CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING,
CONTAMINATED LAND SURVEYS, DESK
STUDIES, RISK ASSESSMENT.

MRH GEOTECHNICAL

GROUND INVESTIGATION FOR

5 KEMPLAY ROAD
LONDON
NW3 1TA

Job No: 131410

Date September 2013

60 Station Road, Chingford, London E4 7BE Tel: 020 8559 3134 Fax: 020 8559 3135

Director: S.J. Hudson BSc Associates: S. Corrigan BSc MSc DIC FGS S. Brooks BEng (Hons)
Consultants: E.J. Murray Bsc, PhD, CEng, FICE, CGeol, FGS, MaPS D.W. Rix BSc, MSc, CEng, MICE A.W. Hutchings MIAT

CONTENTS

APPENDICES

Report No: 131410

Date: September 2013

REPORT ON A GROUND INVESTIGATION AT 5 KEMPLAY ROAD, LONDON NW3 1TA

1 INTRODUCTION

1.1 This report has been prepared for Trigram Partnership, Consulting Structural Engineers, who are acting on behalf of Sarah and Lionel Fournier.

1.2 Our brief for the investigation was to:

a) Excavate four trial pits, backfill and make good
b) Construct three boreholes with associated soil sampling and in situ testing
c) Laboratory testing of soil samples for classification
d) Carry out one suite of contamination analysis
e) Undertake a Desk Study of the site history (see separate report)

2 DETAILS OF FIELD WORK

2.1 The fieldwork comprised the construction of four trial pits and three independent boreholes at the positions indicated in appendix A.

2.2 Details of the trial pit excavations and exposed foundation profiles are given in appendix B.

2.3 Soil samples were recovered at regular intervals during the drilling operations, sealed in inert, airtight containers and transported to the laboratory for testing and detailed descriptions.

2.4 Water level observations were made during the drilling works and noted on the borehole logs.

2.5 The fieldwork was carried out on the 17th, 18th and 27th September 2013

3 GENERAL GEOLOGY AND REVEALED STRATA

3.1 The boreholes proved Made Ground to depths of between 0.25m (BH 1), 1.10m (BH 2).and 1.20m (BH 3).

3.2 Borehole 1 then penetrated very stiff slightly sandy Clay, becoming stiff very silty Clay at 2.40m, with a slight sand content from 2.70m. The borehole was extended and penetrated very stiff Clay from a depth of 4.40m.

3.3 With regard to boreholes 2 and 3, the Made Ground was underlain by a series of soft to firm, becoming firm Clays with varying silt and sand contents. Stiff silty Clay was noted at depths of 5.70m (BH 2) and 5.20m (BH 3).

3.4 Details of the boreholes, sample depths, in situ test results and revealed stratum are given in appendix C.

3.5 The 1:50,000 scale geological map indicates the natural deposits of area to be near a boundary of Bagshot and Claygate deposits with London Clay of the Eocene age at depth.

4 GROUNDWATER

4.1 Borehole 1 remained dry throughout the construction period, while water seepage's were noted at depths of 3.10m and 3.40m in boreholes 2 and 3 respectively.

4.2 On the 27th September 2013, water levels of 2.63m (BH 1), 3.10m (BH 2) and 3.40m (BH 3) were recorded.

5 LABORATORY TESTING

5.1 The recovered soil samples were tested for moisture levels, together with fourteen Atterberg Limit determinations.

5.2 The results and detailed sample descriptions are tabulated in appendix D, categorising the Clay elements to be of medium to high plasticity (Plasticity Index 28% - 44%).

5.3 This is indicative of a moderately high susceptibility to moisture related cyclic volume change. From a study of the test data, a degree of desiccation is indicated in borehole 1 to a depth of 2.00, with a recovery in moisture levels from 2.50m.

6 CONCLUSIONS

6.1 The findings of the trial pits indicate the exposed foundations to be based at depths of between 0.65m - 0.96m.

6.2 The boreholes proved Natural Ground at depths of between 0.25m - 1.20m.

6.3 With regard to proposed foundation designs regarding the project, plots of the Shear Strengths versus Depth profiles are given in appendix C (Page 4).

6.4 However, note should be made of the relatively high water table which would limit the depth of open excavations without the use of shoring and pumping.

6.5 The results of the contamination analysis carried out in borehole 1 at a depth of 0.50m form appendix E, showing the material tested to be suitable for a residential development.

6.6 The SO_4 (2:1) content of 16 mg/l and corresponding pH value of 7.3 would categorise the site as DS-1 in accordance with BRE recommendations.

