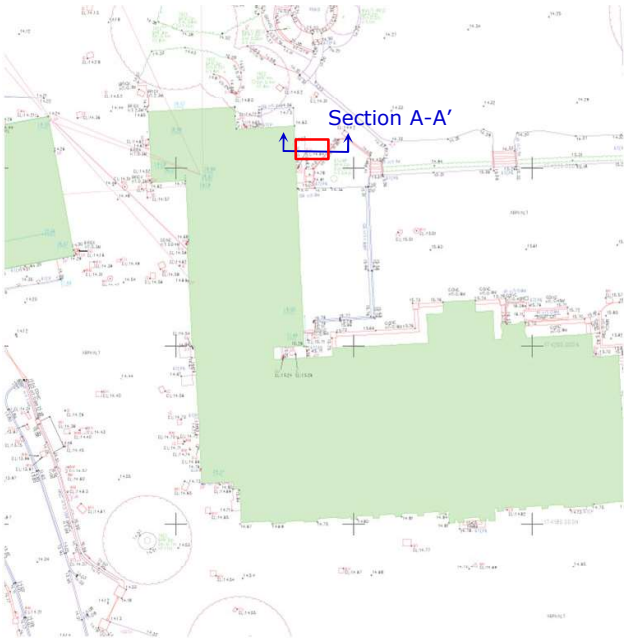
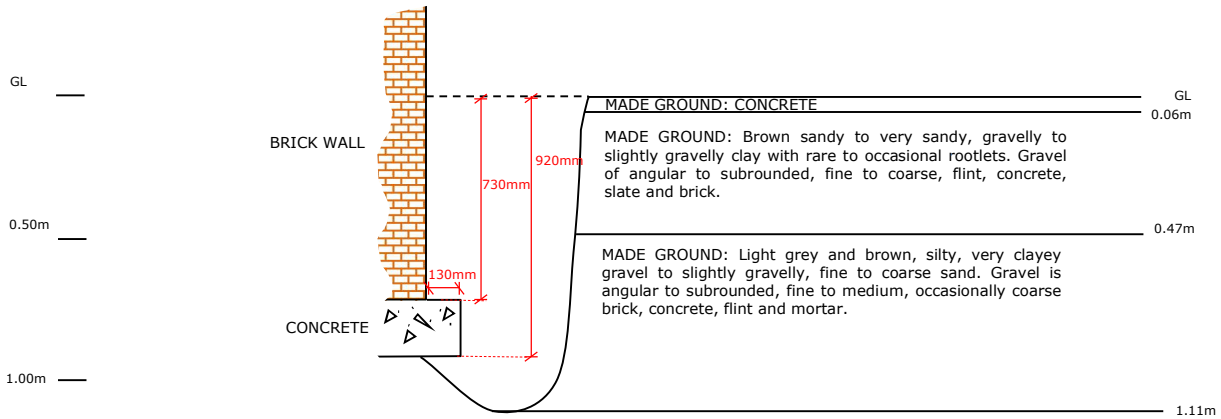
Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Trial Pit No: TP6 (1 of 1)
Client:	Radnor House School Ltd	Report No: 10728/SG
Engineer:	AKS Ward Ltd	

PLAN



SECTION A-A' (Looking north)



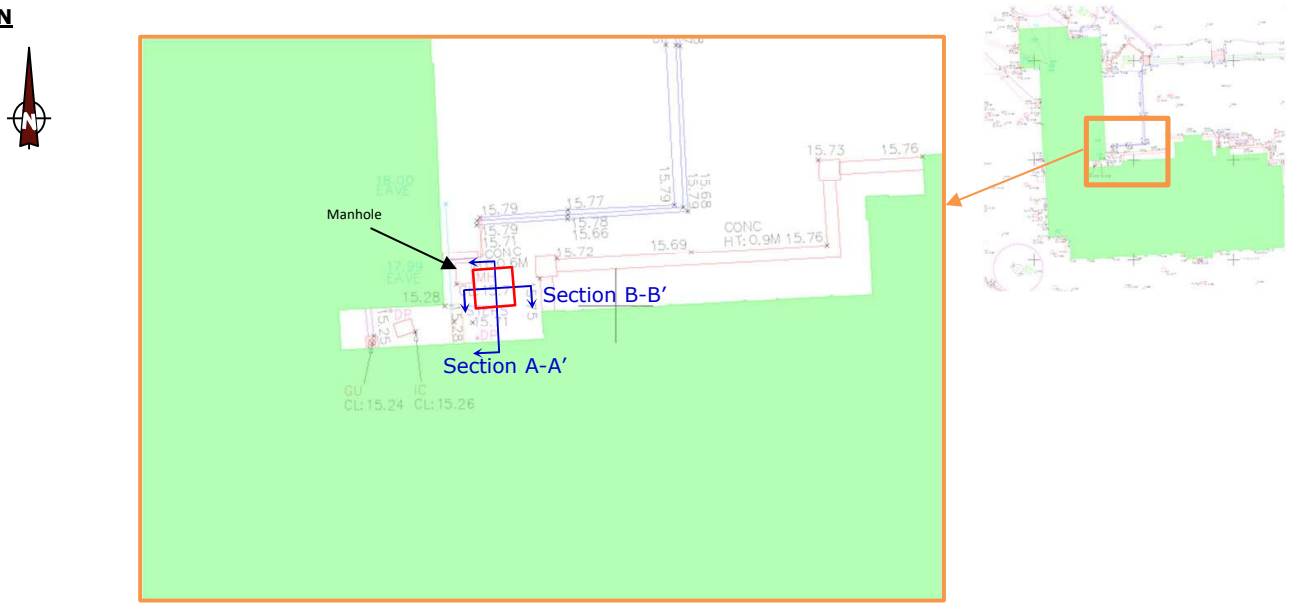
D = small disturbed sample, E = environmental sample (glass jar and tub), HV = hand shear vane test (kPa), pp = pocket penetrometer (kg/cm^2)

Date:	09/05/22	**Groundwater details**	**Samples**
Equipment:	Hand excavated	• Dry	D @ 0.44m D @ 0.90m E @ 1.00m
Stability:	Stable		
Remarks:	Photo File corrupted		**Logged by**: SG

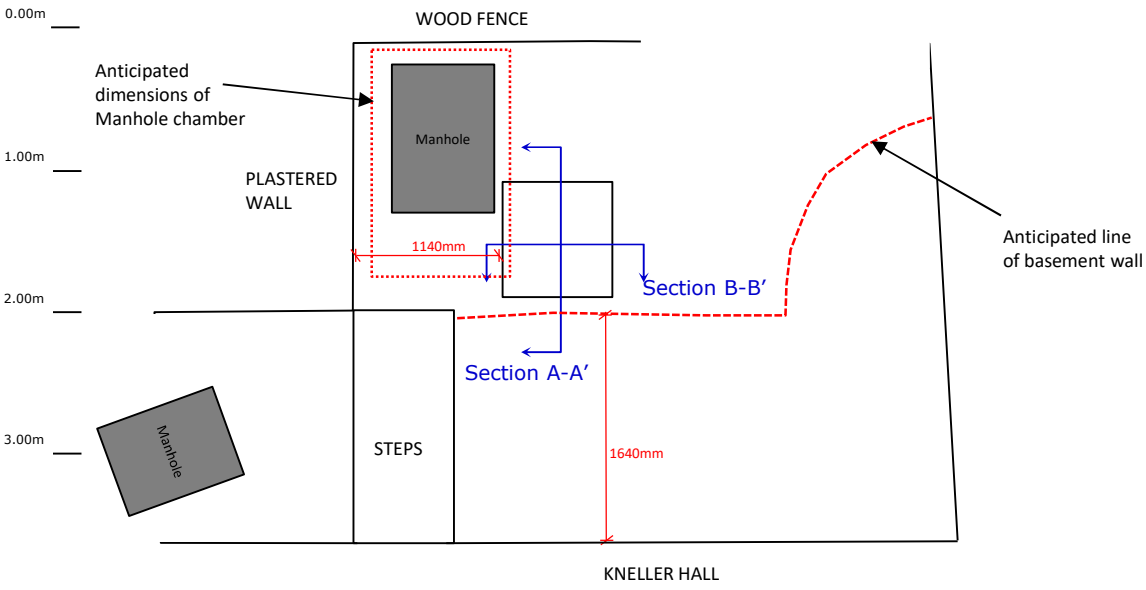
Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Trial Pit No: TP7 (1 of 3)
Client:	Radnor House School Ltd	Report No: 10728/SG
Engineer:	AKS Ward Ltd	

PLAN



PLAN



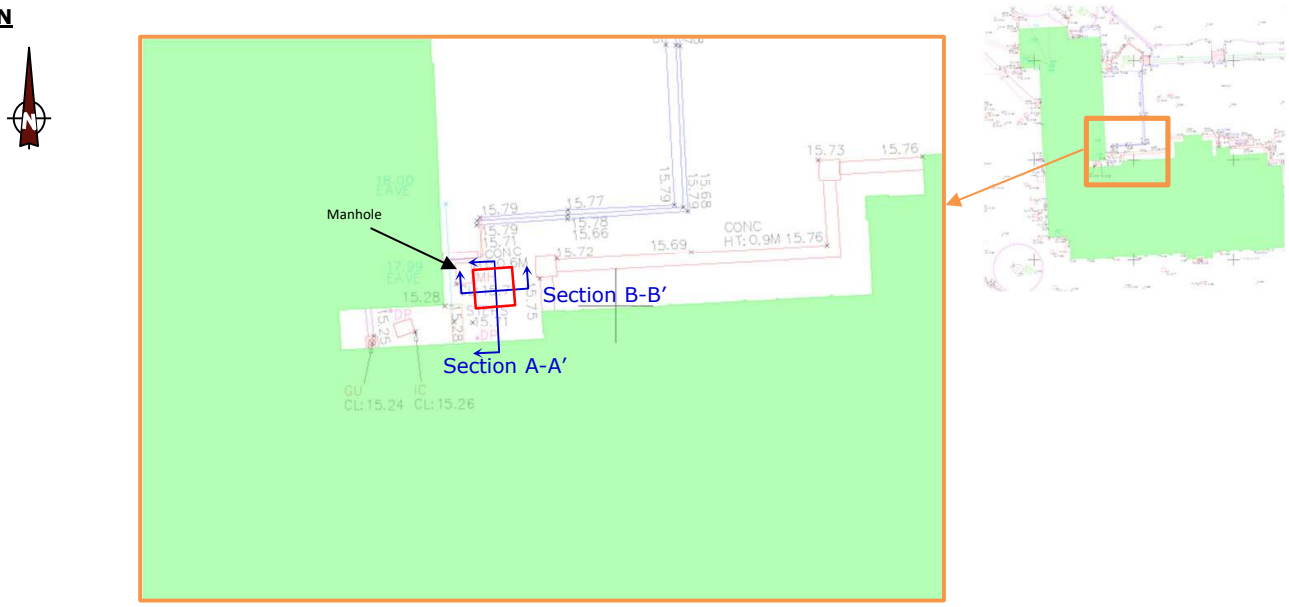
D = small disturbed sample, E = environmental sample (glass jar and tub), HV = hand shear vane test (kPa), pp = pocket penetrometer (kg/cm^2)

Date:	09/05/22	**Groundwater details**	**Samples**
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:	50mill gap between the two faces		**Logged by**: JW

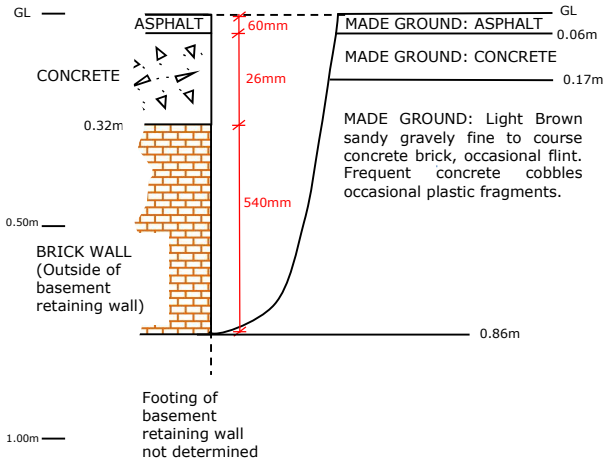
Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Trial Pit No: TP7 (2 of 3)
Client:	Radnor House School Ltd	Report No: 10728/SG
Engineer:	AKS Ward Ltd	

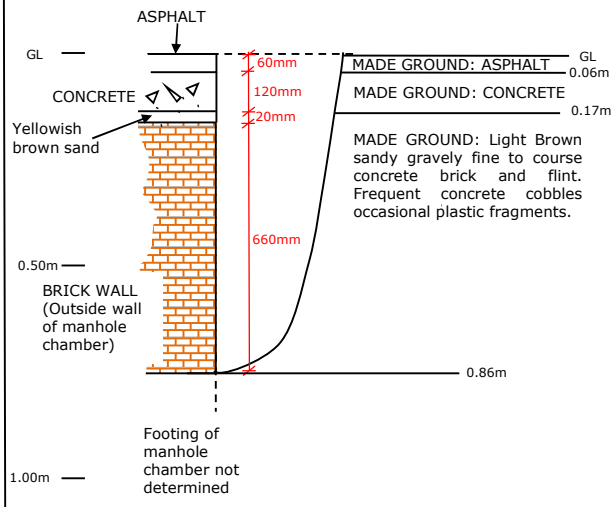
PLAN



SECTION A-A' (Looking west)



SECTION B-B' (Looking north)



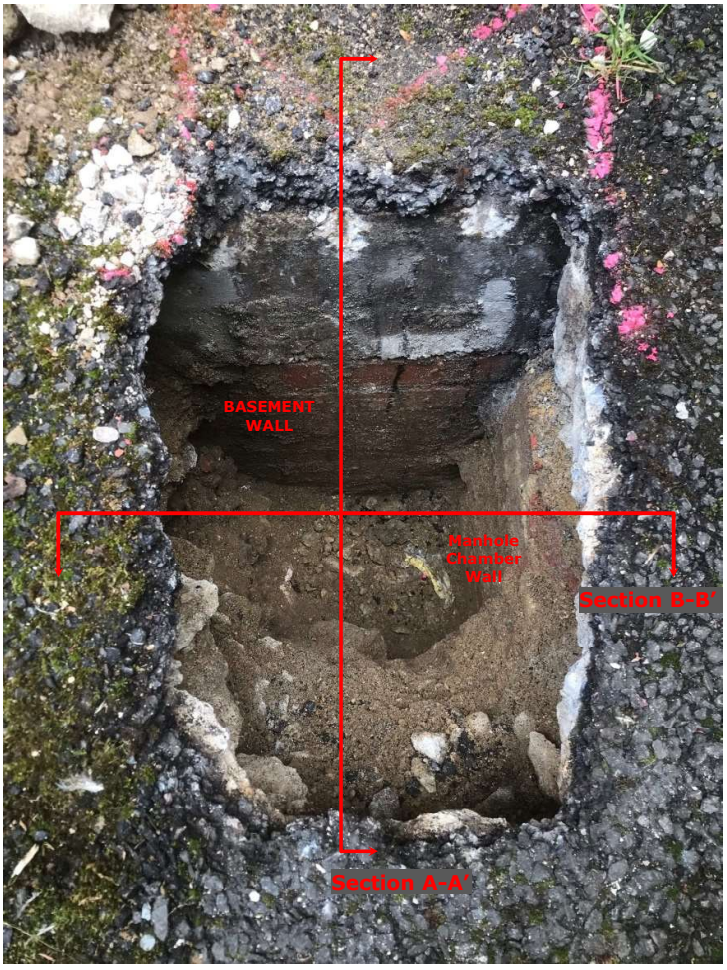
D = small disturbed sample, E = environmental sample (glass jar and tub), HV = hand shear vane test (kPa), pp = pocket penetrometer (kg/cm^2)

Date:	09/05/22	**Groundwater details**	**Samples**
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:	50mm gap between the basement retaining wall and the manhole chamber wall.		**Logged by**: JW

Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Trial Pit No: TP7 (3 of 3)
Client:	Radnor House School Ltd	Report No: 10728/SG
Engineer:	AKS Ward Ltd	

PHOTOGRAPHS



D = small disturbed sample, E = environmental sample (glass jar and tub), HV = hand shear vane test (kPa), pp = pocket penetrometer (kg/cm^2)

Date:	09/05/22	Groundwater details	Samples
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:			Logged by: JW

Soil Consultants

Site & Location	**Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN**		Trial Pit No: **SK1**
Client:	**Radnor House School Ltd**	**Coords: 514628.378E, 174274.344N**	Report No: **10728/SG**
Engineer:	**AKS Ward**	**Level: +13.449mOD**	

Depth (m)	Strata description	Samples/tests		
		Depth (m)	Type	Test results
GL to 0.15m	Grass over light greyish brown slightly gravelly, sandy TOPSOIL with frequent rootlets. Gravel is fine to coarse flint, occasional concrete and rare clinker.	0.10m	D/E	
0.15m to 0.40m	MADE GROUND: Light brown slightly gravelly, silty sandy gravel. Gravel is fine to coarse brick, flint, concrete, occasional cobbles and rare steel rebar.			
0.40m to 0.90m	MADE GROUND: Dark brown slightly gravelly to gravelly, silty sand. Gravel is fine to coarse flint, brick and concrete with frequent cobbles and boulders of concrete.	0.50m	D/E	
0.90m to 1.50m	MADE GROUND: Dark brown slightly gravelly, slightly clayey, silty sand. Gravel is fine and medium flint, brick.	1.00 to 1.50m	B	
1.50m to 2.00m	Light greenish grey and orange brown, yellow brown mottled slightly silty, slightly gravelly SAND. Gravel is subangular and subrounded, fine to coarse flint. At 2.00m: Gravelly to very gravelly.	1.90m	B	

Date of excavation:	10/05/22	Groundwater:	None observed		
Equipment:	2-ton tracked excavator				
Stability:	Stable	Logged by:	JW	Checked by:	SG
Remarks: 0.45m(W) x 1.00m(L) x 2.00m (D)					

Key: D = Small disturbed sample; B = Bulk disturbed sample; HV = Hand Shear Vane test (kN/m²); P = Pocket Penetrometer (kg/cm²)

Soil Consultants

Site & Location	**Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN**		Trial Pit No: **SK2**
Client:	**Radnor House School Ltd**	**Coords: 514845.148E, 174335.626N**	Report No: **10728/SG**
Engineer:	**AKS Ward**	**Level: +11.22mOD**	

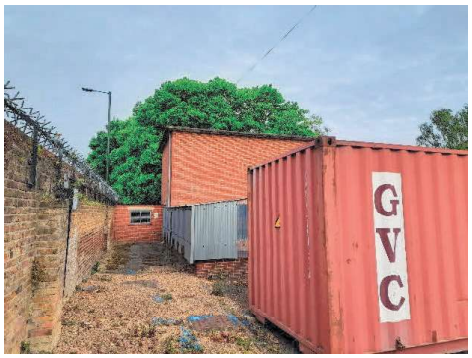
Depth (m)	Strata description	Samples/tests		
		Depth (m)	Type	Test results
GL to 0.10m	Grass over Light greyish brown TOPSOIL with frequent rootlets.	0.10m	D	
0.10m to 0.45m	MADE GROUND: Light bluish greenish grey and light brown mottled slightly gravelly, silty sand with occasional to frequent roots. Gravel is fine to coarse flint, brick and clinker.	0.30m	D	
0.45m to 0.65m	MADE GROUND: Firm to stiff greenish grey and brown mottled, silty, slightly gravelly clay / clayey gravel. Gravel is fine to coarse brick, flint and chalk.	0.50m	D	
0.65m to 1.10m	Firm to stiff light greenish grey, orange brown mottled slightly gravelly, very sandy, silty CLAY / very clayey silty SAND with occasional roots. Gravel is subangular to rounded, fine to coarse flint.	0.80m	D	
1.10m to 1.50m	Grey, bluish grey, light brown and orange brown mottled clayey, silty sandy GRAVEL with pockets of bluish grey very sandy clay and a slight organic odour. Gravel is subangular to rounded, fine to coarse flint.	1.20m	B	

