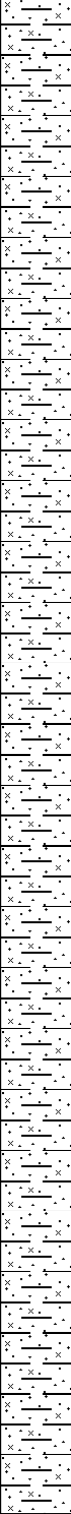
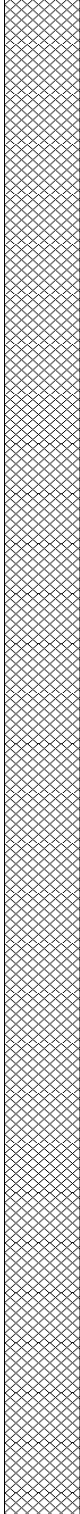
 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED							Site HOMEBASE, 84 MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB		Borehole Number BH1	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 7.00m			Ground Level (mOD)		Client Taylor Wimpey West London		Job Number 21031	
		Location See site plan			Dates 08/08/2022- 09/08/2022		Engineer		Sheet 2/4	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
11.00-11.45	U2	7.00	DRY	100 blows			Stiff becoming very stiff fissured dark grey silty CLAY with some sandy laminations			
11.50	D2									
12.50-12.95	SPT N=29	7.00	DRY	3,4/6,6,8,9						
14.00-14.45	U3	7.00	DRY	100 blows						
14.50	D3									
15.50-15.95	SPT N=32	7.00	DRY	3,4/6,7,9,10						
17.00-17.45	U4	7.00	DRY	100 blows						
17.50	D4									
18.50-18.95	SPT N=36	7.00	DRY	3,4/6,9,10,11						
Remarks								Scale (approx) 1:50	Logged By ljs	
								Figure No. 5567.BH1		



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Borehole
Number**
BH1

Boring Method Cable Percussion	Casing Diameter 150mm cased to 7.00m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 08/08/2022- 09/08/2022	Engineer	Sheet 3/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.30	U5	7.00	DRY	100 blows			Very stiff fissured dark grey silty CLAY with some sandy laminations			
20.35	D5									
21.50-21.95	SPT N=41	7.00	DRY	3,6/9,10,11,11						
23.00-23.30	U6	7.00	DRY	100 blows						
23.35	D6									
24.50-24.95	SPT N=42	7.00	DRY	3,6/9,10,10,13		(23.30)				
26.00-26.35	U7	7.00	DRY	100 blows						
26.40	D7									
27.50-27.95	SPT N=47	7.00	DRY	3,6/10,13,11,13						
29.00-29.45	U8	7.00	DRY	100 blows						
29.50	D8									
				09/08/2022:DRY		30.00				

Remarks	Scale (approx)	Logged By
	1:50	ljs
	Figure No. 5567.BH1	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Borehole
Number**
BH1

Boring Method Cable Percussion	Casing Diameter 150mm cased to 7.00m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 08/08/2022- 09/08/2022	Engineer	Sheet 4/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
30.00-30.45	SPT N=49	7.00	DRY	4,6/10,12,13,14						

Remarks	Scale (approx) 1:50	Logged By ljs
	Figure No. 5567.BH1	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

Borehole Number
BH2

Boring Method Cable Percussion	Casing Diameter 150mm cased to 7.00m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 05/08/2022	Engineer	Sheet 1/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.30-0.70	B1					(0.01) 0.01 (0.29) 0.30 (0.40)	BLOCK PAVING MADE GROUND: Sand			
0.80-1.20	B2					0.70 (0.80)	MADE GROUND: Reddy brown angular gravel MADE GROUND: Brick rubble with some orange brown sand and gravel			
1.50-1.95	SPT N=17	1.50	DRY	2,2/3,4,5,5		1.50	Medium dense to dense orange brown and brown sandy GRAVEL			
2.00-2.45 2.00	SPT N=22 D1	2.00	DRY	2,2/3,4,6,9						
3.00-3.45 3.00-3.50	SPT(C) N=39 B3	3.00	DRY	5,7/9,10,11,9		(3.90)				
4.00-4.45	SPT(C) N=40	4.00	DRY	7,9/10,10,11,9						
5.00-5.45 5.00-5.50	SPT(C) N=32 B4	5.00	WET	4,7/9,9,7,7		5.40	Stiff becoming very stiff fissured dark grey silty CLAY with some sandy laminations			
6.50-6.95	SPT N=16	6.00	DRY	2,2/3,4,4,5						
8.00-8.45	U1	6.00	DRY	50 blows						
8.50	D2									
9.50-9.95	SPT N=20	6.00	DRY	2,2/4,5,5,6						

Remarks UXO survey taken at 1.50m 3.0m, 5.0m, 7.0m, 9.0m, 11.0m Chiselling from 0.00m to 1.20m for 1 hour. Water added from 4.00m to 6.00m.	Scale (approx)	Logged By
	1:50	ljs
	Figure No. 5567.BH2	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**


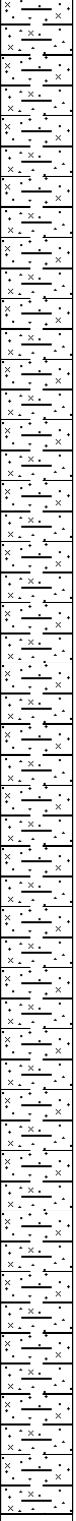
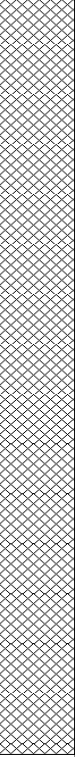
Site
Manor Road, Richmond

**Borehole
Number**
BH2

Boring Method Cable Percussion	Casing Diameter 150mm cased to 7.00m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 05/08/2022	Engineer	Sheet 2/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
11.00-11.45	U2	6.00	DRY	90 blows			Stiff becoming very stiff fissured dark grey silty CLAY with some sandy laminations			
11.50	D3									
12.50-12.95	SPT N=25	6.00	DRY	2,3/4,5,7,9						
14.00-14.45	U3	6.00	DRY	100 blows						
14.50	D4									
15.50-15.95	SPT N=26	6.00	DRY	2,3/5,5,8,8						
17.00-17.30	U4	6.00	DRY	100 blows						
17.35	D5									
18.50-18.95	SPT N=28	6.00	DRY	3,3/4,6,8,10						

Remarks	Scale (approx) 1:50	Logged By ljs
	Figure No. 5567.BH2	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED							Site Manor Road, Richmond		Borehole Number BH2	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 7.00m		Ground Level (mOD)		Client Taylor Wimpey West London		Job Number 21031		
		Location See site plan		Dates 05/08/2022		Engineer		Sheet 3/4		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.35	U5	6.00	DRY	100 blows			Very stiff fissured dark grey silty CLAY with some sandy laminations			
20.40	D6									
21.50-21.95	SPT N=35	6.00	DRY	3,4/6,9,10,10						
23.00-23.40	U6	6.00	DRY	100 blows						
23.45	D7									
24.50-24.95	SPT N=41	6.00	DRY	3,6/9,10,10,12						
				05/08/2022:DRY		(25.10)				
26.00-26.45	SPT N=45	6.00	DRY	3,7/10,11,11,13						
27.50-27.95	SPT N=44	6.00	DRY	4,7/9,10,11,14						
30.00-30.45	SPT N=47	6.00	DRY	4,8/11,11,11,14						
Remarks								Scale (approx)	Logged By	
								1:50	ljs	
								Figure No.		
								5567.BH2		



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond
Borehole Number
BH2

Boring Method Cable Percussion	Casing Diameter 150mm cased to 7.00m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 05/08/2022	Engineer	Sheet 4/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(25.10)	Very stiff fissured dark grey silty CLAY with some sandy laminations			
						30.50	Complete at 30.50m			

Remarks	Scale (approx) 1:50	Logged By ljs
	Figure No. 5567.BH2	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Borehole
Number**
BH3

Boring Method Cable Percussion	Casing Diameter 150mm cased to 5.50m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 10/08/2022- 11/08/2022	Engineer	Sheet 1/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.60-1.00	B1					(0.10) 0.10 (0.10) 0.20 (0.40) 0.60 (0.70)	BLOCK PAVING MADE GROUND: Sand MADE GROUND: Reddy brown angular gravel MADE GROUND: Brick rubble with some orange brown sand and gravel			
1.50-1.95 1.50-2.00	SPT(C) N=34 B2		DRY	3,4/7,7,7,13		1.30	Medium dense to dense orange brown and brown sandy GRAVEL			
2.00-2.31 2.00-2.50	SPT(C) 50/160 B3	2.00	DRY	10,15/0,24,20,6						
3.00-3.45 3.00-3.50	SPT(C) N=22 B4	3.00	2.00	3,6/6,6,5,5		(3.80)				
4.00-4.45 4.00-4.50	SPT(C) N=27 B5	4.00	3.00	3,6/7,7,6,7						
5.00-5.45 5.00-5.50	SPT(C) N=10 B6	5.00	4.00	2,2/3,2,2,3		5.10	Very stiff fissured dark grey silty CLAY with some sandy laminations			
6.50-6.95	SPT N=14	5.50	DRY	1,2/2,3,4,5						
8.00-8.45	U1	5.50	DRY	100 blows						
8.50	D1									
9.50-9.95	SPT N=21	5.50	DRY	2,3/5,5,5,6						