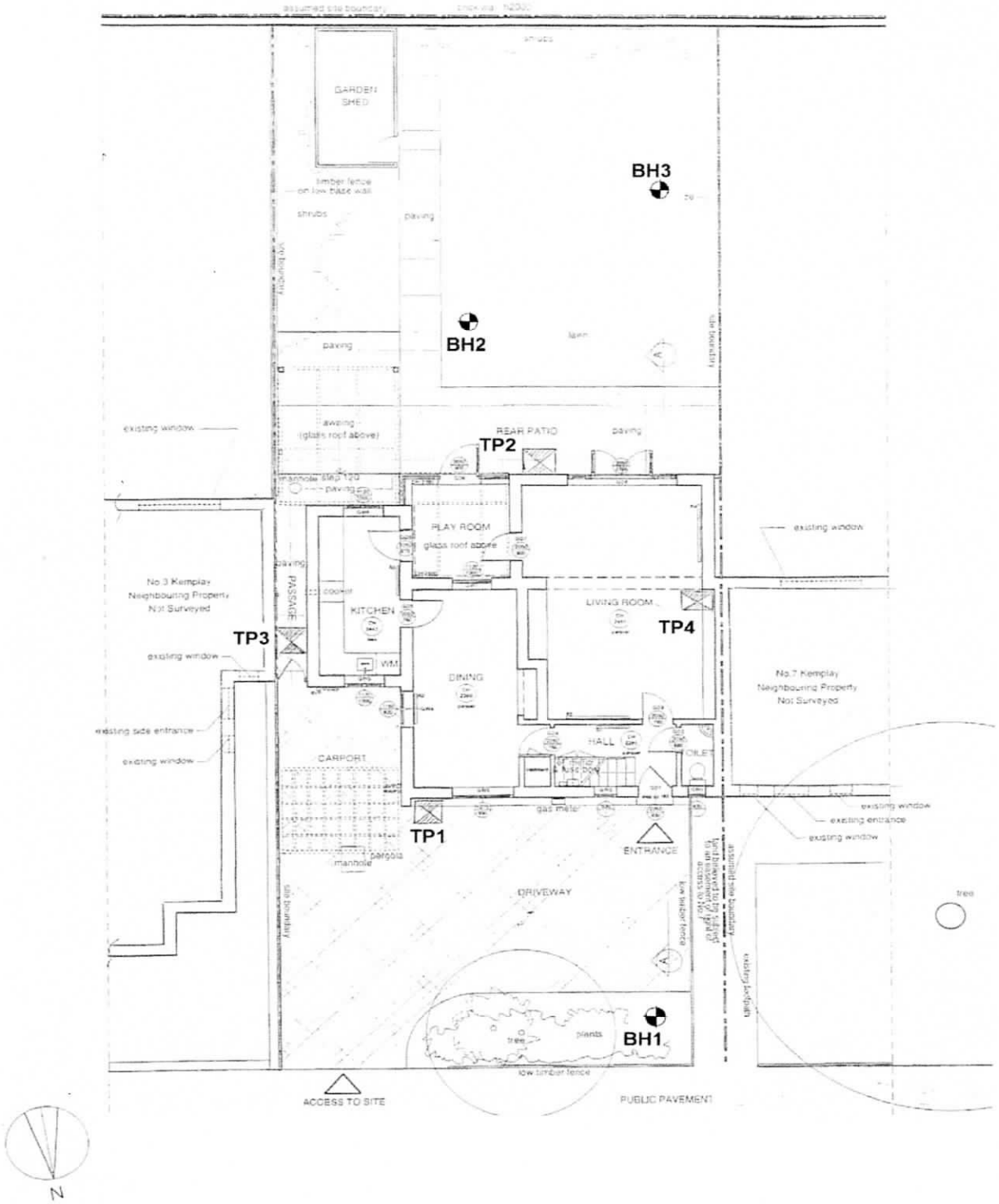
7 REFERENCES

1) British Standard EN ISO 14688-1:2002
2) British Standard 5930: 1999
3) British Standard 1377: Parts 1-9
4) British Geological Survey Sheet 256 (1:50,000 scale) North London
5) NHBC Standards, Chapter 4.2
6) Foundation Design and Construction (M.J. Tomlinson, Fifth Edition)
7) BRE SD1:2005 (Concrete in aggressive ground)

Stephen J. Hudson

APPENDIX A

TRIAL PIT / BOREHOLE LOCATION PLAN

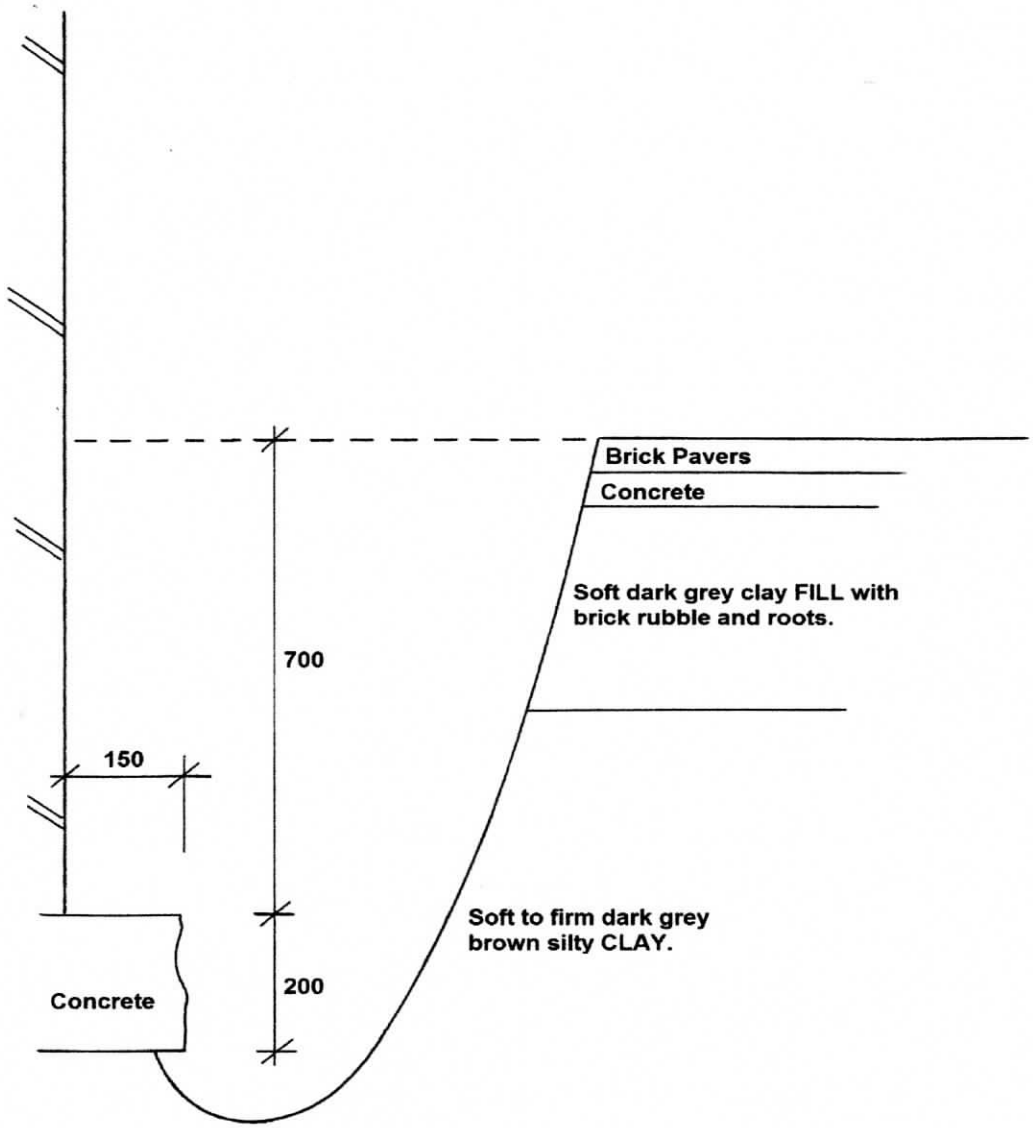


Not to Scale

		Appendix A	
Title:	Trial Pit & Borehole Location Plan.	Job No:	131410
	5 Kemplay Road, London, NW3 1TA.	Date:	October 2013