Date of excavation:	10/05/22	Groundwater:	Seepage at 1.50m. No standing measured.		
Equipment:	2-ton tracked excavator				
Stability:	Stable	Logged by:	JW	Checked by:	SG
Remarks: 0.45m(W) x 0.90m(L) x 1.50m(D)					

Key: D = Small disturbed sample; B = Bulk disturbed sample; HV = Hand Shear Vane test (kN/m²); P = Pocket Penetrometer (kg/cm²)

Site & Location	**Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN**		Trial Pit No: **HP1**
Client:	**Radnor House School Ltd**	**Coords: 514611E, 174228N**	Report No: **10728/SG**
Engineer:	**AKS Ward**	**Level: +13.55mOD**	

Depth (m)	Strata description	Samples/tests		
		Depth (m)	Type	Test results
GL to 0.85m	Gravel over MADE GROUND: Soft brown sandy, slightly silty, gravelly clay. Gravel is angular to subrounded, fine to coarse, flint, concrete, brick, asphalt and clinker.	0.30m	D	
	Below 0.55m: Becoming dark grey brown and silty.	0.60m 0.70m	D E	
0.85m to 1.06m	MADE GROUND: Soft orange brown and grey brown silty, very sandy, slightly gravelly clay. Gravel is angular to subrounded, fine and medium, brick, flint, concrete, and fine clinker fragments.	0.90m	D	



Date of excavation:	13/05/22	Groundwater:	Dry		
Equipment:	Hand excavated				
Stability:	Stable	Logged by:	SG	Checked by:	SG

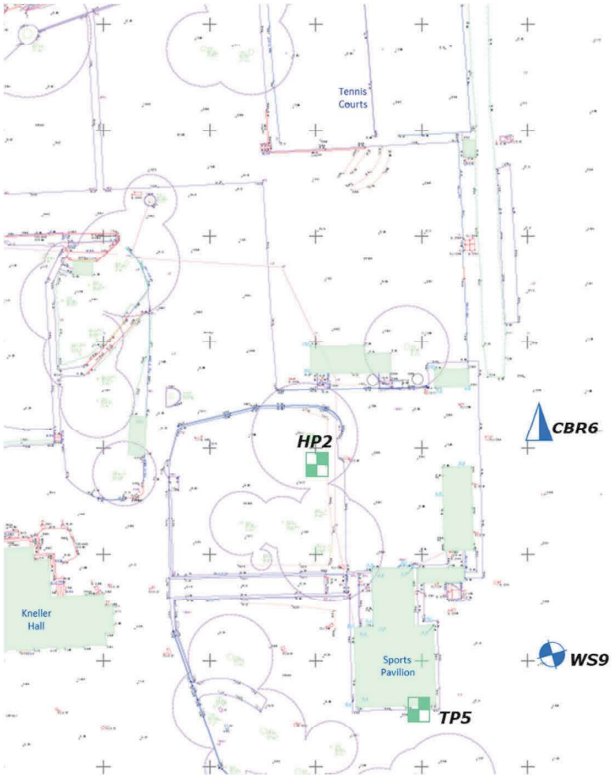
Remarks:
- Surrounding services and hardstanding dictated position.
- Hand pit located adjacent to Electricity Sub-station and adjacent to site of historical tanks.

Key: D = Small disturbed sample; E = Environmental sample; HV = Hand Shear Vane test (kN/m²); PID =Photoionization Detector (VOC in ppm)

Soil Consultants

Site & Location	**Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN**		Trial Pit No: **HP2**
Client:	**Radnor House School Ltd**	**Coords: 514769E, 174220N**	Report No: **10728/SG**
Engineer:	**AKS Ward**	**Level: +13.21mOD**	

Depth (m)	Strata description	Samples/tests		
		Depth (m)	Type	Test results
GL to 0.65m	Grass over MADE GROUND: Soft grey brown silty, very sandy, gravelly clay with occasional rootlets. Gravel is angular to subrounded, fine to coarse brick, concrete, flint and rare glass.	0.40m	D	PID = 0.2
		0.60m	E	
0.65m to 1.10m	Friable soft to firm orange, grey and orange brown mottled, silty, sandy, slightly gravelly CLAY with rare rootlets. Gravel is angular to subrounded, fine to coarse flint.	0.90m	D	PID = 0.1



Date of excavation:	13/05/22	Groundwater:	Dry		
Equipment:	Hand excavated				
Stability:	Stable	Logged by:	SG	Checked by:	SG

Remarks:
- Surrounding hardstanding dictated position.
- Hand pit located adjacent to site of historical tank.
- Photos of location corrupted

Key: D = Small disturbed sample; E = Environmental sample; HV = Hand Shear Vane test (kN/m²); PID =Photoionization Detector (VOC in ppm)

Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

Trial pit soakage test results

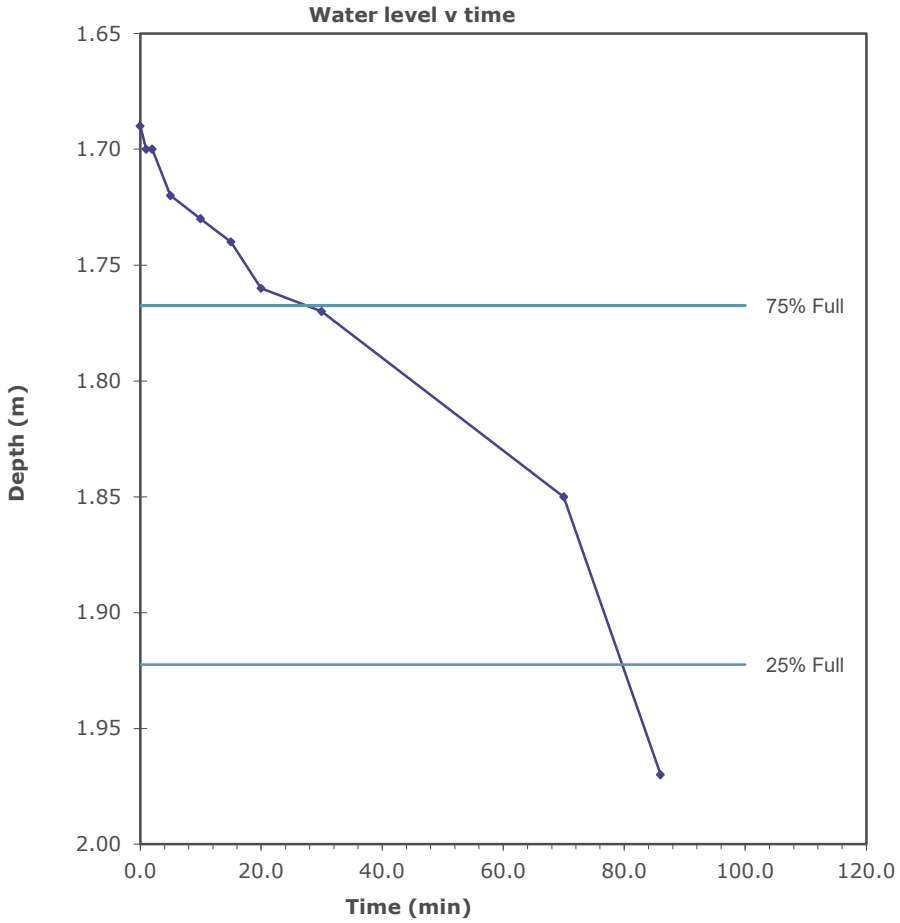
TP No: SK01 **Depth:** 2.00 m **Test No:** 1

Dimensions:
Width = 0.45 m
Length = 1.00 m
Pit filled with gravel (Y/N) No
Voids Ratio

Ground sequence: See trial pit logs.

GW Standing at: **2.00 m**

Time (mins)	Depth (mBGL)
0.0	1.69
1.0	1.70
2.0	1.70
5.0	1.72
10.0	1.73
15.0	1.74
20.0	1.76
30.0	1.77
70.0	1.85
86.0	1.97



Depth of water at start of test	1.69	m
Depth of water at end of test	1.97	m
Depth at 75% full	1.77	m
Depth at 25% full	1.92	m
Base area of pit	0.45	m^2
Effective soakage area a_{s50}	0.90	m^2
Volume Change V_{75}-V_{25}	0.07	m^3
Time used in calculation t_{p75}	1650	sec
Time used in calculation t_{p25}	4780	sec

Soil infiltration rate **2.48E-05 m/sec**

The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

Trial pit soakage test results

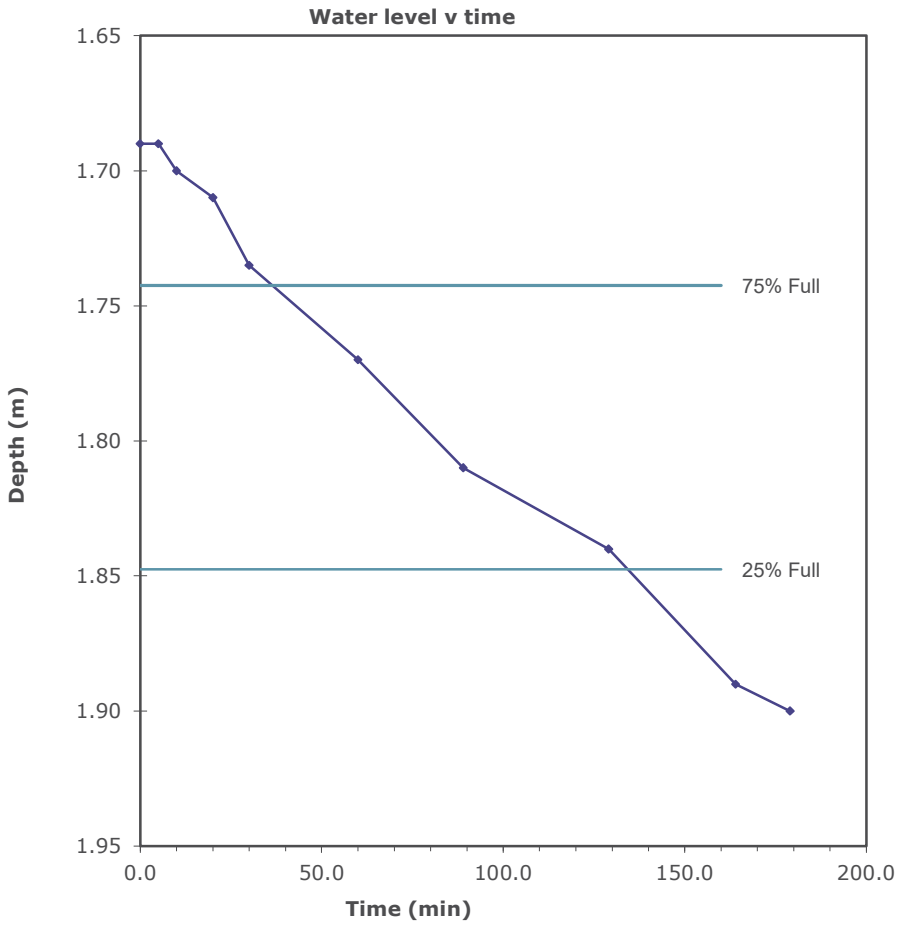
TP No: SK01 **Depth:** 2.00 m **Test No:** 2

Dimensions:
Width = 0.45 m
Length = 1.00 m
Pit filled with gravel (Y/N) = No
Voids Ratio =

Ground sequence: See trial pit logs.

GW Standing at: **2.00 m**

Time (mins)	Depth (mBGL)
0.0	1.69
5.0	1.69
10.0	1.70
20.0	1.71
30.0	1.74
60.0	1.77
89.0	1.81
129.0	1.84
164.0	1.89
179.0	1.90



Depth of water at start of test	1.69	m
Depth of water at end of test	1.90	m
Depth at 75% full	1.74	m
Depth at 25% full	1.85	m
Base area of pit	0.45	m^2
Effective soakage area a_{s50}	1.04	m^2
Volume Change V_{75}-V_{25}	0.05	m^3
Time used in calculation t_{p75}	2186	sec
Time used in calculation t_{p25}	8055	sec

Soil infiltration rate **7.71E-06 m/sec**

The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

Trial pit soakage test results

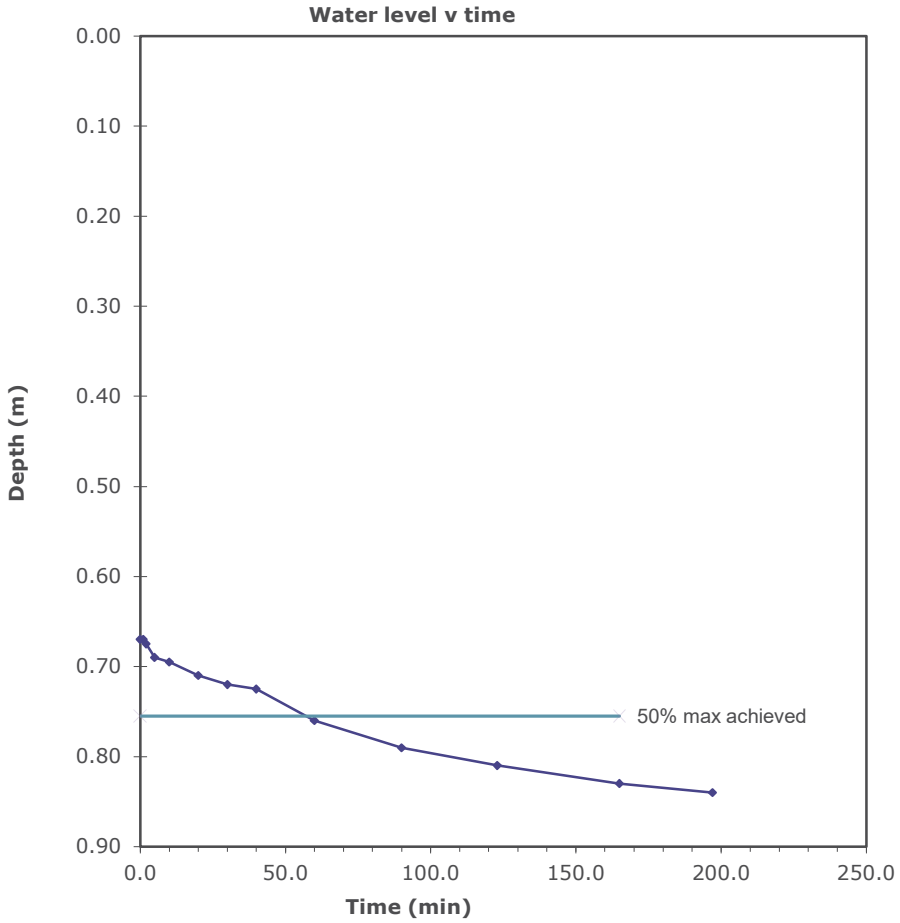
TP No: SK02 **Depth:** 1.50 m **Test No:** 1

Dimensions:
Width = 0.45 m
Length = 0.90 m
Pit filled with gravel (Y/N) No
Voids Ratio

Ground sequence: See trial pit logs.

GW Standing at: **1.50 m**

Time (mins)	Depth (mBGL)
0.0	0.67
1.0	0.67
2.0	0.68
5.0	0.69
10.0	0.70
20.0	0.71
30.0	0.72
40.0	0.73
60.0	0.76
90.0	0.79
123.0	0.81
165.0	0.83
197.0	0.84



Depth of water at start of test	0.67	m
Depth of water at end of test	0.84	m
Depth at 75% full	0.71	m
Depth at 25% full	0.80	m
Base area of pit	0.41	m²
Effective soakage area a_{s50}	2.42	m²
Volume Change V_{75}-V_{25}	0.03	m³
Time used in calculation t_{p75}	1350	sec
Time used in calculation t_{p25}	6142	sec

Remark: GW seapage at 1.5

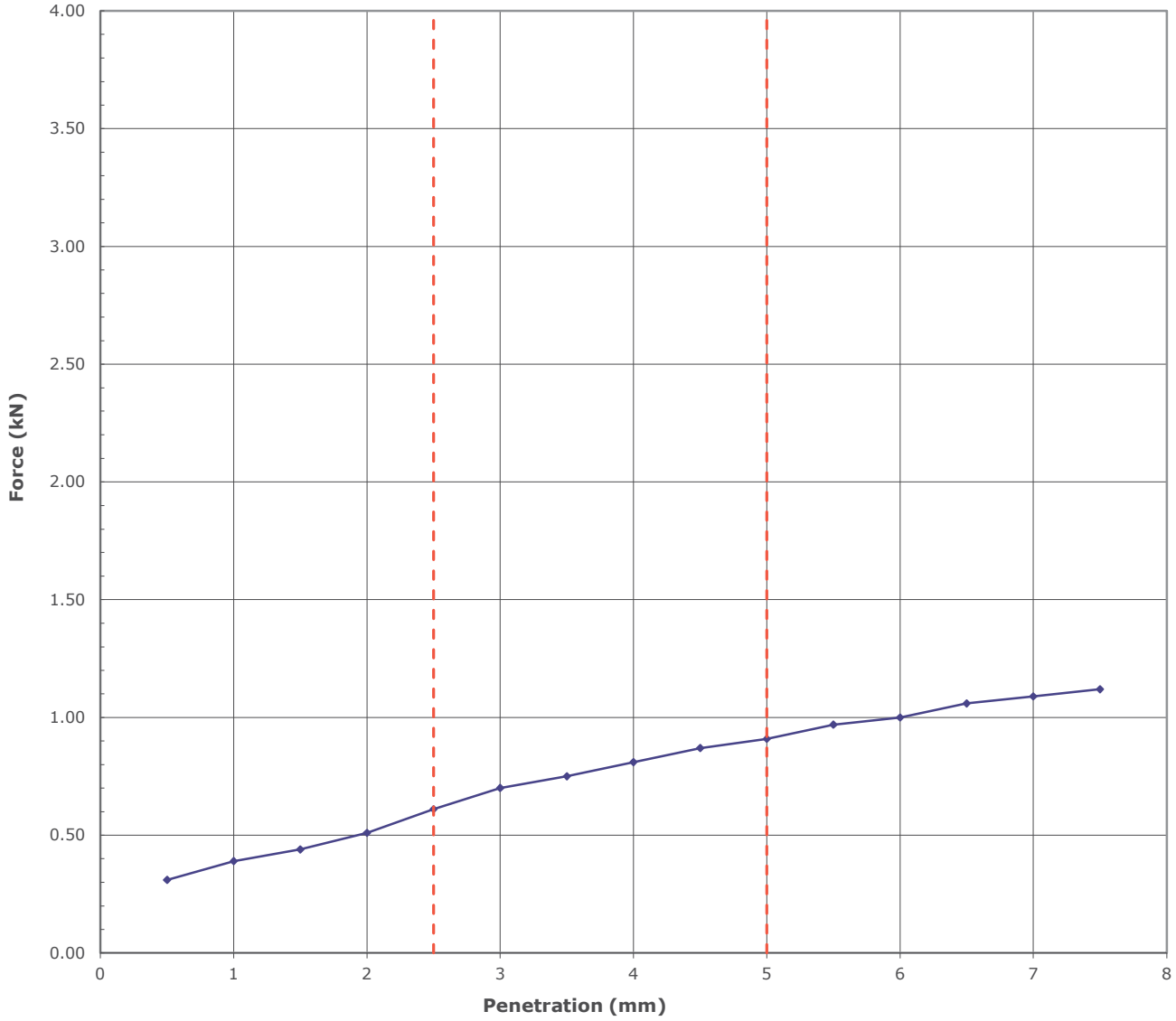
Soil infiltration rate 2.97E-06 m/sec

The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR01**	Stratum at test depth:	Dark orange brown very silty CLAY with occasional medium to fine gravel and hair roots.
Depth:	0.5m		
Moisture content:	15.4%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.61	13.2	4.6	
5.0	0.91	20.0	4.6	

