane, Pagham	TP / BH No	TP24	TP27	TP30	TP39	
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: 3531	Depth (m)	0.20	0.10	0.20	0.20	
Reporting Date: 10/12/2019	DETS Sample No	444353	444355	444357	444359	

Determinand	Unit	RL	Accreditation					
EPH Texas (C6 - C8)	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
EPH Texas (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C12 - C16)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C16 - C21)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH Texas (>C21 - C40)	mg/kg	< 6	MCERTS	< 6	< 6	< 6	< 6	< 6
EPH Texas (C6 - C40)	mg/kg	< 6	NONE	< 6	< 6	< 6	< 6	< 6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - PCB (12 Congeners)						
DETS Report No: 19-15295	Date Sampled	25/10/19				
Geo Environmental Group	Time Sampled	None Supplied				
Site Reference: Hook Lane, Pagham	TP / BH No	PCB01				
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied				
Order No: 3531	Depth (m)	0.10				
Reporting Date: 10/12/2019	DETS Sample No	444341				

Determinand	Unit	RL	Accreditation				
PCB Congener 77	mg/kg	0.008	NONE	< 0.008			
PCB Congener 81	mg/kg	0.008	NONE	< 0.008			
PCB Congener 105	mg/kg	0.008	NONE	< 0.008			
PCB Congener 114	mg/kg	0.008	NONE	< 0.008			
PCB Congener 118	mg/kg	0.008	NONE	< 0.008			
PCB Congener 123	mg/kg	0.008	NONE	< 0.008			
PCB Congener 126	mg/kg	0.008	NONE	< 0.008			
PCB Congener 156	mg/kg	0.008	NONE	< 0.008			
PCB Congener 157	mg/kg	0.008	NONE	< 0.008			
PCB Congener 167	mg/kg	0.008	NONE	< 0.008			
PCB Congener 169	mg/kg	0.008	NONE	< 0.008			
PCB Congener 189	mg/kg	0.008	NONE	< 0.008			
Total PCB (12 Congeners)	mg/kg	< 0.1	NONE	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 19-15295

Geo Environmental Group

Site Reference: Hook Lane, Pagham

Project / Job Ref: GEG-19-623

Order No: 3531

Reporting Date: 10/12/2019

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
444341	PCB01	None Supplied	0.10	19.8	Brown clayey sand
444342	TP01	None Supplied	0.20	17.5	Brown clayey sand with stones
444343	TP05	None Supplied	0.20	15.3	Brown clayey sand
444344	TP05	None Supplied	1.20	13.3	Brown clayey sand
444345	TP10	None Supplied	0.10	14.9	Brown clayey sand
444346	TP10	None Supplied	1.20	16.3	Brown clayey sand
444347	TP14	None Supplied	0.20	15.8	Brown clayey sand
444348	TP14	None Supplied	1.00	14.3	Brown clayey sand
444349	TP20	None Supplied	0.20	17.8	Brown clayey sand
444350	TP20	None Supplied	1.20	10.8	Brown clayey sand
444352	TP23	None Supplied	1.00	11.7	Brown clayey sand
444353	TP24	None Supplied	0.20	15	Brown clayey sand
444354	TP24	None Supplied	1.00	17.1	Brown clayey sand
444355	TP27	None Supplied	0.10	16.9	Brown clayey sand
444356	TP27	None Supplied	1.00	12.5	Brown clayey sand
444357	TP30	None Supplied	0.20	14.6	Brown clayey sand with stones
444358	TP30	None Supplied	1.00	14.2	Brown clayey sand
444359	TP39	None Supplied	0.20	17.3	Brown clayey sand
444360	TP39	None Supplied	1.00	15	Brown clayey sand

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 19-15295

Geo Environmental Group

Site Reference: Hook Lane, Pagham

Project / Job Ref: GEG-19-623

Order No: 3531

Reporting Date: 10/12/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Nick Needham
Geo Environmental Group
GEG House,
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DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN

