# APPENDIX A

*Proposed development plans*

d

11c

11b

11a

7

Utility

Wine

WC

bar

Cinema

AV

Riser

Lift

Riser

Beauty

Jacuzzi

Pool

Store

Plant

Plant

Car park

Plant

N

status

PLANNING

— DO NOT SCALE FROM THIS DRAWING : Verify all dimensions on site

P K S
architects

project 9 Arkwright Road NW3

title Proposed Basement Floor Plan

scale 1:100@A1-1:200@A3 CSp

date MAY 2012

job no. 804

dwg no. 010-B1

rev. B

d

11c

11b

11a

7

Store

Lounge / Play

Office

Service kitchen

Lower Hall

Staff lounge

Bedroom

Bedroom

Shower

Changing

Steam

Gym

Lift

Kitchen

Dining

Sitting

jacuzi

Pool

N

PLANNING

DO NOT SCALE FROM THIS DRAWING : Verify all dimensions on site

P K S architects

project: 9 Arkwright Road NW3

title: Proposed Garden Floor Plan

scale: 1:100@A1-1:200@A3 Csp

date: MAY 2012

job no. 804

dwg no. 010-G2

rev. B

d

11c

11b

11a

7

Dressing

Nursery/Office

Bedroom 3

Landing

Bar

Lounge

Kids lounge

Bathroom

Master Bedroom

Lift

Terrace

Bedroom 2

N

PLANNING

DO NOT SCALE FROM THIS DRAWING ; Verify all dimensions on site

PKS architects

project 9 Arkwright Road NW3

title Proposed First Floor Plan

scale 1:100@A1-1:200@A3 CSp

dwg no. 010-01

rev. B

date MAY 2012

job no. 804

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d

11c

11b

11a

7

Nanny

Void

Bridge

Bedroom 5

Void

Bedroom 7
(Guest)

Bedroom 6
(Guest)

Void

Terrace

Void

Bedroom 4

N

status

PLANNING

DO NOT SCALE FROM THIS DRAWING ; Verify all dimensions on site

P K S
architects

project 9 Arkwright Road NW3

title Proposed Second Floor Plan

scale 1:100@A1-1:200@A3 | author CSp | dwg no. 010-02 | rev. B

date MAY 2012 | job no. 804

d

11c

11b

11a

Family

Opening skylight

Terrace

Roof't

Lounge bar

WC

7

N

status

PLANNING

DO NOT SCALE FROM THIS DRAWING : Verify all dimensions on site

P K S architects

project 9 Arkwright Road NW3

title Proposed Attic Floor Plan

scale 1:100@A1-1:200@A3 author CSp

date MAY 2012 job no. 804 dwg no. 010-03 rev. B

d

11c

11b

11a

7

N

status

PLANNING

DO NOT SCALE FROM THIS DRAWING ; Verify all dimensions on site

P K S
architects

project 9 Arkwright Road NW3

title Proposed Roof Plan

scale 1:100@A1-1:200@A3 CSp

date MAY 2012

job no. 804

dwg no. 010-04

rev. B

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# APPENDIX B

*BGS boreholes records*

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

GeoRecords Plus+

**Adam Cadman**
**Card Geotechnics Limited**
**No. 1 Pickford Street**
**Aldershot**
**Hampshire**
**GU111TY**
**United Kingdom**

# Borehole Data Pack:

This package provides additional data relating to your selected borehole record ordered via GeoRecordsPlus. It provides index listings of other information held in some key BGS databases for your site and a geological map extract for the surrounding area, taken from the 1:50.000 scale BGS digital geological map of Great Britain (DiGMapGB-50).

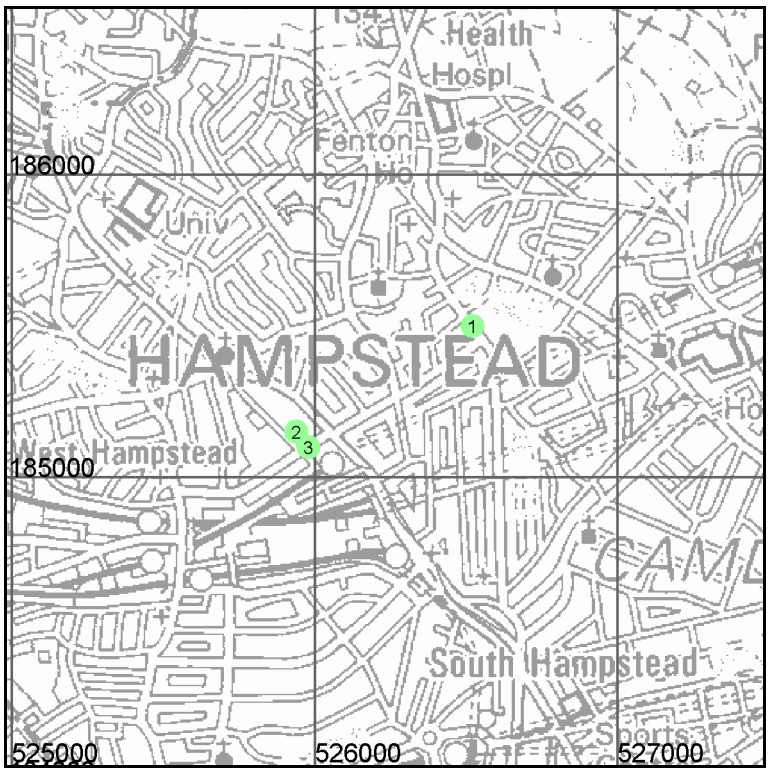
It should be noted that this package is not a comprehensive listing of all BGS data holdings and other data may be available. Note that index data is also accessible through the BGS Internet Geoscience Data Index on the BGS website at www.bgs.ac.uk If you wish to place an order for any of the index data please e-mail enquiries@bgs.ac.uk

**Report Id: *BH_117152_1***

**Client reference: CG/5595 - 9 Arkwright Road**

# Borehole location map

This map shows the locations of the boreholes you have ordered.






Scale: 1:25 000 (1cm = 250 m)

**Key**

| Number on Map | Borehole Number |
|---|---|
| 1 | TQ28NE44 |
| 2 | TQ28NE129 |
| 3 | TQ28NE130 |

## Geological Map Extracts

This part of the pack contains extracts of geological maps taken from the 1:50 000 scale BGS Digital Geological Map of Great Britain (DiGMapGB-50). The geological information in DiGMapGB is separated into four themes: artificial ground, landslide deposits, superficial deposits and bedrock, shown here in separate maps. The fifth 'combined geology' map superimposes all four of these themes, to show the geological formations that occur at the surface, just beneath the soil.

More information about DiGMapGB-50 and how the various geological units are classified can be found on the BGS website (www.bgs.ac.uk). The maps are labelled with two-part computer codes that indicate the name of the geological unit and its composition. Descriptions of the units listed in the map keys may be available in the BGS Lexicon of Named Rock Units, which is also on the BGS website (http://www.bgs.ac.uk/lexicon/). If available, these descriptions can be found by searching against the first part of the computer code used on the maps. Please treat this labelling with caution in areas of complex geology, where some of the labels may overlap occurrences of several geological formations. If in doubt, please contact BGS Enquiries for clarification.

In the map keys the geological units are listed in order of their age, as defined in the BGS Lexicon, with the youngest first. However, where units are of the same defined age they are listed alphabetically and this may differ from the actual geological sequence.

**Artificial ground:** This is ground at or near the surface that has been modified by man. It includes ground that has been deposited (Made Ground), landscaped, disturbed, excavated (Worked Ground) or some combination of these.

**Landslide deposits:** These are deposits formed by localised mass-movement of soils and rocks on slopes under the action of gravity. Landslides may occur within the bedrock, superficial deposits or artificial ground; and the landslide deposits may themselves be artificially modified.

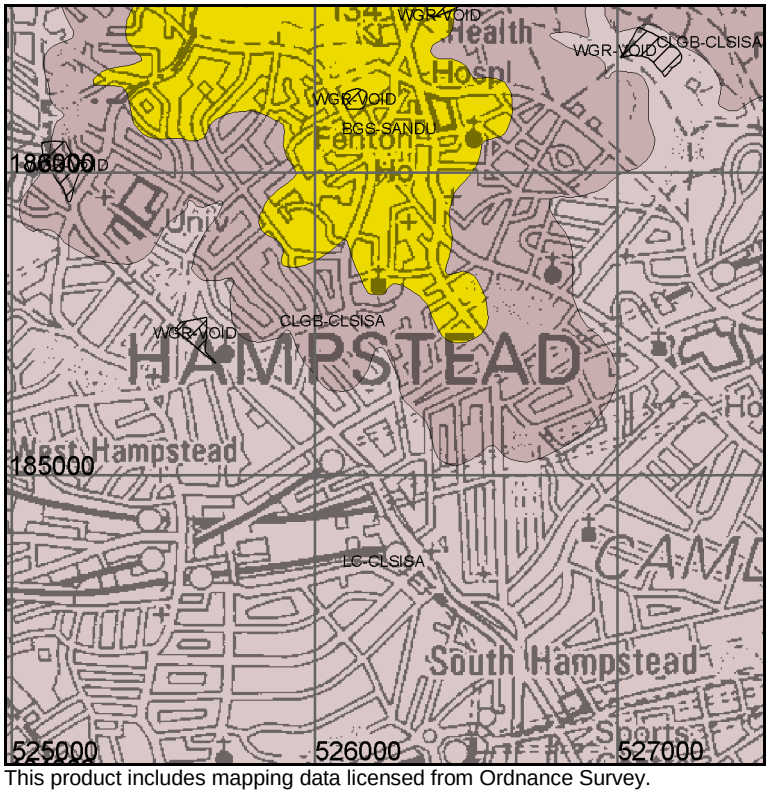
**Superficial deposits:** These are relatively young geological deposits, formerly known as 'Drift', which lie on the bedrock in many areas. They include deposits such as unconsolidated sands and gravels formed by rivers, and clayey tills formed by glacial action. They may be overlain by landslide deposits or by artificial deposits, or both.

**Bedrock:** Bedrock forms the ground underlying the whole of an area, commonly overlain by superficial deposits, landslide deposits or artificial deposits, in any combination. The bedrock formations were formerly known as the 'Solid Geology'.

**Combined 'Surface Geology' Map:** This map shows all the geological themes from the previous four maps overlaid in order of age.

## Combined 'Surface Geology' Map

This map shows the surface elements of all four geological layers. Please see keys to the Artificial, Landslide, Superficial and Bedrock geology maps






Scale: 1:25 000 (1cm = 250 m)

Fault

Coal, ironstone or other mineral vein

**Note: Faults and Coals, ironstone & mineral veins are shown for illustration and to aid interpretation of the map. Not all such features are shown and their absence on the map face does not necessarily mean that none are present**

### *Key to Artificial ground:*

| Map colour | Computer Code | Name of geological unit | Composition |
|---|---|---|---|
| | WGR-VOID | WORKED GROUND (UNDIVIDED) | VOID |

### *Key to Landslide deposits:*

No deposits found in the search area

### *Key to Superficial deposits:*

**No deposits found in the search area**

### *Key to Bedrock geology:*

| Map colour | Computer Code | Name of geological unit | Rock type |
|---|---|---|---|
| | BGS-SANDU | BAGSHOT FORMATION | SAND |
| | CLGB-CLSISA | CLAYGATE MEMBER | CLAY, SILT AND SAND |
| | LC-CLSISA | LONDON CLAY FORMATION | CLAY, SILT AND SAND |

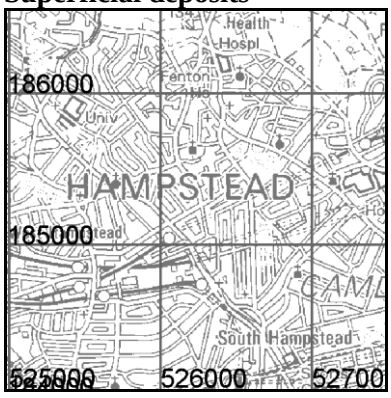
## Artificial ground




## Landslide deposits

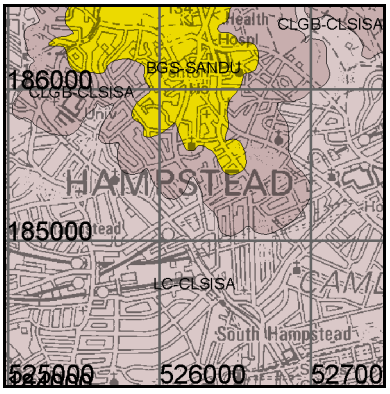



## Superficial deposits






## Bedrock






Please see key on previous page.

# Geoscience Data List

**List of available geological data**

This section lists the data sets, in addition to boreholes and well records, that are held in the National Geoscience Records Centre that are relevant to your enquiry. Users with access to computing facilities can make their own index searches using the BGS Internet; go to 'Online shops' at www,bgs.ac.uk This will give access to the BGS Bookshop, Publications catalogue, GeoRecords (borehole browser) and GeoReports.

If you want to order any of the data please contact enquiries on enquiries@bgs.ac.uk. For current pricing see internet pages above or do not hesitate to contact us using the list found at the back of this pack.