Remarks Borehole was dry UXO survey taken at 1.5m, 3.0m, 5.0m, 9.0m, 10.0m Chiselling from 0.00m to 1.20m for 1 hour. Water added from 2.00m to 5.00m.	Scale (approx)	Logged By
	1:50	ljs
	Figure No. 5567.BH3	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Borehole
Number
BH3**

Boring Method Cable Percussion		Casing Diameter 150mm cased to 5.50m		Ground Level (mOD)		Client Taylor Wimpey West London		Job Number 21031	
		Location See site plan		Dates 10/08/2022- 11/08/2022		Engineer		Sheet 2/4	

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
11.00-11.40	U2	5.50	DRY	100 blows			Stiff becoming very stiff fissured dark grey silty CLAY with some sandy laminations			
11.45	D2									
12.50-12.95	SPT N=29	5.50	DRY	3,4/6,6,8,9						
14.00-14.40	U3	5.50	DRY	100 blows						
14.45	D3									
15.50-15.95	SPT N=34	5.50	DRY	3,6/7,8,9,10						
17.00-17.30	U4	5.50	DRY	100 blows						
17.35	D4									
18.50-18.95	SPT N=34	5.50	DRY	3,6/6,9,9,10						

Remarks	Scale (approx) 1:50	Logged By ljs
	Figure No. 5567.BH3	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Borehole
Number**
BH3

Boring Method Cable Percussion	Casing Diameter 150mm cased to 5.50m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 10/08/2022- 11/08/2022	Engineer	Sheet 3/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.40	U5	5.50	DRY	100 blows			Very stiff fissured dark grey silty CLAY with some sandy laminations			
20.45	D5									
21.50-21.95	SPT N=39	5.50	DRY	3,6/7,9,10,13						
23.00-23.30	U6	5.50	DRY	100 blows						
23.35	D6									
24.50-24.95	SPT N=46	5.50	DRY	4,6/7,13,13,13		(24.95)				
26.00-26.30	U7	5.50	DRY	100 blows						
26.30	D7									
27.50-27.95	SPT N=46	5.50	DRY	4,7/9,10,13,14						
29.00-29.30	U8	5.50	DRY	100 blows						
29.35	D8									
30.00-30.45	SPT N=47	5.50	DRY	4,7/9,10,14,14		30.05				

Remarks	Scale (approx)	Logged By
	1:50	ljs
	Figure No. 5567.BH3	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond
Borehole Number
BH3

Boring Method Cable Percussion	Casing Diameter 150mm cased to 5.50m	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 10/08/2022- 11/08/2022	Engineer	Sheet 4/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(24.95) 30.05	Very stiff fissured dark grey silty CLAY with some sandy laminations Complete at 30.50m			

Remarks	Scale (approx) 1:50	Logged By ljs
	Figure No. 5567.BH3	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Number
WSA**

Excavation Method Drive-in Window Sampler	Dimensions	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 10/08/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	C1				(0.06) 0.06	BLOCK PAVING		
					(0.06) 0.12	MADE GROUND: Sand		
					(0.14) 0.26	MADE GROUND: Reddy brown angular gravel		
					(0.30) 0.56	MADE GROUND: Dark brown and grey gravelly sand with some clayey pockets and brick fragments		
					(0.17) 0.73	MADE GROUND: Brown sandy gravel		
1.00	C2					Moderately compact orange brown and brown sandy GRAVEL		
1.50	C3				(1.39)			
2.00	C4				2.12	Complete at 2.12m		

Remarks	Scale (approx) 1:25	Logged By ljs
	Figure No. 5567.WSA	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Number
WSB**

Excavation Method
Drive-in Window Sampler

Dimensions

Ground Level (mOD)

Client
Taylor Wimpey West London

**Job
Number**
21031

Location
See site plan

Dates
10/08/2022

Engineer

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	C1				(0.06) 0.06 (0.06) 0.12 (0.16) 0.28	BLOCK PAVING MADE GROUND: Sand MADE GROUND: Reddy brown angular gravel MADE GROUND: Brown sandy clay with some gravel, brick and concrete fragments		
1.00	C2				(1.82)			
1.50	C3							
2.10	C4				2.10	Complete at 2.10m		

Remarks

Scale (approx)
1:25

Logged By
ljs

Figure No.
5567.WSB



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Number
WSC**

Excavation Method Drive-in Window Sampler	Dimensions		Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan		Dates 11/08/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.80	C1				0.06	BLOCK PAVING		
					0.06	MADE GROUND: Sand		
1.05	C2				0.12	MADE GROUND: Reddy brown angular gravel		
					0.32	MADE GROUND: Granite blocks		
1.50	C3				0.44	MADE GROUND: Brown sandy gravel with some bricks and concrete		
					0.57	MADE GROUND: Dark grey rounded gravel		
2.13	C4				0.84	MADE GROUND: Grey and brown sandy clay with occasional brick fragments		
					1.11	Moderately compact orange brown and brown sandy GRAVEL		
					1.57			
					2.13	Complete at 2.13m		

Remarks	Scale (approx)	Logged By
	1:25	ljs
	Figure No. 5567.WSC	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

**Number
WSD**

Excavation Method Drive-in Window Sampler	Dimensions	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 12/08/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.80	C1				(0.40)	MADE GROUND: Brown sandy clay with some rounded gravel		
1.00	C2				0.40 (0.32)	MADE GROUND: Concrete rubble with some brown silty clay and occasional gravel		
1.45	C3				0.72 (0.22)	MADE GROUND: Orange brown and brown sandy clay with some gravel and brick fragments		
2.00	C4				0.94 (0.53)	MADE GROUND: Dark grey and brown sandy gravel		
2.70	C5				1.47 (1.23)	Moderately compact orange brown and brown sandy GRAVEL		
					2.70	Complete at 2.70m		

Remarks	Scale (approx)	Logged By
	1:25	ljs
	Figure No. 5567.WSD	



**MANHIRE ASSOCIATES
GEO-ENVIRONMENTAL LIMITED**

Site
Manor Road, Richmond

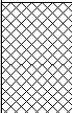
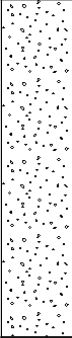
**Number
WSE**

Excavation Method Drive-in Window Sampler	Dimensions	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 11/08/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.60	C1				(0.25) 0.25 (0.28) 0.53 (0.63)	MADE GROUND: Tarmac MADE GROUND: Reddy brown angular gravel MADE GROUND: Brick and concrete rubble with some gravel		
1.10	C2				1.16	Moderately compact orange brown and brown sandy GRAVEL		
1.50	C3				(0.90)			
2.06	C4				2.06	Complete at 2.06m		

Remarks	Scale (approx) 1:25	Logged By ljs
	Figure No. 5567.WSE	

Excavation Method Drive-in Window Sampler	Dimensions	Ground Level (mOD)	Client Taylor Wimpey West London	Job Number 21031
	Location See site plan	Dates 11/08/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	C1				(0.37)	MADE GROUND: Brown sandy clay with some gravel		
					0.37	MADE GROUND: Brown and light brown mottled silty clay with some gravel		
1.00	C2				(0.73)			
1.50	C3				1.10	Moderately compact orange brown and brown sandy GRAVEL		
2.20	C4				2.21	Complete at 2.21m		

Remarks	Scale (approx)	Logged By
	1:25	ljs
Figure No. 5567.WSF		



21031: Manor Road, Richmond
Geo-Environmental Site Investigation
Taylor Wimpey West London Limited

APPENDIX B

STANDPIPE RECORDS

STANDPIPE RECORDS

WATER LEVELS

Project: HOMEBASE, 84 MANOR ROAD, RICHMOND UPON THAMES
Client: Taylor Wimpey West London

Project No. 21031
Sheet No. 1/1

Location Red. level	BH1		BH2		BH3													
	m bgl	m OD	m bgl	m OD	m bgl	m OD												
19/08/2022	2.51		4.11		4.15													
23/09/2022	2.54		4.15		4.17													
11/10/2022	2.61		4.21		4.23													

Remarks



21031: Manor Road, Richmond
Geo-Environmental Site Investigation
Taylor Wimpey West London Limited