DETS Report No: 19-17654

Site Reference: Hook Lane, Paqham

Project / Job Ref: GEG-19-623

Order No: 3589

Sample Receipt Date: 20/12/2019

Sample Scheduled Date: 20/12/2019

Report Issue Number: 1

Reporting Date: 03/01/2020

Authorised by:

Dave Ashworth
Technical Manager

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Soil Analysis Certificate - Organochlorine Pesticides						
DETS Report No: 19-17654	Date Sampled	18/12/19	18/12/19	18/12/19	18/12/19	18/12/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP01	TP10	TP14	TP20	TP24
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3589	Depth (m)	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/01/2020	DETS Sample No	453742	453743	453744	453745	453746

Determinand	Unit	RL	Accreditation					
Aldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
alpha-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
beta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
cis-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
delta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Dieldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Endosulfan A	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Endosulfan B	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Endrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
gamma-HCH (Lindane)	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Heptachlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Heptachlor epoxide	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Hexachlorobenzene (HCB)	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Isodrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Methoxychlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
o,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
o,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
o,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
p,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
p,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
p,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
trans-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Trifluralin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Organochlorine Pesticides

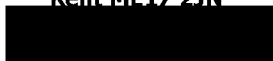
DETS Report No: 19-17654	Date Sampled	18/12/19	18/12/19	18/12/19		
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Hook Lane, Pagham	TP / BH No	TP27	TP30	TP39		
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 3589	Depth (m)	0.20	0.20	0.20		
Reporting Date: 03/01/2020	DETS Sample No	453747	453748	453749		

Determinand	Unit	RL	Accreditation					
Aldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
alpha-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
beta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
cis-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
delta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Dieldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Endosulfan A	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Endosulfan B	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Endrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
gamma-HCH (Lindane)	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Heptachlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Heptachlor epoxide	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Hexachlorobenzene (HCB)	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Isodrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Methoxychlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
o,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
o,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
o,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
p,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
p,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
p,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
trans-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		
Trifluralin	mg/kg	< 0.02	NONE	< 0.02	< 0.02	< 0.02		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN



Soil Analysis Certificate - Organophosphorus Pesticides						
DETS Report No: 19-17654	Date Sampled	18/12/19	18/12/19	18/12/19	18/12/19	18/12/19
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hook Lane, Pagham	TP / BH No	TP01	TP10	TP14	TP20	TP24
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 3589	Depth (m)	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/01/2020	DETS Sample No	453742	453743	453744	453745	453746

Determinand	Unit	RL	Accreditation					
Azinphos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorfenvinphos, alpha	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorfenvinphos, beta	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorpyrifos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diazinon	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorvos	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethoate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fenitrothion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fenthion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Malathion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Mevinphos, E	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Mevinphos, (Z)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Parathion-ethyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Parathion-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phorate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Organophosphorus Pesticides

DETS Report No: 19-17654	Date Sampled	18/12/19	18/12/19	18/12/19		
Geo Environmental Group	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Hook Lane, Pagham	TP / BH No	TP27	TP30	TP39		
Project / Job Ref: GEG-19-623	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 3589	Depth (m)	0.20	0.20	0.20		
Reporting Date: 03/01/2020	DETS Sample No	453747	453748	453749		

Determinand	Unit	RL	Accreditation					
Azinphos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Chlorfenvinphos, alpha	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Chlorfenvinphos, beta	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Chlorpyrifos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Diazinon	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Dichlorvos	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Dimethoate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Fenitrothion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Fenthion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Malathion	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Mevinphos, E	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Mevinphos, (Z)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Parathion-ethyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Parathion-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Phorate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 19-17654