In-situ CBR value (%) 4.6

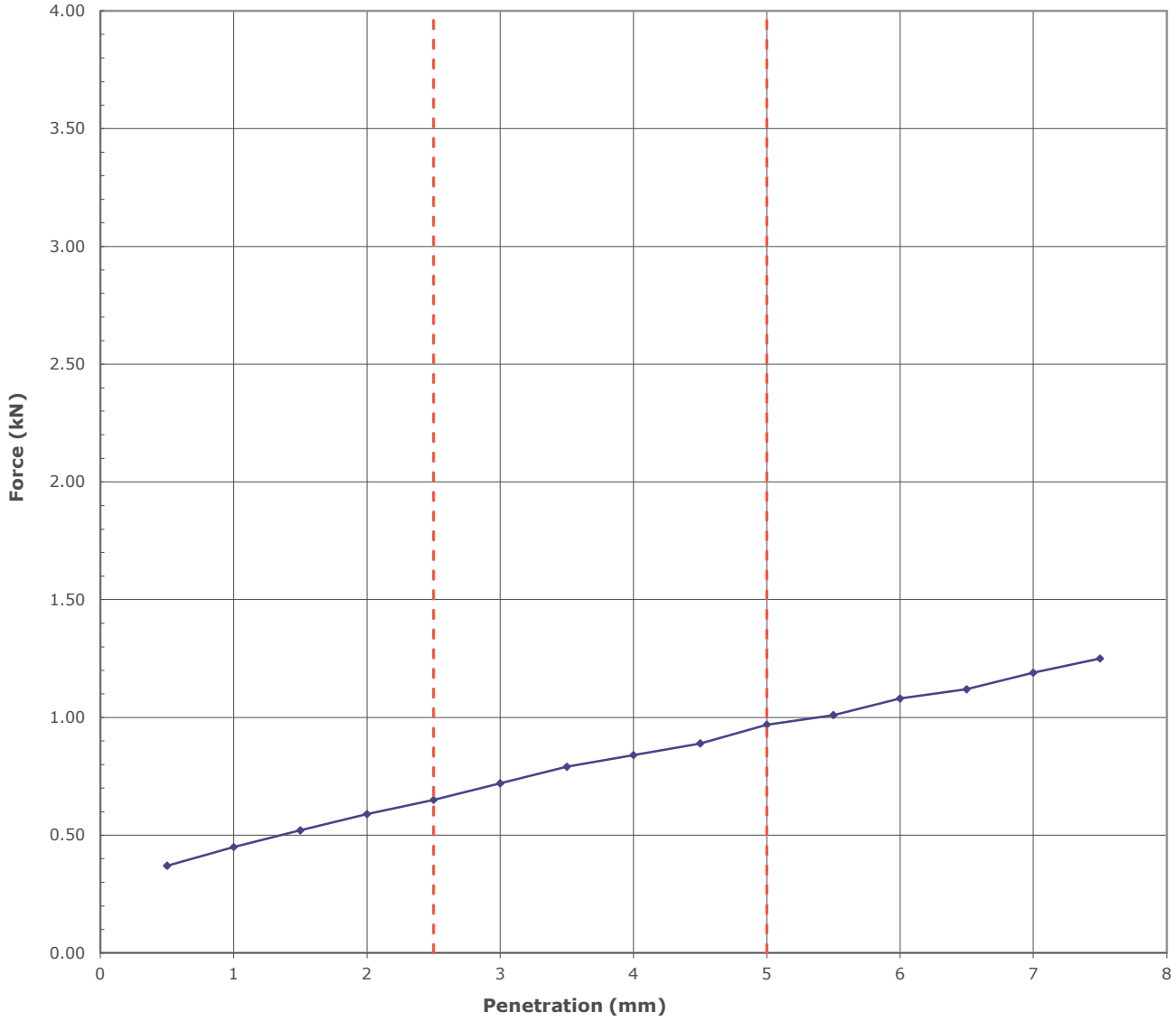
Surcharge: 10kPa

Test date: 12/05/2022

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR02**	Stratum at test depth:	MADE GROUND: Desicated. Dark brown vey silty clay/ clayey silt with numerous medium to fine gravel
Depth:	0.5m		
Moisture content:	11.8%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.65	13.2	4.9	
5.0	0.97	20.0	4.9	

In-situ CBR value (%) 4.9

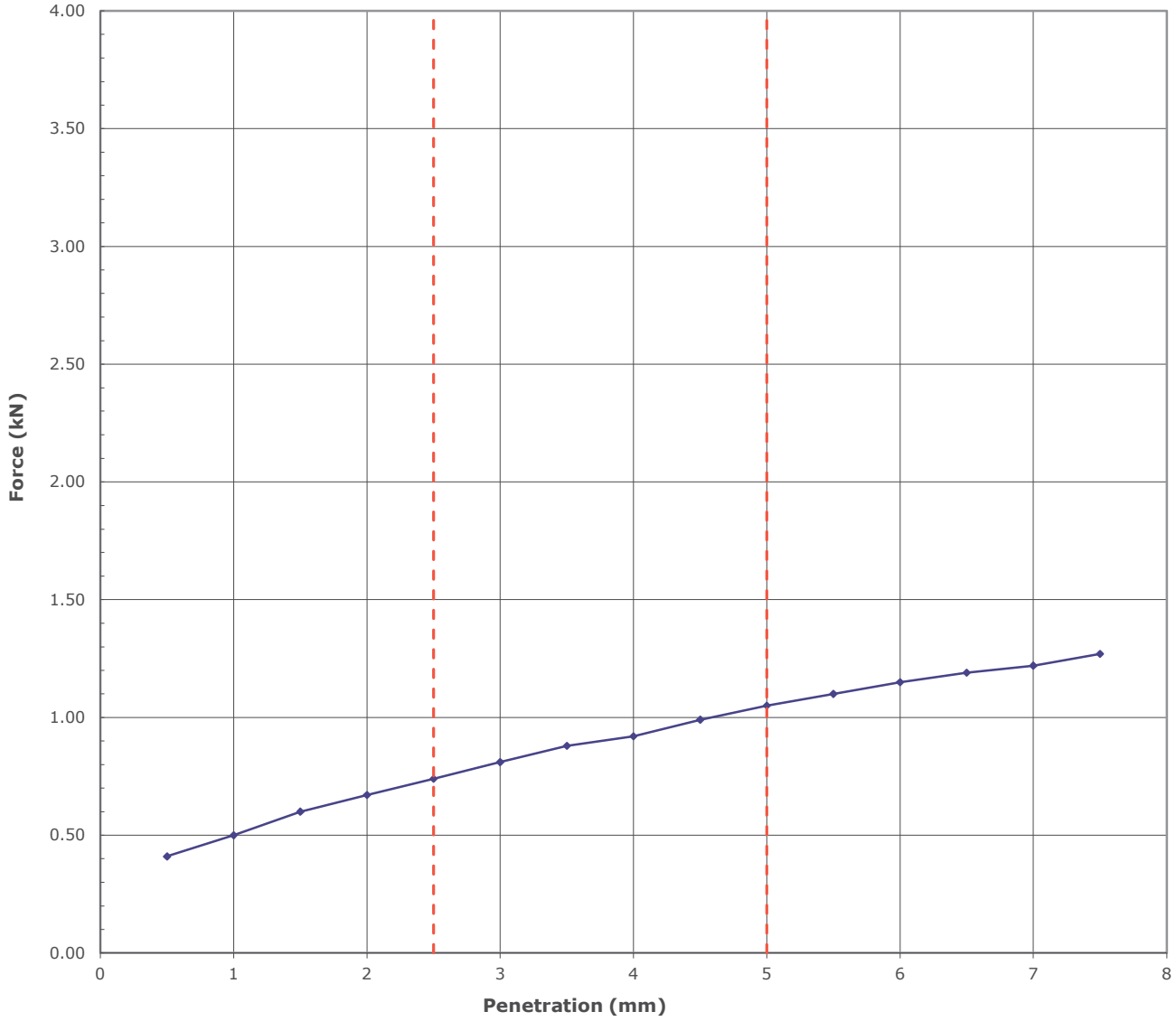
Surcharge: 10kPa

Test date: 10/05/2022

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR03**	Stratum at test depth:	MADE GROUND: Dark grey to black, fine, silty top soil with a little ash and occasional brick fragments and morter fines
Depth:	0.55m		
Moisture content:	16.8%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.74	13.2	5.6	
5.0	1.05	20.0	5.3	

In-situ CBR value (%) 5.6

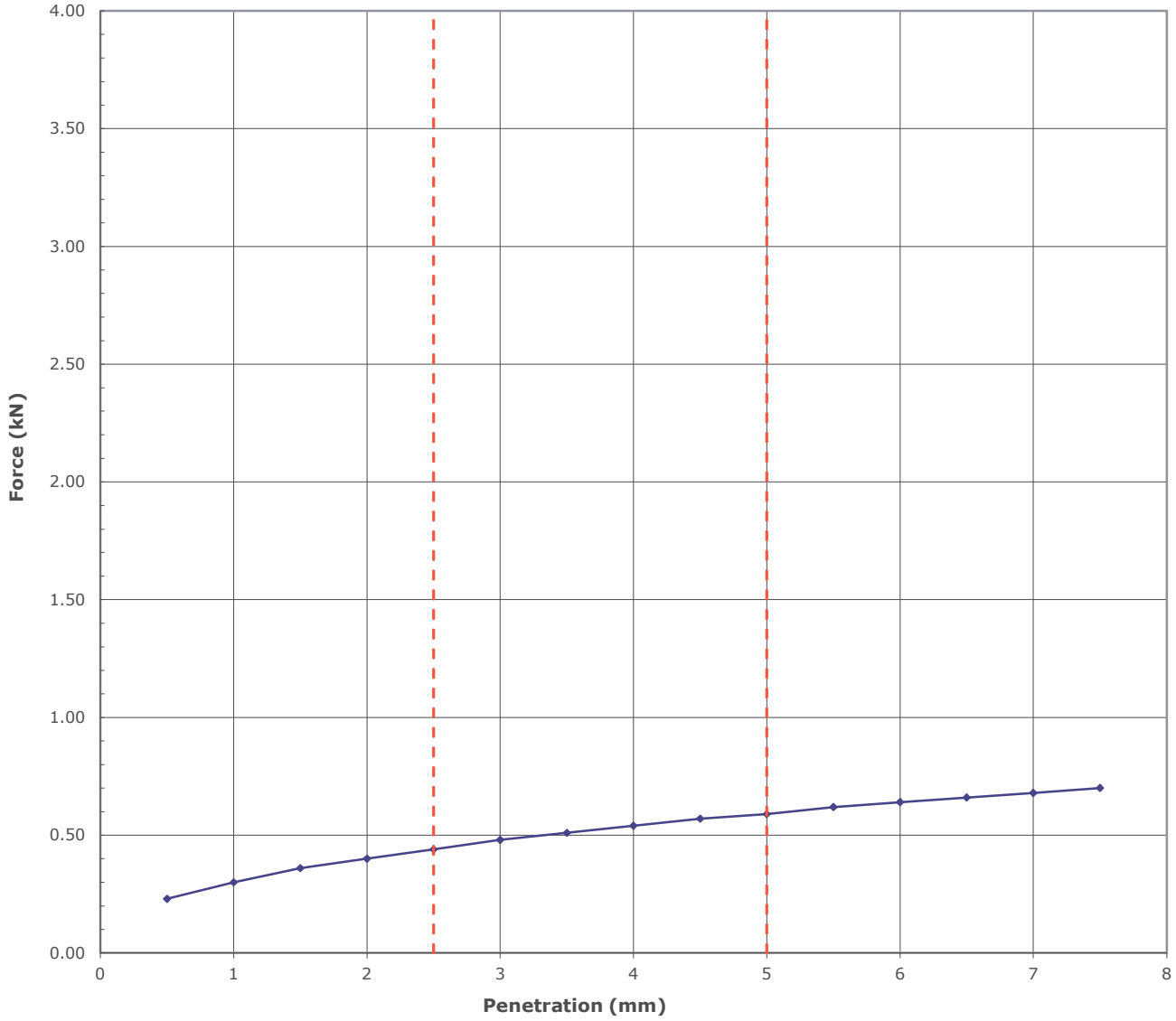
Surcharge: 10kPa

Test date: 10/05/2022

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR04**	Stratum at test depth:	MADE GROUND: brown clays, silt with numerous well graded gravel
Depth:	0.51m		
Moisture content:	9.0%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.44	13.2	3.3	
5.0	0.59	20.0	3.0	

In-situ CBR value (%) 3.3

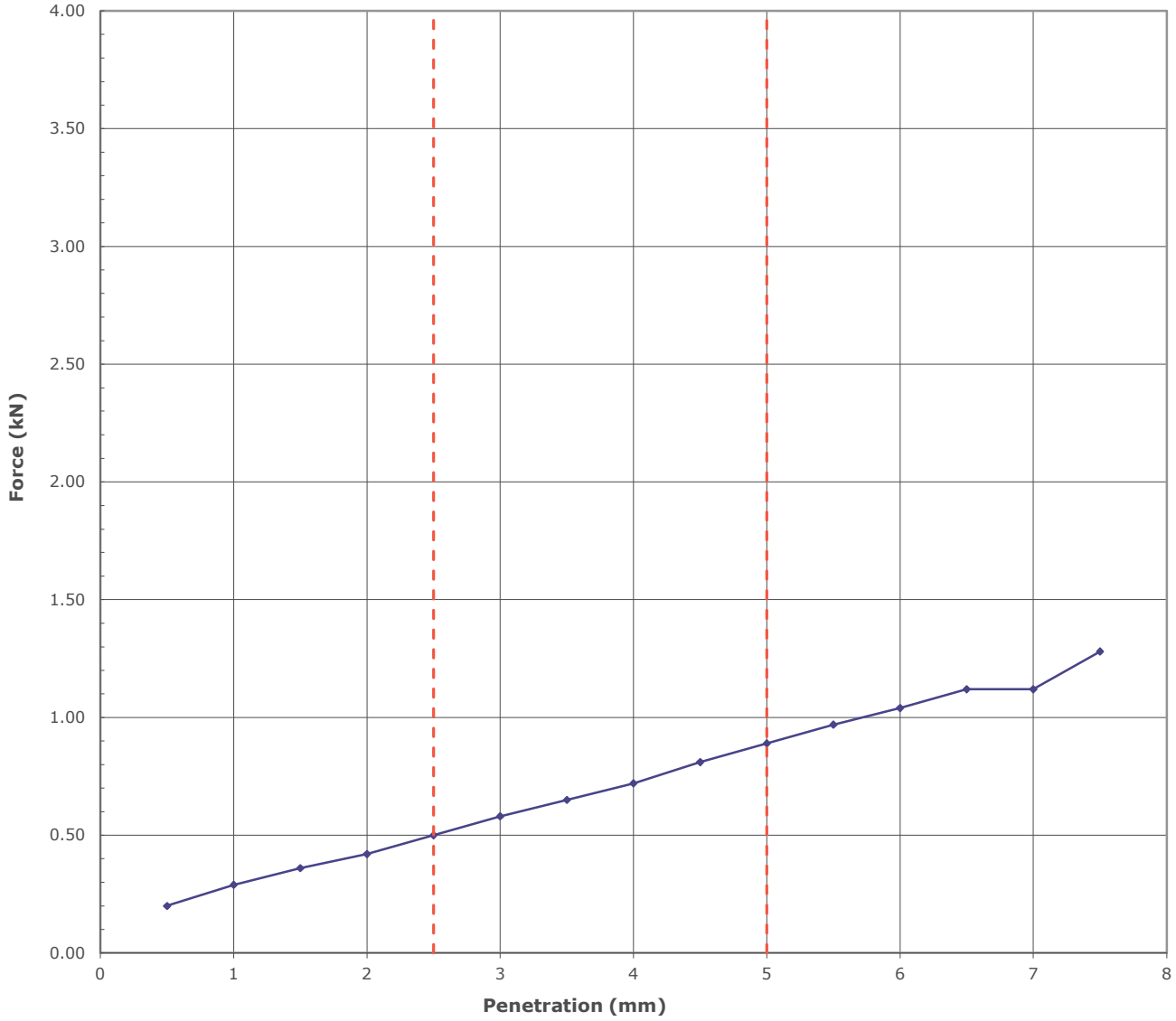
Surcharge: 10kPa

Test date: 10/05/2022

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR05**	Stratum at test depth:	MADE GROUND: Dark brown very silty clay/ clayey silt with occasional medium to fine gravel and roots
Depth:	0.60m		
Moisture content:	21.1%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.50	13.2	3.8	
5.0	0.89	20.0	4.5	

In-situ CBR value (%) 4.5

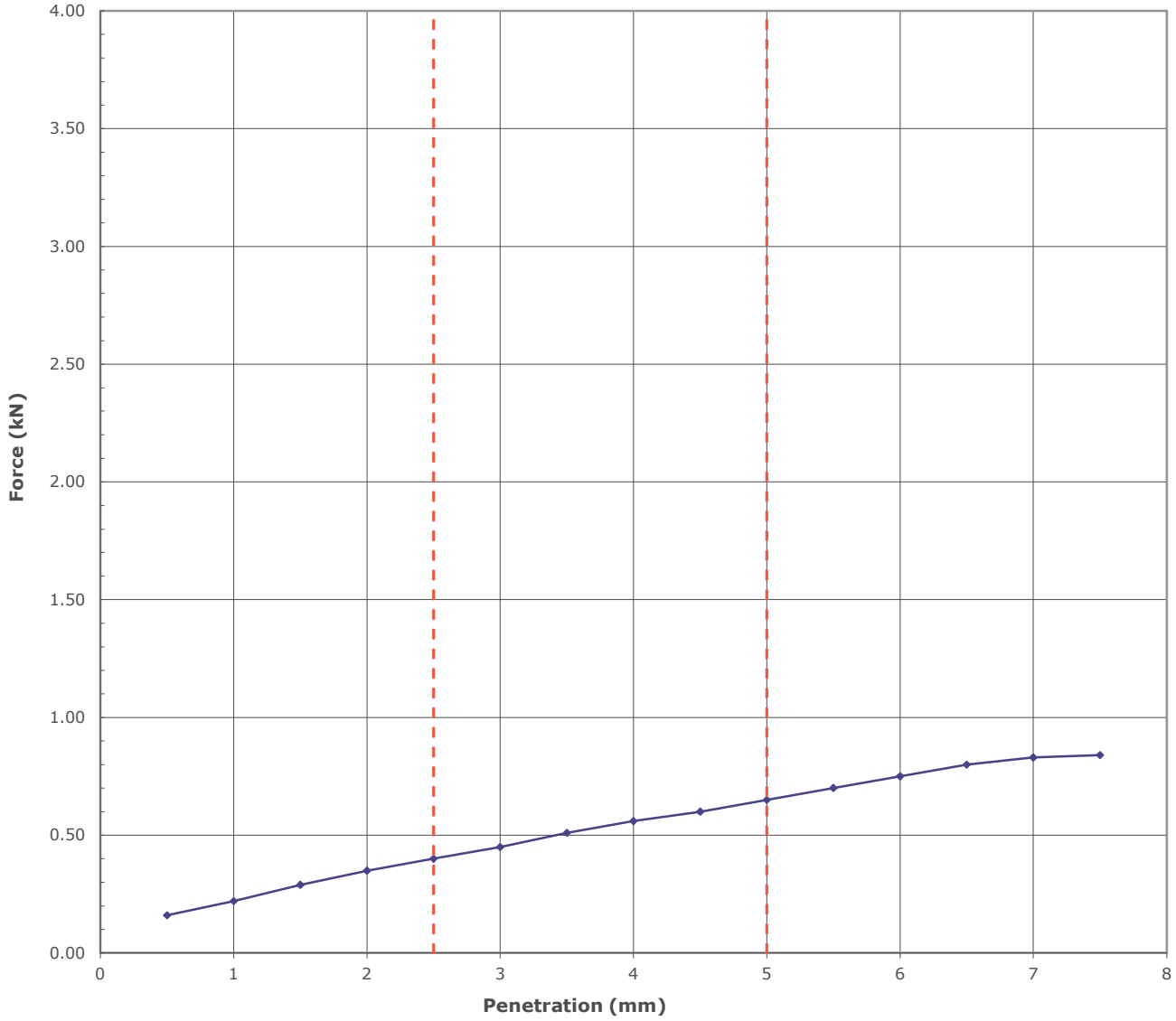
Surcharge: 10kPa

Test date: 10/05/2022

Soil Consultants

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No:	10728/SG

In-situ California Bearing Ratio test result
(In accordance with: BS1377:1990, Part 9, Clause 4.3)