*Note that this list contains selective datasets and is not a definitive listing of all data held in BGS*

**Site investigation reports**
Number of records in search area: 450

Additional laboratory and test data may be available in these reports, subject to any copyright and confidentiality conditions. The grid references used are based on an un-refined rectangle and therefore may not be applicable to a specific site. Borehole records in these reports will be individually referenced within the borehole records collection.

| Number | Site investigation title |
|---|---|
| 230 | WESTERN AVENUE EXTENSION ST MARKS ROAD TO PADDINGTON GREEN |
| 1883 | HAMPSTEAD LONDON NW3 TELEPHONE EXCHANGE EXTENSION |
| 3847 | NEW CIVIC CENTRE HAMPSTEAD |
| 3850 | PROPOSED VICTORIA LINE UNDERGROUND RAILWAY |
| 4720 | PROPOSED BRIDGE DECK REPLACEMENT OF BRIDGES NO MR 18 AND MR 19 AT WILLESDEN GREEN |
| 5751 | A406 NORTH CIRCULAR ROAD EAST OF FALLODEN WAY TO EAST OF HIGH ROAD FINCHLEY IMPROVEMENT |
| 5873 | JUBILEE LINE EXTENSION PACKAGES 1 AND 2 GREEN PARK TO EWER STREET |
| 8015 | GRANVILLE ROAD CHILDS HILL BARNET |
| 8036 | THE BURROUGHS HENDON |
| 8321 | SOMERTON ROAD-CLAREMONT ROAD CRICKLEWOOD |
| 8587 | A406 EAST END ROAD JUNCTION IMPROVEMENTS FINCHLEY LONDON |
| 8799 | HENDON AERODROME |
| 8802 | 56-63 WELLINGTON ROAD LONDON NW8 |
| 8810 | CYPRUS BANK CHARLOTTE STREET LONDON W1 |
| 8814 | PORCHESTER SUARE DEVELOPMENT LONDON W2 |
| 8820 | LORDS VIEW 38-42 ST JOHNS WOOD ROAD LONDON NW8 |
| 8825 | TAVISTOCK CRESCENT LONDON W11 |
| 8826 | DEVONSHIRE PLACE LONDON W1 |
| 8835 | MAPLES LTD GRAFTON WAY LONDON WC1 |
| 8841 | 84-90 HOLLAND PARK AVENUE LONDON W11 |
| 8904 | OLD MARYLEBONE ROAD LONDON |
| 8914 | HIGHGATE BOWL HOLMESDALE ROAD LONDON |
| 8925 | 123 PALL MALL LONDON |
| 8926 | LADBROKE GROVE UNDERGROUND STATION LONDON |
| 8930 | 74 SOUTH AUDLEY STREET LONDON |
| 8936 | A4000 PRINCIPAL ROAD IMPROVEMENT BRIDGES AVON |
| 8938 | SWISS COTTAGE |
| 8939 | WHARNCLIFFE GARDENS LONDON |
| 8953 | H D A 92 HILLDROP ROAD HILLDROP CRESCENT NO. 7 |
| 8977 | 20-21 ST JAMES SQUARE LONDON |
| 8980 | WATES HOUSE UNIVERSITY COLLEGE LONDON |
| 8999 | TRAINMANS ACCOMODATION GOLDERS GREEN |
| 9001 | BRENT PARK NEASDEN LONDON |
| 9046 | PROPOSED SWIMMING POOL MACDONALD ROAD ARCHWAY LONDON |
| 9052 | CARRIAGE WAY RECONSTRUCTION NORTH CIRCULAR ROAD WELSH HARP |
| 9053 | 133 LANCESTER ROAD LONDON |
| 9059 | 90-100 PICCADILLY LONDON |
| 9075 | WESTERN AVENUE (A40) GYPSY CORNER IMPROVEMENTS |
| 9083 | LISSON GROVE LONDON |
| 9084 | 7-9 LADBROKE GROVE LONDON |

| Number | Site investigation title |
|---|---|
| 9337 | SCHEME NO 151 LONDON |
| 9634 | FORTIS GREEN LONDON |
| 9637 | A40 WESTERN AVENUE GYPSY CORNER IMPROVEMENTS |
| 9638 | GLOUCESTER SQUARE LONDON |
| 10887 | CLITTERHOUSE SCHOOL |
| 10888 | WEST HENDON SWIMMING POOL PROPOSED REDEVLOPMENT |
| 10892 | 1000 NORTH CIRCULAR ROAD |
| 11045 | 19-21 GREAT PORTLAND STREET LONDON |
| 11079 | 111 SHIRLAND ROAD PADDINGTON LONDON |
| 11080 | GROSVENOR STREET |
| 11082 | GROSVENOR STREET LONDON |
| 11083 | THAYER STREET LONDON |
| 11084 | 190-192 EDGWARE ROAD AND 3-7 CRAWFORD PLACE LONDON |
| 11085 | LISSON GREEN AND BLANDFORD SQUARE |
| 11086 | SOMERIES HOUSE ST ANDREWS PLACE REGENTS PARK |
| 11087 | 10-12 CARLISLE STREET SOHO LONDON |
| 11088 | PROPOSED RECONSTRUCTION |
| 11089 | NORTH WHARF PADDINGTON |
| 11090 | HAWLEY ROAD CAMDEN LONDON |
| 11091 | WESTLAND HOUSE CURZON STREET |
| 11092 | YORK TERRACE REGENTS PARK |
| 11093 | AVENUE ROAD ST JOHNS WOOD |
| 11094 | BRYANSTON SQUARE LONDON |
| 11095 | GLOUCESTER AVENUE CAMDEN |
| 11096 | HAYS MEWS LONDON |
| 11101 | 27 CAMDEN ROAD ST PANCRAS |
| 11110 | PROPOSED EUSTON STATION REDEVELOPMENT |
| 11133 | PADDINGTON GREEN SCHOOL |
| 11134 | 112-126 HAVERSTOCK HILL LONDON |
| 11135 | REGENTS CANAL REGENTS PARK |
| 11140 | KINGS TERRACE |
| 11141 | BEDFORD THEATRE SITE |
| 11142 | BISHOPS BRIDGE ROAD LONDON |
| 11861 | HENDON URBAN MOTORWAY SOUTHERN EXTENSION |
| 11869 | MILEAGE YARD PADDINGTON |
| 11871 | WAREHOUSE COMPLEX EDGWARE ROAD |
| 11872 | THE BURROUGHS HENDON |
| 12332 | 17-22 MASONS YARD LONDON SW1 |
| 12353 | WEST ROW,LONDON |
| 12372 | PROPOSED DEVELOPMENT  AT TOTTENHAM COURT ROAD |
| 12482 | COSPEL OAK DEVELOPMENT LAMBLE STREET EXTENSION 2 |
| 12498 | BARLBY ROAD LONDON |
| 12596 | THE PROPOSED WHITE CITY CENTRE LONDON W12 AREA A B AND C |
| 12608 | GOSPEL OAK NURSERY SCHOOL CAMDEN |
| 12615 | WALES FARM ROAD ACTON |
| 12621 | GAMAGES HOLBURN |
| 12624 | HYTHE ROAD WILLESDEN LONDON |
| 12636 | 7-13 CRESCENT ROAD LONDON N8 |
| 12637 | PEMBERTON GARDENS ISLINGTON |
| 12671 | CAMLEY STREET CAMDEN LONDON NW1 |
| 12681 | THE PROPOSED WHITE CITY CENTRE LONDON AREAS A-D |
| 12683 | HARGRAVE PARK ISLINGTON |
| 12699 | CURNOCK STREET ST PANCRAS |

| Number | Site investigation title |
|---|---|
| 12701 | 37 LYNTON ROAD LONDON NW6 |
| 12721 | OAKBANK COURTENAY AVENUE HAMPSTEAD LONDON |
| 12918 | WALTERON ROAD WESTMINSTER |
| 13303 | LONDON ZOO - PROPOSED AMPHITHEATRE |
| 14237 | STANDS F, G, H AND I, LORDS CRICKET GROUND |
| 14668 | WILDWOOD GROVE FLOOD RELIEF SCHEME |
| 14709 | ALRIC AVENUE, HARLESDEN |
| 15083 | GOODGE STREET, STATION AT TOTTENHAM COURT ROAD, LONDON, W1. PROPOSED STATION REDEVELOPMENT |
| 15221 | MUSWELL HILL, LONDON N10 |
| 15460 | STANDS F, G, H AND I, LORDS CRICKET GROUND |
| 15814 | UNION RAILWAYS BOREHOLES CONTRACT D PHASE 1. THAMES RIVER CROSSING |
| 16086 | 110-112 HENDON LANE, LONDON |
| 16796 | LONDON REGENTS PARK. OPEN AIR THEATRE - TOILET BLOCK EXTENSION |
| 17059 | ALEXANDRA PALACE |
| 17286 | MAPESBURY ROAD, WILLESDEN |
| 17287 | LODGE ROAD, LONDON NW8 |
| 17361 | GOSPEL OAK, NW5 |
| 17365 | WOODSIDE AVENUE, MUSWELL HILL ROAD, LONDON N10 |
| 17366 | HYDE PARK ESTATE - SITE C |
| 17385 | CHANNING SCHOOL, HIGHGATE |
| 17390 | GLADSTONE PARK SWIMMING BATHS |
| 17393 | BRANCH HILL LODGE, HAMPSTEAD |
| 17403 | CREWE HOUSE, CURZON STREET W1 |
| 17443 | SOUTH KILBURN, AREA C |
| 17444 | EDGWARE ROAD, LONDON W2 |
| 17452 | TAMWORTH LANE, MITCHAM |
| 17491 | EAST CHURCHFIELD ROAD, ACTON |
| 17500 | 150-151, NEW BOND STREET, LONDON, W.1 |
| 17503 | 113-115 HORNSEY LANE, LONDON, N6 |
| 17569 | NORTHERN POLYTECHNIC EXTENSION, HOLLOWAY ROAD, LONDON N7 |
| 17574 | 16 PARLIAMENT HILL, HAMPSTEAD NW3 |
| 17585 | SEYMOUR PLACE |
| 17741 | LONDON. REGENTS PARK. QUEEN MARYS GARDEN, NEW BRIDGE |
| 17775 | 58 BROOK STREET, LONDON |
| 19050 | 313-333 HIGH ROAD, WILLESDEN |
| 19105 | SILCHESTER ESTATE |
| 19138 | HORNSEY LANE |
| 19141 | 9 AND 10 ALBEMARLE STREET |
| 19145 | ULSTER TERRACE, W.1 |
| 19155 | HOLLYBUSH VALE, HAMPSTEAD |
| 19165 | STAPLES CORNER, HENDON, NW2 |
| 19174 | 395-405 ARCHWAY ROAD, LONDON N6 |
| 19196 | WEST END LANE, HAMPSTEAD |
| 19218 | 96-98 BAKER STREET, LONDON W1 |
| 19230 | WEST END SIDINGS, WEST HAMPSTEAD |
| 19328 | BLOCK 5 SILCHESTER ESTATE, HAMMERSMITH |
| 19356 | MARYLEBONE GOODS YARD |
| 19389 | OXGATE LANE, CRICKLEWOOD |
| 19395 | BOLSOVER STREET,ISLAND SITE,LONDON |
| 19396 | REGENTS PARK, LONDON |
| 19406 | CAMDEN TOWN (MANLEY STREET AREA) |
| 19472 | ARCHWAY DEVELOPMENT |