Geo Environmental Group

Site Reference: Hook Lane, Pagham

Project / Job Ref: GEG-19-623

Order No: 3589

Reporting Date: 03/01/2020

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
453742	TP01	None Supplied	0.20	19.5	Brown clay with stones
453743	TP10	None Supplied	0.20	19.7	Brown clay
453744	TP14	None Supplied	0.20	20.4	Brown clay with stones
453745	TP20	None Supplied	0.20	20.2	Brown clay
453746	TP24	None Supplied	0.20	18	Brown clay
453747	TP27	None Supplied	0.20	17.7	Brown clay
453748	TP30	None Supplied	0.20	17.5	Brown clay
453749	TP39	None Supplied	0.20	18.5	Brown clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 19-17654

Geo Environmental Group

Site Reference: Hook Lane, Pagham

Project / Job Ref: GEG-19-623

Order No: 3589

Reporting Date: 03/01/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 dphenylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

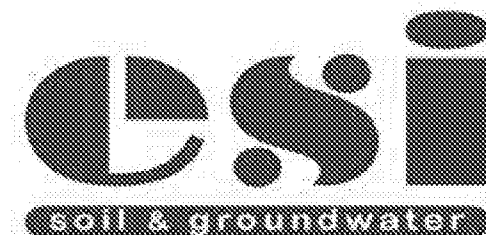


APPENDIX F

STATISTICAL ASSESSMENT OF CHEMICAL RESULTS

Client/client ref	Brookbanks / HLM
Project ref	GEG-19-623
Site ref	Hook Lane, Pagham
Data description	Natural Ground
Contaminant(s)	As to Phenol
Test scenario	Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼
Date	21 November 2019
User details	MP

Statistics calculator (version 1)



This spreadsheet has been produced based on the document 'Guidance on Comparing Soil Contamination Data with a Critical Concentration (CIEH/CL:AIRE, 2008)'. Users of this spreadsheet should always refer to this guidance, the User Manual and to relevant guidance on UK legislation and policy, in order to understand how the procedure should be applied in an appropriate context.

ESI Ltd (ESI) do not promise that the spreadsheet will provide any particular facilities or functions. The user must ensure that the spreadsheet meets their needs and they remain solely responsible for the competent use of the spreadsheet. Users are entirely responsible for the consequences of any use of the spreadsheet, ESI do not provide any warranty about the fitness for purpose or performance of any part of the spreadsheet. We do not promise that the media will always be free from defects, computer viruses, software locks or other similar code or that the operation of the spreadsheet will be uninterrupted or error free. The user should carry out all necessary virus checks prior to installing on their computing system.

[illegible]

Client/client ref	Brookbanks / HLM
Project ref	GEG-19-623
Site ref	Hook Lane, Pagham
Data description	Natural Ground
Contaminant(s)	Cu, Zn, B & Sb
Test scenario	Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼
Date	21 November 2019
User details	MP

Statistics calculator (version 1)



Input data

This spreadsheet has been produced based on the document 'Guidance on Comparing Soil Contamination Data with a Critical Concentration (CIEH/CL:AIRE, 2008)'. Users of this spreadsheet should always refer to this guidance, the User Manual and to relevant guidance on UK legislation and policy, in order to understand how the procedure should be applied in an appropriate context.

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Descriptive statistics Project: 1820-1820-1820 Site: 1820-1820-1820 Data: 1820-1820-1820 Date: 21 November 2018 User: 1820-1820-1820																	
	Copper (mg/kg)	Zinc (mg/kg)	Boron (mg/kg)	Antimony (mg/kg)													
Summary statistics	2330	3550	291	260													
Statistics																	
Range	0	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
Sample mean	10.88888889	36.44444444	0.5	1	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation	3.515837185	8.931840671	0	0.291547595													
Number of non-zero values	1	0	0	2													
Number of values below 0																	
Normality test	No	No	No	No													
Probability	Non-normal	Non-normal	Single value	Non-normal													
Statistical properties	Auto Underflow	Auto Underflow	Auto Underflow	Auto Underflow	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto
Plotting options	Plotting: Is this plot better than the concentration plot? 1878.855251 -1180.122558 N/A -3285.088012				95%		Use normal distribution to test for outliers										
Summary statistics	15.89728189	49.42210807	0.5	1.423608834													
Confidence level	100%	100%	100%	100%													
Statistical properties	Distance 0.00	Distance 0.00	Distance 0.00	Distance 0.00													
Plotting options	$\mu < C_0$	$\mu < C_0$	$\mu < C_0$	$\mu < C_0$													
Statistical properties	OY	OY	OY	●Y	OY	OY	OY	OY	OY	OY	OY	OY	OY	OY	OY	OY	OY