APPENDIX C

LABORATORY TEST RESULTS

SUMMARY OF GEOTECHNICAL TESTS

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 1/3

Location	Sample No	Depth m	Description	CLASSIFICATION					TRIAxIAL COMPRESSION - TOTAL STRESS					CHEMICAL					
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plastic Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m ³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Øu, deg	Water g/l	Soil (Sol) g/l
BH1	U	8.00	Firm to stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	26	2.02	160	133	67		0.46	7.92
	U	11.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	27	2.07	220	273	139		0.36	8.15
	U	14.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	24	2.01	280	201	100			
	U	17.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	25	2.07	340	355	177			
	U	20.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	27	2.01	400	237	117		0.25	7.84
	U	23.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	24	2.09	460	160	80			
	U	26.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	29	2.04	520	277	139			
	U	29.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	26	2.06	580	371	186			

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 2/3

Location	Sample No	Depth m	Description	CLASSIFICATION					TRIAxIAL COMPRESSION - TOTAL STRESS				CHEMICAL							
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m ³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming $\phi_u = 0$	Cohesion ϕ_u , deg	Water g/l	Soil (Sol) g/l	pH
BH2	U	8.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	30	2.00	160	115	58			0.23	7.99
	U	11.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	25	2.04	220	267	134				
	U	14.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	27	2.04	280	250	125				
	U	17.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	25	2.10	340	382	191			0.27	7.96
	U	20.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	26	2.03	400	260	130				
	U	23.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	26	2.02	460	264	132			0.17	7.87

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 3/3

Location	Sample No	Depth m	Description	CLASSIFICATION					TRIAxIAL COMPRESSION - TOTAL STRESS				CHEMICAL						
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m ³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Øu, deg	Water g/l	Soil (Sol) g/l
BH3	U	8.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	28	1.99	160	235	117		0.48	7.94
	U	11.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	25	2.05	220	225	113		0.29	7.83
	U	14.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	23	2.02	280	167	84			
	U	17.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	25	2.08	340	307	154			
	U	20.00	Stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	27	2.03	400	271	136		0.34	7.77
	U	23.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	26	2.06	460	366	183			
	U	29.00	Very stiff fissured dark grey silty CLAY with some sandy laminations								UU 102	27	2.03	580	392	196			

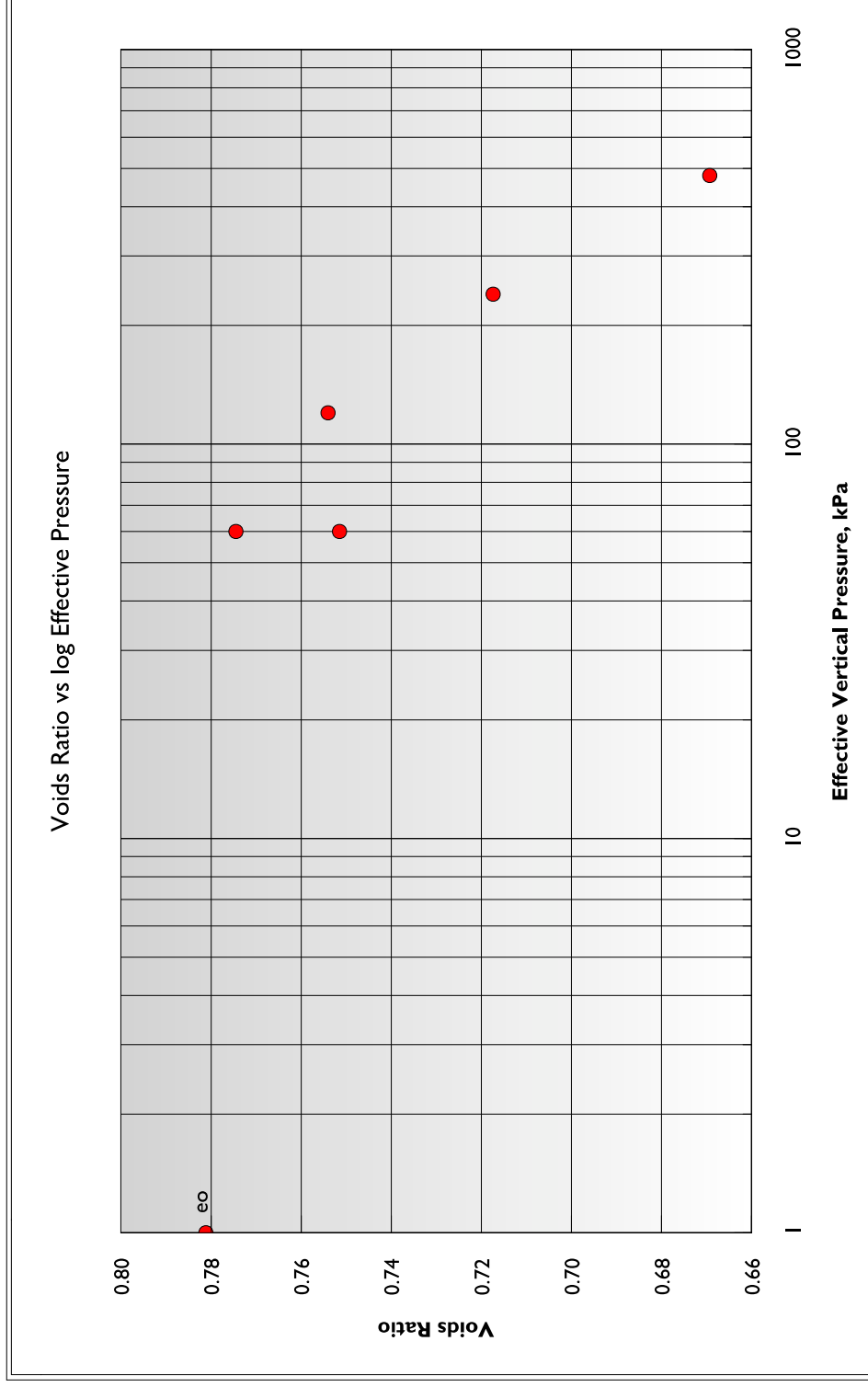
Note: Soil Classification based upon unmodified Plasticity Index

ONE - DIMENSIONAL CONSOLIDATION TEST

Project: HOMEBASE, 84 MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No. 1/3

Borehole	Sample	Depth, m
BH1	UI	8.00
Description		
Stiff dark brown intact clean CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m ³
2.750 measured	start 26 finish 25	1.544
Pressure kPa	Coefficient of Consolidation m ² /year	Coefficient of Compressibility m ² /MN
0	0.839	0.062
60	0.599	0.192
120	0.440	0.174
240	0.595	0.117
480	0.289	0.117
60		