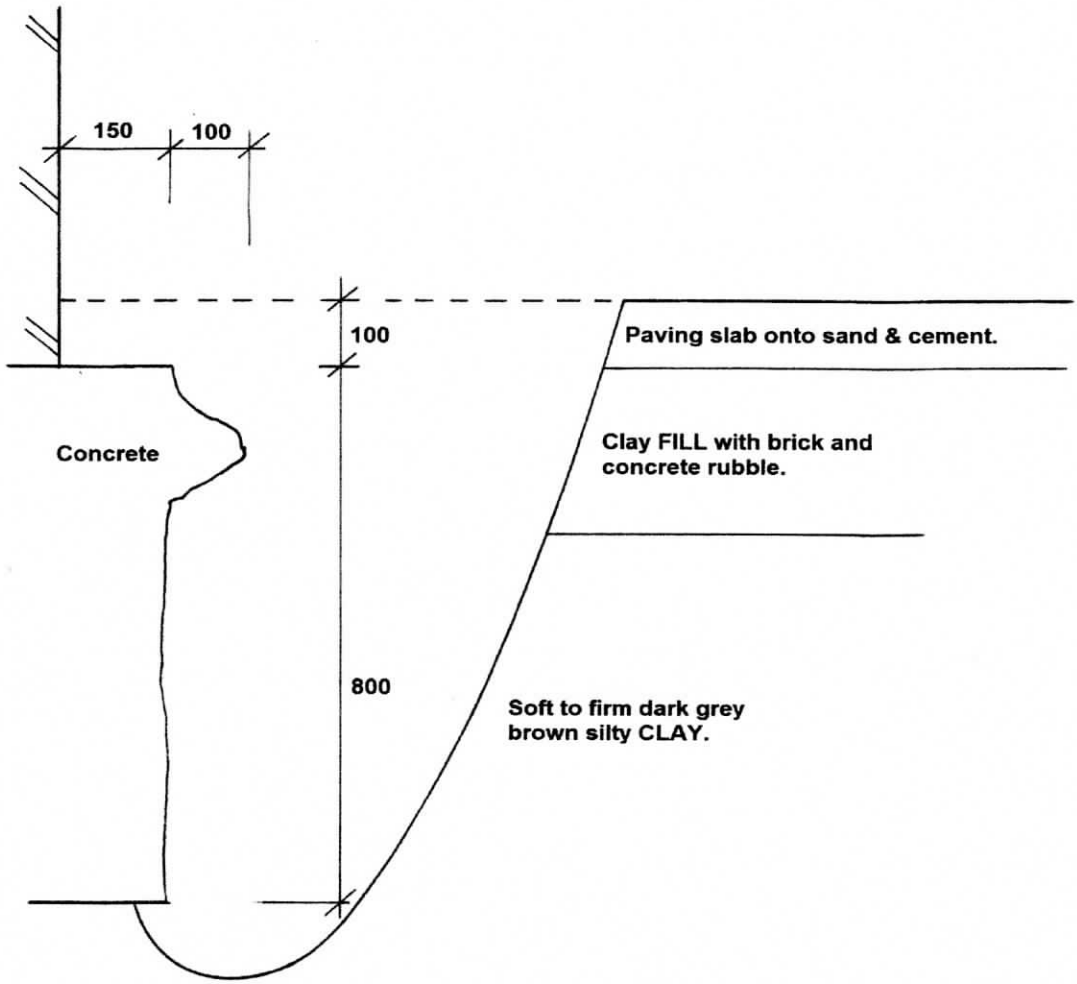
APPENDIX B

TRIAL PIT SECTION



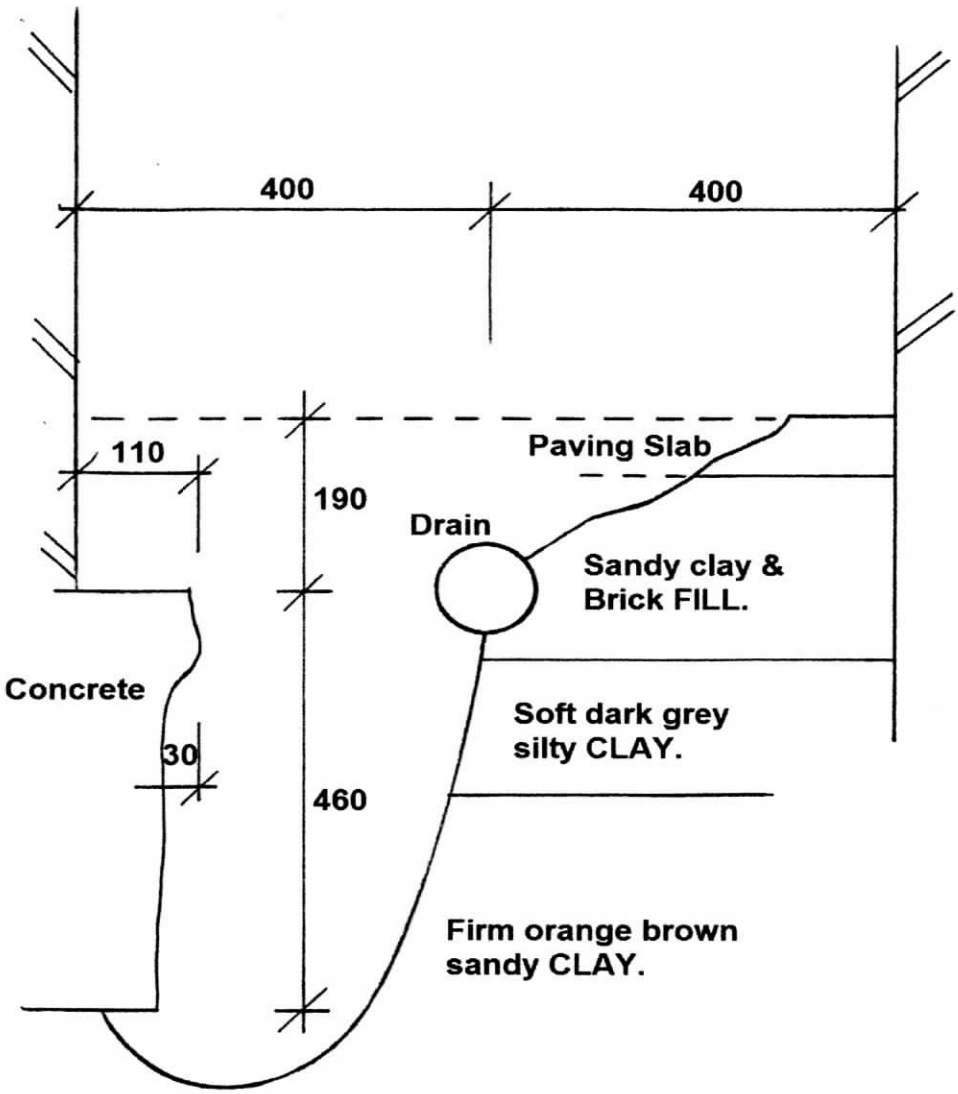
Not to Scale

		Appendix B	
Title:	Trial Pit 1	Job No:	131410
	5 Kemplay Road, London, NW3 1TA	Date:	October 2013



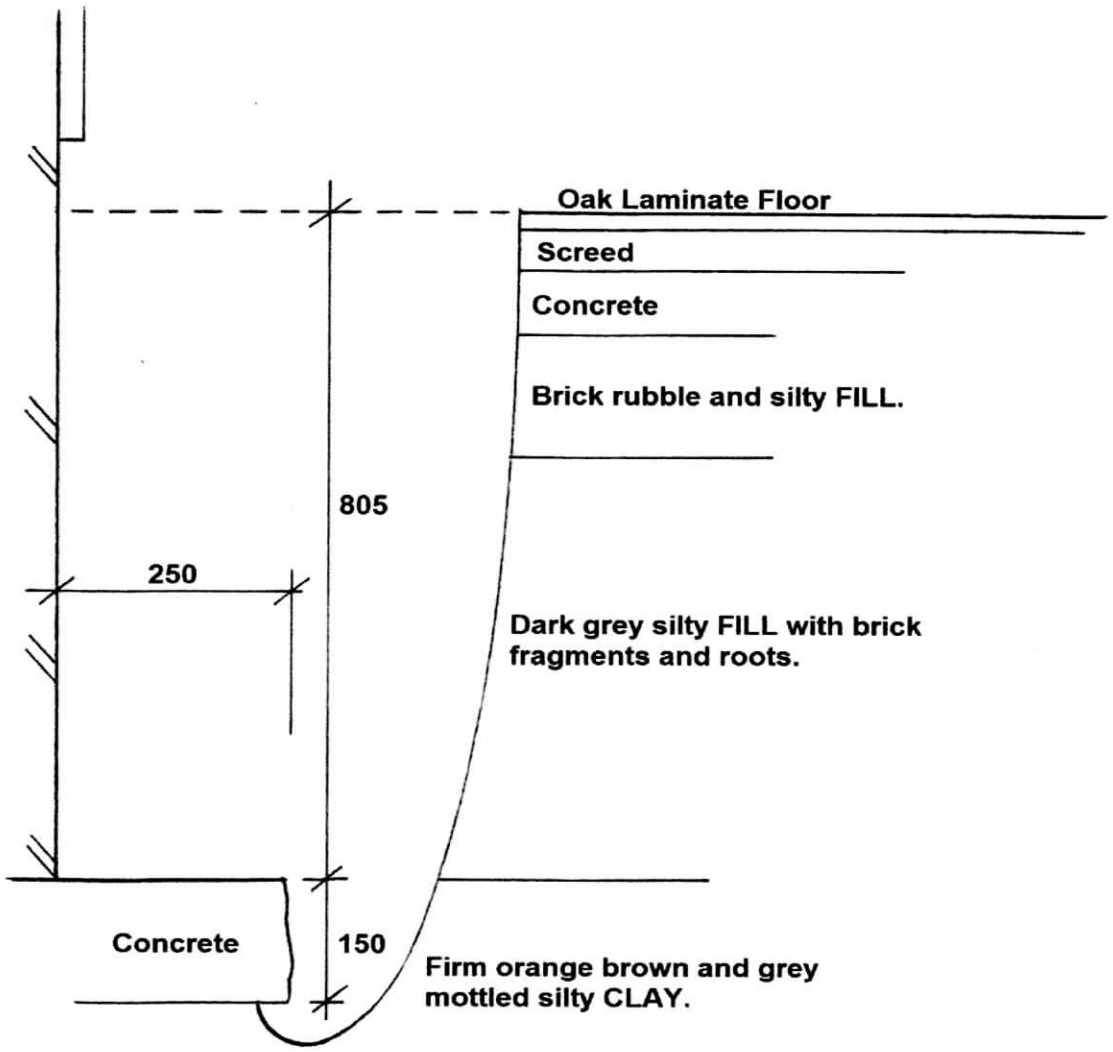
Not to Scale

		Appendix B	
Title:	Trial Pit 2	Job No:	131410
	5 Kemplay Road, London, NW3 1TA	Date:	October 2013



Not to Scale

		Appendix B	
Title:	Trial Pit 3	Job No:	131410
	5 Kemplay Road, London, NW3 1TA	Date:	October 2013



Both foundations similar.