Back to data

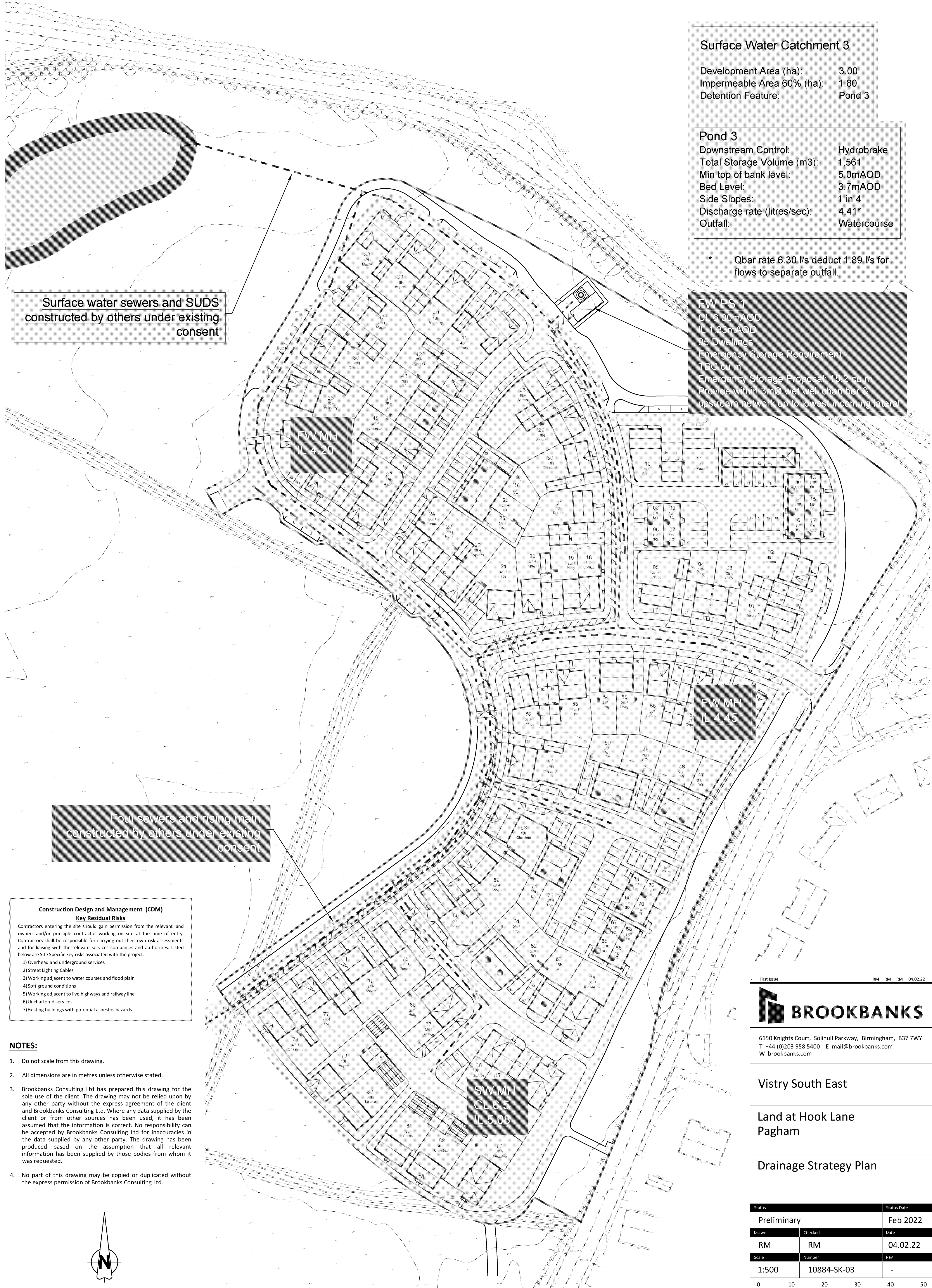
Go to outlier test

Go to normality test

Show individual summary



Appendix B— Drainage Strategy and Supporting Calculations



Surface Water Catchment 3

Development Area (ha): 3.00
Impermeable Area 60% (ha): 1.80
Detention Feature: Pond 3

Pond 3

Downstream Control: Hydrobrake
Total Storage Volume (m3): 1,561
Min top of bank level: 5.0mAOD
Bed Level: 3.7mAOD
Side Slopes: 1 in 4
Discharge rate (litres/sec): 4.41*
Outfall: Watercourse

* Qbar rate 6.30 l/s deduct 1.89 l/s for flows to separate outfall.

FW PS 1

CL 6.00mAOD
IL 1.33mAOD
95 Dwellings
Emergency Storage Requirement:
TBC cu m
Emergency Storage Proposal: 15.2 cu m
Provide within 3mØ wet well chamber & upstream network up to lowest incoming lateral

Surface water sewers and SUDS constructed by others under existing consent

Foul sewers and rising main constructed by others under existing consent

Construction Design and Management (CDM)

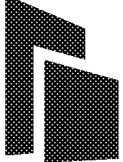
Key Residual Risks

Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.

1) Overhead and underground services
2) Street Lighting Cables
3) Working adjacent to water courses and flood plain
4) Soft ground conditions
5) Working adjacent to live highways and railway line
6) Unchartered services
7) Existing buildings with potential asbestos hazards

- NOTES:
- Do not scale from this drawing.
 - All dimensions are in metres unless otherwise stated.
 - Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
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First Issue RM RM RM 04.02.22