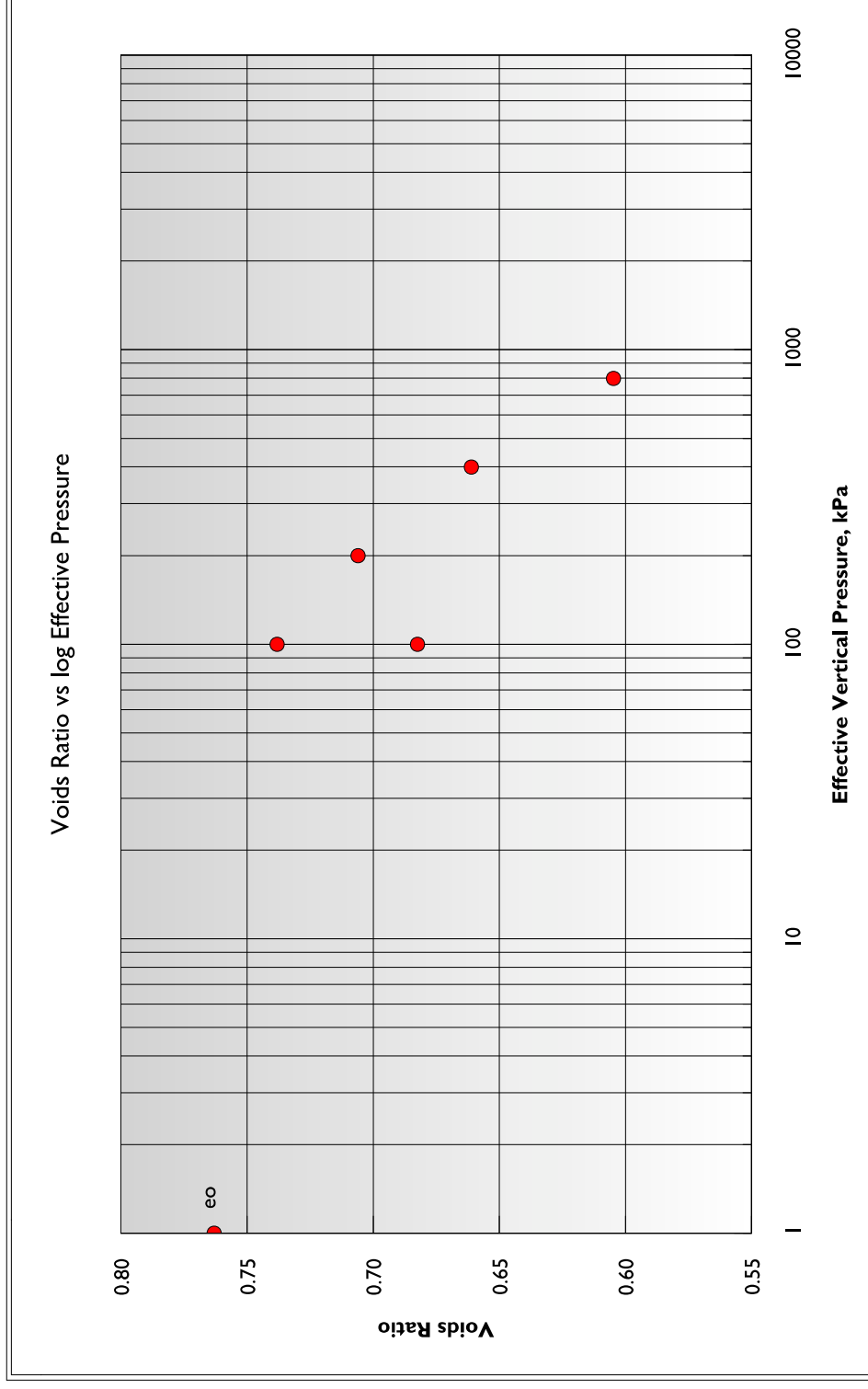


ONE - DIMENSIONAL CONSOLIDATION TEST

Project: HOMEBASE, 84 MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No. 2/3

Borehole	Sample	Depth, m
BH2	U5	20.00
Description		
Very stiff dark brown fissured clean CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m ³
2.720	start 23	1.543
measured	finish 22	
Pressure kPa	Coefficient of Consolidation m ² /year	Coefficient of Compressibility m ² /MN
0	1.216	0.142
100	0.583	0.184
200	0.472	0.132
400	0.702	0.085
800	0.288	0.069
100		

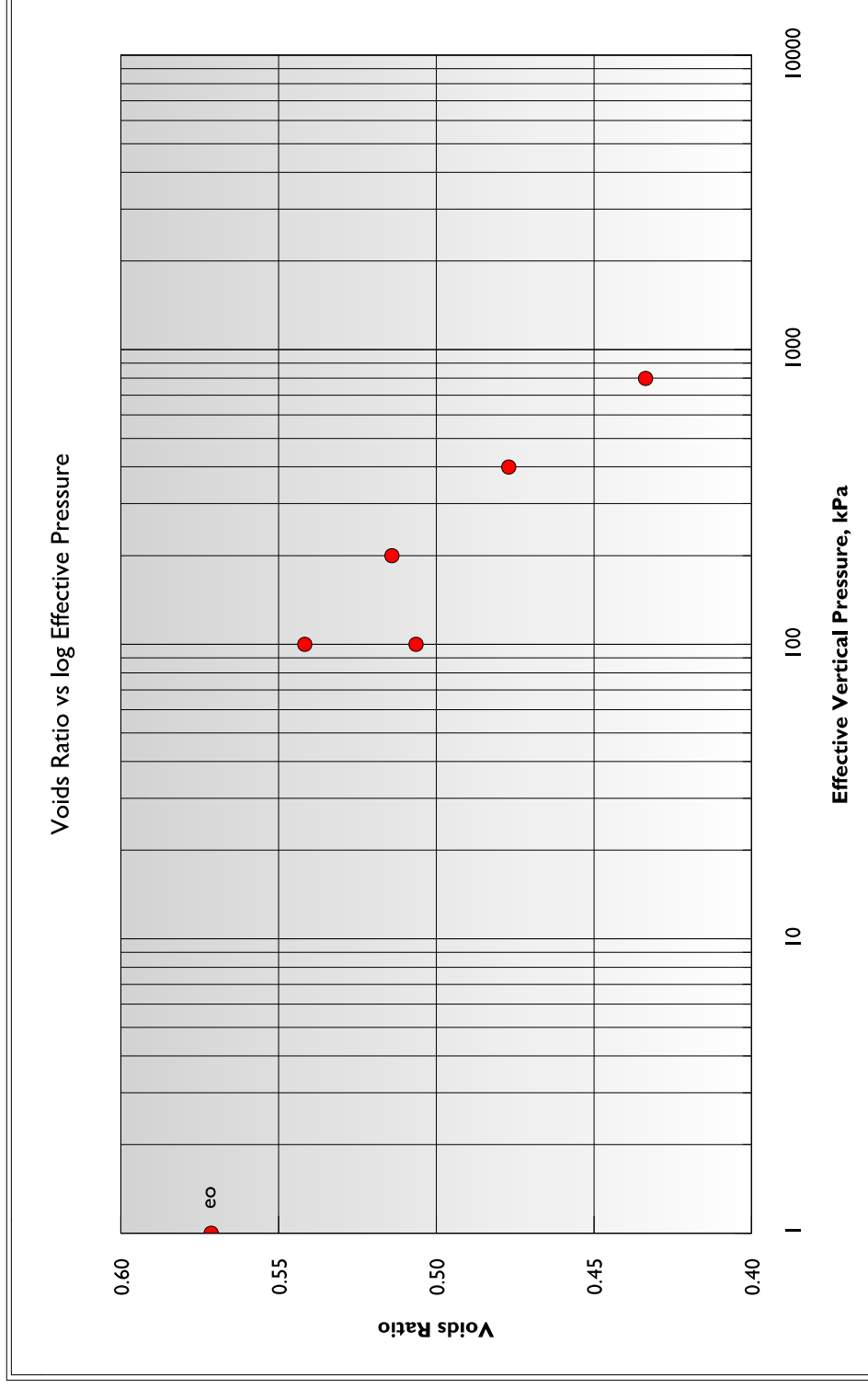


ONE - DIMENSIONAL CONSOLIDATION TEST

Project: HOMEBASE, 84 MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No. 3/3

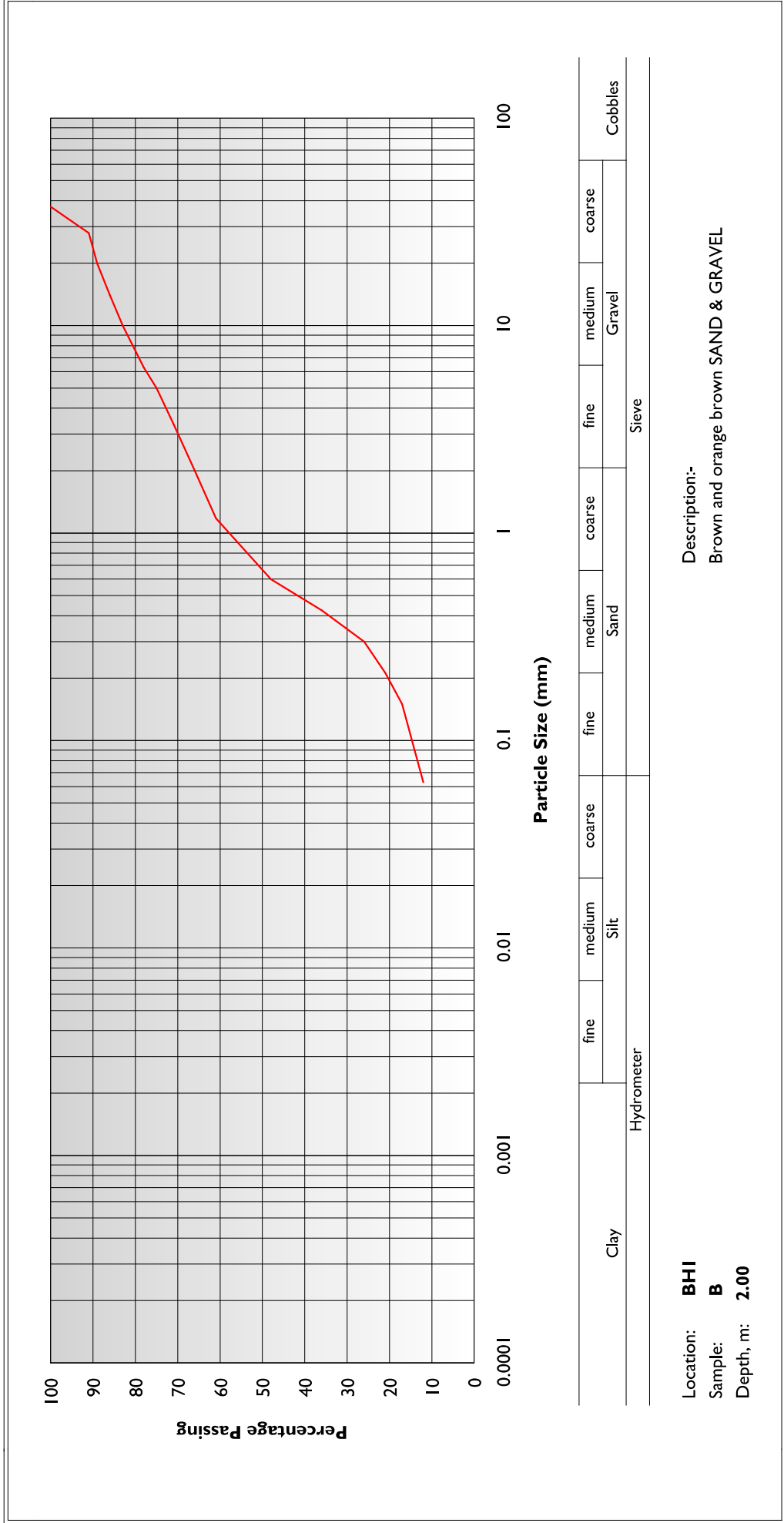
Borehole	Sample	Depth, m
BH3	U7	26.00
Description		
Very stiff dark brown intact clean CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m ³
2.750	start 20 finish 19	1.750
Pressure kPa	Coefficient of Consolidation m ² /year	Coefficient of Compressibility m ² /MN
0	0.646	0.188
100	0.592	0.179
200	0.502	0.122
400	0.682	0.073
800	0.433	0.073
100		