Location ID:	**CBR06**	Stratum at test depth:	Orange brown fine very silty clay with occasional medium to fine gravel and hair roots
Depth:	0.50m		
Moisture content:	13.6%		

CBR results

Penetration (mm)	Test force (kN)	Standard force (kN)	CBR (%)	Notes
2.5	0.40	13.2	3.0	
5.0	0.65	20.0	3.3	

In-situ CBR value (%) 3.3

Surcharge: 10kPa

Test date: 10/05/2022

Soil Consultants

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

GPS Co-ordinates

Location ID	Easting	Northing	Elevation
BH1	514646.13	174285.073	13.3
BH2	514578.76	174346.918	12.145
BH3	514570.692	174255.076	13.132
BH4	514698.241	174240.712	14.322
WS1	514562.335	174318.289	12.562
WS2	514617.288	174367.723	12.5
WS2A	514617.288	174367.723	12.5
WS3	514667.254	174345.155	12.245
WS4	514710.154	174283.217	13.083
WS5	514708.514	174360.305	12.149
WS6	514859.636	174314.217	11.059
WS7	514831.338	174243.802	11.487
WS8	514917.537	174197.931	10.402
WS9	514795.81	174180.748	12.248
WS10	514876	174105	10.581
TP1	514560.339	174273.038	12.49
TP2	514637.952	174348.346	23.104
TP3	514637.952	174348.346	23.104
TP4	514668.191	174282.8	14.541
TP5	514781.645	174171.229	12.663
TP6	514674.11	174221.871	14.801
TP7	514675.704	174200.705	15.846
HP1	514611	174228	13.55
HP2	514769	174220	13.21
SK1	514628.378	174274.344	13.449
SK2	514845.148	174335.626	11.22
CBR1	514848.165	174303.254	11.145
CBR2	514591.112	174323.909	12.559
CBR3	514563.824	174287.961	12.581
CBR4	514698.521	174254.387	14.262
CBR5	514687.168	174306.64	12.389
CBR6	514798.292	174219.168	12.229

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1021**		
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	09:24:34	50	3.20	5.50

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.6	0	0	0.1
15	0.0	0.3	21.6	0	0	0.0
30	0.0	0.3	21.6	0	0	0.0
45	0.0	0.3	21.6	0	0	0.0
60	0.0	0.3	21.5	0	0	0.0
75	0.0	0.3	21.5	0	0	0.0
90	0.0	0.3	21.5	0	0	0.0
105	0.0	0.3	21.5	0	0	0.0
120	0.0	0.3	21.5	0	0	0.0
135	0.0	0.3	21.5	0	0	0.0
150	0.0	0.3	21.5	0	0	0.0
165	0.0	0.3	21.5	0	0	0.0
180	0.0	0.3	21.5	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.3
Min O_2 (%)	21.5
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.1	0.1	0.00

REMARK: pump fail

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**
Barometric pressure: a) Trend (24hrs): b) At start (mB):	**Rising** **1021**
Recorded by:	**GW**
Surface ground conditions: Weather conditions: Ambient air temp (°C):	**Dry** **Overcast** **16**

Monitoring equipment	
Instrument:	GA5000. No. G505055
Calibration check details:	See note 2 below
Next calibration date:	Sept 2022

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	09:32:37	19	3.13	24.17

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
	Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**	**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1021**		
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	08:25:16	50	1.37	2.95

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.1	1.0	20.8	0	0	0.3
30	0.1	1.0	20.7	0	0	0.4
45	0.0	1.0	20.7	0	0	0.6
60	0.0	1.0	20.6	0	0	0.7
75	0.0	1.0	20.7	0	0	0.8
90	0.0	1.0	20.7	0	0	0.9
105	0.0	1.1	20.7	0	0	1.0
120	0.0	1.1	20.6	0	0	1.1
135	0.0	1.1	20.6	0	0	1.2
150	0.0	1.1	20.6	0	0	1.3
165	0.0	1.1	20.6	0	0	1.4
180	0.0	1.1	20.6	0	0	1.5

Max CH_4 (%)	0.1
Max CO_2 (%)	1.1
Min O_2 (%)	20.6
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	1.5

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.2	0.2	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**
Barometric pressure: a) Trend (24hrs): b) At start (mB):	 **Rising** **1021**
Recorded by:	**GW**
Surface ground conditions: Weather conditions: Ambient air temp (°C):	**Dry** **Overcast** **16**

Monitoring equipment	
Instrument:	GA5000. No. G505055
Calibration check details:	See note 2 below
Next calibration date:	Sept 2022

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	08:25:16	19	1.91	14.80

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1021**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	08:44:31	50	2.39	8.36

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	0.9	20.7	0	0	0.4
30	0.0	0.7	20.9	0	0	0.4
45	0.0	0.6	21.0	0	0	0.3
60	0.0	0.5	21.0	0	0	0.3
75	0.0	0.5	21.0	0	0	0.2
90	0.0	0.5	21.1	0	0	0.1
105	0.0	0.4	21.1	0	0	0.1
120	0.0	0.4	21.2	0	0	0.0
135	0.0	0.4	21.2	0	0	0.0
150	0.0	0.3	21.3	0	0	0.0
165	0.0	0.3	21.3	0	0	0.0
180	0.0	0.3	21.3	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.9
Min O_2 (%)	20.7
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.4

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.2	0.3	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1021**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	08:44:31	19	2.37	23.55

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	0.0
Max CO_2 (%)	0.0
Min O_2 (%)	0.0
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1021**		
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH4	11:29:21	50	3.78	5.16

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.2	0	0	0.1
15	0.0	0.1	21.3	0	0	0.2
30	0.0	0.1	21.3	0	0	0.2
45	0.0	0.1	21.3	0	0	0.1
60	0.0	0.1	21.3	0	0	0.0
75	0.0	0.1	21.3	0	0	0.0
90	0.0	0.1	21.3	0	0	0.0
105	0.0	0.1	21.3	0	0	0.0
120	0.0	0.1	21.2	0	0	0.0
135	0.0	0.1	21.2	0	0	0.0
150	0.0	0.1	21.3	0	0	0.0
165	0.0	0.1	21.2	0	0	0.0
180	0.0	0.1	21.2	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.1
Min O_2 (%)	21.2
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.2

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.2	-0.1	0.00

REMARK: gas valve open on arrival

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1021**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH4	11:29:21	19	3.86	14.69

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	0.0
Max CO_2 (%)	0.0
Min O_2 (%)	0.0
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1022**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	10:10:31	50	1.26	3.10

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.0	21.4	0	0	0.0
15	3.0	3.2	4.7	0	0	0.0
30	2.8	3.1	3.2	0	0	0.0
45	2.6	2.9	4.2	0	0	0.1
60	2.5	2.8	4.6	0	0	0.0
75	2.4	2.7	5.3	0	0	0.1
90	2.2	2.5	6.5	0	0	0.1
105	2.3	2.6	5.9	0	0	0.1
120	2.2	2.5	6.3	0	0	0.0
135	2.2	2.5	6.2	0	0	0.0
150	2.1	2.4	7.0	0	0	0.1
165	2.0	2.3	7.2	0	0	0.1
180	2.0	2.3	7.4	0	0	0.0

Max CH_4 (%)	3.0
Max CO_2 (%)	3.2
Min O_2 (%)	3.2
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.1	0.0	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1017**		
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	12:30:50	50	1.23	2.05

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.0	20.9	0	0	0.3
15	0.0	0.0	20.9	0	0	0.1
30	0.0	0.0	21.0	0	0	0.0
45	0.0	0.0	21.0	0	0	0.0
60	0.0	0.0	20.9	0	0	0.0
75	0.0	0.0	20.9	0	0	0.0
90	0.0	0.0	20.9	0	0	0.0
105	0.0	0.0	20.9	0	0	0.0
120	0.0	0.0	20.9	0	0	0.0
135	0.0	0.0	20.9	0	0	0.0
150	0.0	0.0	20.9	0	0	0.0
165	0.0	0.1	20.9	0	0	0.0
180	0.0	0.1	20.9	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.1
Min O_2 (%)	20.9
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.3

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.1	-0.1	-0.1	0.00

REMARK: saving of flow data fail

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**26/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1021**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	13:32:52	50	DRY	2.98

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.0	21.0	0	0	0.2
15	0.0	1.4	20.2	0	0	0.3
30	0.0	1.5	20.1	0	0	0.3
45	0.0	1.5	20.1	0	0	0.3
60	0.0	1.5	20.1	0	0	0.3
75	0.0	1.5	20.1	0	0	0.2
90	0.0	1.5	20.1	0	0	0.2
105	0.0	1.5	20.1	0	0	0.2
120	0.0	1.5	20.1	0	0	0.2
135	0.0	1.5	20.1	0	0	0.2
150	0.0	1.5	20.1	0	0	0.2
165	0.0	1.5	20.1	0	0	0.2
180	0.0	1.5	20.1	0	0	0.1

Max CH_4 (%)	0.0
Max CO_2 (%)	1.5
Min O_2 (%)	20.1
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.3

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.1	0.1	0.1	0.00

REMARK: saving of flow data fail

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1017**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	13:39:56	50	3.21	5.49

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.3	0.5	18.7	0	0	0.2
15	0.0	1.7	19.7	0	0	0.2
30	0.0	1.9	19.4	0	0	0.1
45	0.0	2.1	19.2	0	0	0.1
60	0.0	2.2	19.1	0	0	0.0
75	0.0	2.2	19.1	0	0	0.0
90	0.0	2.3	19.1	0	0	0.0
105	0.0	2.3	19.0	0	0	0.0
120	0.0	2.3	19.0	0	0	0.0
135	0.0	2.3	19.0	0	0	0.0
150	0.0	2.3	19.0	0	0	0.0
165	0.0	2.3	19.0	0	0	0.0
180	0.0	2.3	19.0	0	0	0.0

Max CH_4 (%)	0.3
Max CO_2 (%)	2.3
Min O_2 (%)	18.7
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.2

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**
Barometric pressure: a) Trend (24hrs): b) At start (mB):	**Rising** **1012**
Recorded by:	**GW**
Surface ground conditions: Weather conditions: Ambient air temp (°C):	**Dry** **Overcast** **16**

Monitoring equipment	
Instrument:	GA5000. No. G505055
Calibration check details:	See note 2 below
Next calibration date:	Sept 2022

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	13:46:56	19	3.07	24.20

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	0.0
Max CO_2 (%)	0.0
Min O_2 (%)	0.0
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-2.0	-3.0	0.00

REMARK: pump fail

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1013**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	10:31:29	50	1.34	2.95

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.1	0.1	21.4	0	0	0.0
15	0.1	1.1	20.7	0	0	0.0
30	0.1	1.1	20.4	0	0	0.0
45	0.1	1.1	20.4	0	0	0.0
60	0.1	1.1	20.4	0	0	0.0
75	0.1	1.1	20.4	0	0	0.0
90	0.0	1.1	20.3	0	0	0.0
105	0.1	1.2	20.3	0	0	0.0
120	0.0	1.2	20.3	0	0	0.0
135	0.0	1.2	20.3	0	0	0.0
150	0.0	1.2	20.3	0	0	0.0
165	0.0	1.2	20.3	0	0	0.0
180	0.0	1.2	20.3	0	0	0.0

Max CH_4 (%)	0.1
Max CO_2 (%)	1.2
Min O_2 (%)	20.3
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

REMARK: PEZO bailed out

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1013**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	10:31:29	19	14.14	14.83

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

REMARK: PEZO bailed out

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1014**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	12:09:40	50	2.34	8.37

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.2	0	0	0.1
15	0.0	0.6	20.9	0	0	0.2
30	0.0	0.5	20.9	0	0	0.2
45	0.0	0.4	20.9	0	0	0.2
60	0.0	0.3	21.0	0	0	0.1
75	0.0	0.3	21.0	0	0	0.1
90	0.0	0.3	21.2	0	0	0.1
105	0.0	0.3	21.0	0	0	0.1
120	0.0	0.3	21.0	0	0	0.0
135	0.0	0.3	21.0	0	0	0.0
150	0.0	0.2	21.0	0	0	0.0
165	0.0	0.2	21.1	0	0	0.0
180	0.0	0.2	21.1	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.6
Min O_2 (%)	20.9
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.2

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.1	0.2	0.2	0.00

Remark: Bung not on properly

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**
Barometric pressure: a) Trend (24hrs): b) At start (mB):	**Rising** **1014**
Recorded by:	**GW**
Surface ground conditions: Weather conditions: Ambient air temp (°C):	**Dry** **Overcast** **16**

Monitoring equipment	
Instrument:	GA5000. No. G505055
Calibration check details:	See note 2 below
Next calibration date:	Sept 2022

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	12:09:40	19	2.39	23.55

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1013**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH04	14:52:33	50	3.80	5.18

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.3	0	0	0.1
15	0.0	0.1	21.4	0	0	0.0
30	0.0	0.1	21.4	0	0	0.0
45	0.0	0.1	21.4	0	0	0.0
60	0.0	0.1	21.4	0	0	0.0
75	0.0	0.1	21.4	0	0	0.1
90	0.0	0.1	21.4	0	0	0.1
105	0.0	0.1	21.4	0	0	0.1
120	0.0	0.1	21.4	0	0	0.1
135	0.0	0.1	21.4	0	0	0.0
150	0.0	0.1	21.4	0	0	0.0
165	0.0	0.1	21.4	0	0	0.0
180	0.0	0.1	21.4	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.1
Min O_2 (%)	21.3
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.2	0.1	0.4	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1013**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH04	14:52:33	19	2.64	14.73

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1013**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	13:20:06	50	1.23	3.02

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.6	0	0	0.0
15	2.0	3.8	6.9	0	0	0.0
30	2.0	3.9	2.5	0	0	0.1
45	2.0	3.9	2.1	0	0	0.1
60	2.0	3.9	2.1	0	0	0.0
75	2.0	3.9	1.9	0	0	0.1
90	2.0	3.9	1.7	0	0	0.1
105	2.1	4.0	1.5	0	0	0.1
120	2.1	4.0	1.3	0	0	0.1
135	2.1	4.0	1.3	0	0	0.1
150	2.0	3.9	1.2	0	0	0.1
165	2.0	3.9	1.3	0	0	0.1
180	2.0	3.8	1.4	0	0	0.2

Max CH_4 (%)	2.1
Max CO_2 (%)	4.0
Min O_2 (%)	1.2
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.2

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1014**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	15:36:14	50	1.25	1.99

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.5	0	0	0.1
15	0.0	1.3	20.9	0	0	0.1
30	0.0	1.4	20.7	0	0	0.0
45	0.0	1.4	20.7	0	0	0.0
60	0.0	1.4	20.6	0	0	0.0
75	0.0	1.4	20.6	0	0	0.0
90	0.0	1.4	20.6	0	0	0.0
105	0.0	1.5	20.6	0	0	0.0
120	0.0	1.5	20.6	0	0	0.0
135	0.0	1.5	20.6	0	0	0.0
150	0.0	1.5	20.5	0	0	0.0
165	0.0	1.5	20.5	0	0	0.0
180	0.0	1.5	20.5	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	1.5
Min O_2 (%)	20.5
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.1	0.4	0.5	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**30/05/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1014**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Dry**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	15:48:42	50	DRY	3.01

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.3	0	0	0.1
15	0.0	1.2	20.8	0	0	0.1
30	0.0	1.2	20.7	0	0	0.1
45	0.0	1.2	20.7	0	0	0.1
60	0.0	1.2	20.6	0	0	0.1
75	0.0	1.3	20.6	0	0	0.1
90	0.0	1.3	20.6	0	0	0.1
105	0.0	1.3	20.6	0	0	0.1
120	0.0	1.3	20.6	0	0	0.1
135	0.0	1.3	20.6	0	0	0.1
150	0.0	1.3	20.6	0	0	0.0
165	0.0	1.3	20.6	0	0	0.1
180	0.0	1.3	20.6	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	1.3
Min O_2 (%)	20.6
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.2	-0.4	-0.2	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1014**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	11:07:14	50	3.23	5.41

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	3.1	19.2	0	0	0.2
30	0.0	3.1	18.7	0	0	0.2
45	0.0	3.1	18.7	0	0	0.1
60	0.0	3.1	18.7	0	0	0.1
75	0.0	3.1	18.7	0	0	0.1
90	0.0	3.1	18.7	0	0	0.1
105	0.0	3.1	18.7	0	0	0.1
120	0.0	3.1	18.7	0	0	0.1
135	0.0	3.1	18.7	0	0	0.1
150	0.0	3.1	18.7	0	0	0.1
165	0.0	3.1	18.7	0	0	0.1
180	0.0	3.1	18.8	0	0	0.1

Max CH_4 (%)	0.0
Max CO_2 (%)	3.1
Min O_2 (%)	18.7
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.2

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.1	0.1	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1014**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	11:16:49	19	3.32	24.38

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

REMARK: pump fail

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1016**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	10:25:06	50	1.37	3.00

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.1	0.1	21.3	0	0	0.1
15	0.1	1.5	20.1	0	0	0.1
30	0.1	1.5	19.7	0	0	0.2
45	0.1	1.5	19.7	0	0	0.2
60	0.1	1.5	19.7	0	0	0.3
75	0.1	1.5	19.7	0	0	0.3
90	0.1	1.5	19.7	0	0	0.3
105	0.0	1.5	19.7	0	0	0.3
120	0.0	1.5	19.7	0	0	0.3
135	0.0	1.5	19.7	0	0	0.3
150	0.0	1.5	19.7	0	0	0.3
165	0.0	1.5	19.6	0	0	0.4
180	0.0	1.5	19.6	0	0	0.4

Max CH_4 (%)	0.1
Max CO_2 (%)	1.5
Min O_2 (%)	19.6
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.4

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.1	0.1	0.00

Site & Location		Report No:
	Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**	**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1015**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH02	10:33:07	19	12.24	14.84

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1014**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	11:37:16	50	2.39	8.22

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.3	0	0	0.0
15	0.0	1.2	20.4	0	0	0.1
30	0.0	1.1	20.3	0	0	0.1
45	0.0	1.0	20.4	0	0	0.1
60	0.0	1.0	20.5	0	0	0.1
75	0.0	0.9	20.5	0	0	0.1
90	0.0	0.9	20.6	0	0	0.1
105	0.0	0.9	20.6	0	0	0.1
120	0.0	0.8	20.6	0	0	0.1
135	0.0	0.8	20.7	0	0	0.1
150	0.0	0.8	20.7	0	0	0.1
165	0.0	0.7	20.8	0	0	0.1
180	0.0	0.6	20.9	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	1.2
Min O_2 (%)	20.3
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

Remark: Bung not on properly

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
Barometric pressure:		Instrument:	GA5000. No. G505055
a) Trend (24hrs):	**Rising**	Calibration check details:	See note 2 below
b) At start (mB):	**1014**	Next calibration date:	Sept 2022
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH03	11:37:16	19	2.34	23.58

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1020**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH04	12:37:36	50	3.82	5.00

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	0.2	21.3	0	0	0.0
30	0.0	0.3	21.2	0	0	0.0
45	0.0	0.4	21.2	0	0	0.0
60	0.0	0.4	21.1	0	0	0.0
75	0.0	0.4	21.1	0	0	0.0
90	0.0	0.4	21.1	0	0	0.0
105	0.0	0.4	21.1	0	0	0.0
120	0.0	0.3	21.2	0	0	0.0
135	0.0	0.4	21.1	0	0	0.0
150	0.0	0.4	21.1	0	0	0.0
165	0.0	0.3	21.2	0	0	0.0
180	0.0	0.3	21.2	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	0.4
Min O_2 (%)	21.1
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.1

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.2	-0.1	0.0	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1018**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH04	12:45:06	19	3.66	14.76