Not to Scale

		Appendix B	
Title:	Trial Pit 4	Job No:	131410
	5 Kemplay Road, London, NW3 1TA	Date:	October 2013

APPENDIX C

BOREHOLE LOGS

BOREHOLE LOG - M R H GEOTECHNICAL

HOLE NO. BH 1
Sheet 1 of 1

CLIENT	SITE
Sarah & Lionel Fournier	5 Kemplay Road, London NW3 1TA

DATE OF FIELDWORK	SCALE	LEVEL/POSITION	OPERATOR	LOGGED BY	JOB NO.
17/09/13 - 17/09/13	1:50	GROUND / AS APPENDIX A	SB/PA/SA	SH	131410

SAMPLE DEPTH	RECORD TYPE	SPT N (Cu-kN/m^2)	Standp/ Piezo	DESCRIPTION OF STRATUM (thickness)	DEPTH	LEGEND
				Turf over topsoil (0.25)	0.25	
0.50	D1	(150+)		Very stiff brown with traces of orange brown slightly sandy CLAY (2.15)		
1.00	D2	(150+)				
1.50	D3	(150+)				
2.00	D4	(150+)				
				Traces of root activity evident to a depth of 2.20m		
2.50	D5	(148)		Stiff brown very silty CLAY (0.30)	2.40	
				Water standing at 2.63m on 27/09/2013	2.70	▽
3.00	D6	(140)		Stiff greyish brown with traces of bluish grey slightly sandy CLAY with occasional partings of orange silt (1.70)		
3.50	D7	(136)				
4.00	D8	(126)				
4.50	D9	(154)		Very stiff bluish grey CLAY (1.80)	4.40	
5.00	D10	(154)				
5.50	D11					
6.00	D12	(148)				
				Very stiff fissured dark grey CLAY (3.80)	6.20	
7.00	D13	(164)				
8.00	D14	(174)				
9.00	D15	(172)				
				Piezometer installed		
				Borehole ends		
10.00	D16	(172)			10.00	

GROUNDWATER AND CASING INFORMATION

DEPTH STRUCK	DEPTH CASED	ELAPSED TIME	WATER LEVEL	DEPTH SEALED	REMARKS ON GROUNDWATER AND CASING
-	-	-	-	-	Dry on completion Water standing at 2.63m on 27/09/2013

BORING METHOD AND REMARKS

Mechanical auger
Piezometer installed

KEY: D = Disturbed Sample B = Bulk Sample
U = Undisturbed Sample W = Water Sample
All dimensions are in metres unless otherwise stated

BOREHOLE LOG - M R H GEOTECHNICAL

HOLE NO. BH 2
Sheet 1 of 1

CLIENT	SITE
Sarah & Lionel Fournier	5 Kemplay Road, London NW3 1TA

DATE OF FIELDWORK	SCALE	LEVEL/POSITION	OPERATOR	LOGGED BY	JOB NO.
17/09/13 - 18/09/13	1:50	GROUND / AS APPENDIX A	SB/PA/SA	SH	131410

SAMPLE DEPTH	RECORD TYPE	SPT N (Cu-kN/m^2)	Standp/ Piezo	DESCRIPTION OF STRATUM (thickness)	DEPTH	LEGEND
				Turf over topsoil (0.15)		
0.50	D1			Soft to firm dark grey sandy clay with occasional brick fragments. MADE GROUND (0.95)	0.15	
1.00	D2					
1.50	D3	(48)		Soft to firm olive brown very silty, slightly sandy CLAY (0.60)	1.10	
2.00	D4	(68)		Firm orange brown mottled bluish grey silty, slightly sandy CLAY (0.90)	1.70	
				Water standing at 2.20m on 27/09/2013		
2.50	D5	(56)				
3.00	D6	(52)		Firm pale brown with traces of bluish grey very silty, slightly sandy CLAY (0.80)	2.60	
				Water seepage at 3.10m		
3.50	D7	(58)		Firm orange brown laminated pale brown very silty CLAY (0.40)	3.40	
4.00	D8	(58)		Firm greyish brown with traces of bluish grey very silty CLAY (1.90)	3.80	
4.50	D9	(64)				
5.00	D10	(70)				
5.50	D11					
6.00	D12	(142)		Stiff grey silty CLAY (0.60)	5.70	
				Very stiff fissured dark grey CLAY (3.70)	6.30	
7.00	D13	(156)				
8.00	D14	(172)				
9.00	D15	(178)				
				Piezometer installed		
10.00	D16	(176)		Borehole ends	10.00	

GROUNDWATER AND CASING INFORMATION

DEPTH STRUCK	DEPTH CASED	ELAPSED TIME	WATER LEVEL	DEPTH SEALED	REMARKS ON GROUNDWATER AND CASING
3.10	-	-	-	-	Water seepage at 3.10m Water standing at 2.20m on 27/09/2013

BORING METHOD AND REMARKS

Mechanical auger
Piezometer installed

KEY: D = Disturbed Sample B = Bulk Sample
U = Undisturbed Sample W = Water Sample
All dimensions are in metres unless otherwise stated

BOREHOLE LOG - M R H GEOTECHNICAL

HOLE NO. BH 3
Sheet 1 of 1

CLIENT	SITE
Sarah & Lionel Fournier	5 Kemplay Road, London NW3 1TA

DATE OF FIELDWORK	SCALE	LEVEL/POSITION	OPERATOR	LOGGED BY	JOB NO.
18/09/13 - 18/09/13	1:50	GROUND / AS APPENDIX A	SB/PA/SA	SH	131410

SAMPLE DEPTH	RECORD TYPE	SPT N (Cu-kN/m^2)	Standp/ Piezo	DESCRIPTION OF STRATUM (thickness)	DEPTH	LEGEND
				Turf over topsoil (0.10)	0.10	
0.50	D1			Soft to firm black sandy clay with traces of brick fragments. MADE GROUND (0.60)	0.70	
1.00	D2			Compacted dark brown clayey sand and brick fragments. MADE GROUND (0.50)	1.20	
1.50	D3	(60)		Firm orange brown with traces of bluish grey silty, slightly sandy CLAY (1.50)		
2.00	D4	(68)		Water standing at 2.03m on 27/09/2013		
2.50	D5	(74)			2.70	
3.00	D6	(74)		Firm brown laminated bluish grey silty, slightly sandy CLAY (0.90)		
3.50	D7	(72)		Water seepage at 3.40m	3.60	
4.00	D8	(80)		Firm to stiff greyish brown with traces of bluish grey silty CLAY (1.60)		
4.50	D9	(78)				
5.00	D10	(96)			5.20	
5.50	D11			Stiff grey silty CLAY (1.70)		
6.00	D12	(142)				
7.00	D13	(158)			6.90	
8.00	D14	(166)		Very stiff fissured dark grey CLAY (3.10)		
9.00	D15	(174)				
10.00	D16	(176)		Piezometer installed Borehole ends	10.00	