PARTICLE SIZE DISTRIBUTION

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 1/4



Location: **BHI**
 Sample: **B**
 Depth, m: **2.00**

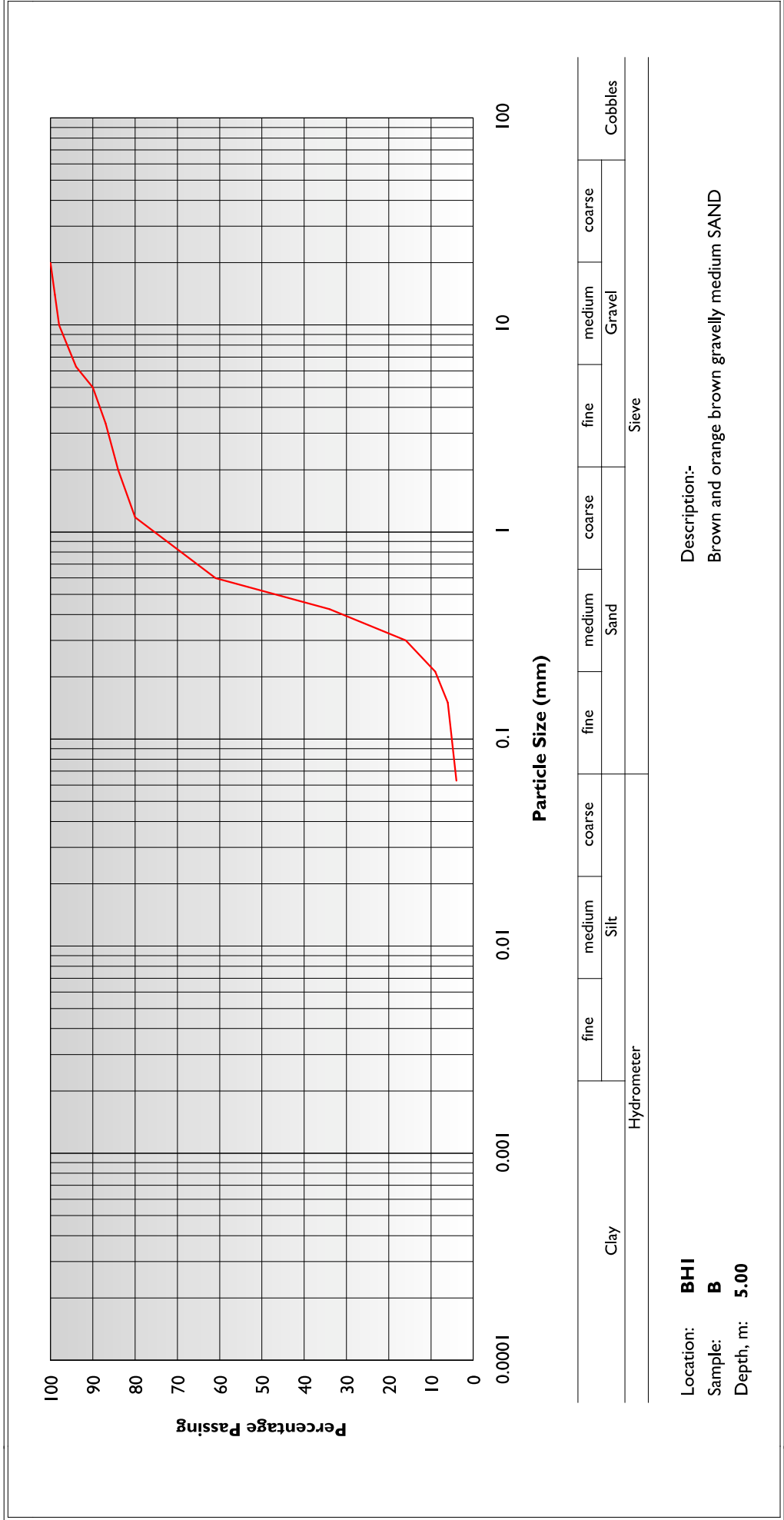
Description:-
 Brown and orange brown SAND & GRAVEL



PARTICLE SIZE DISTRIBUTION

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 2/4



Location: **BHI**
 Sample: **B**
 Depth, m: **5.00**

Description:-
 Brown and orange brown gravelly medium SAND

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 1/2

Location	Sample	Depth m	Arsenic	Barium	Beryllium	Boron water sol.	Cadmium	Chromium trivalent	Copper	Lead	Mercury inorganic	Nickel	Selenium	Vanadium	Zinc	TPH4 by GCMS				Phenols tot. monohydric
																C10 - C20	C20 - C30	C30 - C40	Total	
BH1		1.00	17	110	0.79	0.7	<0.2	31	21	450	0.6	21	<1.0	44	170					<1.0
BH2		0.80	14	110	0.76	3.1	<0.2	22	27	110	<0.3	16	<1.0	37	64					<1.0
BH3		0.60	22	150	1.0	0.8	<0.2	18	67	420	0.8	21	<1.0	44	110					<1.0
WSA		0.50	18	150	0.84	1.0	<0.02	27	39	120	0.7	21	<1.0	45	100					<1.0
WSB		0.50	11	110	0.61	3.4	<0.2	22	89	76	<0.3	14	<1.0	27	88					<1.0
		1.00	12	150	0.64	2.1	<0.2	20	49	100	<0.3	13	<1.0	29	130					<1.0
WSC		0.80	17	330	0.8	2.1	<0.2	23	82	200	<0.3	19	<1.0	32	140					<1.0
S4UL ¹	residential ³		37		1.7	290	11	910	2400		40	180	250	410	3700					380
	residential ^{3a}		40		1.7	11000	85	910	7100		56	180	430	1200	40000					1200
	commercial		640		12	240000	190	8600	68000		1100	980	12000	9000	730000					1300
	POS resi [*]		79		2.2	21000	120	1500	12000		120	230	1100	2000	81000					
CLEA ²	residential		32						130				350							
	commercial		640						1800				13000							

Notes
 All units are mg/kg dry weight of soil unless otherwise stated, except for pH which is dimensionless

1. S4UL given at 6% soil organic matter
2. CLEA SGVs given at 6% soil organic matter
3. Residential with plant uptake
- 3a. Residential without plant uptake
- *. Public open space near residential housing

Exceptions denoted thus: Residential XX
 Commercial XX

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 2/2

Location	Sample	Depth m	Arsenic	Barium	Beryllium	Boron water sol.	Cadmium	Chromium trivalent	Copper	Lead	Mercury inorganic	Nickel	Selenium	Vanadium	Zinc	TPH4 by GCMS				Phenols tot. monohydric
																C10 - C20	C20 - C30	C30 - C40	Total	
WSD		0.80	19	51	0.66	0.5	<0.2	27	27	74	0.6	21	<1.0	45	81					<1.0
		1.00	24	99	0.73	1.6	<0.2	18	18	720	1.1	23	<1.0	34	130					<1.0
WSE		0.60	13	63	0.47	2.0	<0.2	19	26	170	<0.3	13	<1.0	26	54					<1.0
S4UL ¹	residential ³		37		1.7	290	11	910	2400		40	180	250	410	3700					380
	residential ^{2a}		40		1.7	11000	85	910	7100	56	180	430	1200	40000	40000					1200
	commercial		640		12	240000	190	8600	68000	1100	980	12000	9000	730000	730000					1300
CLEA ²	POS resi [*]		79		2.2	21000	120	1500	12000	120	230	1100	2000	81000	81000					
	residential		32						130			350								
	commercial		640						1800			13000								

Notes

1. S4UL given at 6% soil organic matter
2. CLEA SGVs given at 6% soil organic matter
3. Residential with plant uptake
- 3a. Residential without plant uptake
- *. Public open space near residential housing

All units are mg/kg dry weight of soil unless otherwise stated, except for pH which is dimensionless