| Number | Site investigation title |
|---|---|
| 19671 | GROVE END ROAD, ST. JOHNS WOOD |
| 19680 | ELM VILLAGE INDUSTRIAL ESTATE, CAMDEN |
| 19705 | 421 HARROW ROAD, LONDON |
| 19714 | 43-49 MORTIMER STREET AND 55-58 WELLS STREET, LONDON |
| 19841 | A1 FALLODEN WAY & LYTLETON ROAD CULVERT RECONSTRUCTION |
| 19939 | 19,20 WOODSTOCK STREET, LONDON |
| 20075 | MAPLES LIMITED |
| 20076 | 31-32 EASTCASTLE STREET, LONDON |
| 20403 | 9-13 GEORGE STREET, LONDON |
| 20415 | 27-31 BIRKBECK ROAD, ACTON, LONDON |
| 20467 | INVER COURT, INVERNESS TERRACE, LONDON W.2 |
| 20618 | 1-11 WESTERN AVENUE, ACTON, LONDON W3 |
| 20630 | 2-4 HYDE PARK GATE, LONDON |
| 20710 | HIGH ROAD, EAST FINCHLEY |
| 20999 | 15 WEST HEATH ROAD, HAMPSTEAD, LONDON NW3 |
| 21053 | HARROW ROAD TO MARLYBONE ROAD IMPROVEMENTS |
| 21098 | PROPOSED FIVE STOREY OFFICE BLOCK AT HARROW ROAD, WILLESDEN, LONDON |
| 21112 | SHEPHERDS HILL, HIGHGATE, LONDON |
| 21144 | 11 FITZROY SQUARE, LONDON |
| 21176 | ST MARTS CHURCH OF ENGLAND, JUNIOR MIXED INFANT SCHOOL, WILLESDEN, LONDON |
| 21185 | 33-37 CASTELLAIN MANSIONS, CASTELLAIN ROAD, LONDON |
| 21288 | CROMWELL LODGE |
| 21294 | ST. MARYS HOSPITAL, HEREFORD ROAD, LONDON |
| 21296 | 16-20 NORTH AUDLEY STREET, LONDON |
| 21297 | 14/15 CONNOUGHT SQUARE, LONDON |
| 21298 | RANDOLPH AVENUE, MAIDA VALE, LONDON |
| 21299 | 23-24 KING STREET, LONDON |
| 21300 | HAMMERSMITH SWIMMING POOL |
| 21310 | DEVELOPMENT AT ST. GILES CIRCUS, LONDON |
| 21321 | SPRING PLACE |
| 21347 | 38 GROSVENOR SQUARE, LONDON |
| 21445 | PROPOSED WAREHOUSE AND OFFICES AT PRAED STREET PADDINGTON LONDON W2 |
| 21515 | 13-15 NEWBURGH STREET LONDON W1 |
| 21639 | 12 KENSINGTON PALACE GARDENS LONDON W8 |
| 21645 | 3-6 ST JAMES TERRACE LONDON NW8 |
| 21656 | 12 AVENUE ROAD ST JOHNS WOOD LONDON NW8 |
| 21657 | GOODGE STREET LONDON UNDERGROUND STATION LONDON W1 |
| 21692 | EUSTON ROAD, LONDON,NW1 |
| 21716 | HARROW ROAD |
| 21785 | PROPOSED SCHOOL AT ST JOHNS WOOD, LONDON, NW8 |
| 21941 | 24 CONDUIT STREET W1 |
| 21966 | MAPLES LIMITED, HEAD OFFICE, TOTTENHAM COURT ROAD, WC1 |
| 21975 | HARROW ROAD TO MARYLEBONE ROAD IMPROVEMENT |
| 22023 | ENDSLEIGH STREET LONDON WC1 |
| 22028 | EDGWARE ROAD STATION, LONDON NW1 |
| 22029 | 3-4 ENDSLEIGH STRET, LONDON, WC1 |
| 22105 | 26 MANGCHESTER SQUARE |
| 22106 | THE LONDON - EDINBURGH - THURSO TRUNK ROAD (A1) |
| 22186 | EDGEWARE ROAD LONDON |
| 22193 | PARK PLAZA HOTEL BAYSWATER |

| Number | Site investigation title |
|---|---|
| 22274 | BRICK STREET LONDON W1 |
| 22927 | WALES FARM ROAD |
| 22943 | WHITTINGTON HOSPITAL LONDON N19 |
| 24011 | TUNNEL BENEATH SOMERS TOWN GOODS DEPOT OSSULSTON STREET EUSTON |
| 24020 | PROPOSED REDEVELOPMENT BOLDERO STREET LONDON SW1 |
| 24031 | RATHBONE PLACE |
| 25452 | WALES FARM ROAD ACTON |
| 25471 | CAMDEN GOODS YARD |
| 25672 | HAMSTEAD ROAD CARDINGTON STREET LONDON |
| 25717 | 87 LANCASTER ROAD LONDON |
| 25723 | ALBERT TERRACE MEWS LONDON NW1 |
| 25724 | GROVEDALE ROAD LONDON N19 |
| 25725 | ZOOLOGICAL GARDENS REGENTS PARK |
| 25916 | DEANERY STREET LONDON W1 |
| 25943 | CONNAUGHT HOTEL ADAMS ROW LONDON W1 |
| 25948 | PADDINGTON STATION LAWN CONCOURSE PRAED STREET LONDON |
| 25968 | PRIMROSE HILL CHALK FARM |
| 25995 | 29 SOUTHWOOD LAWN ROAD HIGHGATE LONDON |
| 26007 | WESTWAY CENTRE MALTON ROAD LONDON |
| 26011 | 19-21 GREAT PORTLAND STREET LONDON W1 ROYAL LIVER FRIENDLY SOCIETY |
| 26048 | VICTORIA ROAD NORTH ACTON |
| 26060 | VICTORIA ROAD ACTON W10 |
| 26095 | YORK TERRACE REGENTS PARK |
| 26096 | DRUMMOND STREET CAMDEN |
| 26101 | 1-2 WELBECK STREET LONDON W1 |
| 26113 | 44-46 WHITFIELD STREET LONDON W |
| 26115 | 25-26 IVOR PLACE LONDON NW1 |
| 26118 | WINDMILL STREET LONDON W1 |
| 26152 | MILL LANE HAMSTEAD |
| 26160 | NORTH ACTON TUBE STATION NORTH ACTON LONDON W3 |
| 26218 | IVERSON ROAD NW6 |
| 26266 | MARYLEBONE ROAD LONDON NW1 |
| 26269 | 115 HAMILTON TERRACE |
| 26276 | YORK TERRACE YORK GATE LONDON NW1 |
| 26284 | 48 CURZON STREET LONDON |
| 26292 | LONG LANE EAST FINCHLEY LONDON N2 |
| 26301 | THE MARYLEBONE ROAD DEVELOPMENT INTERSECTION MARYLBONERD/ALBANY STR. |
| 26334 | WILLESDEN GREEN BUS GARAGE POUND LANE |
| 26347 | 6 BELGRAVE SQUARE LONDON SW1 |
| 26353 | ALEXANDRA ROAD HAMPSTEAD LONDON |
| 26388 | A406 NORTH CIRCULAR ROAD RAILWAY BRIDGES STONEBRIDGE FARM |
| 26430 | BRYANSTON SQUARE WI |
| 26457 | 152 BRENT STREET HENDON |
| 26473 | 23 BERKELY SQUARE LONDON W1 |
| 26497 | UNIVERSITY COLLEGE HOSPITAL LONDON WC1 |
| 26503 | AVENUE CLOSE LONDON NW8 |
| 26534 | THE FRIARY ACTON LONDON W3 |
| 26556 | DUNCOMBE ROAD LONDON N19 |
| 26558 | WOOD LANE LONDON W12 |
| 26561 | 12 GOLDEN SQUARE LONDON W1 |
| 26564 | PEUGEOT AUTOMOBILES UK LTD WESTON AVENUE ACTON |
| 26709 | 36/42 NORTH HILL HIGHGATE |

| Number | Site investigation title |
|---|---|
| 26716 | CARLTON HOUSE TERRACE LONDON SW1 |
| 26723 | CRICKLEWOOD BUS GARAGE LONDON NW2 |
| 26724 | CUMBERLAND TERRACE REGENTS PARK |
| 26736 | 90 MUSWELL ROAD LONDON N10 |
| 26749 | SAVILLE ROW |
| 26751 | IOA WOODLANE LONDON |
| 26824 | KINGS COURT 38-42 WHITFIELD STREET LONDON W1 |
| 26860 | KING STREET ACTON |
| 26863 | BOOK CENTRE EXTENSION NORTH CIRCULAR ROAD |
| 27090 | WILLESDEN SPORTS CENTRE |
| 27173 | BOUNDARY ROAD ST JOHNS WOOD |
| 27178 | BRENT TERRACE LONDON |
| 27179 | MAIDAVALE LONDON BBC STUDIOS |
| 27810 | 30-44 QUEENSWAY BAYSWATER 2 |
| 28227 | 30-44,QUEENSWAY,BAYSWATER W.2 |
| 28323 | 1-6 SEYMOUR STREET/MARYLEBONE W1 |
| 29791 | QUEENSWAY |
| 29830 | ST JAMES STREET LONDON SW 1 |
| 30280 | CHURCH OF LITTLE ST. PETER CLAREMONT WAY BARNET |
| 30293 | WHITFIELD SCHOOL BARNET |
| 30320 | 13 COOLHURST ROAD CROUCH END |
| 30439 | CEDERS CLOSE HENDON LONDON NW4 |
| 30518 | 48-49 MANCHESTER STREET LONDON W1 |
| 30692 | 320 KILBURN HIGH ROAD |
| 30694 | WILLESDEN GREEN |
| 31542 | MIDDLESEX UNIVERSITY |
| 31827 | PADDINGTON LIBRARY, PADDINGTON |
| 32085 | 83/85 PALL MALL LONDON SW1 |
| 32550 | MASONS YARD WESTMINSTER SW1 |
| 32625 | ARCHWAY DEVELOPMENT PHASE II |
| 32738 | THE BURROUGHS, HENDON LONDON |
| 32912 | 698 FINCHLEY ROAD HOOP LANE |
| 33013 | THE ECONOMIST ST JAMES ST - RYDER ST LONDON |
| 33464 | DIRECTORATE OF TECHNICAL SERVICES LONDON |
| 33471 | LONDON BOROUGH OF BARNET CHRIST'S COLLEGE LOWER SCHOOL |
| 33472 | 62 SHIRLAND ROAD,LONDON W9 |
| 33506 | LADBROKE GROVE CANAL BRIDGE |
| 33509 | BRENT TERRACE CRICKLEWOOD LONDON |
| 33515 | NEW BOND STREET LONDON W1 |
| 33544 | GLADSTONE PARK GARDENS CRICKLEWOOD |
| 33592 | 65/66 FRITH STREET W1 |
| 33597 | 97/115 ADELAIDE ROAD NW3 |
| 33601 | CHALTON STREET LONDON NW1 |
| 33602 | 72 CHARLOTTE STREET LONDON |
| 33889 | ACTON |
| 33910 | EAST FINCHLEY |
| 34073 | LADBROKE HALL |
| 34076 | ROE GREEN SWIMMING POOL WEMBLEY |
| 34139 | GOWER STREET |
| 34145 | SUNNYFIELDS PRIMARY SCHOOL HENDON |
| 34179 | NORTH ACTON ROAD PARK ROYAL |
| 34788 | HAZELTON HOUSE CHEVERTON ROAD ISLINGTON |
| 34837 | EUSTON STATION RECONSTRUCTION |

| Number | Site investigation title |
|---|---|
| 34842 | THE ROUNDHOUSE DEVELOPMENT, CHALK FARM ROAD, LONDON |
| 35208 | PARK ROYAL LONDON |
| 35306 | LECONFIELD HOUSE CURZON STREET |
| 35570 | 152 HIGH STREET HARLESDEN |
| 35692 | 3 NORTH END AVENUE HAMPSTEAD |
| 35823 | CAMDEN ROAD DEVELOPMENT, LONDON NW1 |
| 35824 | RABBIT ROW, LONDON, W.8 |
| 36001 | EUSTON STATION RECONSTRUCTION |
| 36101 | EUSTON STATION RECONSTRUCTION |
| 36102 | EUSTON STATION |
| 36180 | WILLESDEN CEMETERY NEW CHAPEL |
| 36181 | FRANKLYN ROAD CLEANSING DEPOT |
| 36198 | ELSWORTHY ROAD LONDON NW3 |
| 36288 | ODEON CINEMA SITE HARLESDEN LONDON |
| 36946 | QUEENS WOOD HIGHGATE LONDON |
| 37047 | MAITLAND PARK ST PANCRAS |
| 37108 | 117/118 BAYSWATER ROAD BAYSWATER |
| 37156 | 65 PRIORY ROAD HAMPSTEAD |
| 37184 | 42 ST DUNSTANS AVENUE ACTON LONDON |
| 37222 | 11 WATERLOO PLACE ST JAMES'S LONDON |
| 37533 | REGENT STREET BOROUGH OF WESTMINSTER LONDON |
| 37556 | 95 SUNNY GARDENS HENDON |
| 37597 | 4 LANSDOWNE WALK HOLLAND PARK LONDON |
| 37620 | COLINDALE AVENUE BOROUGH OF BARNET |
| 37628 | TEMPLEHOF AVENUE BRENT CROSS |
| 37629 | THAMES ROAD CRAYFORD |
| 37640 | 66 HAMILTON TERRACE MAIDA VALE |
| 37864 | CLAREMONT ROAD QUEENS PARK LONDON BOROUGH OF BRENT |
| 38176 | CAIRD ST LONDON W 10 |
| 38290 | 1 CORNWALL TERRACE REGENTS PARK |
| 38309 | 160 NEW BOND STREET |
| 38318 | 87 - 89 BAKER STREET |
| 38376 | 265 CAMDEN ROAD LONDON |
| 38405 | DUPLEX WORKS (UNIT 8) THE HYDE HENDON |
| 38466 | CHILTERN STREET LONDON W1 |
| 38544 | COMPRESSOR HOUSE WILLESDEN |
| 38546 | GLOUCESTER HOUSE MARYLEBONE ROAD |
| 38569 | GROSVENOR SQUARE UNDERGROUND CAR PARK |
| 38590 | EARTH MOVEMENT AT NORTH ACTON STATION |
| 38597 | GARRICK ROAD INDUSTRIAL ESTATE HENDON |
| 38609 | 24-26 AVENUE ROAD PRIMROSE HILL |
| 38646 | GARRICK ROAD INDUSTRIAL ESTATE HENDON |
| 38669 | TOLMERS SQUARE AREA 1 NETLEY STREET SITE |
| 38678 | DOLLIS HILL SCHOOL WILLESDEN |
| 38707 | LATIMER ROAD HAMMERSMITH W.10 |
| 38708 | TECHNICAL COLLEGE PADDINGTON W.2 |
| 38710 | SILCHESTER ROAD KENSINGTON W.10 |
| 38713 | WELL STREET REDEVELOPMENT |
| 38751 | MULTI-STOREY CAR PARK WOOD LANE LONDON W12 |
| 38785 | PROPOSED OFFICE BLOCK EDGWARE ROAD COLINDALE |
| 38862 | PROPOSED DEVELOPMENT AT 20-28 LODGE ROAD ST MARYLEBONE |
| 39047 | 198 ALBANY STREET REGENTS PARK |
| 40333 | NEASDEN FACTORY |