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**
Barometric pressure: a) Trend (24hrs): b) At start (mB):	 **Rising** **N/A**
Recorded by:	**GW**
Surface ground conditions: Weather conditions: Ambient air temp (°C):	**Wet** **Overcast** **16**

Monitoring equipment	
Instrument:	GA5000. No. G505055
Calibration check details:	See note 2 below
Next calibration date:	Sept 2022

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	10:45:00	50	1.10	3.20

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)

Max CH_4 (%)	
Max CO_2 (%)	
Min O_2 (%)	
Max CO (ppm)	
Max H_2S (ppm)	
Max PID (ppm)	

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	

Remark: Installation flooded

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1019**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	13:00:48	50	1.31	1.99

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.2	0	0	0.0
15	0.0	1.7	20.2	0	0	0.0
30	0.0	1.7	20.0	0	0	0.0
45	0.0	1.7	20.0	0	0	0.0
60	0.0	1.7	20.0	0	0	0.0
75	0.0	1.7	20.0	0	0	0.0
90	0.0	1.7	20.0	0	0	0.0
105	0.0	1.7	20.0	0	0	0.0
120	0.0	1.7	20.0	0	0	0.0
135	0.0	1.7	20.0	0	0	0.0
150	0.0	1.7	20.0	0	0	0.0
165	0.0	1.7	20.0	0	0	0.0
180	0.0	1.7	20.0	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	1.7
Min O_2 (%)	20.0
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

Site & Location		Report No:
Kneller Hall, **65 Kneller Road, Twickenham,London, TW2 7DN**		**10728/SG**

Results of groundwater/gas monitoring

Date:	**06/06/2022**	Monitoring equipment	
		Instrument:	GA5000. No. G505055
Barometric pressure:		Calibration check details:	See note 2 below
a) Trend (24hrs):	**Rising**	Next calibration date:	Sept 2022
b) At start (mB):	**1015**		
Recorded by:	**GW**		
Surface ground conditions:	**Wet**		
Weather conditions:	**Overcast**		
Ambient air temp (°C):	**16**		

Notes:

1) Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit

2) Calibration check is performed at start of monitoring against ambient air and also periodically with a 5% CH_4, 5% CO_2 and 6% O_2 gas mixture

3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	13:17:00	50	dry	3.00

Time (s)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	PID (ppm)
0	0.0	0.1	21.2	0	0	0.0
15	0.0	1.5	20.4	0	0	0.0
30	0.0	1.5	20.3	0	0	0.0
45	0.0	1.5	20.3	0	0	0.0
60	0.0	1.5	20.3	0	0	0.0
75	0.0	1.5	20.3	0	0	0.0
90	0.0	1.5	20.3	0	0	0.0
105	0.0	1.5	20.3	0	0	0.0
120	0.0	1.5	20.3	0	0	0.0
135	0.0	1.5	20.3	0	0	0.0
150	0.0	1.5	20.3	0	0	0.0
165	0.0	1.5	20.3	0	0	0.0
180	0.0	1.5	20.3	0	0	0.0

Max CH_4 (%)	0.0
Max CO_2 (%)	1.5
Min O_2 (%)	20.3
Max CO (ppm)	0
Max H_2S (ppm)	0
Max PID (ppm)	0.0

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.2	0.00

Site & Location	**Kneller Hall** **65 Kneller Road, Twickenham, London TW2 7DN**	Report No:	**10728/SG**

SUMMARY OF UNDRAINED SHEAR STRENGTH TEST RESULTS

BH ID	Depth (m)	Moisture content (%)	Bulk density (Mg/m^3)	Dry density (Mg/m^3)	Cell pressure (kPa)	Deviator stress (kPa)	Failure strain (%)	Failure mode	Undrained cohesion (kPa)	Remarks
BH01	6.50	28	2.01	1.57	130	98	12.00	I	49	
BH01	9.50	27	2.03	1.60	190	92	4.00	B	46	
BH01	12.50	27	2.02	1.59	250	240	10.00	B	120	
BH01	15.50	29	2.03	1.57	310	192	6.00	B	96	
BH01	18.50	28	2.01	1.57	370	340	7.00	B	170	
BH01	21.50	26	2.05	1.63	430	258	10.00	B	129	
BH01	24.50	26	2.00	1.59	490	220	13.00	B	110	
BH02	3.00	31	1.91	1.45	60	97	9.00	I	49	
BH02	5.00	30	1.96	1.50	100	102	10.00	B	51	
BH02	8.00	28	2.00	1.57	160	134	5.00	B	67	
BH02	11.00	26	2.04	1.62	220	221	9.00	B	111	
BH02	14.00	40	1.83	1.31	280	56	3.00	B	(28)	Water softened / Disturbed
BH03	8.00	32	1.91	1.45	160	99	15.00	I	50	
BH03	12.50	27	2.01	1.58	250	168	7.00	B	84	
BH03	15.50	25	2.02	1.62	310	493	6.00	B	247	
BH03	18.50	27	2.02	1.59	370	184	5.00	B	92	
BH03	21.50	26	2.03	1.61	430	276	10.00	B	138	
BH04	6.50	30	1.94	1.49	130	101	8.00	B	51	
BH04	9.50	26	2.03	1.61	190	223	9.00	B	112	
BH04	12.50	27	2.05	1.61	250	177	15.00	B	89	

Testing in accordance with BS EN ISO 17892. UU = unconsolidated, undrained; MUU = multistage, unconsolidated, Date: 01 July 22

Unless stated otherwise: a) Rate of strain = 2mm/min and b) Standard latex membrame used with thickness = 0.5mm

Failure modes: B = brittle, I = intermediate, P = plastic

Site & Location	**Kneller Hall** **65 Kneller Road, Twickenham, London TW2 7DN**	Report No:	**10728/SG**

SUMMARY OF CLASSIFICATION TEST RESULTS

BH ID	Depth (m)	Type	w (%)	w_L (%)	w_P (%)	Pass 425 (%)	I_P (%)	Mod I_P (%)	I_L (%)	LOI (%)	Description
BH01	6.50	U	28	70	29	>95	41		-0.02		Dark grey, fissured, silty CLAY with rare infilled burrows.
BH01	9.50	U	27								Dark grey, fissured, silty CLAY with rare infilled burrows.
BH01	12.50	U	27	75	31	>95	44		-0.09		Dark grey, fissured, silty CLAY with rare infilled burrows.
BH01	15.50	U	29	76	30	>95	46		-0.02		Dark grey, fissured, silty CLAY with rare infilled burrows.
BH01	18.50	U	28	78	31	>95	47		-0.07		Dark grey, fissured, silty CLAY with rare infilled burrows.
BH01	21.50	U	26	73	31	>95	42		-0.13		Dark grey, fissured, silty CLAY with infilled burrows.
BH01	24.50	U	26	71	31	>95	40		-0.13		Dark grey, fissured, silty CLAY with infilled burrows.
BH02	3.00	U	31	72	32	>95	40		-0.02		MADE GROUND: Dark grey silty, slightly gravelly, slightly sandy clay with rare pyrite nodules. Gravel is subangular to rounded, fine and medium flint and brick fragments.
BH02	5.00	D	19	74	32	>95	42		-0.33		Dark brownish grey fissured, silty CLAY with rare infilled burrows.
BH02	5.00	U	30	76	33	>95	43		-0.07		Dark brownish grey fissured, silty CLAY with rare infilled burrows.
BH02	8.00	U	28	68	29	>95	39		-0.04		Dark brownish grey, fissured, silty CLAY.
BH02	11.00	U	26								Dark brownish grey, fissured, silty CLAY.
BH02	14.00	U	40	73	32	>95	41		0.19		Orange brown slightly sandy silty CLAY.
BH03	7.40	D	23	73	31	>95	42		-0.19		Dark grey, silty CLAY.
BH03	8.00	U	32								Dark grey, fissured, silty CLAY with rare infilled burrows.
BH03	12.50	U	27	74	29	>95	45		-0.04		Dark grey, fissured, silty CLAY with rare infilled burrows.
BH03	15.50	U	25								Dark grey, fissured, silty CLAY with rare infilled burrows.
BH03	18.50	U	27	79	32	>95	47		-0.11		Dark grey, fissured, silty CLAY with rare and infilled burrows. Locally slightly sandy.
BH03	21.50	U	26	73	30	>95	43		-0.10		

Testing in accordance with BS EN ISO 17892 unless specified otherwise

Date: 26 Jun 17

Modified Plasticity Index calculated in accordance with NHBC Standards Chapter 4.2 (reported if %passing 425mm <95%)

Percent passing 425μm: by estimation, by hand* or by sieving**

Soil Consultants

Site & Location	**Kneller Hall** **65 Kneller Road, Twickenham, London TW2 7DN**	Report No:	**10728/SG**

SUMMARY OF CLASSIFICATION TEST RESULTS

BH ID	Depth (m)	Type	w (%)	w_L (%)	w_P (%)	Pass 425 (%)	I_P (%)	Mod I_P (%)	I_L (%)	LOI (%)	Description
BH04	6.50	U	30	79	33	>95	46		-0.06		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	8.00	D	25	71	29	>95	42		-0.11		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	9.50	U	26								Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	12.50	U	27	71	30	>95	41		-0.07		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
WS1	2.30	D	14								Orange silty, slightly gravelly fine and medium SAND. Gravel is subrounded to rounded fine to medium flint. Locally slightly clayey.
WS2A	2.30	D	14	26	20	27.1**	6	2	-0.97		Orange grey slightly silty very sandy GRAVEL. Gravel is subangular and subrounded, fine to coarse, flint. Locally gravelly sand.
WS3	1.00	D	37	66	31	>95	35		0.18		Orange grey slightly silty very sandy, very clayey GRAVEL. Gravel is subangular and subrounded, fine to coarse, flint. .
WS3	2.10	D	32	75	30	>95	45		0.05		Mottled orange brown and blue grey silty CLAY with occasional to frequent decaying rootlets. Composed of gravel sized lithorelicts in a silty clay matrix.
WS3	3.30	D	29	70	30	>95	40		-0.03		Dark grey silty CLAY with occasional decaying rootlets and occasional lithorelicts.
WS6	2.30	D	28								Orange brown silty CLAY composed of gravel sized lithorelicts in a brown silty clay matrix.
WS9	1.00	D	34	72	31	>95	41		0.08		Orange brown, mottled, grey and red, very silty, slightly sandy CLAY. Composed of gravel sized lithorelicts in a very silty sandy clay matrix.
WS9	3.00	D	31	63	21	>95	42		0.25		Dark grey, silty CLAY. Composed of gravel sized lithorelicts in a silty clay matrix.

Testing in accordance with BS EN ISO 17892 unless specified otherwise

Date: 26 Jun 17

Modified Plasticity Index calculated in accordance with NHBC Standards Chapter 4.2 (reported if %passing 425mm <95%)

Percent passing 425μm: by estimation, by hand* or by sieving**

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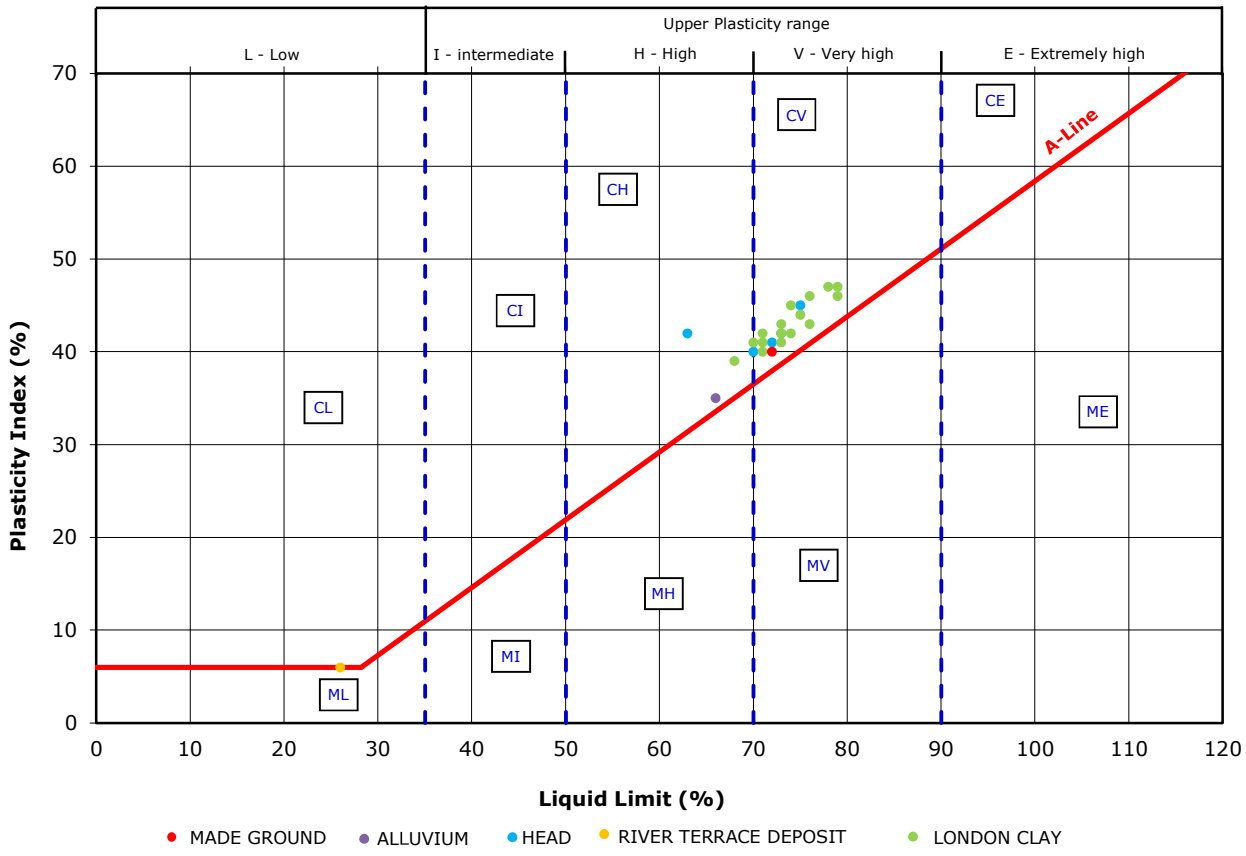
Site & Location	**Kneller Hall** **65 Kneller Road, Twickenham, London TW2 7DN**	Report No:	**10728/SG**

Plasticity Chart



M - SILT [plots below the A-Line}
C - CLAY [plots above the A-Line]

Classification in accordance with BS5930:2015 "Code of practice for site investigations"

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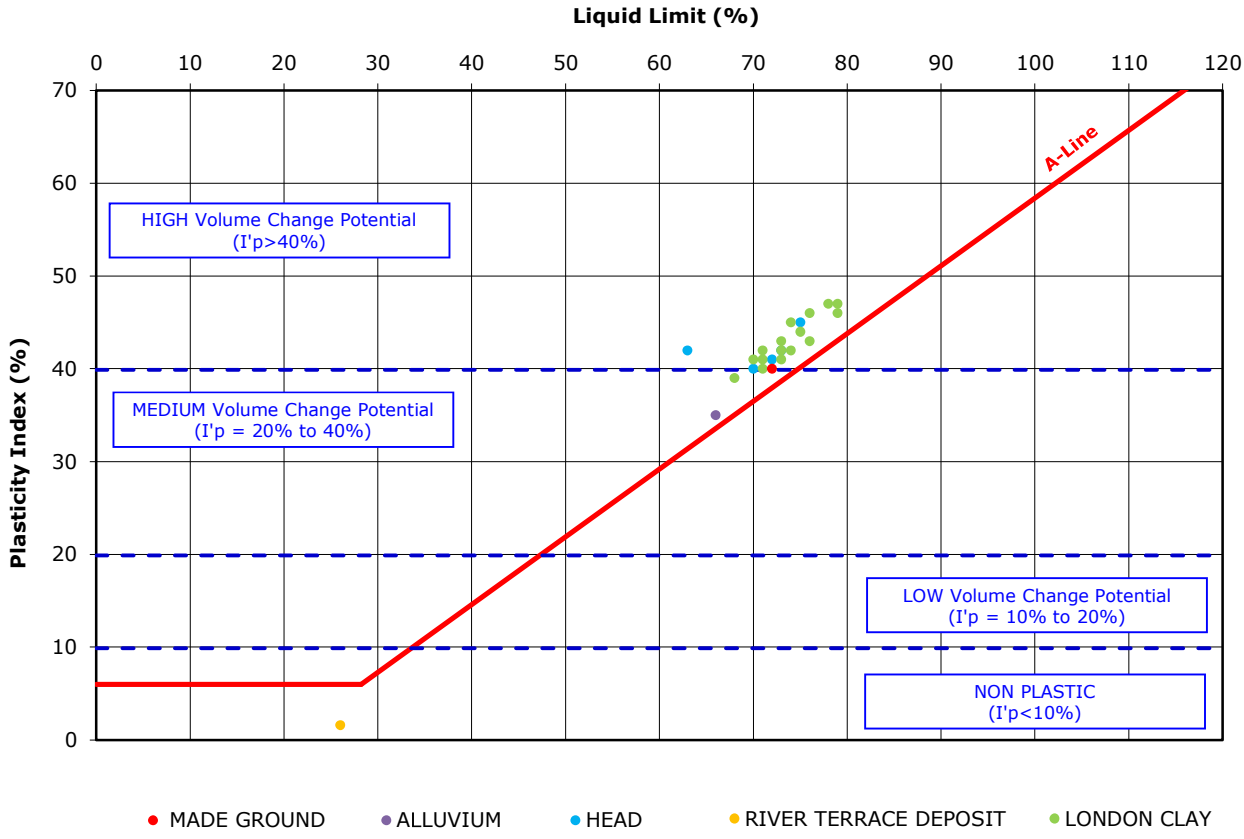
Site & Location	**Kneller Hall** **65 Kneller Road, Twickenham, London TW2 7DN**	Report No:	**10728/SG**

Plasticity Chart



Modified Plasticity Index, I'p:

$$I'p = \frac{Ip \times (\%\ \text{passing 425mm})}{100\%}$$ (where Ip = Plasticity Index)

Classification in accordance with NHBC Standards, Part 4 'Foundations', Chapter 4.2 'Building near trees'