Exceptions denoted thus: Residential **XX**
Commercial **XX**

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 1/2

Speciated Total Petroleum Hydrocarbons (Aromatic / Aliphatic Split with BTEX)												
Determinand	Location Sample Depth, m	BH1	BH2	BH3	WSA	WSB	WSB	WSB	WSC	LQM/CI/EH S4UL		
		1.00	0.80	0.60	0.50	0.50	1.00	0.80	residential	commercial		
Concentration, mg/kg												
Aromatic Hydrocarbons												
C5 - C7		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	300	57	86000
>C7 - C8		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	660	120	180000
>C8 - C10		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	190	51	17000
>C10 - C12		<1.0	<1.0	<1.0	<1.0	11	8.8	<1.0	<1.0	380	74	34000
>C12 - C16		<2.0	6.5	9.7	7.3	23	19	8.3	8.3	660	130	38000
>C16 - C21		<10	23	37	30	49	37	23	23	930	260	28000
>C21 - C35		<10	60	82	74	92	70	54	54	1700	1600	28000
Total Aromatic Hydrocarbons		<10	89	130	110	180	140	85	85			
Aliphatic Hydrocarbons												
C5 - C6		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	160	3900	12000
>C6 - C8		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	530	13000	40000
>C8 - C10		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	150	1700	11000
>C10 - C12		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	760	7300	47000
>C12 - C16		<2.0	13	<2.0	11	20	10	7	7	4300	13000	90000
>C16 - C21		<8.0	22	<8.0	24	43	31	22	22			
>C21 - C35		<8.0	48	<8.0	51	110	91	53	53			
Total Aliphatic Hydrocarbons		<10	83	<10	85	170	130	83	83			
Total Petroleum Hydrocarbons		<10	172	130	195	350	270	168	168			
BTEX												
Benzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	370	75	90000
Toluene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	660000	120000	180000000
Ethyl Benzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	260000	91000	270000000
p & m-xylene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	310000	160000	300000000
o-xylene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
MTBE		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			

Notes

Total = Sum of compounds above detection limit.

S4UL given at 6% soil organic matter

*Results given as total of (ortho), (meta) and (para) xylene. SGV given is the lowest permissible value for any xylene compound

Exceptions denoted thus:

Residential	Residential
Commercial	Commercial

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 2/2

Speciated Total Petroleum Hydrocarbons (Aromatic / Aliphatic Split with BTEX)										
Determinand	Location Sample Depth, m	WSD	WSD	WSE	Concentration, mg/kg					
		0.80	1.00	0.60	residential	S4UL allotments	commercial			
Aromatic Hydrocarbons										
C5 - C7		<0.001	<0.001	<0.001				300	57	86000
>C7 - C8		<0.001	<0.001	<0.001				660	120	180000
>C8 - C10		<0.001	<0.001	<0.001				190	51	17000
>C10 - C12		<1.0	<1.0	<1.0				380	74	34000
>C12 - C16		<2.0	<2.0	<2.0				660	130	38000
>C16 - C21		<10	<10	<10				930	260	28000
>C21 - C35		<10	15	<10				1700	1600	28000
Total Aromatic Hydrocarbons		<10	23	<10						
Aliphatic Hydrocarbons										
C5 - C6		<0.001	<0.001	<0.001				160	3900	12000
>C6 - C8		<0.001	<0.001	<0.001				530	13000	40000
>C8 - C10		<0.001	<0.001	<0.001				150	1700	11000
>C10 - C12		<1.0	<1.0	<1.0				760	7300	47000
>C12 - C16		<2.0	<2.0	26				4300	13000	90000
>C16 - C21		<8.0	<8.0	83						
>C21 - C35		<8.0	<8.0	190						
Total Aliphatic Hydrocarbons		<10	<10	300						
Total Petroleum Hydrocarbons		<10	23	300						
BTEX										
Benzene		<1.0	<1.0	<1.0				370	75	90000
Toluene		<1.0	<1.0	<1.0				660000	120000	180000000
Ethyl Benzene		<1.0	<1.0	<1.0				260000	91000	270000000
p & m-xylene		<1.0	<1.0	<1.0				310000	160000	300000000
o-xylene		<1.0	<1.0	<1.0						
MTBE		<1.0	<1.0	<1.0						

Notes

Total = Sum of compounds above detection limit.

S4UL given at 6% soil organic matter

*Results given as total of (ortho), (meta) and (para) xylene. SGV given is the lowest permissible value for any xylene compound

Exceptions denoted thus:

Residential	Residential
XX	XX
Commercial	Commercial
XX	XX

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
Client: Taylor Wimpey West London

Project No: 21031
Sheet No: 1/1

Speciated Polyaromatic Hydrocarbons by GCMS												
Determinand	Location Sample Depth, m	BH2	BH3	WSB	WSC	WSD	WSE	Concentration, mg/kg			LQM/CIEH S4UL ³	
		0.80	0.60	0.50	1.00	0.80	1.00	0.60	residential ⁴	residential ⁵	commercial	
PAH												
Naphthalene		<0.05	0.35	0.4	0.37	0.6	<0.05	13	13	24	1100	
Acenaphthylene		<0.05	0.38	<0.05	<0.05	<0.05	<0.05	920	6000	160	100000	
Acenaphthene		<0.05	0.32	0.67	0.41	<0.05	<0.05	1100	6000	200	100000	
Fluorene		<0.05	0.3	0.69	0.44	<0.05	<0.05	860	4500	160	71000	
Phenanthrene		1.6	5	4.5	3	1.5	0.22	440	1500	90	23000	
Anthracene		0.44	1.1	0.66	0.51	0.21	<0.05	11000	37000	2200	540000	
Fluoranthene		3.0	11	3.9	3.1	2.2	0.7	890	1600	290	23000	
Pyrene		3.3	9.8	3.1	2.6	1.9	0.9	2000	3800	620	54000	
Benzo(a)anthracene		2.2	6.5	1.7	1.6	1.4	0.5	13	15	13	180	
Chrysene		1.9	6.8	1.1	1.4	1.1	0.6	27	32	19	350	
Benzo(b)fluoranthene		2.3	7.2	1.2	1.7	1.5	0.58	3.7	4.0	3.9	45	
Benzo(k)fluoranthene		1.6	4.4	0.87	0.58	0.55	0.39	100	110	130	1200	
Benzo(a)pyrene		2.4	7.2	1.0	1.5	1.2	0.48	3	3.2	3.5	36	
Indeno(1,2,3-cd)pyrene		1.2	3.8	0.61	0.62	0.59	0.28	41	46	39	510	
Dibenzo(ah)anthracene		0.36	0.99	<0.05	<0.05	<0.05	<0.05	0.3	0.32	0.43	3.6	
Benzo(ghi)perylene		1.6	4.6	0.77	0.88	0.74	0.37	350	360	640	4000	
Total PAH (16)		21.9	69.7	21.4	18.7	13.3	4.98					

Notes

1. Total PAH = Sum of EPA16 identified components
2. The results are expressed as mg/kg dry weight soil after correction for moisture content
3. S4UL given at 6% soil organic matter
4. Residential with plant uptake
5. Residential without plant uptake

Exceptions denoted thus: Residential **XX**
Commercial **XX**

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 1/2

Semi-Volatile Organic Compounds by GC-MS									
	Location Sample Depth, m	BHI	WSA	WSD					
Determinand	1.00	0.50	0.80	Concentration, µg/kg					
Aniline	<0.1	<0.1	<0.1						
Phenol	<0.2	<0.2	<0.2						
2-Chlorophenol	<0.1	<0.1	<0.1						
Bis(2-chloroethyl)ether	<0.2	<0.2	<0.2						
1,3-Dichlorobenzene	<0.2	<0.2	<0.2						
1,2-Dichlorobenzene	<0.1	<0.1	<0.1						
1,4-Dichlorobenzene	<0.2	<0.2	<0.2						
Bis(2-chloroisopropyl)ether	<0.1	<0.1	<0.1						
2-Methylphenol	<0.3	<0.3	<0.3						
Hexachloroethane	<0.05	<0.05	<0.05						
Nitrobenzene	<0.3	<0.3	<0.3						
4-Methylphenol	<0.2	<0.2	<0.2						
Isophorone	<0.2	<0.2	<0.2						
2-Nitrophenol	<0.3	<0.3	<0.3						
2,4-Dimethylphenol	<0.3	<0.3	<0.3						
Bis(2-chloroethoxy)methane	<0.3	<0.3	<0.3						
1,2,4-Trichlorobenzene	<0.3	<0.3	<0.3						
Naphthalene	<0.05	0.25	<0.05						
2,4-Dichlorophenol	<0.3	<0.3	<0.3						
4-Chloroaniline	<0.1	<0.1	<0.1						
Hexachlorobutadiene	<0.1	<0.1	<0.1						
4-Chloro-3-methylphenol	<0.1	<0.1	<0.1						
2,4,6-Trichlorophenol	<0.1	<0.1	<0.1						
2,4,5-Trichlorophenol	<0.2	<0.2	<0.2						
2-Methylnaphthalene	<0.1	0.6	<0.1						
2-Chloronaphthalene	<0.1	0.1	<0.1						
Dimethylphthalate	<0.1	<0.1	<0.1						
2,6-Dinitrotoluene	<0.1	<0.1	<0.1						
Acenaphthylene	<0.05	<0.05	<0.05						
Acenaphthene	<0.05	0.3	<0.05						
2,4-Dinitrotoluene	<0.2	<0.2	<0.2						
Dibenzofuran	<0.2	<0.2	<0.2						
4-Chlorophenyl phenyl ether	<0.3	<0.3	<0.3						
Diethyl phthalate	<0.2	<0.2	<0.2						
4-Nitroaniline	<0.2	<0.2	<0.2						
Fluorene	<0.05	0.23	<0.05						
Azobenzene	<0.3	<0.3	<0.3						
Bromophenyl phenyl ether	<0.2	<0.2	<0.2						
Hexachlorobenzene	<0.3	<0.3	<0.3						
Phenanthrene	0.8	2.7	0.23						