| Number | Site investigation title |
|---|---|
| 40485 | MAIDA VALE |
| 40615 | STANHOPE STREET REGENTS PARK |
| 40693 | LANCASTER ROAD KENSINGTON |
| 40702 | RUSTON MEWS W11 |
| 42230 | HORNSEY LANE HARINGEY |
| 42578 | 3 - 5 GLOUCESTER ROAD LONDON NW1 |
| 42584 | 149 SCRUBS LANE NW10 |
| 42704 | SHINFIELD STREET |
| 42742 | UNITY HOUSE 195 - 205 EUSTON ROAD NW1 |
| 42905 | C/1212 BRENT TERRACE CRICKLEWOOD |
| 43073 | PREMIER PARK TWYFORD EAST PARK ROYAL LONDON |
| 43075 | SOUTHWOOD HOUSE 41-49 AVONDALE PARK ROAD LONDON |
| 43079 | UNIT 9 REVISED POSITION STAPLES CORNER RETAIL PARK |
| 43105 | MONOPOLE HENDON |
| 43375 | THE ELMS HAMPSTEAD VOLUMES 1 & 2 |
| 43621 | 29- 31 FARM STREET LONDON W1 |
| 43637 | SPEDAN TOWERS HAMPSTEAD |
| 43679 | L.T. DEVELOPMENT WHITE CITY W12 |
| 43680 | MADDOX STREET SITE |
| 43686 | 18-20 GROVE END ROAD ST JOHNS WOOD |
| 43690 | REDEVELOPMENT OF BLUE STAR GARAGE HAMPSTEAD |
| 43703 | 51 - 53 GREAT MARLBOROUGH STREET LONDON W1 |
| 43761 | TOLMERS SQUARE CAMDEN |
| 43870 | ST AGNES CHURCH CRICKLEWOOD LANE |
| 43974 | INDUSTRIAL ESTATE HENDON |
| 44005 | OLD PEOPLES DWELLINGS REGENTS PARK |
| 44865 | DANE COURT THE BISHOPS AVENUE LONDON |
| 44877 | 17 THE BISHOPS AVENUE LONDON |
| 46171 | CROSSRAIL PACKAGE A |
| 46172 | CROSSRAIL PACKAGE B |
| 51134 | PORCHESTER LEISURE CENTRE LONDON |
| 51548 | CONNAUGHT HOTEL MAYFAIR LONDON |
| 51865 | 15 STANHOPE GARDENS LONDON N6 |
| 51895 | CHALK FARM LONDON |
| 51996 | EAST ACTON LANE |
| 51997 | HUNTS FARM BOROUGH GREEN |
| 52076 | HERMITAGE STREET PADDINGTON |
| 52214 | OXFORD STREET/DERING STREET LONDON W1 |
| 52508 | 9-13 GEORGE STREET LONDON W1 |
| 52511 | PARK PLAZA HOTEL BAYSWATER |
| 52518 | THE PICCADILLY ESTATE TROCADERO SITE COVENTRY STREET LONDON W1 |
| 52529 | 12 AVENUE ROAD NW8 |
| 52535 | COMBINED REPORTS 39-41 CHARING CROSS ROAD |
| 52536 | TAUNTON PLACE BALCOMBE STREET LONDON NW1 |
| 52546 | PROPOSED OFFICE DEVELOPMENT AT 10-12 GREAT MARLBOROUGH STREET LONDON W1 |
| 52548 | 10-12 GREAT MARLBOROUGH STREET LONDON W1 |
| 52568 | PADDINGTON GOODS YARD |
| 52572 | 120-126 TOTTENHAM COURT ROAD LONDON W1 |
| 52573 | 120-126 TOTTENHAM COURT ROAD LONDON W1 |
| 52574 | 120-126 TOTTENHAM COURT ROAD LONDON W1 |
| 52706 | WILLESDEN ECR DEPOT |
| 52712 | A5 KILBURN HIGH ROAD - OB19 |

| Number | Site investigation title |
|---|---|
| 52721 | KENSAL ROAD LONDON W10 |
| 52799 | WHITE CITY AFFORDABLE HOMES  PHASES 1 AND 2 |
| 53209 | GYPSY CORNER NORTH ACTON |
| 53518 | ARLINGTON HOUSE 220 ARLINGTON ROAD CAMDEN LONDON NW1 |
| 53528 | MOST HOLY TRINTY WITH ST BARNABAS CHURCH KENTISH TOWN LONDON |
| 53660 | 18 BISHOPSWOOD ROAD LONDON N6 |
| 53728 | 64-70 CAMDEN HIGH STREET LONDON NW1 |
| 53729 | 24 CANDOVER ROAD HORNCHURCH ESSEX |
| 53751 | 31 GREEN LANE LONDON NW4 |
| 53752 | 44 GROVE END ROAD LONDON NW8 |
| 53757 | 114-118 HARLEY STREET LONDON W1 |
| 53760 | HEATHWAYS COURTENAY AVENUE LONDON N6 |
| 53793 | DORIC VILLA |
| 53794 | EAST HEATH ROAD HAMSTEAD LONDON NW3 |
| 53798 | 378 FINCHLEY ROAD CHILDS HILL LONDON NW3 |
| 53799 | 3, 5 AND 7 FITZJOHN`S AVENUE SOUTH HAMPSTEAD LONDON |
| 53890 | 31 THE BISHOPS AVENUE LONDON N2 |
| 53902 | 14 VIEW ROAD HIGHGATE LONDON N6 |
| 53916 | MAGISTRATES COURTS MARYLEBONE ROAD LONDON W1 |
| 53917 | MARYLEBONE MAGISTRATES COURTS LONDON |
| 54277 | BOURCHIER STREET SOHO |
| 54279 | BRENT STREET HENDON |
| 54347 | CROWNHILL ROAD NW10 |
| 54428 | HARROW ROAD LONDON W9 13 PHASE III |
| 54429 | HARROW ROAD LONDON W9 |
| 54538 | 45 NETHERHALL GARDENS HAMPSTEAD |
| 56228 | PROPOSED EXTENSION TO THE HOSPITAL OF ST JOHN & ST ELIZABETH LONDON |
| 56232 | ELLIS HOTEL DOWN STREET LONDON W1 |
| 56234 | PROPOSED LEB SUBSTATION AT LEICESTER SQUARE LONDON |
| 56241 | THE EASTERN YARD CAMDEN LOCK LONDON |
| 56254 | NEW LIFT SHAFT AT LA SAINTE UNION CONVENT SCHOOL HIGHGATE ROAD NW5 |
| 56466 | 26 WILDWOOD RISE LONDON NW11 |
| 56513 | PROPOSED ACHILLES WAY CAR PARK PARK LANE LONDON W1 |
| 56537 | NEASDEN DEPOT NEASDEN |
| 56576 | NEASDEN TO DOLLIS LU INCLINOMETER DATA |
| 56582 | WEMBLEY PARK TO KINGSBURY NEASDEN TO DOLLIS HILL LU |
| 56584 | 11 HALL ROAD LONDON NW8 |
| 56590 | ACTON WASTE TRANSFER STATION |
| 56595 | WEST HAMPSTEAD STATION NORTH LONDON LINE |
| 56596 | 11 BRICK STREET MAYFAIR LONDON W1 |
| 56642 | PROPOSED NEW DEVELOPMENT 14-16 WARWICK STREET LONDON |
| 56732 | 100 ILBERT STREET WEST KILBURN NW10 |
| 56793 | 32 THORPBANK RD SHEPHERDS BUSH LONDON W12 |
| 56828 | RETAIL DEVELOPMENT 6-17 TOTTENHAM COURT ROAD LONDON |
| 56867 | THE RYDINGS COURTENAY AVENUE HAMPSTEAD LONDON N6 |

**National Grid geological maps (1:10 000 and 1:10 560 scale)**

Number of records in search area: 4

| Map | Type | Survey |
|---|---|---|
| TQ28NE | C | 1922 |
| TQ28NW | C | 1922 |
| TQ28SE | C | 1899 |
| TQ28SW | C | 1899 |

**County Series geological maps (1:10 560 scale)**

Number of records in search area: 13

| Map | Type | Published |
|---|---|---|
| London1FS | | 1922 |
| London1FS | C | 0 |
| London1SE | C | 1934 |
| London1SE | C | 0 |
| London1SE | | 1934 |
| London1SE | D | 1934 |
| London2SE | C | 0 |
| London4FS | | 1919 |
| London4NE | D | 1934 |
| London4NE | | 1934 |
| London4NE | C | 0 |
| London4NE | C | 1934 |
| London6NE | C | 0 |

**New Series medium scale geological maps (1:50 000 and 1:63 360 scale)**

Number of records in search area: 4

| Sheet number | Sheet name | Type | Published |
|---|---|---|---|
| 256 | North London | C | 2006 |
| 256 | North London | C | 1993 |
| 256 | North London | D | 1925 |
| 256 | North London | D | 1951 |

**Old Series one inch geological maps (1:63 360 scale)**

Number of records in search area: 2

| Sheet number | Sheet name | Type | Published |
|---|---|---|---|
| 7 | St. Albans | D | 1871 |
| 7 | St. Albans | S | 1861 |

**Hydrogeological maps (various scales)**

Number of records in search area: 0

**BGS holds no hydrogeological maps for the selected area**

## Geological Memoirs

Number of records in search area: 2

| Geological memoir | Date |
|---|---|
| Geology of London Sheets 256,257,270,271 | 2004 |
| North London | 1925 |

## Technical reports

Technical reports may be available for this area. Please see http://geolib.bgs.ac.uk

## Waste sites

Number of records in search area: 0

Listing of some 3500 waste sites for England and Wales identified by BGS as part of a survey carried out on behalf of the Department of the Environment in 1973. Later information may be available from the Local authority.

**BGS holds no records of waste sites for the selected area**

## Mining plans

Number of records in search area: 0

This listing includes plans of various types, principally relating to mining activity including abandonment plans. The coverage is not comprehensive; however that for Scotland is most complete.

**BGS holds no records of mining plans for the selected area**

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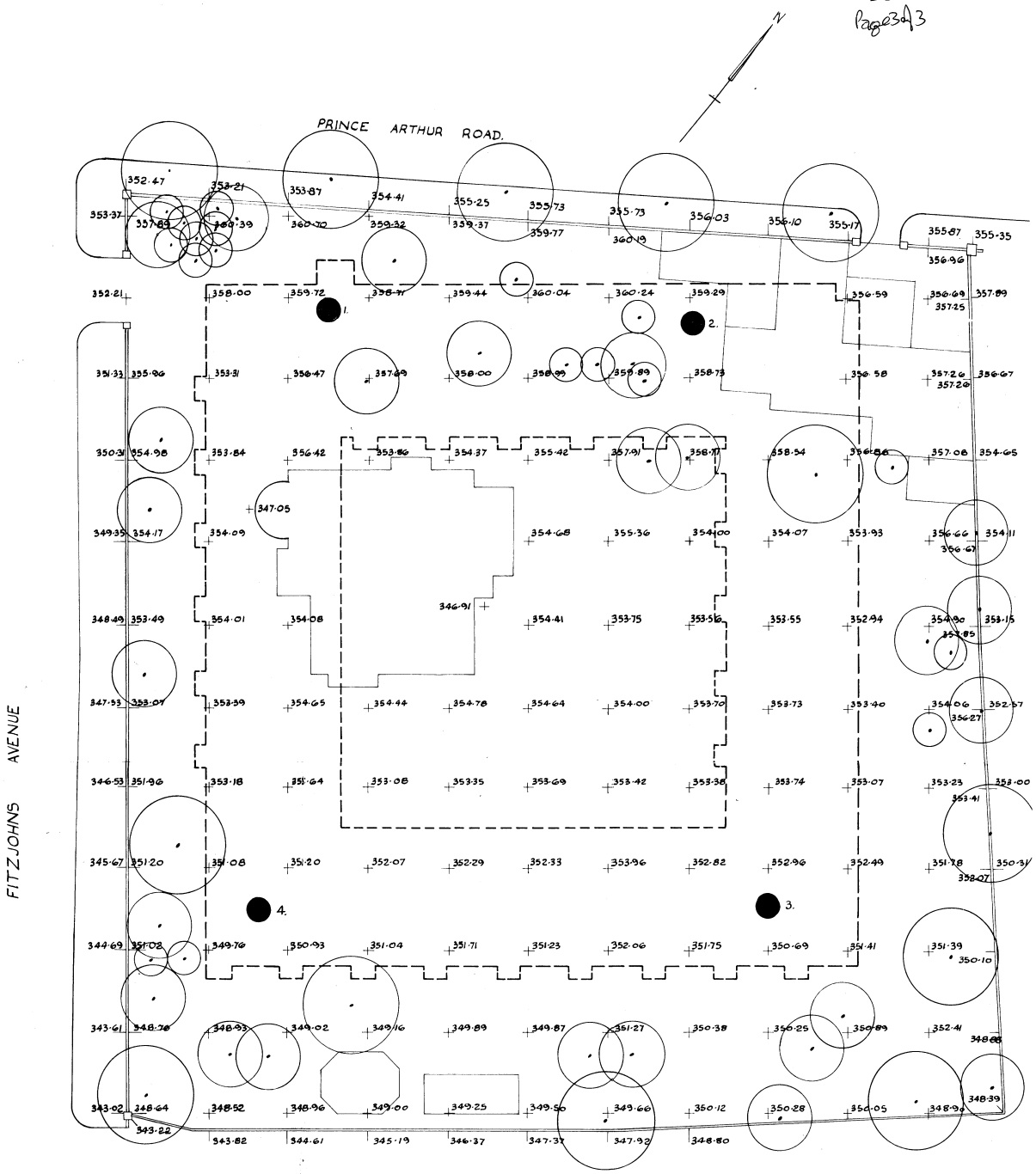


PLAN.