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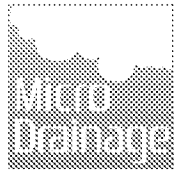
6150 Knights Court, Solihull Parkway, Birmingham, B37 7WY
T +44 (0)203 958 5400 E mail@brookbanks.com
W brookbanks.com

Vistry South East

Land at Hook Lane Pagham

Drainage Strategy Plan

Status		Status Date
Preliminary		Feb 2022
Drawn	Checked	Date
RM	RM	04.02.22
Scale	Number	Rev
1:500	10884-SK-03	-
0 10 20 30 40 50		
METRES		

Brookbanks Consulting		Page 4
6150 Knights Court Solihull Parkway Birmingham B37 7WY	Hook Lane, Pagham SW Strategy Basin 2	
Date 26/11/2020 File Pond 2.SRCX	Designed by Brookbanks Checked by N.J.Onions	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.400

Tank or Pond Structure

Invert Level (m) 5.100

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	965.0	1.300	1514.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0094-3900-1000-3900
Design Head (m)	1.000
Design Flow (l/s)	3.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	94
Invert Level (m)	5.100
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	3.9	Kick-Flo®	0.632	3.2
Flush-Flo™	0.297	3.9	Mean Flow over Head Range	-	3.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.0	0.800	3.5	2.000	5.4	4.000	7.4	7.000	9.7
0.200	3.8	1.000	3.9	2.200	5.6	4.500	7.9	7.500	10.0
0.300	3.9	1.200	4.2	2.400	5.9	5.000	8.3	8.000	10.4
0.400	3.8	1.400	4.6	2.600	6.1	5.500	8.7	8.500	10.7
0.500	3.7	1.600	4.8	3.000	6.5	6.000	9.0	9.000	10.9
0.600	3.4	1.800	5.1	3.500	7.0	6.500	9.4	9.500	11.2



BROOKBANKS

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