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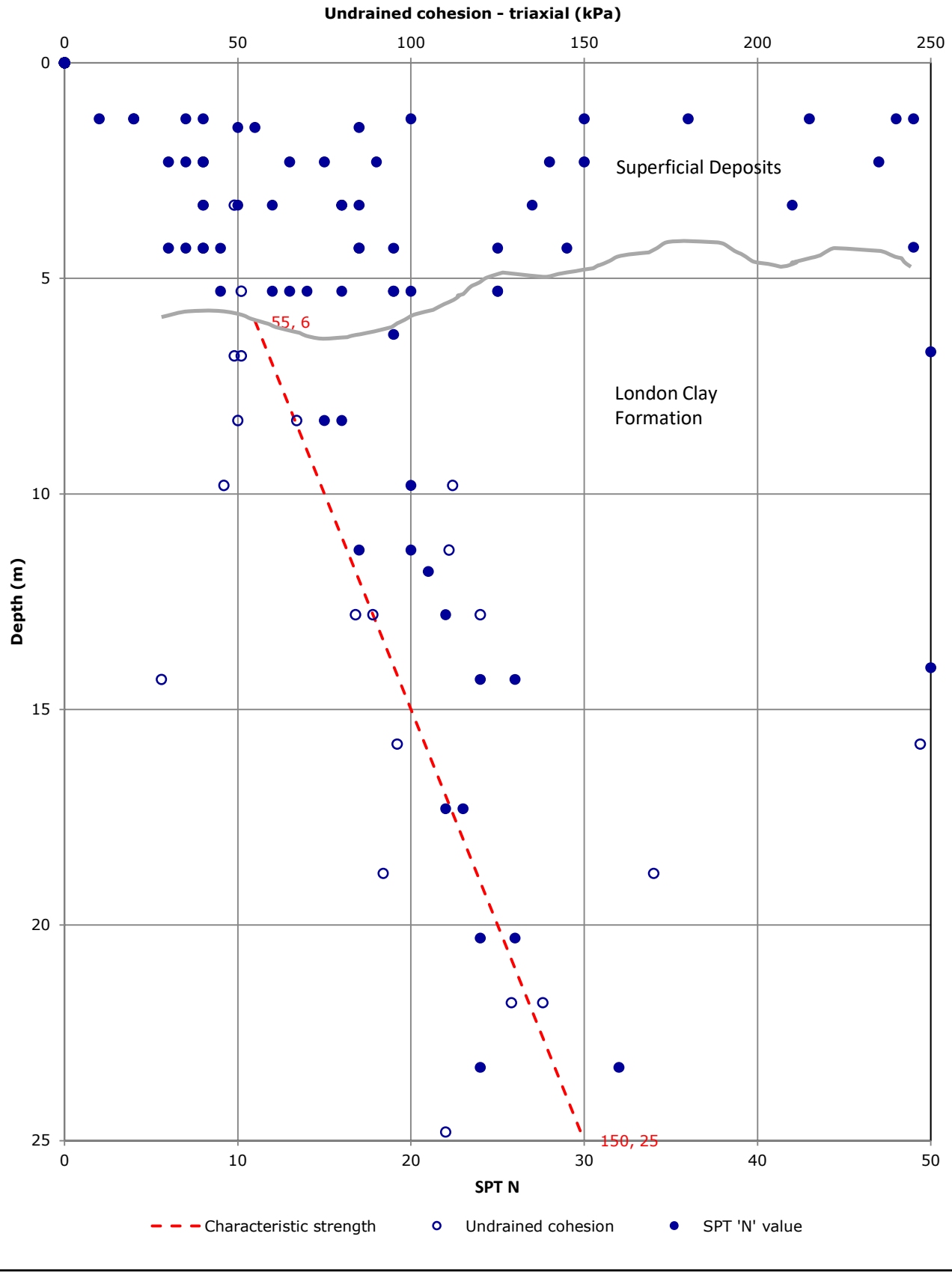
Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Undrained cohesion and SPT-N vs depth



Δcu = 5kPa/m

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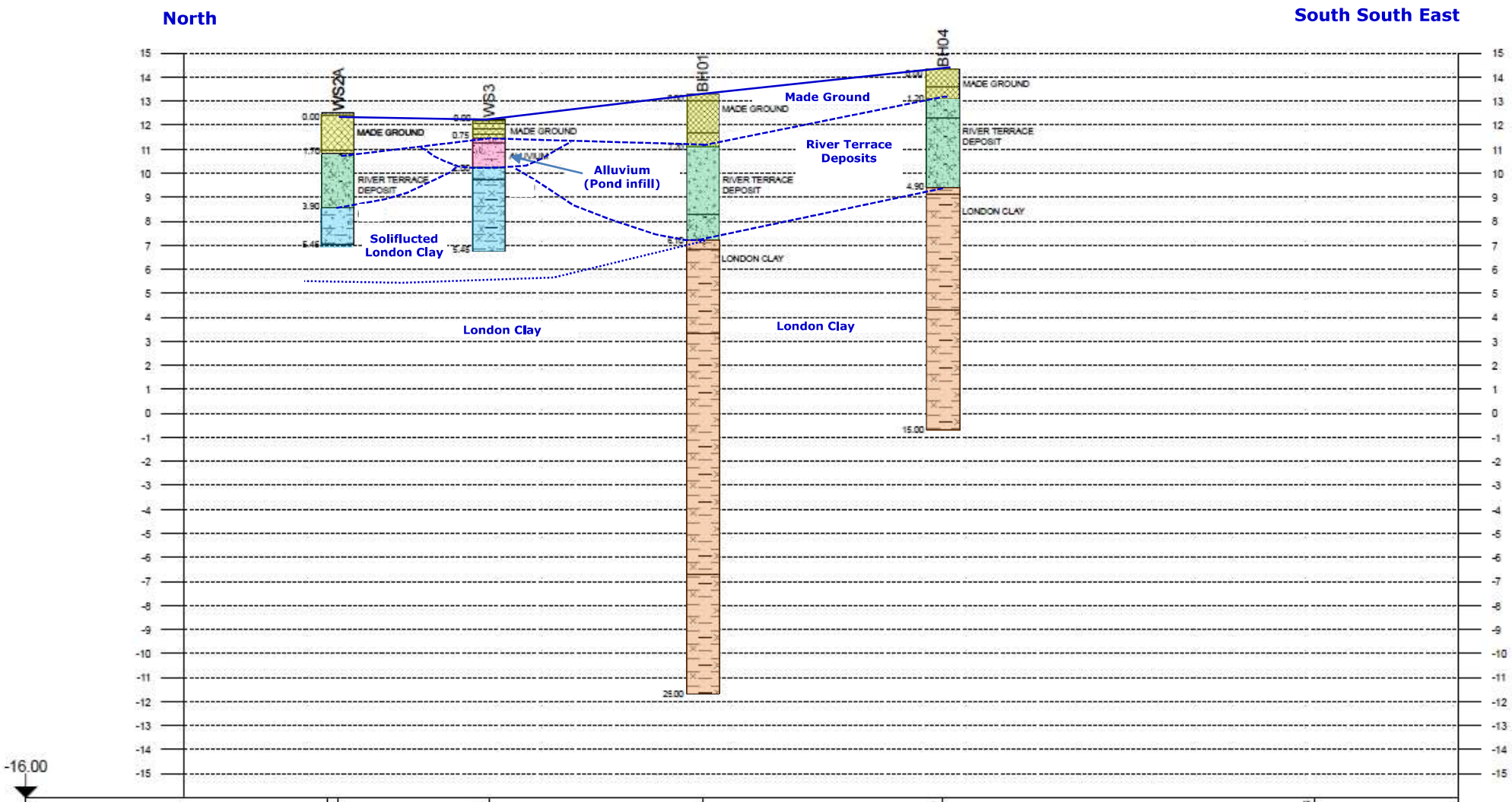
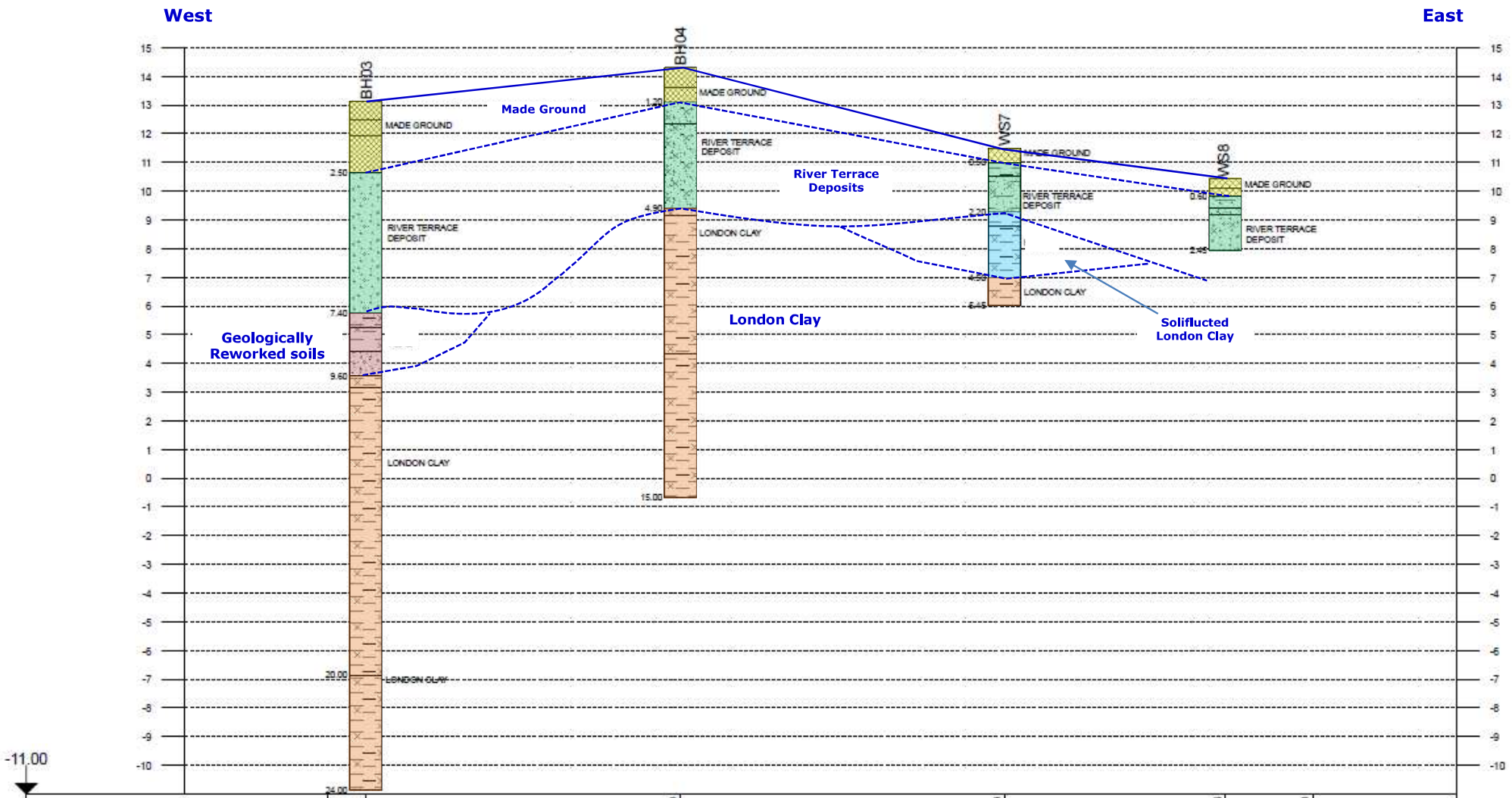
Project Id: 10728/SG	Title: Cross Section North to South South East
Project Title: Kneller Hall	Vertical Scale: 1:238
Location: 65 Kneller Road, Twickenham, London, TW2 7DN	Horizontal Scale: 1:1370
Client: Radnor House School Ltd	Engineer: AKS Ward

Soil Consultants



Chainage (m)	0.00 / 2.82	38.57	89.98	147.51	236.46
Offset (m)	23.09	18.22	19.37	17.70	
Elevation (mAOD)	12.50	12.25	13.30	14.32	

Project Id: 10728/SG	Title: West to East Section
Project Title: Kneller Hall	Vertical Scale: 1:199
Location: 65 Kneller Road, Twickenham, London, TW2 7DN	Horizontal Scale: 1:2328
Client: Radnor House School Ltd	Engineer: AKS Ward



FOREWORD TO CONTAMINATION TESTING AND ASSESSMENT

The following statements are designed to inform and guide the Client and other potential parties intending to rely upon this report, with the express intent of protecting them from misunderstanding as to the extent and thus the potential associated risks that may result from proceeding without further evaluations or guidance.

1] Unless otherwise stated in this report, the testing of soils and waters is based on a range of commonly occurring potential contaminants for the specific purpose of providing a general guidance evaluation for the proposed form of development. Thus, the range of potential contaminants is neither exhaustive nor specifically targeted to any previous known uses or influences upon the site.

2] The amount and scope of the testing should not be assumed to be exhaustive but has been selected, at this stage, to provide a reasonable, general view of the site ground conditions. In many cases this situation is quite sufficient for the site to be characterised for the purposes of development and related Health and Safety matters for persons involved in or directly affected by the site development works. It must be understood, however, that in certain circumstances aspects or areas of the site may require further investigation and testing in order to fully clarify and characterise contamination issues, both for regulatory compliance and for commercial reasons.

3] The scope of the contamination testing must not automatically be regarded as being sufficient to fully formulate a remediation scheme. For such a scheme it may be necessary to consider further testing to verify the effectiveness of the remedial work after the site has been treated. It must be understood that a remediation scheme which brings a site into a sufficient state for the proposed development ("fit for purpose") under current legislation and published guidance, may result in some contamination being left in-situ. It is possible that forthcoming legislation may result in a site being classified by the Local Authority and assigned a "Degree of Risk" related to previous use or known contamination.

4] The scope of the environmental investigation and contamination testing must not be automatically regarded as sufficient to satisfy the requirements in the wider environmental setting. The risks to adjacent properties and to the water environment are assessed by the regulatory authorities and there may be a requirement to carry out further exploration, testing and, possibly monitoring in the short or long term. It is not possible to sensibly predict the nature and extent of such additional requirements as these are the direct result of submissions to and liaison with the regulatory authorities. It is imperative, therefore, that such submissions and contacts are made as soon as possible, especially if there are perceived to be critical features of the site and proposed scheme, in this context.

5] New testing criteria have been implemented by the Environment Agency to enable a waste disposal classification to be made. The date of implementation of this Waste Acceptance Criteria [WAC] was July 2005. It is this testing that will be used by the waste regulatory authorities, including waste disposal sites, to designate soils for disposal in landfill sites. In certain circumstances, to satisfy the waste regulations, there may be the necessity to carry out additional testing to clarify and confirm the nature of any contamination that may be present. If commercial requirements are significant then this process may also necessitate further field operations to clarify the extent of certain features. Thus, the waste classification must be obtained from the waste regulation authorities or a licensed waste disposal site and we strongly recommend that this classification is obtained as soon as possible and certainly prior to establishing any costings or procedures for this or related aspects of the scheme.

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Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04875

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	01/06/2022
Sample Scheduled Date:	01/06/2022
Report Issue Number:	1
Reporting Date:	10/06/2022

Authorised by:

Ela Mysiara
Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Water Analysis Certificate						
DETS Report No: 22-04875	**Date Sampled**	30/05/22				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	BH4/3.80				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	3.80				
Reporting Date: 10/06/2022	**DETS Sample No**	599942				

Determinand	**Unit**	**RL**	**Accreditation**					
pH	pH Units	N/a	**ISO17025**	6.8				
Electrical Conductivity	uS/cm	< 5	NONE	745				
Total Cyanide	ug/l	< 5	**ISO17025**	< 5				
Sulphate as SO_4	mg/l	< 1	**ISO17025**	51				
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	9				
Arsenic (dissolved)	ug/l	< 5	**ISO17025**	13				
Boron (dissolved)	ug/l	< 5	**ISO17025**	49				
Cadmium (dissolved)	ug/l	< 0.4	**ISO17025**	0.7				
Chromium (dissolved)	ug/l	< 5	**ISO17025**	< 5				
Chromium (hexavalent)	ug/l	< 20	NONE	< 20				
Copper (dissolved)	ug/l	< 5	**ISO17025**	20				
Lead (dissolved)	ug/l	< 5	**ISO17025**	109				
Mercury (dissolved)	ug/l	< 0.05	**ISO17025**	< 0.05				
Nickel (dissolved)	ug/l	< 5	**ISO17025**	22				
Selenium (dissolved)	ug/l	< 5	**ISO17025**	7				
Zinc (dissolved)	ug/l	< 2	**ISO17025**	61				
Total Phenols (monohydric)	ug/l	< 10	**ISO17025**	< 10				
EPH (C10 - C40)	ug/l	< 10	NONE	< 10				

Subcontracted analysis (S)
Insufficient sample I/S
Unsuitable Sample U/S

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Rose Lane
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Kent ME17 2JN
Tel : 01622 850410

Water Analysis Certificate - Speciated PAH						
DETS Report No: 22-04875	**Date Sampled**	30/05/22				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	BH4/3.80				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	3.80				
Reporting Date: 10/06/2022	**DETS Sample No**	599942				

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	ug/l	< 0.01	NONE	< 0.01				
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01				
Acenaphthene	ug/l	< 0.01	NONE	< 0.01				
Fluorene	ug/l	< 0.01	NONE	< 0.01				
Phenanthrene	ug/l	< 0.01	NONE	< 0.01				
Anthracene	ug/l	< 0.01	NONE	< 0.01				
Fluoranthene	ug/l	< 0.01	NONE	< 0.01				
Pyrene	ug/l	< 0.01	NONE	< 0.01				
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01				
Chrysene	ug/l	< 0.01	NONE	< 0.01				
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01				
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01				
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01				
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01				
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008				
Total EPA-16 PAHs	ug/l	< 0.16	NONE	< 0.16				

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04875
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 10/06/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethar	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

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DETS Report No: 22-04869

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	20/05/2022
Sample Scheduled Date:	01/06/2022
Report Issue Number:	1
Reporting Date:	16/06/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Tel : 01622 850410

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Soil Analysis Certificate							
DETS Report No: 22-04869	**Date Sampled**	11/05/22					
Soil Consultants Ltd	**Time Sampled**	None Supplied					
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50					
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied					
Order No: 10728/SG	**Depth (m)**	0.50					
Reporting Date: 16/06/2022	**DETS Sample No**	599932					

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025	0.004				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04869
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 16/06/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

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AR As Received

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Derwentside Environmental Testing Services Ltd
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DETS Report No: 22-04766

Site Reference:	Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	27/05/2022
Sample Scheduled Date:	30/05/2022
Report Issue Number:	1
Reporting Date:	08/06/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

DETS Ltd
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UKAS TESTING
4480

Water Analysis Certificate						
DETS Report No: 22-04766	**Date Sampled**	27/05/22	27/05/22			
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN	**TP / BH No**	WS3	WS6			
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied			
Order No: 10728/SG	**Depth (m)**	1.26	1.23			
Reporting Date: 08/06/2022	**DETS Sample No**	599609	599610			

Determinand	**Unit**	**RL**	**Accreditation**					
pH	pH Units	N/a	**ISO17025**	7.4	6.9			
Electrical Conductivity	uS/cm	< 5	NONE	2030	299			
Total Cyanide	ug/l	< 5	**ISO17025**	62	< 5			
Sulphate as SO_4	mg/l	< 1	**ISO17025**	288	10			
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	141	5.3			
Arsenic (dissolved)	ug/l	< 5	**ISO17025**	22	5			
Boron (dissolved)	ug/l	< 5	**ISO17025**	339	71			
Cadmium (dissolved)	ug/l	< 0.4	**ISO17025**	< 0.4	0.9			
Chromium (dissolved)	ug/l	< 5	**ISO17025**	< 5	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20			
Copper (dissolved)	ug/l	< 5	**ISO17025**	< 5	25			
Lead (dissolved)	ug/l	< 5	**ISO17025**	18	20			
Mercury (dissolved)	ug/l	< 0.05	**ISO17025**	< 0.05	< 0.05			
Nickel (dissolved)	ug/l	< 5	**ISO17025**	< 5	39			
Selenium (dissolved)	ug/l	< 5	**ISO17025**	< 5	< 5			
Zinc (dissolved)	ug/l	< 2	**ISO17025**	62	24			
Total Phenols (monohydric)	ug/l	< 10	**ISO17025**	< 10	< 10			
EPH (C10 - C40)	ug/l	< 10	NONE	26	1835			

Subcontracted analysis (S)
Insufficient sample I/S
Unsuitable Sample U/S

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Water Analysis Certificate - Speciated PAH						
DETS Report No: 22-04766	**Date Sampled**	27/05/22	27/05/22			
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN	**TP / BH No**	WS3	WS6			
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied			
Order No: 10728/SG	**Depth (m)**	1.26	1.23			
Reporting Date: 08/06/2022	**DETS Sample No**	599609	599610			

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	ug/l	< 0.01	NONE	0.02	0.01			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	0.03	< 0.01			
Fluorene	ug/l	< 0.01	NONE	0.03	< 0.01			
Phenanthrene	ug/l	< 0.01	NONE	0.09	< 0.01			
Anthracene	ug/l	< 0.01	NONE	0.02	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	0.10	0.01			
Pyrene	ug/l	< 0.01	NONE	0.08	0.01			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008			
Total EPA-16 PAHs	ug/l	< 0.16	NONE	0.37	< 0.16			

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04766
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 08/06/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethan	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

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DETS Report No: 22-04691

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	26/05/2022
Sample Scheduled Date:	26/05/2022
Report Issue Number:	1
Reporting Date:	06/06/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 22-04691	**Date Sampled**	10/05/22				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS5/1.30				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	1.30				
Reporting Date: 06/06/2022	**DETS Sample No**	599262				