OUTLINES OF EXISTING BUILDINGS SHEWN THUS, _____
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# BOROUGH OF HAMPSTEAD.


CHARLES E. JACOB
A.R.I.B.A.
CHARTERED ARCHITECT

HOUSING ARCHITECT

TELEPHONE: HAMPSTEAD 7171/EXT. 131

HOUSING ARCHITECT'S DEPARTMENT,
222, HAVERSTOCK HILL,
N.W.3.


YOUR REF. .....

MY REF. MW/PA. P/43

11th December, 1963.

Rec'd by Mr. 12 Dec '63

The Director,
Geological Survey & Museum,
Exhibition Road,
South Kensington, S.W.7.

Dear Sir,

102, Fitzjohn's Avenue. N.W.3.

I refer to Circular No.18/62 from the Ministry of Housing and Local Government and enclose copies of the following documents, for your information, giving details of the trial boreholes that were sunk on this site during July 1963:-

1/1250 O.S.Sheet showing the location of the site
Drawing No.899/4 showing the position of the boreholes on the site.

The following deposits were encountered in the boreholes:-

| No.1 Boring | Thickness | Depth below surface. |
|---|---|---|
| Topsoil | 3'0" | 3'0" |
| Brown fine sand with a little silt and small clay pockets | 14'0" | 17'0" |
| Stiff to very stiff laminated grey sandy clay and brown silty fine sand | 13'0" | 30'0" |
| Total from surface | 30'0" | 30'0" |

| No.2 Boring | | |
|---|---|---|
| Made ground (sand, ashes, stones etc.) | 2'0" | 2'0" |
| Yellow/brown fine sand with a little silt and small clay pockets | 15'6" | 17'6" |
| Stiff laminated grey sandy clay and orange/brown silty fine sand | 12'6" | 30'0" |
| Total from surface | 30'0" | 30'0" |

/contd:

TQ28NE/44
2652 8550
256.

The Director,
Geological Survey & Museum

Continuation Sheet No.1. Page 2 of 3

| | | Thickness | Depth below surface. |
|---|---|---|---|
| | **No.3 Boring** (+106.98 m) | | |
| | Topsoil | 2'6" | 2'6" |
| Bagshot Beds | Stiff laminated grey sandy clay and brown silty fine sand | 11'6" | 14'0" |
| | Yellow/brown silty fine sand, clayey at some levels | 19'0" | 33'0" |
| Claygate Beds | Coarsely laminated grey sandy clay and orange/brown silty sand | 4'0" | 37'0" |
| | Brown silty very fine sand with trace of clay | 3'0" | 40'0" |
| | Total from surface | 40'0" | 40'0" |
| | **No.4 Boring** | | |
| | Made ground (clayey sand, gravel, topsoil, etc.) | 3'6" | 3'6" |
| | Sandy clay with stones | 1'0" | 4'6" |
| | Firm to stiff laminated grey sandy clay and silty fine sand | 15'6" | 20'0" |
| | Total from surface | 20'0" | 20'0" |

Yours faithfully,

H.L. Jacob.

Housing Architect.

Encls:

Department of the Environment
CIVIL ENGINEERING LABORATORY Cardington

Investigation No. FGE/1491

Appendix A
Sheet No. 2

T. E. Extension

# HAMPSTEAD

## BOREHOLE LOG

TQ 28 NE/129
2594 8515

Borehole No. 1
Ground Level 62·0m A.O.D (approx.)
Date 11th-12th, 16th-18th June 1981

Note:-
1. Light Cable Percussion Borehole
2. Casing - 250mm dia. to 1·8m below G.L
   Open hole boring from 1·8 to 29·5m below G.L
3. Standpipe installed - details below

| Description of Strata | Legend | Sample | Depth (m) | O.D. (m) | Remarks |
|---|---|---|---|---|---|
| | | | G.L | 62·0 | |
| CONCRETE | | | 0·2 | 61·8 | |
| MADE GROUND:- CLAY, sandy, brown, soft to firm, contains scattered cinders, brick fragments and flints with lenses and layers of soft organic clay | | 9 | 0·7 | | Standpipe installed to 29·0m below G.L. Bottom 3m of pipe slotted and surrounded by a 4·0m response zone of gravel. Gravel response zone sealed by a 2·0m thick Bentonite plug. Hole backfilled with clay. |
| | | | 1·2 | | |
| | | | 1·5 | 60·5 | |
| CLAY, Brown, firm, silty, lightly fissured with occasional thin orange silt/sand layers<br>Class? CH | | 28 | 2·0 | | |
| | | | 2·5 | | |
| CLAY, Brown mottled blue grey, firm to stiff, silty, fissured. Contains scattered small Gypsum crystals throughout which are occasionally concentrated into thin layers and pockets, there are also a few small isolated carbonaceous pockets<br>Class? CH | LW | 44 | 3·5 | | |
| | | | 4·0 | | Reduced to 200mm dia. boring from 4·0m below G.L |
| CLAY, as above, becoming stiff with more pronounced fissuring Class? CH | | 56 | 5·0 | | |
| | | | 5·5 | | |
| CLAY, Brown, stiff, silty, well fissured, with scattered small Gypsum crystals throughout and occasional very thin layers of orange silt/sand | | 59 | 6·5 | | |
| | | | 7·0 | | |
| CLAY, as above, becoming darker brown Class? CH | | 31 | 8·0 | | |
| | | | 8·5 | | |
| CLAY, Grey brown, stiff, fairly silty, well fissured, with numerous small Gypsum crystal throughout (WEATHERED LONDON CLAY) | | 41 | 9·5 | | Water added in small quantities to assist boring throughout |
| | | | 10·0 | 52·0 | |

contd.

Department of the Environment | Investigation No. | Appendix A
CIVIL ENGINEERING LABORATORY Cardington | FGE/1491 | Sheet No. 3

T.E. Extension

# HAMPSTEAD

## BOREHOLE LOG

TQ 28 NE 129
2594 8515

Borehole No. 1 contd.
Ground Level
Date

Note:-

| Description of Strata | Legend | Sample | Depth (m) | O.D. (m) | Remarks |
|---|---|---|---|---|---|
| | | | 10·0 | 52·0 | |
| CLAY, as previous sheet (WEATHERED LONDON CLAY) | LW | | 10·5 | 51·5 | |
| CLAY, Grey, stiff, fairly silty, well fissured with scattered small pockets of brown silt. Class? CH | | 101 | 11·0 / 11·1 | 50·9 | ▼ Ground water level at 11·1m below G.L on 27·8·81 |
| | | | 11·5 | | |
| CLAY, as above with the addition of a few scattered fossil shell fragments | | 68 | 12·5 | | |
| | | | 13·0 | | |
| CLAY, as above, contains a few small nodules of Pyrites. Class? CH | L | 64 | 14·0 | | |
| | | | 14·5 | | |
| | | 36 | 15·5 | | |
| | | | 16·0 | | |
| | | 21 | 17·0 | | |
| | | | 17·5 | | |
| CLAY, as above, becoming stiffer and very fissured with a blocky and brittle structure. Class? CH | | 69 | 18·5 | | |
| | | | 19·0 | | Reduced to 150mm dia. boring from 19·0m below G.L |
| (LONDON CLAY) | | | 20·0 | 42·0 | |

contd.

Department of the Environment
CIVIL ENGINEERING LABORATORY Cardington

Investigation No. FGE/1491

Appendix A
Sheet No. 4

T. E. Extension

# HAMPSTEAD

## BOREHOLE LOG

TQ 28 NE/129
2594 8515

Borehole No 1 contd.
Ground Level
Date

Note:-

| Description of Strata | Legend | Sample | Depth (m) | O.D. (m) | Remarks |
|---|---|---|---|---|---|
| CLAY, as previous sheet | | 55 | 20·0 | 42·0 | |
| | | | 20·5 | | |
| | | 85 | 21·5 | | |
| | | | 22·0 | | |
| CLAY, becoming very stiff and extremely fissured and brittle below 24·0m B.G.L. Too hard to sample, threads sheared on sampling tubes when attempting withdrawal. Clay contains numerous fossil fragments, pyrites and fairly frequent thin layers and lenses of dark grey silt/sand | L | 05 | 23·0 | | |
| | | | 23·5 | | |
| Classed CH | | 52 | 24·7 | | |
| | | 57 | 26·2 | | |
| | | 47 | 27·7 | | |
| (LONDON CLAY) | | 64 | 29·2 | | No water entries observed during boring |
| | | | 29·5 | 32·5 | Borehole dry on completion of boring |
| | | | | | End of borehole |

Department of the Environment
CIVIL ENGINEERING LABORATORY Cordington

Investigation No. FGE/1491

Appendix A
Sheet No. 5

T.E. Extension

# HAMPSTEAD

## BOREHOLE LOG

TQ 28 NE/130
2598 8510

Borehole No. 3
Ground Level 60·7 m A.O.D (approx.)
Date 23rd – 25th June 1981

Note:-
1. Light Cable Percussion Borehole
2. Casing – 200mm dia. to 1·8m below G.L
Open hole boring from 1·8m to 15·0m below G.L
3. Standpipe installed – details below

| Description of Strata | Legend | Sample | Depth (m) | O.D. (m) | Remarks |
|---|---|---|---|---|---|
| REINFORCED CONCRETE | | | G.L | 60·7 | Standpipe installed to 15·0m below G.L |
| MADE GROUND; Clay, very sandy, soft and organic with flints and brick fragments etc. | | | 0·3 | 60·4 | Pipe slotted over whole length |
| MGRP | | | 0·7 | | Hole backfilled with gravel |
| CLAY, Orange brown, slightly sandy, structureless with scattered rounded stones (SOLIFLUCTION DEPOSIT?) | C | 22 | 0·9 | 59·8 | |
| k | | | 1·2 | | |
| | | | 1·5 | 59·2 | ▼ Ground water level at 1·5m below G.L on 27·6·81 |
| CLAY, Brown, stiff, slightly silty, extremely fissured and brittle with occasional small carbonaceous pockets Class? CH | | 22 | 2·0 | | |
| | | | 2·5 | | |
| LC (w) | | 22 | 3·5 | | |
| CLAY, as above but fissuring so pronounced as to cause samples from 3·5 to 6·5m to fall apart during extrusion. There was no evidence of any polishing along the fissure surfaces Class? CH | LW | | 4·0 | | Water added in small quantities to assist boring from 4·0m below G.L onwards |
| | | 50 | 5·0 | | |
| | | | 5·5 | | |
| | | 42 | 6·5 | | |
| | | | 7·0 | | |
| CLAY, Dark brown, stiff, silty, very fissured with numerous small Gypsum crystals. Contained a few thin layers of weakly cemented yellow iron pan | | 45 | 8·0 | | |
| | | | 8·5 | | |
| (WEATHERED LONDON CLAY) | | 40 | 9·5 | | Borehole dia. 200mm throughout |
| | | | 10·0 | 50·7 | |

contd.

Department of the Environment
CIVIL ENGINEERING LABORATORY Cardington

Investigation No. FGE/1491

Appendix A
Sheet No. 6

T. E. Extension

# HAMPSTEAD

## BOREHOLE LOG

TQ 28 NE/130
2698 8510

Borehole No 3 contd.
Ground Level
Date

Note:-

| Description of Strata | Legend | Sample | Depth (m) | O.D. (m) | Remarks |
|---|---|---|---|---|---|
| | | | 10·0 | 50·7 | |
| LC (w) CLAY, as previous sheet (WEATHERED LONDON CLAY) | LW | | 10·5 | 50·2 | |
| LC CLAY, Grey, stiff, extremely fissured, slightly silty with isolated small lenses and layers of brown silt. Contains scattered fossil fragments and small nodules of Pyrites throughout. Class? CH | L | 98 | 11·0 | | |
| | | | 11·5 | | |
| | | 71 | 13·0 | | |
| | | | 13·5 | | |
| (LONDON CLAY) | | | | | No water entries observed during boring |
| | | 35 | 14·5 | | Borehole dry on completion of boring |
| | | | 15·0 | 45·7 | End of boring |

# APPENDIX C

*Radon risk report*

## Radon Risk Report for addresses in England and Wales

Issued by the Health Protection Agency and the British Geological Survey using Address Point®. Fee paid £3.00 + VAT. Email receipt issued by Secure Trading Ltd.