GROUNDWATER AND CASING INFORMATION

DEPTH STRUCK	DEPTH CASED	ELAPSED TIME	WATER LEVEL	DEPTH SEALED	REMARKS ON GROUNDWATER AND CASING
3.40	-	-	-	-	Water seepage at 3.40m Water standing at 2.03m on 27/09/2013

BORING METHOD AND REMARKS

Mechanical auger

KEY: D = Disturbed Sample B = Bulk Sample
U = Undisturbed Sample W = Water Sample
All dimensions are in metres unless otherwise stated

TEST REPORT.

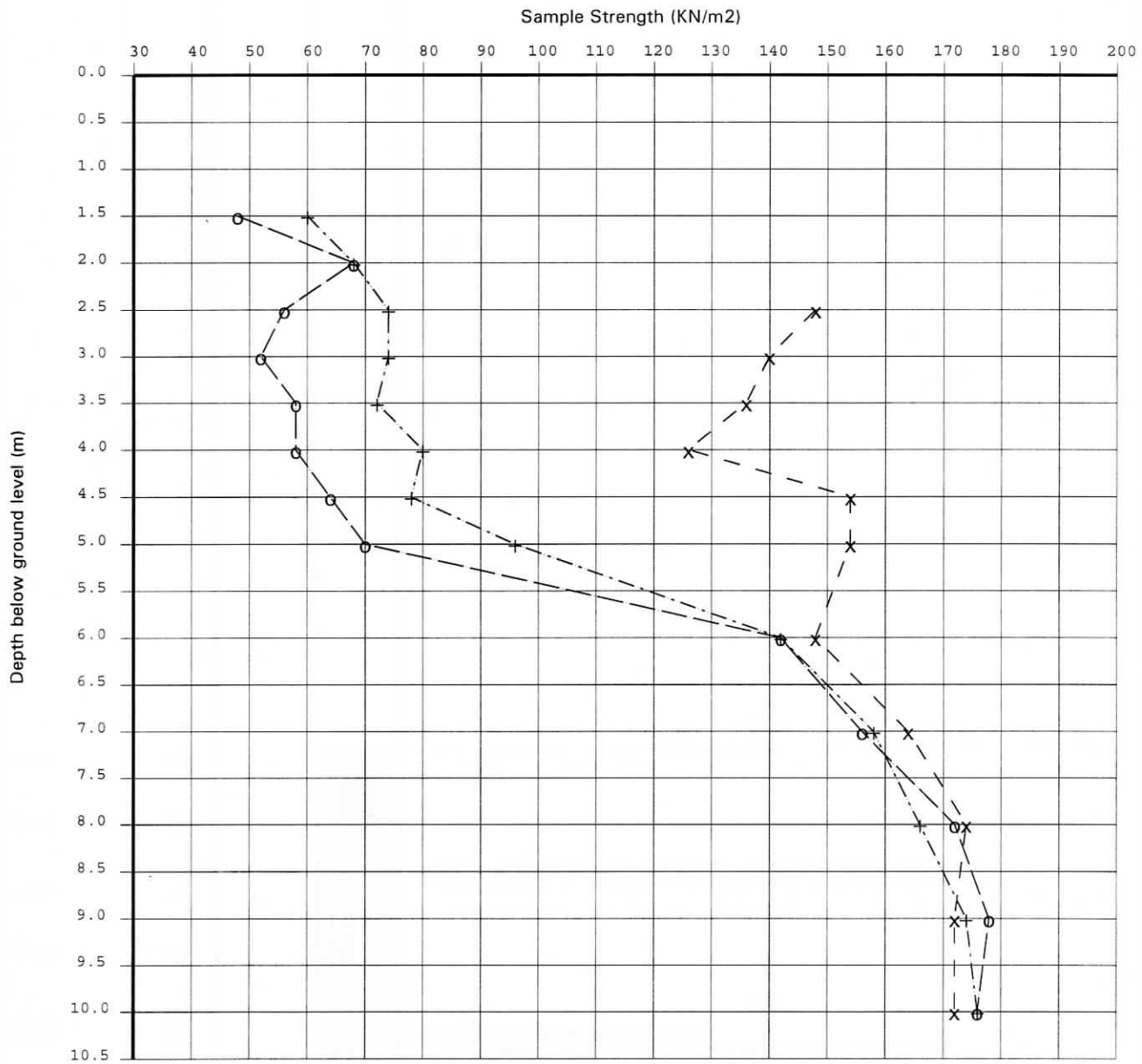
ISSUED BY : M R H GEOTECHNICAL

Appendix C **PAGE 4**

Contract **Job No.**

5 Kemplay Road, London NW3 1TA 131410

Sample Strength (KN/m2) vs Depth below ground level (m)



Key to Data Points	x : BH 1	o : BH 2	+ : BH 3					

MRPLOT

APPENDIX D

MOISTURE CONTENT TEST RESULTS
AND
ATTERBERG LIMIT DETERMINATIONS

TEST REPORT.

ISSUED BY : M R H GEOTECHNICAL LTD

Appendix D PAGE 1

Contract Job No.