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected				
pH	pH Units	N/a	**MCERTS**	7.2				
Electrical Conductivity	uS/cm	< 5	NONE	329				
Total Cyanide	mg/kg	< 2	NONE	< 2				
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**	1241				
Total Sulphate as SO_4	%	< 0.02	**MCERTS**	0.12				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	489				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.49				
Total Sulphur	%	< 0.02	NONE	0.29				
Organic Matter (SOM)	%	< 0.1	**MCERTS**	13.9				
Arsenic (As)	mg/kg	< 2	**MCERTS**	3				
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	< 0.2				
Chromium (Cr)	mg/kg	< 2	**MCERTS**	2				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	**MCERTS**	4				
Lead (Pb)	mg/kg	< 3	**MCERTS**	13				
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1				
Nickel (Ni)	mg/kg	< 3	**MCERTS**	4				
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 3				
Zinc (Zn)	mg/kg	< 3	**MCERTS**	59				
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				
EPH (C10 - C40)	mg/kg	< 6	**MCERTS**	2330				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-04691	**Date Sampled**	10/05/22				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS5/1.30				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	1.30				
Reporting Date: 06/06/2022	**DETS Sample No**	599262				

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

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04691	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 06/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
$ 599262	WS5/1.30	None Supplied	1.30	29	Black loamy sand with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

$ samples exceeded recommended holding times

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04691
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 06/06/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

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DETS Report No: 22-04653

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	26/05/2022
Sample Scheduled Date:	26/05/2022
Report Issue Number:	1
Reporting Date:	13/06/2022

Authorised by:

Ela Mysiara
Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

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UKAS TESTING 4480

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

BS3882 Topsoil Suite

DETS Report No: 22-04653		**Date Sampled**	11/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS6				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	0.60				
Reporting Date: 13/06/2022		**DETS Sample No**	599152				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	25.3	5 - 35			
Silt Content (S)	%	N/a	42.2	0 - 65			
Sand Content (S)	%	N/a	32.5	30 - 85			
Textural Class (S)	N/a	N/a	Clay Loam	-			
Loss on Ignition	%	< 0.01	2.90	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	**5 - 30**	2 - 20	**5 - 20**
Coarse Fragment Content							
>2mm (S)	%	N/a	7.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.9	5.5 - 8.5	**3.5 - 5.5**	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	4	**16 - 140**	**16 - 140**	≤ 15	**16 - 140**
Potassium (Extractable) (S)	mg/l	< 20	140	121 - 1500	121 - 1500		121 - 1500
Magnesium (Extractable) (S)	mg/l	< 1	140	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	< 0.1	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	36	< 200	< 200		< 300
Copper MU	mg/kg	< 4	11	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	16	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	80				
Available Calcium (S)	mg/l	< 1	2900				
Electrical Conductivity	uS/cm	< 5	2200	3300			
OVERALL COMPLIANCY				N	N	Y	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
Subcontracted analysis (S)

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BS3882 Topsoil Suite							
DETS Report No: 22-04653		**Date Sampled**	12/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS10				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	GL - 0.50				
Reporting Date: 13/06/2022		**DETS Sample No**	599153				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	16.7	5 - 35			
Silt Content (S)	%	N/a	31.0	0 - 65			
Sand Content (S)	%	N/a	52.3	30 - 85			
Textural Class (S)	N/a	N/a	Sandy Loam	-			
Loss on Ignition	%	< 0.01	3.10	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm (S)	%	N/a	14.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.4	**5.5 - 8.5**	3.5 - 5.5	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	19	16 - 140	16 - 140	**≤ 15**	16 - 140
Potassium (Extractable) (S)	mg/l	< 20	110	**121 - 1500**	**121 - 1500**		**121 - 1500**
Magnesium (Extractable) (S)	mg/l	< 1	54	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	< 0.1	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	36	< 200	< 200		< 300
Copper MU	mg/kg	< 4	13	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	11	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	39				
Available Calcium (S)	mg/l	< 1	2200				
Electrical Conductivity	uS/cm	< 5	2300	3300			
OVERALL COMPLIANCY				N	N	N	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04653	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 13/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
$ 599152	WS6	None Supplied	0.60	14	Brown sandy clay
$ 599153	WS10	None Supplied	GL - 0.50	9.4	Brown sandy clay with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

$ samples exceeded recommended holding times

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04653
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 13/06/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

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DETS Report No: 22-04609

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	25/05/2022
Sample Scheduled Date:	25/05/2022
Report Issue Number:	1
Reporting Date:	30/05/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 22-04609	**Date Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	**TP / BH No**	BH01/8.0	BH01/20.0	BH02/3.0	BH02/7.0	BH03/17.0
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	8.00	20.00	3.00	7.00	17.00
Reporting Date: 30/05/2022	**DETS Sample No**	598989	598990	598991	598992	598993

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.1	8.4	7.3	8.0	8.2
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	926	1024	1023	1585	1130
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.09	0.10	0.10	0.16	0.11
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	303	301	198	474	330
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.30	0.30	0.20	0.47	0.33
Total Sulphur	%	< 0.02	NONE	0.34	0.36	0.51	0.65	0.33

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate						
DETS Report No: 22-04609	**Date Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	**TP / BH No**	BH04/11.0	WS1/2.30	WS2A/5.0	WS3/2.30	WS4/0.90
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	11.00	2.30	5.00	2.30	0.90
Reporting Date: 30/05/2022	**DETS Sample No**	598994	598995	598996	598997	598998

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	7.7	8.0	8.0	8.1	6.1
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	1125	< 200	492	227	< 200
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.11	< 0.02	0.05	0.02	< 0.02
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	327	18	129	32	< 10
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.33	0.02	0.13	0.03	< 0.01
Total Sulphur	%	< 0.02	NONE	0.66	< 0.02	0.14	0.02	< 0.02

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 22-04609	**Date Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	**TP / BH No**	WS5/0.70	WS6/1.00	WS7/0.70	WS9/4.00	WS10/0.80
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	0.70	1.00	0.70	4.00	0.80
Reporting Date: 30/05/2022	**DETS Sample No**	598999	599000	599001	599002	599003

Determinand	Unit	RL	Accreditation	(n)				
pH	pH Units	N/a	MCERTS	7.9	7.3	6.7	8.0	6.7
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	480	< 200	< 200	892	< 200
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.05	< 0.02	< 0.02	0.09	< 0.02
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	< 10	< 10	< 10	196	< 10
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	< 0.01	0.20	< 0.01
Total Sulphur	%	< 0.02	NONE	0.02	< 0.02	< 0.02	0.41	< 0.02

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 22-04609	**Date Sampled**	None Supplied				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	**TP / BH No**	SK1/0.50				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	0.50				
Reporting Date: 30/05/2022	**DETS Sample No**	599004				

Determinand	**Unit**	**RL**	**Accreditation**					
pH	pH Units	N/a	**MCERTS**	8.0				
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**	2563				
Total Sulphate as SO_4	%	< 0.02	**MCERTS**	0.26				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	15				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.01				
Total Sulphur	%	< 0.02	NONE	0.08				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
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Tel : 01622 850410

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04609	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 30/05/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
^ 598989	BH01/8.0	None Supplied	8.00	17.3	Brown clay
^ 598990	BH01/20.0	None Supplied	20.00	16	Brown clay
^ 598991	BH02/3.0	None Supplied	3.00	15.1	Brown clay
^ 598992	BH02/7.0	None Supplied	7.00	18.1	Brown clay
^ 598993	BH03/17.0	None Supplied	17.00	18.6	Brown clay
^ 598994	BH04/11.0	None Supplied	11.00	18.5	Brown clay
^ 598995	WS1/2.30	None Supplied	2.30	13	Brown sandy clay
^ 598996	WS2A/5.0	None Supplied	5.00	14.9	Brown sandy clay with stones
^ 598997	WS3/2.30	None Supplied	2.30	23.9	Brown clay
^ 598998	WS4/0.90	None Supplied	0.90	4.9	Brown sandy clay with stones
^ 598999	WS5/0.70	None Supplied	0.70	16	Brown sandy clay with stones and concrete
^ 599000	WS6/1.00	None Supplied	1.00	5.3	Brown sandy gravel with stones
^ 599001	WS7/0.70	None Supplied	0.70	13	Brown sandy clay
^ 599002	WS9/4.00	None Supplied	4.00	20.4	Brown clay
^ 599003	WS10/0.80	None Supplied	0.80	6.5	Brown sandy clay with stones
^ 599004	SK1/0.50	None Supplied	0.50	5.2	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
^ no sampling date provided; unable to confirm if samples are within acceptable holding times

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Kent ME17 2JN
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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04609

Soil Consultants Ltd

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Reporting Date: 30/05/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

Steph Grimes
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Derwentside Environmental Testing Services Ltd
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Rose Lane
Lenham Heath
Kent
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t: 01622 850410

DETS Report No: 22-04512

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	20/05/2022
Sample Scheduled Date:	20/05/2022
Report Issue Number:	1
Reporting Date:	09/06/2022

Authorised by:

Ela Mysiara
Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

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mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING 4480

BS3882 Topsoil Suite

DETS Report No: 22-04512		**Date Sampled**	11/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS7				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	0.10				
Reporting Date: 09/06/2022		**DETS Sample No**	598619				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	17.6	5 - 35			
Silt Content (S)	%	N/a	31.9	0 - 65			
Sand Content (S)	%	N/a	50.5	30 - 85			
Textural Class (S)	N/a	N/a	Sandy Loam	-			
Loss on Ignition	%	< 0.01	4.90	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm (S)	%	N/a	9.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.2	**5.5 - 8.5**	3.5 - 5.5	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	28	16 - 140	16 - 140	**≤ 15**	16 - 140
Potassium (Extractable) (S)	mg/l	< 20	70	**121 - 1500**	**121 - 1500**		**121 - 1500**
Magnesium (Extractable) (S)	mg/l	< 1	56	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	360	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	33	< 200	< 200		< 300
Copper MU	mg/kg	< 4	14	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	8	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	80				
Available Calcium (S)	mg/l	< 1	1300				
Electrical Conductivity	uS/cm	< 5	2000	3300			
OVERALL COMPLIANCY				N	N	N	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
Subcontracted analysis (S)

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mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING 4480

BS3882 Topsoil Suite							
DETS Report No: 22-04512		**Date Sampled**	11/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS8				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	0.20				
Reporting Date: 09/06/2022		**DETS Sample No**	598620				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	50.0	**5 - 35**			
Silt Content (S)	%	N/a	47.0	0 - 65			
Sand Content (S)	%	N/a	3.0	**30 - 85**			
Textural Class (S)	N/a	N/a	Silty Clay	-			
Loss on Ignition	%	< 0.01	5.70	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm (S)	%	N/a	0.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.5	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	43	16 - 140	16 - 140	**≤ 15**	16 - 140
Potassium (Extractable) (S)	mg/l	< 20	65	**121 - 1500**	**121 - 1500**		**121 - 1500**
Magnesium (Extractable) (S)	mg/l	< 1	55	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	340	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	45	< 200	< 200		< 300
Copper MU	mg/kg	< 4	20	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	10	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	110				
Available Calcium (S)	mg/l	< 1	2000				
Electrical Conductivity	uS/cm	< 5	2100	3300			
OVERALL COMPLIANCY				N	N	N	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
Subcontracted analysis (S)

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4480

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04512	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 09/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598619	WS7	None Supplied	0.10	10.7	Brown sandy clay with vegetation
598620	WS8	None Supplied	0.20	12	Brown sandy clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04512
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 09/06/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

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DETS Report No: 22-04512

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	20/05/2022
Sample Scheduled Date:	20/05/2022
Report Issue Number:	1
Reporting Date:	09/06/2022

Authorised by:

Ela Mysiara
Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

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For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

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mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING 4480

BS3882 Topsoil Suite

DETS Report No: 22-04512		**Date Sampled**	11/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS7				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	0.10				
Reporting Date: 09/06/2022		**DETS Sample No**	598619				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	17.6	5 - 35			
Silt Content (S)	%	N/a	31.9	0 - 65			
Sand Content (S)	%	N/a	50.5	30 - 85			
Textural Class (S)	N/a	N/a	Sandy Loam	-			
Loss on Ignition	%	< 0.01	4.90	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm (S)	%	N/a	9.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.2	**5.5 - 8.5**	3.5 - 5.5	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	28	16 - 140	16 - 140	**≤ 15**	16 - 140
Potassium (Extractable) (S)	mg/l	< 20	70	**121 - 1500**	**121 - 1500**		**121 - 1500**
Magnesium (Extractable) (S)	mg/l	< 1	56	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	360	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	33	< 200	< 200		< 300
Copper MU	mg/kg	< 4	14	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	8	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	80				
Available Calcium (S)	mg/l	< 1	1300				
Electrical Conductivity	uS/cm	< 5	2000	3300			
OVERALL COMPLIANCY				N	N	N	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
Subcontracted analysis (S)

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UKAS TESTING 4480

BS3882 Topsoil Suite							
DETS Report No: 22-04512		**Date Sampled**	11/05/2022	**Compliance with Range**			
Soil Consultants Ltd		**Time Sampled**	None Supplied	**Multipurpose**	**Acidic**	**Low Fertility**	**Calcareous**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS8				
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied				
Order No: 10728/SG		**Depth (m)**	0.20				
Reporting Date: 09/06/2022		**DETS Sample No**	598620				
Determinand	**Reporting Unit**	**RL**					
Soil Texture							
Clay Content (S)	%	N/a	50.0	**5 - 35**			
Silt Content (S)	%	N/a	47.0	0 - 65			
Sand Content (S)	%	N/a	3.0	**30 - 85**			
Textural Class (S)	N/a	N/a	Silty Clay	-			
Loss on Ignition	%	< 0.01	5.70	**Clay Content 5 - 20%**			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm (S)	%	N/a	0.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm (S)	%	N/a	0.0	0	0	0	0
pH MU	pH Units	N/a	5.5	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	**7.5 - 9.0**
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrients							
Total Nitrogen (S)	%	< 0.01	< 0.01	**≥ 0.15**	**≥ 0.15**		**≥ 0.15**
Phosphorus (Extractable) (S)	mg/l	< 3	43	16 - 140	16 - 140	**≤ 15**	16 - 140
Potassium (Extractable) (S)	mg/l	< 20	65	**121 - 1500**	**121 - 1500**		**121 - 1500**
Magnesium (Extractable) (S)	mg/l	< 1	55	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio (S)	:1	< 0.1	340	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**	**< 20 : 1**
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by soil pH)				**Multipurpose & Specific Purpose Topsoils at pH range**			
				< 6.0	6.0 - 7.0		> 7.0
Zinc MU	mg/kg	< 3	45	< 200	< 200		< 300
Copper MU	mg/kg	< 4	20	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	10	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium (S)	mg/l	< 1	110				
Available Calcium (S)	mg/l	< 1	2000				
Electrical Conductivity	uS/cm	< 5	2100	3300			
OVERALL COMPLIANCY				N	N	N	N

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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Subcontracted analysis (S)

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04512	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 09/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598619	WS7	None Supplied	0.10	10.7	Brown sandy clay with vegetation
598620	WS8	None Supplied	0.20	12	Brown sandy clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04512
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 09/06/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

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DETS Report No: 22-04511

Site Reference:	Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref:	10728/SG
Order No:	10728/SG
Sample Receipt Date:	20/05/2022
Sample Scheduled Date:	20/05/2022
Report Issue Number:	1
Reporting Date:	30/05/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	11/05/22	10/05/22	10/05/22	10/05/22
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS9/0.40	WS1/0.50	WS3/0.70	WS2A/1.60	WS2/0.80
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	0.40	0.50	0.70	1.60	0.80
Reporting Date: 30/05/2022	**DETS Sample No**	598603	598604	598606	598607	598608

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025		Detected	Not Detected	Not Detected	
Sample Matrix (S)	Material Type	N/a	NONE		Bundles of Chrysotile fibres			
Asbestos Type (S)	PLM Result	N/a	ISO17025		Chrysotile			
pH	pH Units	N/a	MCERTS		7.2	7.5	6.9	
Electrical Conductivity	uS/cm	< 5	NONE		471	312	419	
Total Cyanide	mg/kg	< 2	NONE		8	< 2	< 2	
Total Sulphate as SO_4	mg/kg	< 200	MCERTS		668	1609	1505	
Total Sulphate as SO_4	%	< 0.02	MCERTS		0.07	0.16	0.15	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS		68	115	235	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS		0.07	0.12	0.23	
Total Sulphur	%	< 0.02	NONE		0.08	0.11	0.14	
Organic Matter (SOM)	%	< 0.1	MCERTS		5.6	1.4	15.1	
Arsenic (As)	mg/kg	< 2	MCERTS		11	12	29	
W/S Boron	mg/kg	< 1	NONE		2.5	< 1	1.9	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS		0.2	< 0.2	1.4	
Chromium (Cr)	mg/kg	< 2	MCERTS		13	27	26	
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS		32	27	110	
Lead (Pb)	mg/kg	< 3	MCERTS		134	68	478	
Mercury (Hg)	mg/kg	< 1	MCERTS		< 1	< 1	1.2	
Nickel (Ni)	mg/kg	< 3	MCERTS		12	22	31	
Selenium (Se)	mg/kg	< 2	MCERTS		< 3	< 3	< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS		76	72	493	
Total Phenols (monohydric)	mg/kg	< 2	NONE		< 2	< 2	< 2	
EPH (C10 - C40)	mg/kg	< 6	MCERTS		56	3500	86	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 22-04511	**Date Sampled**	09/05/22	09/05/22	09/05/22	13/05/22	13/05/22
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	TP6/1.00	BH02/0.80	BH02/1.60	HP1/0.70	HP2/0.60
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	1.00	0.80	0.80	0.70	0.60
Reporting Date: 30/05/2022	**DETS Sample No**	598609	598610	598611	598612	598613

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected			Not Detected
Sample Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	ISO17025					
pH	pH Units	N/a	MCERTS	7.8	7.4			7.8
Electrical Conductivity	uS/cm	< 5	NONE	141	194			209
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2			< 2
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	834	436			988
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.08	0.04			0.10
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	19	12			69
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.02	0.01			0.07
Total Sulphur	%	< 0.02	NONE	0.03	0.02			0.04
Organic Matter (SOM)	%	< 0.1	MCERTS	1.2	2.9			1.9
Arsenic (As)	mg/kg	< 2	MCERTS	8	14			12
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.7			0.4
Chromium (Cr)	mg/kg	< 2	MCERTS	12	16			15
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			< 2
Copper (Cu)	mg/kg	< 4	MCERTS	11	108			24
Lead (Pb)	mg/kg	< 3	MCERTS	65	181			62
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1			< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	10	15			11
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	26	201			236
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	< 6	61			39

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 22-04511	**Date Sampled**	None Supplied	None Supplied	None Supplied	12/05/22	
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	BH01	BH03	BH04	WS4	
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: 10728/SG	**Depth (m)**	0.80	1.40	1.00	0.20	
Reporting Date: 30/05/2022	**DETS Sample No**	598614	598615	598616	598617	

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**			Not Detected		
Sample Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	**ISO17025**					
pH	pH Units	N/a	**MCERTS**			7.7		
Electrical Conductivity	uS/cm	< 5	NONE			136		
Total Cyanide	mg/kg	< 2	NONE			< 2		
Total Sulphate as SO_4	mg/kg	< 200	**MCERTS**			< 200		
Total Sulphate as SO_4	%	< 0.02	**MCERTS**			< 0.02		
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**			< 10		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**			< 0.01		
Total Sulphur	%	< 0.02	NONE			< 0.02		
Organic Matter (SOM)	%	< 0.1	**MCERTS**			0.7		
Arsenic (As)	mg/kg	< 2	**MCERTS**			12		
W/S Boron	mg/kg	< 1	NONE			< 1		
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**			< 0.2		
Chromium (Cr)	mg/kg	< 2	**MCERTS**			18		
Chromium (hexavalent)	mg/kg	< 2	NONE			< 2		
Copper (Cu)	mg/kg	< 4	**MCERTS**			8		
Lead (Pb)	mg/kg	< 3	**MCERTS**			35		
Mercury (Hg)	mg/kg	< 1	**MCERTS**			< 1		
Nickel (Ni)	mg/kg	< 3	**MCERTS**			14		
Selenium (Se)	mg/kg	< 2	**MCERTS**			< 3		
Zinc (Zn)	mg/kg	< 3	**MCERTS**			33		
Total Phenols (monohydric)	mg/kg	< 2	NONE			< 2		
EPH (C10 - C40)	mg/kg	< 6	**MCERTS**			< 6		