Address searched: 9 Arkwright Road, London, NW36AA

Numerical grid reference for this address:

526409 East

185324 North

Date of report: 16/03/2011

# Guidance for existing properties

### Is this property in a radon Affected Area? - NO

The answer to the standard enquiry on house purchase known as CON29 Standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area is:

**No, this property is not in a Radon Affected Area as defined by the Health Protection Agency.**
**The estimated probability of the property being above the Action Level for radon is:0-1%**

The result covers a 75 metre zone around the grid references above to allow for uncertainties in locations.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Health Protection Agency. HPA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from HPA or www.ukradon.org.

# Guidance for new buildings and extensions to existing properties

### What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

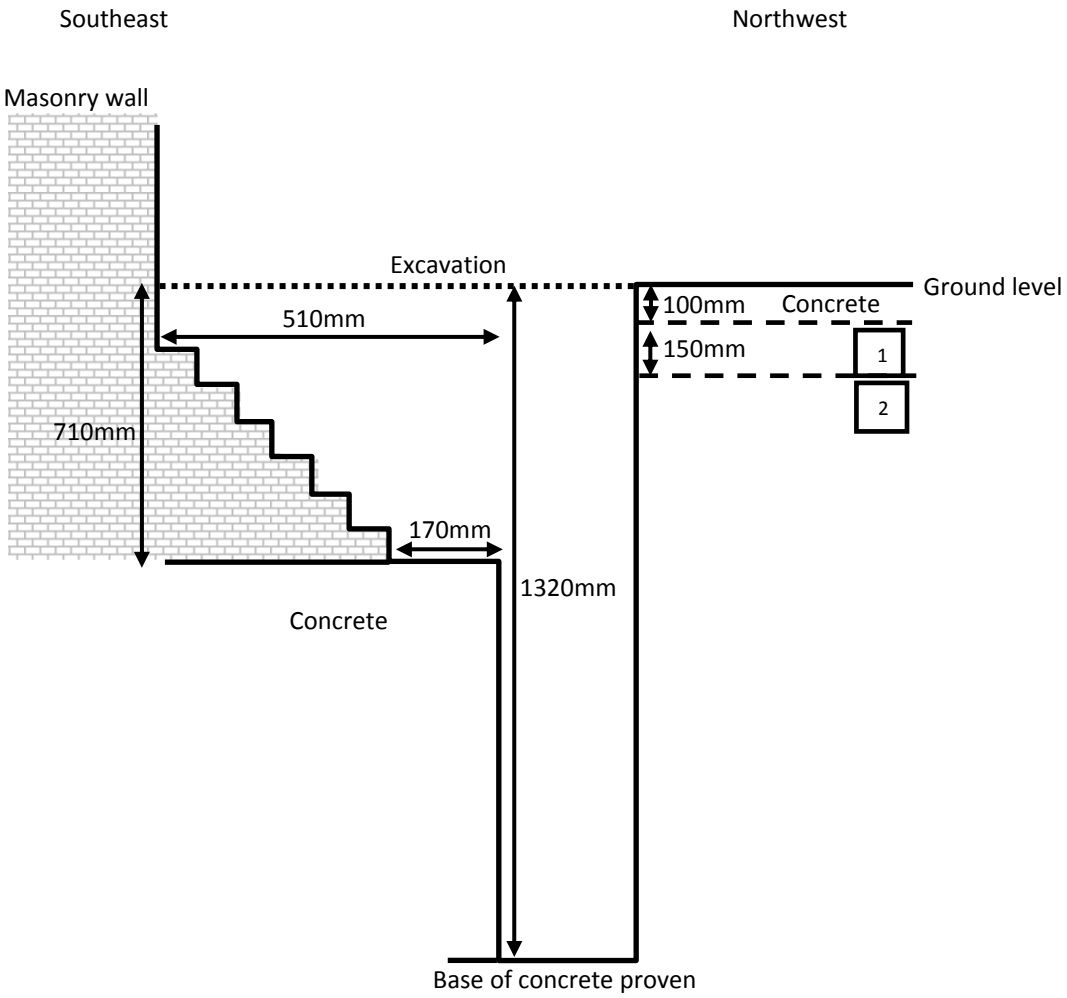
If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

# APPENDIX D

*Exploratory hole records*

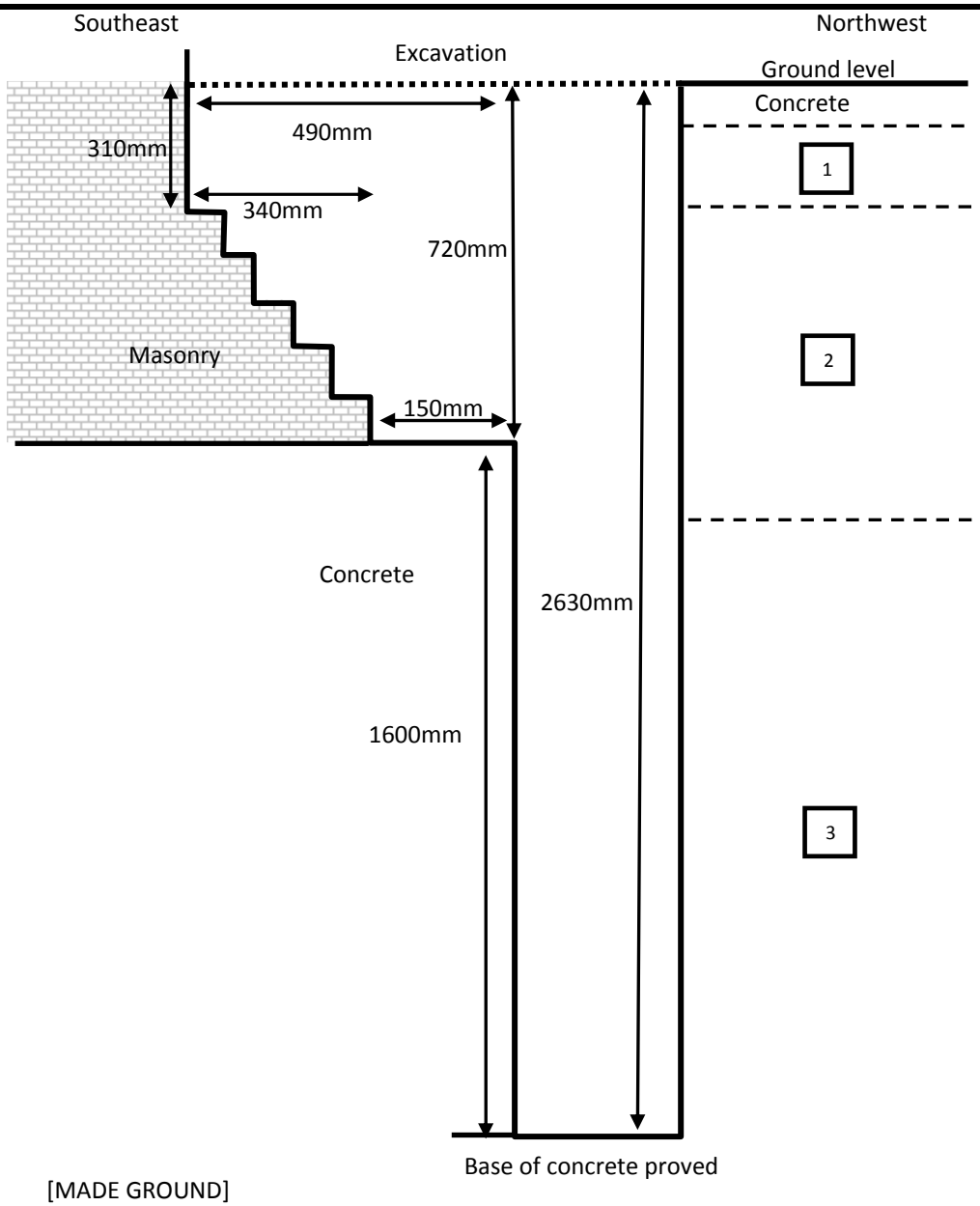
NOT TO SCALE




1 [MADE GROUND]
Loose to medium dense dark greyish black slightly gravely slightly clayey fine sand. Gravel is fine to medium angular to rounded of flint. Occasional red brick fragments of small to medium gravel size noted. Roots & rootlets noted.

2 Soft to firm dark orangish brown, mottled grey, sandy to very sandy gravely CLAY. Sand is fine. Occasional fine to medium subangular to rounded gravel of flint with occasional fine to medium gravel sized fragments of brick.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 1 Record** | **Appendix D** |




[MADE GROUND]

1 Loose to dense dark grey black slightly gravelly clayey sand. Sand is fine to medium. Gravel is rounded to subangular, fine to medium of flint and brick. Occasional roots and rootlets.

2 Soft to firm dark orange brown, mottled blue grey, very sandy CLAY. Sand is fine. Rare rounded to subangular, medium to coarse gravels of flint.

3 Medium dense to dense light orange brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is rounded to angular, fine to coarse of flint. Becoming less gravelly from 1.06m to 2.30 bgl. Roots and rootlets noted between 1.95-2.30m bgl.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 2 Record** | **Appendix D** |

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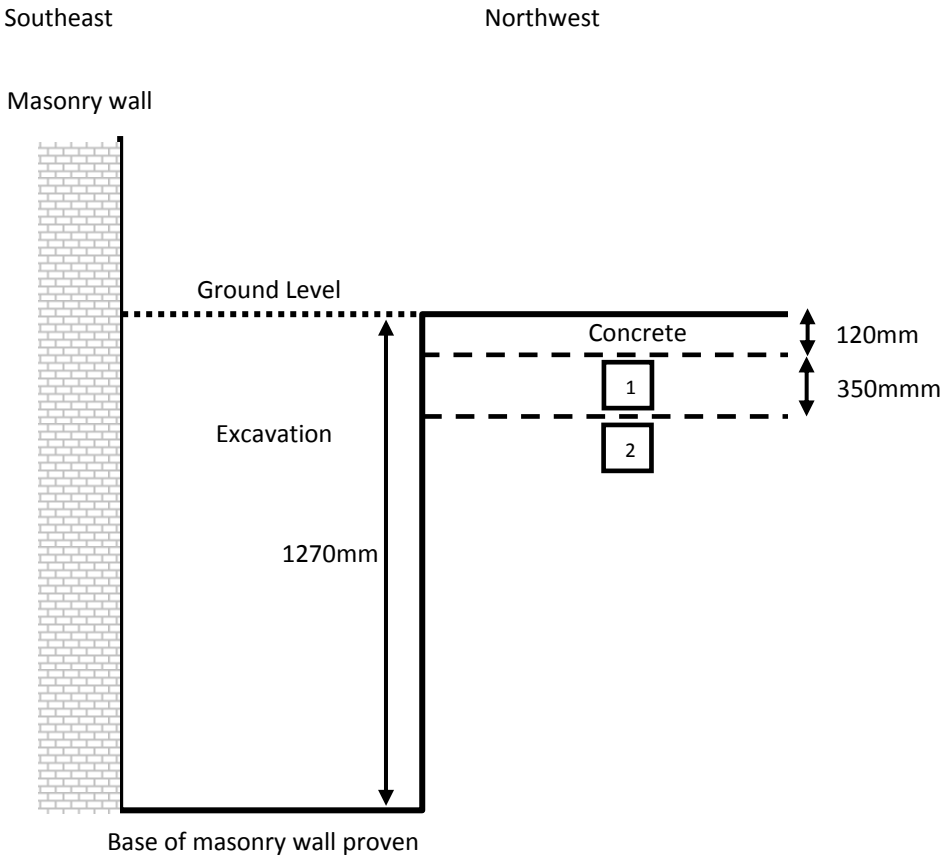


1 [MADE GROUND]
Loose to medium dense dark greyish black slightly gravely slightly clayey fine sand. Gravel is fine to medium angular to rounded of flint. Occasional red brick fragments of small to medium gravel size noted. Roots & rootlets noted.