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No: 21031
 Sheet No: 2/2

Semi-Volatile Organic Compounds by GC-MS										
	Location Sample Depth, m	BHI	WSA	WSD						
Determinand	1.00	0.50	0.80	Concentration, µg/kg						
Anthracene	<0.05	0.52	<0.05							
Carbazole	<0.3	<0.3	<0.3							
Dibutyl phthalate	<0.2	<0.2	<0.2							
Anthraquinone	<0.3	<0.3	<0.3							
Fluoranthene	1.3	5.7	0.53							
Pyrene	1.2	5.1	0.48							
Butyl benzyl phthalate	<0.3	<0.3	<0.3							
Benzo(a)anthracene	0.68	3.5	0.35							
Chrysene	0.72	3.3	0.29							
Benzo(b)fluoranthene	0.57	4.1	0.42							
Benzo(k)fluoranthene	0.41	1.8	0.17							
Benzo(a)pyrene	0.58	3.8	0.38							
Indeno(1,2,3-cd)pyrene	0.26	1.7	0.21							
Dibenz(a,h)anthracene	<0.05	0.56	<0.05							
Benzo(ghi)perylene	0.34	2.1	0.26							

Notes

1. The results are expressed as µg/kg dry weight soil after correction for moisture content

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1YB
 Client: Taylor Wimpey West London

Project No:21031
 Sheet No: I/I

Volatile Organic Compounds by GC-MS										
	Location Sample Depth, m	BHI	WSA	WSD						
Determinand	1.00	0.50	0.80	Concentration, µg/kg						
MTBE										
Chloromethane	<1.0	<1.0	<1.0							
Chloroethane	<1.0	<1.0	<1.0							
Bromomethane	<1.0	<1.0	<1.0							
Vinyl Chloride	<1.0	<1.0	<1.0							
Trichlorofluoromethane	<1.0	<1.0	<1.0							
1,1-Dichloroethene	<1.0	<1.0	<1.0							
1,1,2-Trichloro 1,2,2-Trifluoroethane	<1.0	<1.0	<1.0							
Cis-1,2-dichloroethene	<1.0	<1.0	<1.0							
MTBE (Methyl Tertiary Butyl Ether)	<1.0	<1.0	<1.0							
1,1-Dichloroethane	<1.0	<1.0	<1.0							
2,2-Dichloropropane	<1.0	<1.0	<1.0							
Trichloromethane	<1.0	<1.0	<1.0							
1,1,1-Trichloroethane	<1.0	<1.0	<1.0							
1,2-Dichloroethane	<1.0	<1.0	<1.0							
1,1-Dichloropropene	<1.0	<1.0	<1.0							
Trans-1,2-dichloroethene	<1.0	<1.0	<1.0							
Benzene	<1.0	<1.0	<1.0							
Tetrachloromethane	<1.0	<1.0	<1.0							
1,2-Dichloropropane	<1.0	<1.0	<1.0							
Trichloroethene	<1.0	<1.0	<1.0							
Dibromomethane	<1.0	<1.0	<1.0							
Bromodichloromethane	<1.0	<1.0	<1.0							
Cis-1,3-dichloropropene	<1.0	<1.0	<1.0							
Trans-1,3-dichloropropene	<1.0	<1.0	<1.0							
Toluene	<1.0	<1.0	<1.0							
1,1,2-Trichloroethane	<1.0	<1.0	<1.0							
1,3-Dichloropropane	<1.0	<1.0	<1.0							
Dibromochloromethane	<1.0	<1.0	<1.0							
Tetrachloroethene	<1.0	<1.0	<1.0							
1,2-Dibromoethane	<1.0	<1.0	<1.0							
Chlorobenzene	<1.0	<1.0	<1.0							
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0							
Ethylbenzene	<1.0	<1.0	<1.0							
p & m-Xylene	<1.0	<1.0	<1.0							
Styrene	<1.0	<1.0	<1.0							
Tribromomethane	<1.0	<1.0	<1.0							
o-Xylene	<1.0	<1.0	<1.0							
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0							
Isopropylbenzene	<1.0	<1.0	<1.0							
Bromobenzene	<1.0	<1.0	<1.0							
n-Propylbenzene	<1.0	<1.0	<1.0							
2-Chlorotoluene	<1.0	<1.0	<1.0							
4-Chlorotoluene	<1.0	<1.0	<1.0							
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0							
tert-Butylbenzene	<1.0	<1.0	<1.0							
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0							
sec-Butylbenzene	<1.0	<1.0	<1.0							
1,3-Dichlorobenzene	<1.0	<1.0	<1.0							
p-Isopropyltoluene	<1.0	<1.0	<1.0							
1,2-Dichlorobenzene	<1.0	<1.0	<1.0							
1,4-Dichlorobenzene	<1.0	<1.0	<1.0							
Butylbenzene	<1.0	<1.0	<1.0							
1,2-Dibromo-3-chloropropane	<1.0	<1.0	<1.0							
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0							
Hexachlorobutadiene	<1.0	<1.0	<1.0							
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0							

CONTAMINANTS IN SOIL

Project: HOMEBASE, MANOR ROAD, RICHMOND UPON THAMES, TW9 1
 Client: Manhire Associates Geoenvironmental

Project No: 21031
 Sheet No: 1/1

Location	Sample	Depth m	Asbestos identification		
			Description of matrix	Overall percentage of asbestos identified (approx.)	Type of asbestos identified
BH1		1.00	Brown clay and sand with gravel		none detected
BH2		0.80	Brown clay and sand with gravel and vegetation		none detected
BH3		0.60	Brown clay and sand with gravel		none detected
WSA		0.50	Brown clay and sand with gravel and rubble		none detected
WSB		0.50	Brown sand and gravel with rubble		None detected
WSB		1.00	Brown loam and sand with gravel		Chrysotile-Loose Fibres
WSC		0.80	Brown loam and sand with gravel		none detected
WSD		0.80	Brown sandy loam with gravel and vegetation		none detected
WSD		1.00	Brown sandy loam with gravel and vegetation		none detected
WSE		0.60	Brown sandy loam with gravel		Chrysotile-Loose Fibres



21031: Manor Road, Richmond
Geo-Environmental Site Investigation
Taylor Wimpey West London Limited

APPENDIX D

ORIGINAL TESTING CERTIFICATES



i2 Analytical Ltd.
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Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS
t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 22-83803

Project / Site name:	Homebase, RIchmond	Samples received on:	08/09/2022
Your job number:	5567	Samples instructed on/ Analysis started on:	13/09/2022
Your order number:		Analysis completed by:	21/09/2022
Report Issue Number:	1	Report issued on:	21/09/2022
Samples Analysed:	4 10:1 WAC Samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

i2 Analytical

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Waste Acceptance Criteria Analytical Results							
Report No:	22-83803						
	Client: APGEO						
Location	Homebase, RICHMOND						
Lab Reference (Sample Number)	2422955 / 2422956						
Sampling Date	06/09/2022						
Sample ID	BH1						
Depth (m)	3.00						
				Limits			
				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Solid Waste Analysis							
TOC (%)**	< 0.1				3%	5%	6%
Loss on Ignition (%) **	0.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH_1D_CU_AL</small>	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.6				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0029			0.0259	0.5	2	25
Barium *	0.0056			0.0506	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0006			0.0057	0.5	10	70
Copper *	0.0011			0.0098	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0031			0.0278	0.5	10	30
Nickel *	0.0039			0.036	0.4	10	40
Lead *	0.0021			0.019	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0034			0.031	4	50	200
Chloride *	4.8			43	800	15000	25000
Fluoride	0.46			4.2	10	150	500
Sulphate *	5.9			53	1000	20000	50000
TDS*	53			480	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	13.4			121	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.70						
Dry Matter (%)	92						
Moisture (%)	8.2						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



4041



Environmental Science

i2 Analytical7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YSTelephone: 01923 225404
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email:reception@i2analytical.com**Waste Acceptance Criteria Analytical Results**