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Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	10/05/22	10/05/22	09/05/22	09/05/22
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50	WS3/0.70	WS2A/1.60	TP6/1.00	BH02/0.80
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 10728/SG	**Depth (m)**	0.50	0.70	1.60	1.00	0.80
Reporting Date: 30/05/2022	**DETS Sample No**	598604	598606	598607	598609	598610

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	0.38	0.23	0.73	< 0.1	0.14
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	1.16	0.74	2.59	< 0.1	0.55
Pyrene	mg/kg	< 0.1	MCERTS	1.01	0.69	2.17	< 0.1	0.59
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.60	0.41	1.18	< 0.1	0.44
Chrysene	mg/kg	< 0.1	MCERTS	0.64	0.38	1.31	< 0.1	0.42
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.85	0.48	1.74	< 0.1	0.65
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.37	0.22	0.73	< 0.1	0.28
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.70	0.34	1.61	< 0.1	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.61	0.34	1.64	< 0.1	0.57
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	0.41	0.22	0.99	< 0.1	0.41
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	6.7	4	14.7	< 1.6	4.6

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-04511	**Date Sampled**	13/05/22	None Supplied			
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	HP2/0.60	BH04			
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied			
Order No: 10728/SG	**Depth (m)**	0.60	1.00			
Reporting Date: 30/05/2022	**DETS Sample No**	598613	598616			

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	0.32	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	0.82	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	0.75	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.42	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	0.37	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.43	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.21	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.36	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.34	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.21	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	4.2	< 1.6			

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	13/05/22	13/05/22		
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50	HP1/0.70	HP2/0.60		
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: 10728/SG	**Depth (m)**	0.50	0.70	0.60		
Reporting Date: 30/05/2022	**DETS Sample No**	598604	598612	598613		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21		
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	3	< 3	4		
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21		
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42		

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	13/05/22	13/05/22		
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50	HP1/0.70	HP2/0.60		
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: 10728/SG	**Depth (m)**	0.50	0.70	0.60		
Reporting Date: 30/05/2022	**DETS Sample No**	598604	598612	598613		

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	13/05/22			
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50	HP1/0.70			
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied			
Order No: 10728/SG	**Depth (m)**	0.50	0.70			
Reporting Date: 30/05/2022	**DETS Sample No**	598604	598612			

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5			
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5			
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10			
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10			
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5			
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10			
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5			
TAME	ug/kg	< 5	MCERTS	< 5	< 5			
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10			
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5			
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5			
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
m,p-Xylene	ug/kg	< 2	MCERTS	< 2	< 2			
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2			
Styrene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10			
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5			
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5			
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5			
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5			
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5			
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5			
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5			
,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10			
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5			

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 22-04511	**Date Sampled**	11/05/22	13/05/22			
Soil Consultants Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	WS1/0.50	HP1/0.70			
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	None Supplied			
Order No: 10728/SG	**Depth (m)**	0.50	0.70			
Reporting Date: 30/05/2022	**DETS Sample No**	598604	598612			

Determinand	Unit	RL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15			
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
4-Chloroanaline	mg/kg	< 0.15	NONE	< 0.15	< 0.15			
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1			
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1			
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15			
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			

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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 22-04511	**Date Sampled**	13/05/22				
Soil Consultants Ltd	**Time Sampled**	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	HP1/0.70				
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied				
Order No: 10728/SG	**Depth (m)**	0.70				
Reporting Date: 30/05/2022	**DETS Sample No**	598612				

Determinand	Unit	RL	Accreditation					
PCB Congener 28	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 52	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 101	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 118	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 138	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 153	mg/kg	< 0.008	NONE	< 0.008				
PCB Congener 180	mg/kg	< 0.008	NONE	< 0.008				
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1				

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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 22-04511		**Date Sampled**	11/05/22			**Landfill Waste Acceptance Criteria Limits**		
Soil Consultants Ltd		**Time Sampled**	None Supplied			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS9/0.40					
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied					
Order No: 10728/SG		**Depth (m)**	0.40					
Reporting Date: 30/05/2022		**DETS Sample No**	598603					
Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	2.4			3%	5%	6%
Loss on Ignition	%	< 0.01	3.60			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7			100	--	--
pH[MU]	pH Units	N/a	7.6			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			--	To be evaluated	To be evaluated
Eluate Analysis			**10:1 mg/l**			**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**	
Arsenic[U]			< 0.01			< 0.1	0.5	2	25
Barium[U]			< 0.02			< 0.2	20	100	300
Cadmium[U]			< 0.0005			< 0.005	0.04	1	5
Chromium[U]			< 0.005			< 0.05	0.5	10	70
Copper[U]			< 0.01			< 0.1	2	50	100
Mercury[U]			< 0.0005			< 0.005	0.01	0.2	2
Molybdenum[U]			0.001			0.01	0.5	10	30
Nickel[U]			< 0.007			< 0.07	0.4	10	40
Lead[U]			< 0.005			< 0.05	0.5	10	50
Antimony[U]			< 0.005			< 0.05	0.06	0.7	5
Selenium[U]			< 0.005			< 0.05	0.1	0.5	7
Zinc[U]			0.008			0.08	4	50	200
Chloride[U]			1.2			12	800	15000	25000
Fluoride[U]			< 0.5			< 5	10	150	500
Sulphate[U]			1.2			12	1000	20000	50000
TDS			24			240	4000	60000	100000
Phenol Index			< 0.01			< 0.1	1	-	-
DOC			3.3			32.7	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			88.7						
Moisture (%)			12.8						
Stage 1									
Volume Eluate L10 (litres)			0.89						

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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 22-04511		**Date Sampled**	10/05/22			**Landfill Waste Acceptance Criteria Limits**		
Soil Consultants Ltd		**Time Sampled**	None Supplied			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS2/0.80					
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied					
Order No: 10728/SG		**Depth (m)**	0.80					
Reporting Date: 30/05/2022		**DETS Sample No**	598608					
Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	1			3%	5%	6%
Loss on Ignition	%	< 0.01	3.80			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7			100	--	--
pH[MU]	pH Units	N/a	7.4			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			--	To be evaluated	To be evaluated
Eluate Analysis			**10:1 mg/l**			**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**	
Arsenic[U]			< 0.01			< 0.1	0.5	2	25
Barium[U]			< 0.02			< 0.2	20	100	300
Cadmium[U]			< 0.0005			< 0.005	0.04	1	5
Chromium[U]			< 0.005			< 0.05	0.5	10	70
Copper[U]			< 0.01			< 0.1	2	50	100
Mercury[U]			< 0.0005			< 0.005	0.01	0.2	2
Molybdenum[U]			0.001			0.01	0.5	10	30
Nickel[U]			< 0.007			< 0.07	0.4	10	40
Lead[U]			< 0.005			< 0.05	0.5	10	50
Antimony[U]			< 0.005			< 0.05	0.06	0.7	5
Selenium[U]			< 0.005			< 0.05	0.1	0.5	7
Zinc[U]			< 0.005			< 0.05	4	50	200
Chloride[U]			2.8			28	800	15000	25000
Fluoride[U]			< 0.5			< 5	10	150	500
Sulphate[U]			2.5			25	1000	20000	50000
TDS			34			340	4000	60000	100000
Phenol Index			< 0.01			< 0.1	1	-	-
DOC			3.1			31.1	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			85.8						
Moisture (%)			16.6						
Stage 1									
Volume Eluate L10 (litres)			0.88						

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DETS Report No: 22-04511		**Date Sampled**	09/05/22				**Landfill Waste Acceptance Criteria Limits**	
Soil Consultants Ltd		**Time Sampled**	None Supplied				**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	BH02/1.60						
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied						
Order No: 10728/SG		**Depth (m)**	0.80						
Reporting Date: 30/05/2022		**DETS Sample No**	598611						
Determinand	**Unit**	**MDL**							
TOC[MU]	%	< 0.1	0.5				3%	5%	6%
Loss on Ignition	%	< 0.01	2.80				--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10				500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7				100	--	--
pH[MU]	pH Units	N/a	7.5				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1				--	To be evaluated	To be evaluated
Eluate Analysis			**10:1 mg/l**			**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]			< 0.01			< 0.1	0.5	2	25
Barium[U]			0.03			0.3	20	100	300
Cadmium[U]			< 0.0005			< 0.005	0.04	1	5
Chromium[U]			< 0.005			< 0.05	0.5	10	70
Copper[U]			< 0.01			< 0.1	2	50	100
Mercury[U]			< 0.0005			< 0.005	0.01	0.2	2
Molybdenum[U]			0.002			0.02	0.5	10	30
Nickel[U]			< 0.007			< 0.07	0.4	10	40
Lead[U]			< 0.005			< 0.05	0.5	10	50
Antimony[U]			< 0.005			< 0.05	0.06	0.7	5
Selenium[U]			< 0.005			< 0.05	0.1	0.5	7
Zinc[U]			< 0.005			< 0.05	4	50	200
Chloride[U]			1.5			15	800	15000	25000
Fluoride[U]			0.6			6.1	10	150	500
Sulphate[U]			3.8			38	1000	20000	50000
TDS			40			400	4000	60000	100000
Phenol Index			< 0.01			< 0.1	1	-	-
DOC			7.8			77.8	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			86.1						
Moisture (%)			16.2						
Stage 1									
Volume Eluate L10 (litres)			0.88						

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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 22-04511	**Date Sampled**	None Supplied	
Soil Consultants Ltd	**Time Sampled**	None Supplied	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	BH01	
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	
Order No: 10728/SG	**Depth (m)**	0.80	
Reporting Date: 30/05/2022	**DETS Sample No**	598614	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	2.4	3%	5%	6%
Loss on Ignition	%	< 0.01	4.20	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	27.2	100	--	--
pH[MU]	pH Units	N/a	6.5	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1	--	To be evaluated	To be evaluated

Eluate Analysis	**10:1 mg/l**	**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.1	0.5	2	25
Barium[U]	< 0.02	< 0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.005	0.04	1	5
Chromium[U]	< 0.005	< 0.05	0.5	10	70
Copper[U]	< 0.01	< 0.1	2	50	100
Mercury[U]	< 0.0005	< 0.005	0.01	0.2	2
Molybdenum[U]	0.001	0.01	0.5	10	30
Nickel[U]	< 0.007	< 0.07	0.4	10	40
Lead[U]	< 0.005	< 0.05	0.5	10	50
Antimony[U]	< 0.005	< 0.05	0.06	0.7	5
Selenium[U]	< 0.005	< 0.05	0.1	0.5	7
Zinc[U]	< 0.005	< 0.05	4	50	200
Chloride[U]	1.6	16	800	15000	25000
Fluoride[U]	< 0.5	< 5	10	150	500
Sulphate[U]	3.5	35	1000	20000	50000
TDS	30	300	4000	60000	100000
Phenol Index	< 0.01	< 0.1	1	-	-
DOC	4.1	41.2	500	800	1000
Leach Test Information					
Sample Mass (kg)	0.11				
Dry Matter (%)	82.8				
Moisture (%)	20.8				
Stage 1					
Volume Eluate L10 (litres)	0.88				

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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 22-04511	**Date Sampled**	None Supplied	
Soil Consultants Ltd	**Time Sampled**	None Supplied	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	**TP / BH No**	BH03	
Project / Job Ref: 10728/SG	**Additional Refs**	None Supplied	
Order No: 10728/SG	**Depth (m)**	1.40	
Reporting Date: 30/05/2022	**DETS Sample No**	598615	

Determinand	**Unit**	**MDL**		**Landfill Waste Acceptance Criteria Limits**		
				Inert Waste Landfill	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
TOC[MU]	%	< 0.1	0.6	3%	5%	6%
Loss on Ignition	%	< 0.01	2.10	--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05	6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10	500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7	100	--	--
pH[MU]	pH Units	N/a	7.5	--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1	--	To be evaluated	To be evaluated

Eluate Analysis	**10:1 mg/l**	**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	< 0.01	< 0.1	0.5	2	25
Barium[U]	< 0.02	< 0.2	20	100	300
Cadmium[U]	< 0.0005	< 0.005	0.04	1	5
Chromium[U]	< 0.005	< 0.05	0.5	10	70
Copper[U]	< 0.01	< 0.1	2	50	100
Mercury[U]	< 0.0005	< 0.005	0.01	0.2	2
Molybdenum[U]	0.002	0.02	0.5	10	30
Nickel[U]	< 0.007	< 0.07	0.4	10	40
Lead[U]	< 0.005	< 0.05	0.5	10	50
Antimony[U]	< 0.005	< 0.05	0.06	0.7	5
Selenium[U]	< 0.005	< 0.05	0.1	0.5	7
Zinc[U]	< 0.005	< 0.05	4	50	200
Chloride[U]	1.6	16	800	15000	25000
Fluoride[U]	< 0.5	< 5	10	150	500
Sulphate[U]	2.0	20	1000	20000	50000
TDS	59	590	4000	60000	100000
Phenol Index	< 0.01	< 0.1	1	-	-
DOC	3.4	33.9	500	800	1000
Leach Test Information					
Sample Mass (kg)	0.10				
Dry Matter (%)	88.1				
Moisture (%)	13.4				
Stage 1					
Volume Eluate L10 (litres)	0.89				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2

DETS Report No: 22-04511		**Date Sampled**	12/05/22			**Landfill Waste Acceptance Criteria Limits**		
Soil Consultants Ltd		**Time Sampled**	None Supplied			**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		**TP / BH No**	WS4					
Project / Job Ref: 10728/SG		**Additional Refs**	None Supplied					
Order No: 10728/SG		**Depth (m)**	0.20					
Reporting Date: 30/05/2022		**DETS Sample No**	598617					
Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	1.5			3%	5%	6%
Loss on Ignition	%	< 0.01	3.90			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	22.7			100	--	--
pH[MU]	pH Units	N/a	5.5			--	**>6**	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			--	To be evaluated	To be evaluated
Eluate Analysis			**10:1 mg/l**			**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**	
Arsenic[U]			< 0.01			< 0.1	0.5	2	25
Barium[U]			< 0.02			< 0.2	20	100	300
Cadmium[U]			< 0.0005			< 0.005	0.04	1	5
Chromium[U]			< 0.005			< 0.05	0.5	10	70
Copper[U]			< 0.01			< 0.1	2	50	100
Mercury[U]			< 0.0005			< 0.005	0.01	0.2	2
Molybdenum[U]			< 0.001			< 0.01	0.5	10	30
Nickel[U]			< 0.007			< 0.07	0.4	10	40
Lead[U]			< 0.005			< 0.05	0.5	10	50
Antimony[U]			< 0.005			< 0.05	0.06	0.7	5
Selenium[U]			< 0.005			< 0.05	0.1	0.5	7
Zinc[U]			0.010			0.10	4	50	200
Chloride[U]			1.4			14	800	15000	25000
Fluoride[U]			< 0.5			< 5	10	150	500
Sulphate[U]			< 1.0			< 10	1000	20000	50000
TDS			15			150	4000	60000	100000
Phenol Index			< 0.01			< 0.1	1	-	-
DOC			2.6			25.9	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			93.1						
Moisture (%)			7.4						
Stage 1									
Volume Eluate L10 (litres)			0.89						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 22-04511
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 30/05/2022

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598603	WS9/0.40	None Supplied	0.40	11.3	Brown sandy clay with stones
598604	WS1/0.50	None Supplied	0.50	16.2	Black sandy clay with stones
598606	WS3/0.70	None Supplied	0.70	22.8	Grey sandy clay
598607	WS2A/1.60	None Supplied	1.60	46.4	Black loamy sand with vegetation
598608	WS2/0.80	None Supplied	0.80	14.2	Brown sandy clay with stones
$ 598609	TP6/1.00	None Supplied	1.00	13.7	Brown sandy clay with stones and concrete
$ 598610	BH02/0.80	None Supplied	0.80	9.4	Brown sandy clay with stones and concrete
$ 598611	BH02/1.60	None Supplied	0.80	13.9	Brown sandy clay with stones
598612	HP1/0.70	None Supplied	0.70	16.2	Brown sandy clay with stones
598613	HP2/0.60	None Supplied	0.60	8.7	Brown sandy clay with stones and concrete
^ 598614	BH01	None Supplied	0.80	17.2	Brown sandy clay with stones
^ 598615	BH03	None Supplied	1.40	11.8	Brown sandy clay with stones
^ 598616	BH04	None Supplied	1.00	9.1	Brown sandy clay with stones
598617	WS4	None Supplied	0.20	6.9	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
^ no sampling date provided; unable to confirm if samples are within acceptable holding times
$ samples exceeded recommended holding times

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
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Tel : 01622 850410

4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04511
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 30/05/2022

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 diphenylcarbazide 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	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
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

DETS Ltd
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UKAS TESTING
4480

Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04511
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN
Project / Job Ref: 10728/SG
Order No: 10728/SG
Reporting Date: 30/05/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethan	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 1

Description:

General view of Kneller Hall

Direction:
Looking N

Date:
05/05/22

Photo No 2

Description:

View of rear of Kneller Hall

Direction:
Looking SSW

Date:
05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 3

Description:

General view of pond in central south west of site, to the rear of Kneller Hall. Appears concrete lined

Direction:
Looking NW

Date:
05/05/22

Photo No 4

Description:

View of rear light well into basement of Kneller Hall. (light wells to front and rear of Kneller Hall)

Direction:
Looking SW

Date:
05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 5

Description:

General view of multiple extensions to Kneller Hall and dilapidated decking.

Direction: Looking SW

Date: 05/05/22

Photo No 6

Description:

View of basement plant room on northernmost portion of Kneller Hall.

Direction: Looking SE

Date: 05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 7

Description:

General view of sports pitches on the east half of site. Twickenham Stadium in background.

Direction: Looking E

Date: 05/05/22

Photo No 8

Description:

View of north boundary of site (western half), with gas cupboard in heavily wooded area.

Direction: Looking NE

Date: 05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 9

Description:

General view of wooded area on the northern portion of site and car park in north west corner of site.

Direction:
Looking NE

Date:
05/05/22

Photo No 10

Description:

View of garages in north western portion of site, with instrument rehearsal rooms beyond.

Direction:
Looking N

Date:
05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 11

Description:

General view of instrument practice rooms and wooded area, with outdoor band stand beyond.

Direction:
Looking SE

Date:
05/05/22

Photo No 12

Description:

View of eastern half of wooded northern boundary.

Direction:
Looking E

Date:
05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 13

Description:

General view of wooded boundary and teaching building in the western corner of site.

Direction: Looking SW

Date: 05/05/22

Photo No 14

Description:

View of car park and accommodation and teaching blocks in the south western portion of site.

Direction: Looking NW

Date: 05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 15

Description:

General view of accommodation structures. Basement plant room in grassed courtyard area circled in red.

Direction:
Looking NE

Date:
05/05/22

Photo No 16

Description:

View of grassed courtyard area, accommodation blocks and basement plant room.

Direction:
Looking NE

Date:
05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 17

Description:

General view of Band Practice Hall plant basement and evidence of repairs.

Direction: Looking E

Date: 05/05/22

Photo No 18

Description:

General view of Band Practice Hall plant basement.

Direction: Looking E

Date: 05/05/22

Site & Location	Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN	Report No: 10728/SG

Site photographs

Photo No 19

Description:

Internal view of Band Practice Hall roof, showing wall pin retaining bars.

Direction: Looking W

Date: 05/05/22

Photo No 20

Description:

General view of Band Practice Hall with external concrete supports and wall retaining pins circled in red.

Direction: Looking SW

Date: 05/05/22