2 Soft to firm dark orangish brown sandy to very sandy CLAY. Occasional fine to medium subangular to rounded gravel of flint. Sand is fine.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 3 Record** | **Appendix D** |

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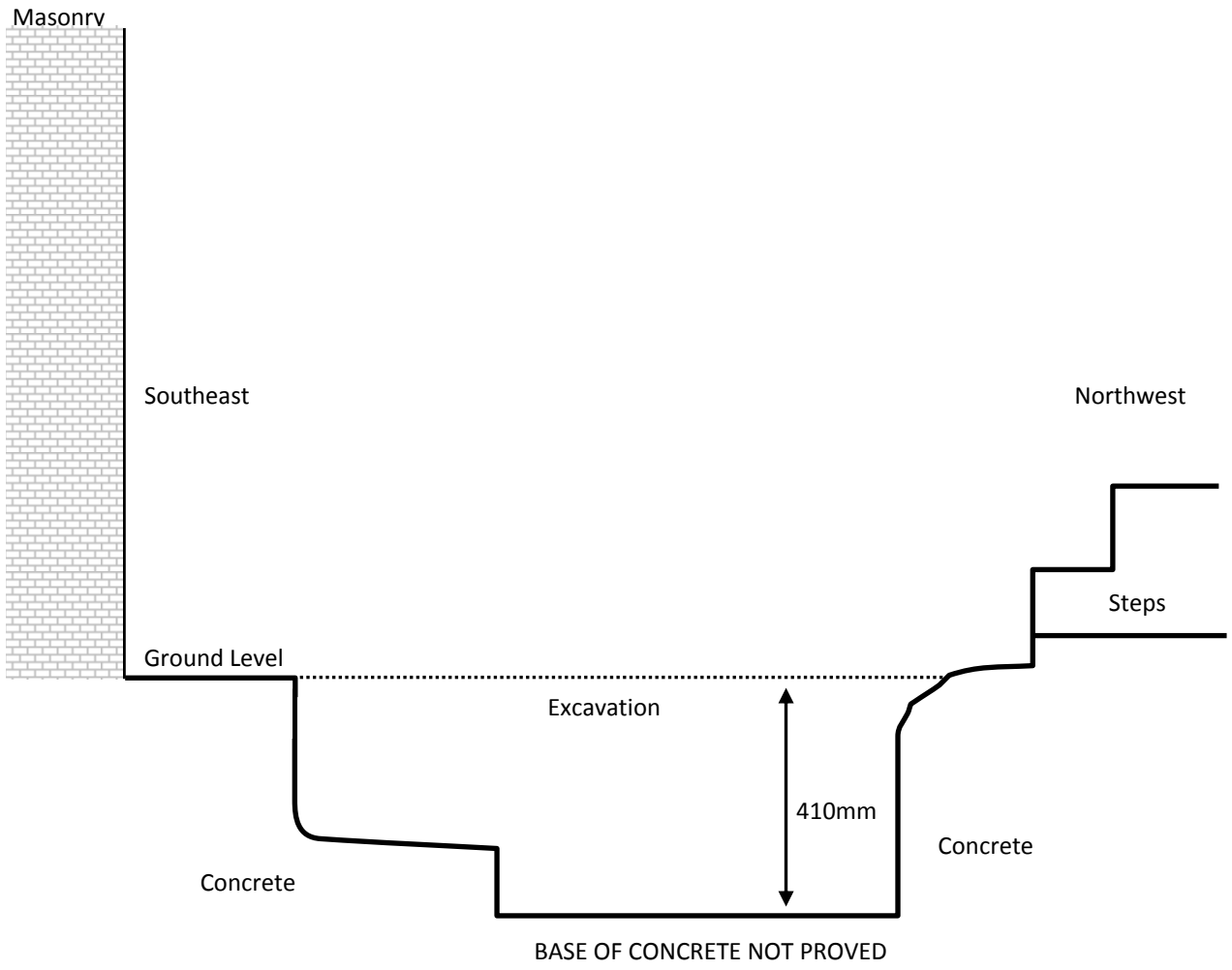
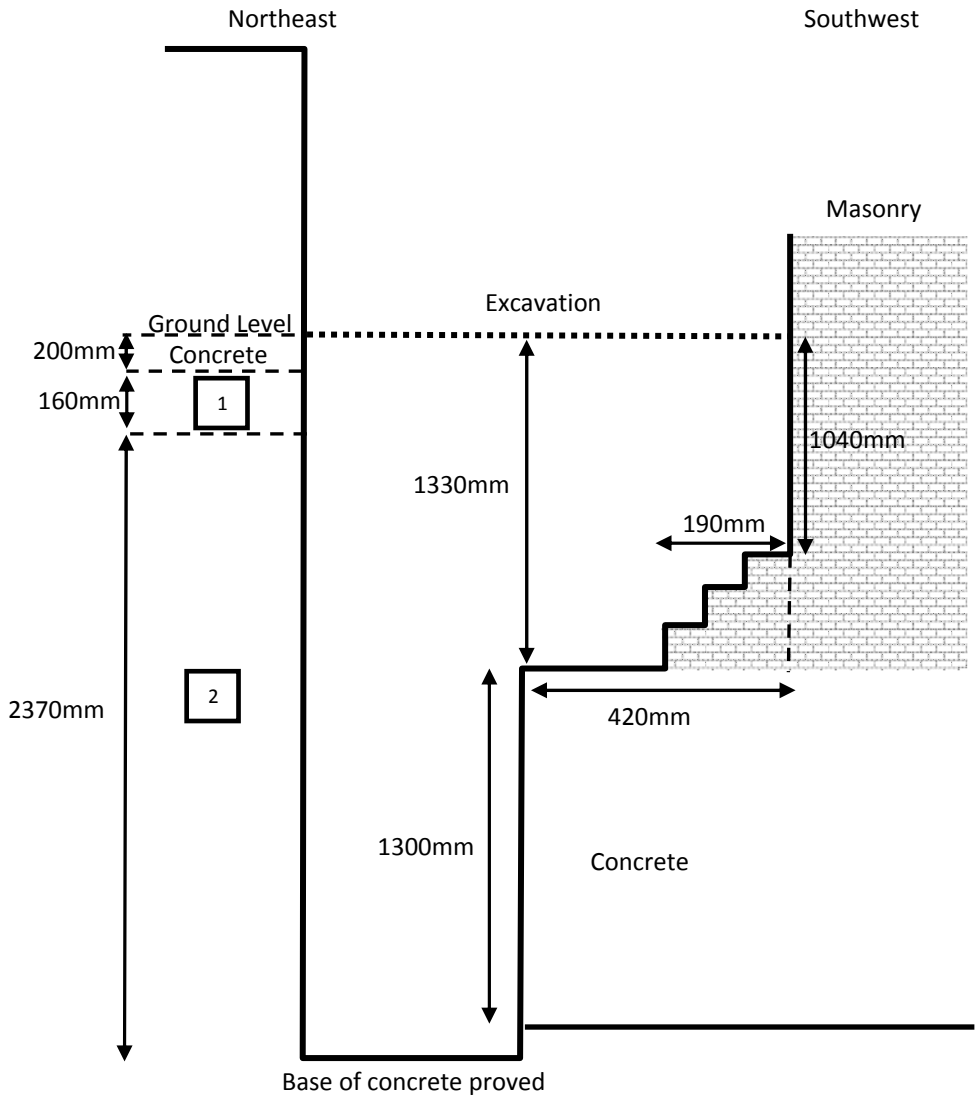


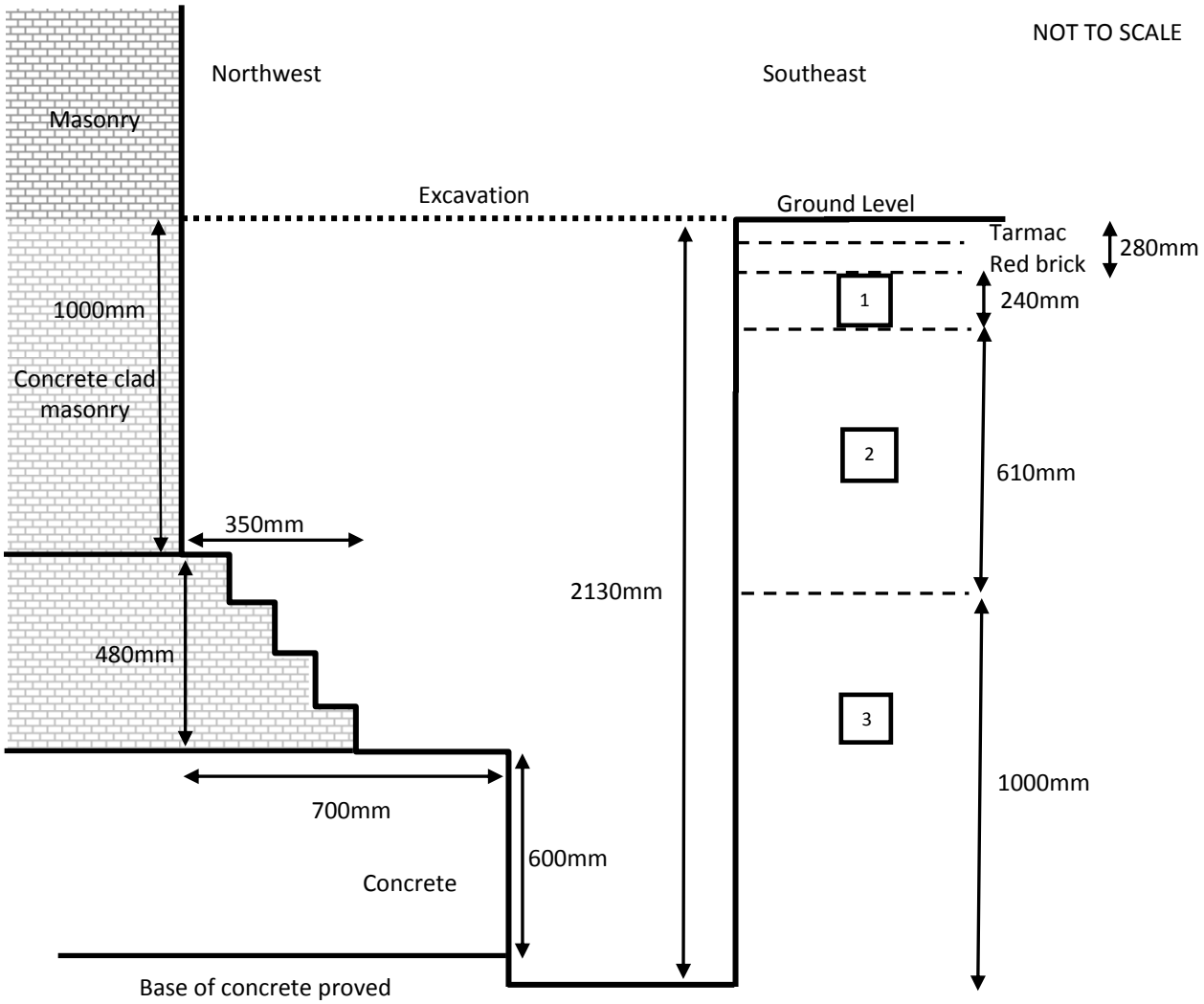

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title<br>**Hand Dug Foundation Inspection Pit 4 Record** | **Appendix D** |




1 [MADE GROUND]
Loose dark orange brown sand and gravel. Gravel is rounded to angular fine to coarse of flint and brick. Sand if medium to coarse.

2 Medium dense to dense dark orange brown, mottled blue grey, very clayey SAND. Sand is fine to medium. Rare subrounded fine gravels of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title<br>**Hand Dug Foundation Inspection Pit 5 Record** | **Appendix D** |

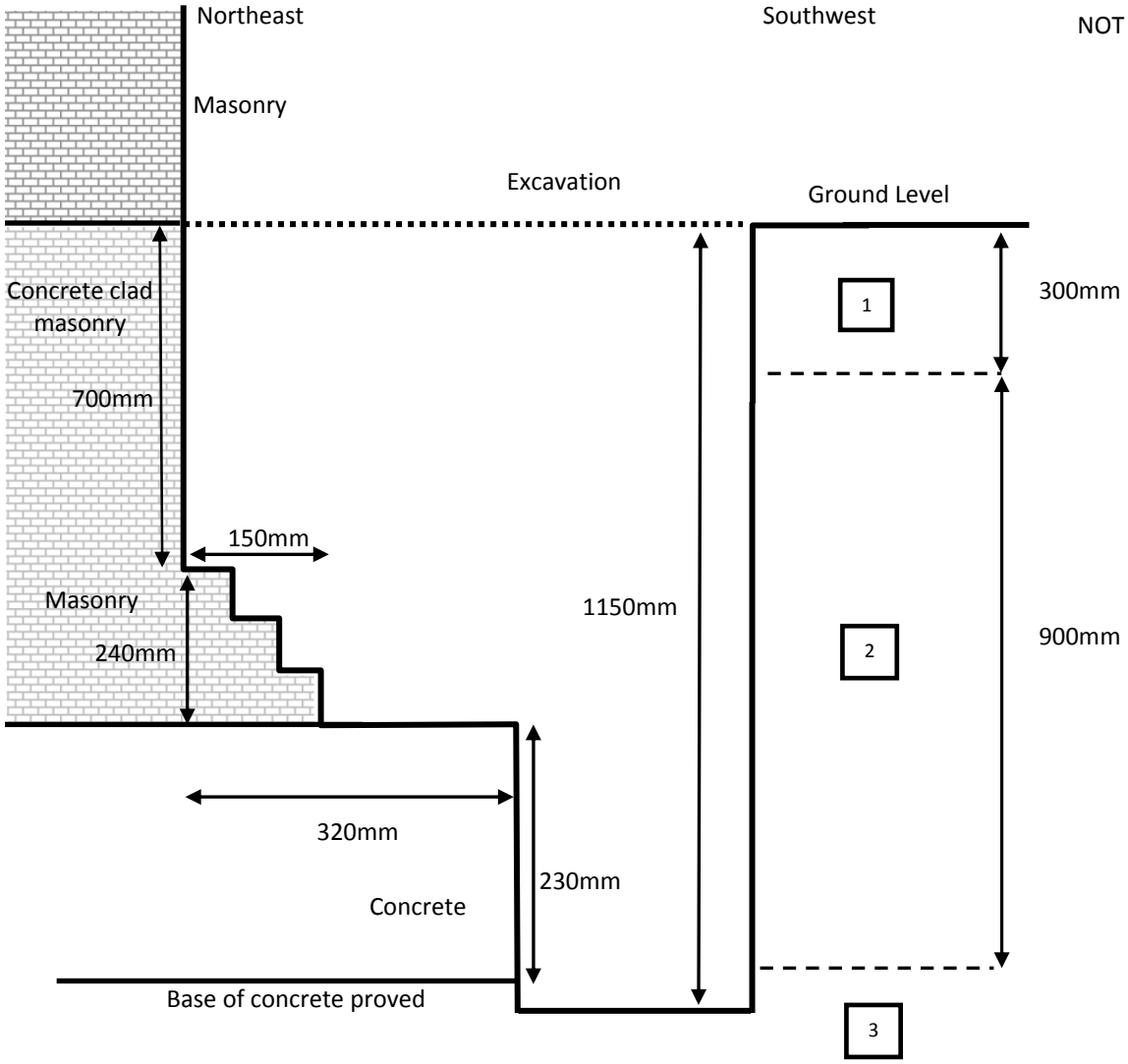



1 [MADE GROUND]
Loose to medium dense dark greyish black slightly gravely slightly clayey fine sand. Gravel is fine to medium angular to rounded of flint. Occasional red brick fragments of small to medium gravel size noted. Roots & rootlets noted.