Report No:	22-83803					
				Client: APGEO		
Location	Homebase, RICHMOND					
Lab Reference (Sample Number)	2422957 / 2422958			Landfill Waste Acceptance Criteria		
Sampling Date	06/09/2022			Limits		
Sample ID	BH2			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	3.00					
Solid Waste Analysis						
TOC (%)**	< 0.1			3%	5%	6%
Loss on Ignition (%) **	0.7			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg) <small>EH_1D_CU_AL</small>	< 10			500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85			100	--	--
pH (units)**	8.1			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.7			--	To be evaluated	To be evaluated
Eluate Analysis	10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010		< 0.0100	0.5	2	25
Barium *	0.0082		0.0779	20	100	300
Cadmium *	< 0.0001		< 0.0008	0.04	1	5
Chromium *	0.0006		0.0054	0.5	10	70
Copper *	0.0010		0.0098	2	50	100
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2
Molybdenum *	0.0017		0.0163	0.5	10	30
Nickel *	0.0040		0.038	0.4	10	40
Lead *	0.0033		0.031	0.5	10	50
Antimony *	< 0.0017		< 0.017	0.06	0.7	5
Selenium *	< 0.0040		< 0.040	0.1	0.5	7
Zinc *	0.0042		0.039	4	50	200
Chloride *	3.0		28	800	15000	25000
Fluoride	0.26		2.5	10	150	500
Sulphate *	10		95	1000	20000	50000
TDS*	47		440	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-
DOC	8.17		77.4	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.90					
Dry Matter (%)	93					
Moisture (%)	6.7					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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Report No:	22-83803					
	Client: APGEO					
Location	Homebase, RICHMOND					
Lab Reference (Sample Number)	2422959 / 2422960					
Sampling Date	06/09/2022					
Sample ID	WSA					
Depth (m)	1.50					
				Landfill Waste Acceptance Criteria		
				Limits		
				Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis						
TOC (%)**	0.2			3%	5%	6%
Loss on Ignition (%) **	1.1			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg) <small>EH_1D_CU_AL</small>	< 10			500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85			100	--	--
pH (units)**	8.0			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.3			--	To be evaluated	To be evaluated
Eluate Analysis	10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0035		0.0320	0.5	2	25
Barium *	0.0068		0.0624	20	100	300
Cadmium *	< 0.0001		< 0.0008	0.04	1	5
Chromium *	0.0009		0.0083	0.5	10	70
Copper *	0.0017		0.016	2	50	100
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2
Molybdenum *	0.0213		0.194	0.5	10	30
Nickel *	0.0042		0.039	0.4	10	40
Lead *	0.0029		0.026	0.5	10	50
Antimony *	< 0.0017		< 0.017	0.06	0.7	5
Selenium *	< 0.0040		< 0.040	0.1	0.5	7
Zinc *	0.0026		0.024	4	50	200
Chloride *	5.2		47	800	15000	25000
Fluoride	0.80		7.3	10	150	500
Sulphate *	6.2		57	1000	20000	50000
TDS*	60		540	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-
DOC	16.8		153	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.90					
Dry Matter (%)	93					
Moisture (%)	7.1					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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Report No:	22-83803						
	Client: APGEO						
Location	Homebase, RICHMOND						
Lab Reference (Sample Number)	2422961 / 2422962						
Sampling Date	06/09/2022						
Sample ID	WSC						
Depth (m)	1.50						
				Inert Waste Landfill			Hazardous Waste Landfill
				Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill			
Solid Waste Analysis							
TOC (%)**	0.3			3%	5%	6%	
Loss on Ignition (%) **	2.0			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) <small>EH_1D_CU_AL</small>	< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)	< 0.85			100	--	--	
pH (units)**	7.7			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	1.3			--	To be evaluated	To be evaluated	
Eluate Analysis	10:1		10:1	Limit values for compliance leaching test			
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.0013		0.0115	0.5	2	25	
Barium *	0.0469		0.401	20	100	300	
Cadmium *	< 0.0001		< 0.0008	0.04	1	5	
Chromium *	0.0012		0.010	0.5	10	70	
Copper *	0.0038		0.033	2	50	100	
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2	
Molybdenum *	0.0031		0.0265	0.5	10	30	
Nickel *	0.0049		0.042	0.4	10	40	
Lead *	0.0029		0.025	0.5	10	50	
Antimony *	< 0.0017		< 0.017	0.06	0.7	5	
Selenium *	< 0.0040		< 0.040	0.1	0.5	7	
Zinc *	0.0063		0.054	4	50	200	
Chloride *	2.1		18	800	15000	25000	
Fluoride	0.67		5.7	10	150	500	
Sulphate *	88		760	1000	20000	50000	
TDS*	150		1300	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-	
DOC	6.30		54.0	500	800	1000	
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.90						
Dry Matter (%)	88						
Moisture (%)	12						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 22-83803

Project / Site name: Homebase, RIchmond

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2422955	BH1	None Supplied	3	Brown sand with gravel.
2422957	BH2	None Supplied	3	Brown sand with gravel.
2422959	WSA	None Supplied	1.5	Brown sand with gravel.
2422961	WSC	None Supplied	1.5	Brown clay and sand with gravel.

Analytical Report Number : 22-83803

Project / Site name: Homebase, Richmond

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as received, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W	ISO 17025

Analytical Report Number : 22-83803

Project / Site name: Homebase, RIchmond

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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Analytical Report Number : 22-83806

Project / Site name:	Homebase, Richmond	Samples received on:	08/09/2022
Your job number:	5567	Samples instructed on/ Analysis started on:	13/09/2022
Your order number:		Analysis completed by:	21/09/2022
Report Issue Number:	1	Report issued on:	21/09/2022
Samples Analysed:	10 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

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

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-83806
Project / Site name: Homebase, Richmond

Lab Sample Number	2422973	2422974	2422975	2422976	2422977			
Sample Reference	BH1	BH2	BH3	WSA	WSB			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	1.00	0.80	0.60	0.50	0.50			
Date Sampled	06/09/2022	06/09/2022	06/09/2022	06/09/2022	06/09/2022			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	59
Moisture Content	%	0.01	NONE	17	11	15	9	5.4
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO	DSO	DSO

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Compound	mg/kg	0.05	MCERTS	-	< 0.05	0.35	-	0.4
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	0.38	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	0.32	-	0.67
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.3	-	0.69
Fluorene	mg/kg	0.05	MCERTS	-	1.6	5	-	4.5
Phenanthrene	mg/kg	0.05	MCERTS	-	0.44	1.1	-	0.66
Anthracene	mg/kg	0.05	MCERTS	-	3	11	-	3.9
Fluoranthene	mg/kg	0.05	MCERTS	-	3.3	9.8	-	3.1
Pyrene	mg/kg	0.05	MCERTS	-	2.2	6.5	-	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.9	6.8	-	1.1
Chrysene	mg/kg	0.05	MCERTS	-	2.3	7.2	-	1.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	1.6	4.4	-	0.87
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	2.4	7.2	-	1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.2	3.8	-	0.61
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.36	0.99	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	1.6	4.6	-	0.77
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	21.9	69.7	-	21.4
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Heavy Metals / Metalloids

Element	mg/kg	1	MCERTS	17	14	22	18	11
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	110	110	150	150	110
Barium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.79	0.76	1	0.84	0.61
Beryllium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	3.1	0.8	1	3.4
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	1	MCERTS	31	22	18	27	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	27	67	39	89
Copper (aqua regia extractable)	mg/kg	1	MCERTS	450	110	420	120	76
Lead (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	0.8	0.7	< 0.3
Mercury (aqua regia extractable)	mg/kg	1	MCERTS	21	16	21	21	14
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	44	37	44	45	27
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	170	64	110	100	88
Zinc (aqua regia extractable)	mg/kg	1	MCERTS					

Analytical Report Number: 22-83806
Project / Site name: Homebase, Richmond

Lab Sample Number	2422973		2422974		2422975		2422976		2422977	
Sample Reference	BH1		BH2		BH3		WSA		WSB	
Sample Number	None Supplied		None Supplied		None Supplied		None Supplied		None Supplied	
Depth (m)	1.00		0.80		0.60		0.50		0.50	
Date Sampled	06/09/2022		06/09/2022		06/09/2022		06/09/2022		06/09/2022	
Time Taken	None Supplied		None Supplied		None Supplied		None Supplied		None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status							

Monoaromatics & Oxygenates

Parameter	Units	Limit of detection	Accreditation Status	2422973	2422974	2422975	2422976	2422977
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	2422973	2422974	2422975	2422976	2422977
TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	13	< 2.0	11	20
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	22	< 8.0	24	43
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	48	< 8.0	51	110
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	MCERTS	< 10	83	< 10	85	170

Parameter	Units	Limit of detection	Accreditation Status	2422973	2422974	2422975	2422976	2422977
TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	11
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	6.5	9.7	7.3	23
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	23	37	30	49
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	60	82	74	92
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	MCERTS	< 10	89	130	110	180