5 Kemplay Road, London NW3 1TA 131410

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole/ Pit No.	Depth m.	Sample	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	Description (BS 5930:1981:41)
BH 1	0.50	D1	16	-	-	-		Very stiff brown with traces of orange brown slightly sandy CLAY
BH 1	1.00	D2	18	-	-	-		Very stiff brown with traces of orange brown slightly sandy CLAY
BH 1	1.50	D3	18	47	16	31	0.06	Very stiff brown with traces of orange brown slightly sandy CLAY. CI: CLAY of medium plasticity. (97% passing 425um)
BH 1	2.00	D4	22	-	-	-		Very stiff brown with traces of orange brown slightly sandy CLAY
BH 1	2.50	D5	24	49	21	28	0.11	Stiff brown very silty CLAY. CI: CLAY of medium plasticity. (100% passing 425um)
BH 1	3.00	D6	25	-	-	-		Stiff greyish brown with traces of bluish grey slightly sandy CLAY with occasional partings of orange silt
BH 1	3.50	D7	25	-	-	-		Stiff greyish brown with traces of bluish grey slightly sandy CLAY with occasional partings of orange silt
BH 1	4.00	D8	25	58	21	37	0.11	Stiff greyish brown with traces of bluish grey slightly sandy CLAY with occasional partings of orange silt. CH: CLAY of high plasticity. (100% passing 425um)
BH 1	4.50	D9	26	-	-	-		Very stiff bluish grey CLAY
BH 1	5.00	D10	27	63	24	39	0.08	Very stiff bluish grey CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 1	5.50	D11	28	-	-	-		Very stiff bluish grey CLAY
BH 1	6.00	D12	28	-	-	-		Very stiff bluish grey CLAY
BH 1	7.00	D13	28	68	25	43	0.07	Very stiff fissured dark grey CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 1	8.00	D14	27	-	-	-		Very stiff fissured dark grey CLAY
BH 1	9.00	D15	27	-	-	-		Very stiff fissured dark grey CLAY

METHOD OF PREPARATION : BS 1377:PART 1:1990:7.4 & PART 2:1990:4.2

METHOD OF TEST : BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4

TYPE OF SAMPLE KEY : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

COMMENTS :

REMARKS TO INCLUDE : Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

TEST REPORT.

ISSUED BY : M R H GEOTECHNICAL LTD

Appendix D PAGE 2

Contract Job No.

5 Kemplay Road, London NW3 1TA 131410

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole/ Pit No.	Depth m.	Sample	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	Description (BS 5930:1981:41)
BH 1	10.00	D16	27	-	-	-		Very stiff fissured dark grey CLAY
BH 2	0.50	D1	24	-	-	-		Firm dark grey sandy clay with occasional brick fragments. MADE GROUND
BH 2	1.00	D2	28	-	-	-		Soft to firm dark grey sandy clay with occasional brick fragments. MADE GROUND
BH 2	1.50	D3	30	66	26	40	0.10	Soft to firm olive brown very silty, slightly sandy CLAY. CH: CLAY of high plasticity. (97% passing 425um)
BH 2	2.00	D4	24	-	-	-		Firm orange brown mottled bluish grey silty, slightly sandy CLAY
BH 2	2.50	D5	24	48	20	28	0.14	Firm orange brown silty CLAY. CI: CLAY of medium plasticity. (99% passing 425um)
BH 2	3.00	D6	32	-	-	-		Firm pale brown with traces of bluish grey very silty, slightly sandy CLAY
BH 2	3.50	D7	30	-	-	-		Firm orange brown laminated pale brown very silty CLAY
BH 2	4.00	D8	31	68	27	41	0.10	Firm greyish brown with traces of bluish grey very silty CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 2	4.50	D9	31	-	-	-		Firm greyish brown with traces of bluish grey silty CLAY
BH 2	5.00	D10	31	-	-	-		Firm greyish brown with traces of bluish grey very silty CLAY
BH 2	5.50	D11	30	-	-	-		Firm greyish brown with traces of bluish grey very silty CLAY
BH 2	6.00	D12	30	67	26	41	0.10	Stiff grey silty CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 2	7.00	D13	29	-	-	-		Very stiff fissured dark grey CLAY
BH 2	8.00	D14	29	70	26	44	0.07	Very stiff fissured dark grey CLAY. CH/CV: CLAY of high to very high plasticity. (100% passing 425um)

METHOD OF PREPARATION : BS 1377:PART 1:1990:7.4 & PART 2:1990:4.2

METHOD OF TEST : BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4

TYPE OF SAMPLE KEY : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

COMMENTS :

REMARKS TO INCLUDE : Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

TEST REPORT.

ISSUED BY : M R H GEOTECHNICAL LTD

Appendix D PAGE 3

Contract Job No.

5 Kemplay Road, London NW3 1TA 131410

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole/ Pit No.	Depth m.	Sample	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	Description (BS 5930:1981:41)
BH 2	9.00	D15	28	-	-	-		Very stiff fissured dark grey CLAY
BH 2	10.00	D16	27	-	-	-		Very stiff fissured dark grey CLAY
BH 3	0.50	D1	29	-	-	-		Soft to firm black sandy clay with traces of brick fragments. MADE GROUND
BH 3	1.00	D2	17	-	-	-		Compacted dark brown clayey sand and brick fragments. MADE GROUND
BH 3	1.50	D3	27	-	-	-		Firm orange brown with traces of bluish grey silty, slightly sandy CLAY
BH 3	2.00	D4	24	48	20	28	0.14	Firm orange brown with traces of bluish grey silty, slightly sandy CLAY. CI: CLAY of medium plasticity. (96% passing 425um)
BH 3	2.50	D5	27	-	-	-		Firm orange brown with traces of bluish grey silty, slightly sandy CLAY
BH 3	3.00	D6	27	61	23	38	0.11	Firm brown laminated bluish grey silty, slightly sandy CLAY. CH: CLAY of high plasticity. (98% passing 425um)
BH 3	3.50	D7	31	-	-	-		Firm brown laminated bluish grey silty, slightly sandy CLAY
BH 3	4.00	D8	31	67	26	41	0.12	Firm to stiff greyish brown with traces of bluish grey silty CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 3	4.50	D9	30	-	-	-		Firm to stiff greyish brown with traces of bluish grey silty CLAY
BH 3	5.00	D10	30	-	-	-		Firm to stiff greyish brown with traces of bluish grey silty CLAY
BH 3	5.50	D11	30	-	-	-		Stiff grey silty CLAY
BH 3	6.00	D12	29	67	26	41	0.07	Stiff grey silty CLAY. CH: CLAY of high plasticity. (100% passing 425um)
BH 3	7.00	D13	29	-	-	-		Very stiff fissured dark grey CLAY
BH 3	8.00	D14	29	-	-	-		Very stiff fissured dark grey CLAY

METHOD OF PREPARATION : BS 1377:PART 1:1990:7.4 & PART 2:1990:4.2

METHOD OF TEST : BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4

TYPE OF SAMPLE KEY : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

COMMENTS :

REMARKS TO INCLUDE : Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

TEST REPORT.

ISSUED BY : M R H GEOTECHNICAL LTD

Appendix D PAGE 4

Contract Job No.

5 Kemplay Road, London NW3 1TA 131410

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole/ Pit No.	Depth m.	Sample	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	Description (BS 5930:1981:41)
BH 3	9.00	D15	27	-	-	-		Very stiff fissured dark grey CLAY
BH 3	10.00	D16	27	-	-	-		Very stiff fissured dark grey CLAY

METHOD OF PREPARATION : BS 1377:PART 1:1990:7.4 & PART 2:1990:4.2

METHOD OF TEST : BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4

TYPE OF SAMPLE KEY : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

COMMENTS :

REMARKS TO INCLUDE : Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

APPENDIX E

CONTAMINATION TEST RESULTS

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

3 Crittall Drive
Springwood Industrial
Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Report Number: 352342-1

Date of Report: 09-Oct-2013

Customer: MRH Geotechnical
60 Station Road
Chingford
London
E4 7BE

Customer Contact: Mr Steve Brooks

Customer Job Reference: 131410
Customer Site Reference: 5 Kemplay Road, London, NW3 1TA
Date Job Received at SAL: 26-Sep-2013
Date Analysis Started: 27-Sep-2013
Date Analysis Completed: 08-Oct-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

UKAS TESTING
1650

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Report checked
and authorised by :
Sarah Watt-Roy
Project Manager

Issued by :
Sarah Watt-Roy
Project Manager

SAL Reference:	352342
Project Site:	5 Kemplay Road, London, NW3 1TA
Customer Reference:	131410

Soil Analysed as Soil

MRH ICRCL

SAL Reference	**352342 001**
Customer Sample Reference	**BH1 @ 0.50m**
Date Sampled	**18-SEP-2013**

Determinand	Method	Test Sample	LOD	Units	
Arsenic	T257	A40	2	mg/kg	**13**
Boron (water-soluble)	T82	A40	1	mg/kg	<1
Cadmium	T257	A40	0.1	mg/kg	<0.1
Chromium	T257	A40	0.5	mg/kg	**33**
Copper	T257	A40	2	mg/kg	**15**
Lead	T257	A40	2	mg/kg	**15**
Mercury	T245	A40	1.0	mg/kg	<1.0
Nickel	T257	A40	0.5	mg/kg	**14**
Selenium	T257	A40	3	mg/kg	<3
Zinc	T257	A40	2	mg/kg	**42**
Chromium VI	T82	A40	1	mg/kg	<1
pH	T7	A40			**7.3**
SO4(Total)	T102	A40	0.02	%	<0.02
SO4(2:1)	T112	A40	10	mg/l	**16**
Sulphide	T4	A40	10	mg/kg	<10
Sulphur (total)	T6	A40	0.01	%	**0.01**
Thiocyanate	T220	A40	10	mg/kg	<10
Cyanide(Complex)	T85	AR	1	mg/kg	<1
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Phenols(Mono)	T221	AR	0.5	mg/kg	<0.5
PAH(total)	T16	AR	0.1	mg/kg	<0.1
Moisture	T277	AR	0.1	%	**14**
Moisture @ 105 C	T162	AR	0.1	%	**16**
Retained on 2mm	T2	A40	0.1	%	<0.1

Index to symbols used in 352342-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Reported results on as received samples are corrected to a 105 degree centigrade dry weight basis except Total PAH
Retained on 2mm is removed before analysis

Method Index

Value	Description
T16	GC/MS
T220	Colorimetry (SD)
T82	ICP/OES (Sim)
T112	ICP/OES (SIM)(Water Extract)
T277	Grav (1 Dec) (40 C)
T221	Colorimetry (CE)
T6	ICP/OES
T102	ICP/OES (HCl extract)
T162	Grav (1 Dec) (105 C)
T2	Grav
T7	Probe
T257	ICP/OES (SIM) (Aqua Regia Extraction)
T4	Colorimetry

T85	Calc
T245	ICP/OES(Aqua Regia Extraction)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T257	A40	2	mg/kg	M	001
Boron (water-soluble)	T82	A40	1	mg/kg	N	001
Cadmium	T257	A40	0.1	mg/kg	M	001
Chromium	T257	A40	0.5	mg/kg	M	001
Copper	T257	A40	2	mg/kg	M	001
Lead	T257	A40	2	mg/kg	M	001
Mercury	T245	A40	1.0	mg/kg	U	001
Nickel	T257	A40	0.5	mg/kg	M	001
Selenium	T257	A40	3	mg/kg	U	001
Zinc	T257	A40	2	mg/kg	M	001
Chromium VI	T82	A40	1	mg/kg	N	001
pH	T7	A40			M	001
SO4(Total)	T102	A40	0.02	%	M	001
SO4(2:1)	T112	A40	10	mg/l	M	001
Sulphide	T4	A40	10	mg/kg	N	001
Sulphur (total)	T6	A40	0.01	%	M	001
Thiocyanate	T220	A40	10	mg/kg	M	001
Cyanide(Complex)	T85	AR	1	mg/kg	M	001
Cyanide(Total)	T4	AR	1	mg/kg	M	001
Cyanide(free)	T4	AR	1	mg/kg	M	001
Phenols(Mono)	T221	AR	0.5	mg/kg	M	001
PAH(total)	T16	AR	0.1	mg/kg	U	001
Moisture	T277	AR	0.1	%	N	001
Moisture @ 105 C	T162	AR	0.1	%	N	001
Retained on 2mm	T2	A40	0.1	%	N	001