2 Medium dense to dense light grey brown, mottled blue grey, very clayey fine SAND. Rare fine gravels.

3 Soft to firm light brown grey, mottled blue grey, slightly sandy CLAY. Sand is fine. Occasional rounded to angular, fine to medium gravels of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 6 Record** | **Appendix D** |

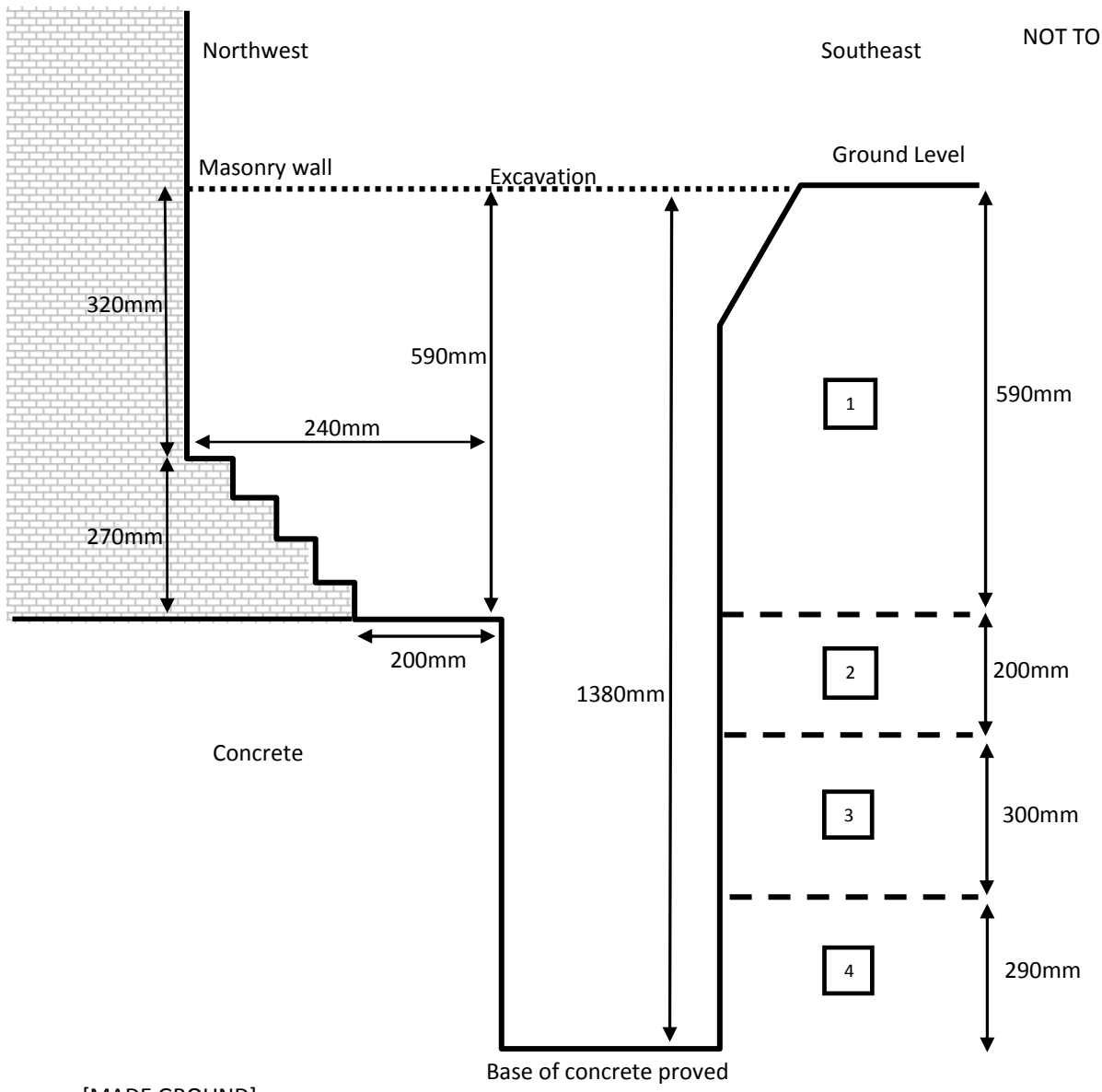



1 [TOPSOIL]
Loose dark greyish black slightly gravelly slightly clayey fine sand. Gravel is rounded to angular fine to medium of flint. Roots & rootlets noted.

2 Medium dense to dense light grey brown, mottled blue grey, very clayey fine SAND. Rare fine gravels.

3 Soft to firm light brown grey, mottled blue grey, slightly sandy CLAY. Sand is fine. Occasional rounded to angular, fine to medium gravels of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 7 Record** | **Appendix D** |




1 [MADE GROUND]
Loose dark greyish black slightly gravelly slightly clayey fine sand. Gravel is rounded to angular fine to medium of flint. Roots & rootlets noted.

2 Loose to medium dense light greyish brown clayey fine SAND.

3 Soft to firm dark greyish brown very sandy CLAY. Sand is fine. Rare subrounded to angular fine to medium gravels of flint.

4 Loose to medium dense dark greyish brown slightly clayey gravelly fine SAND. Gravel is rounded to angular fine to coarse of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 8 Record** | **Appendix D** |

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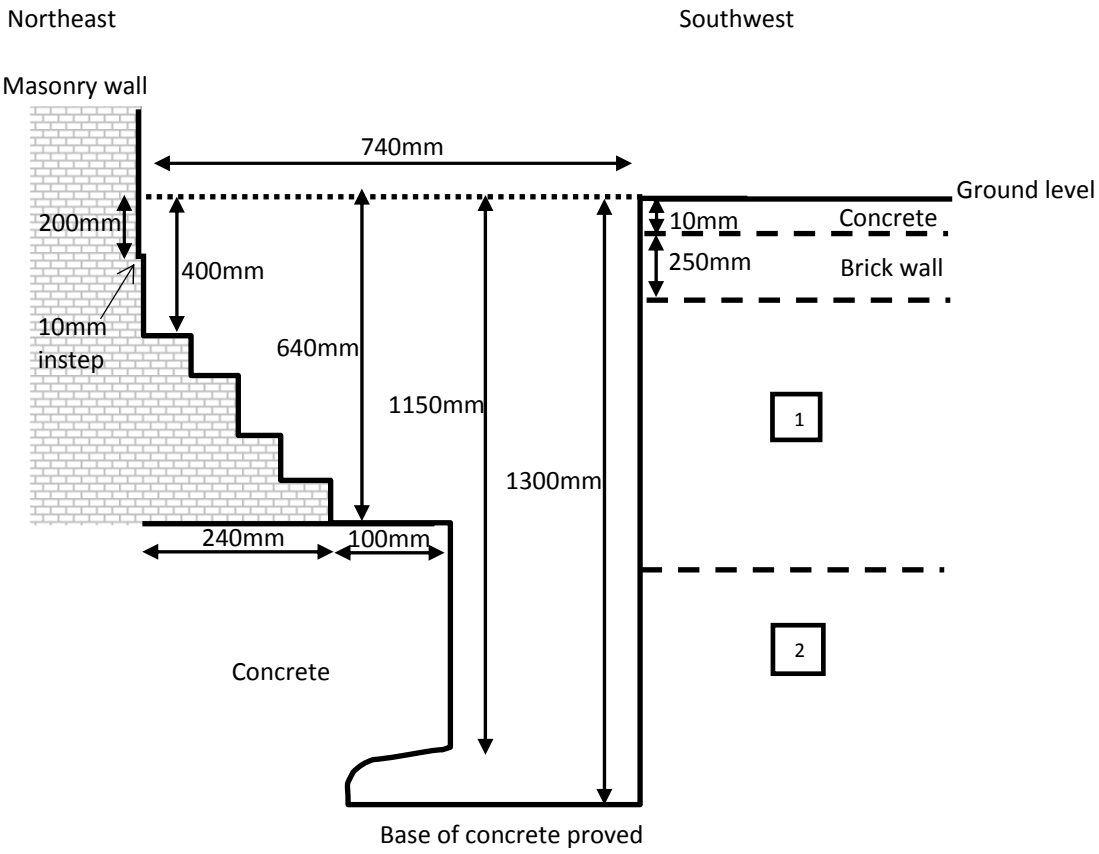


1 Loose to medium dense dark brown slightly clayey gravely fine to coarse SAND. Gravel is fine to coarse angular to subrounded of flint & brick.

2 Soft to firm dark grey mottled orange gravely very sandy CLAY. Gravel is fine to coarse angular to subrounded of flint & brick. Sand is fine to coarse.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 9 Record** | **Appendix D** |

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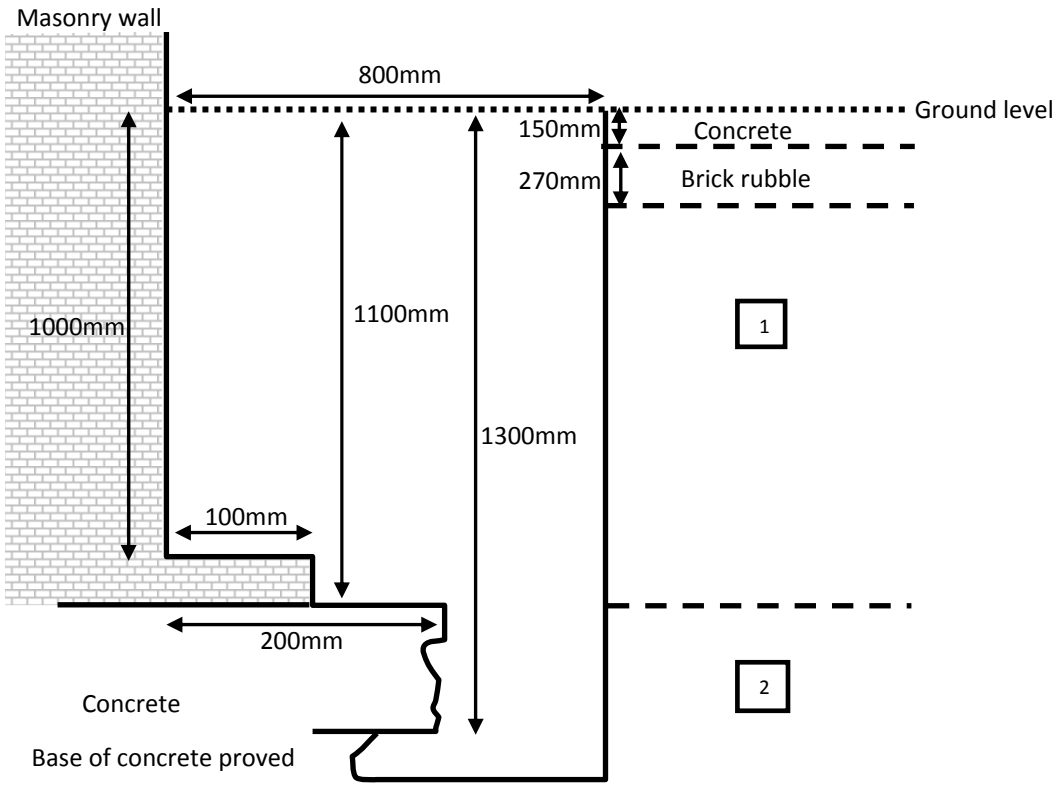
Southwest Northeast




1 Loose to medium dense dark brown slightly clayey gravely fine to coarse SAND. Gravel is fine to coarse angular to subrounded of flint & brick.

2 Soft to firm dark grey mottled orange gravely very sandy CLAY. Gravel is fine to coarse angular to subrounded of flint & brick. Sand is fine to coarse.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 10 Record** | **Appendix D** |

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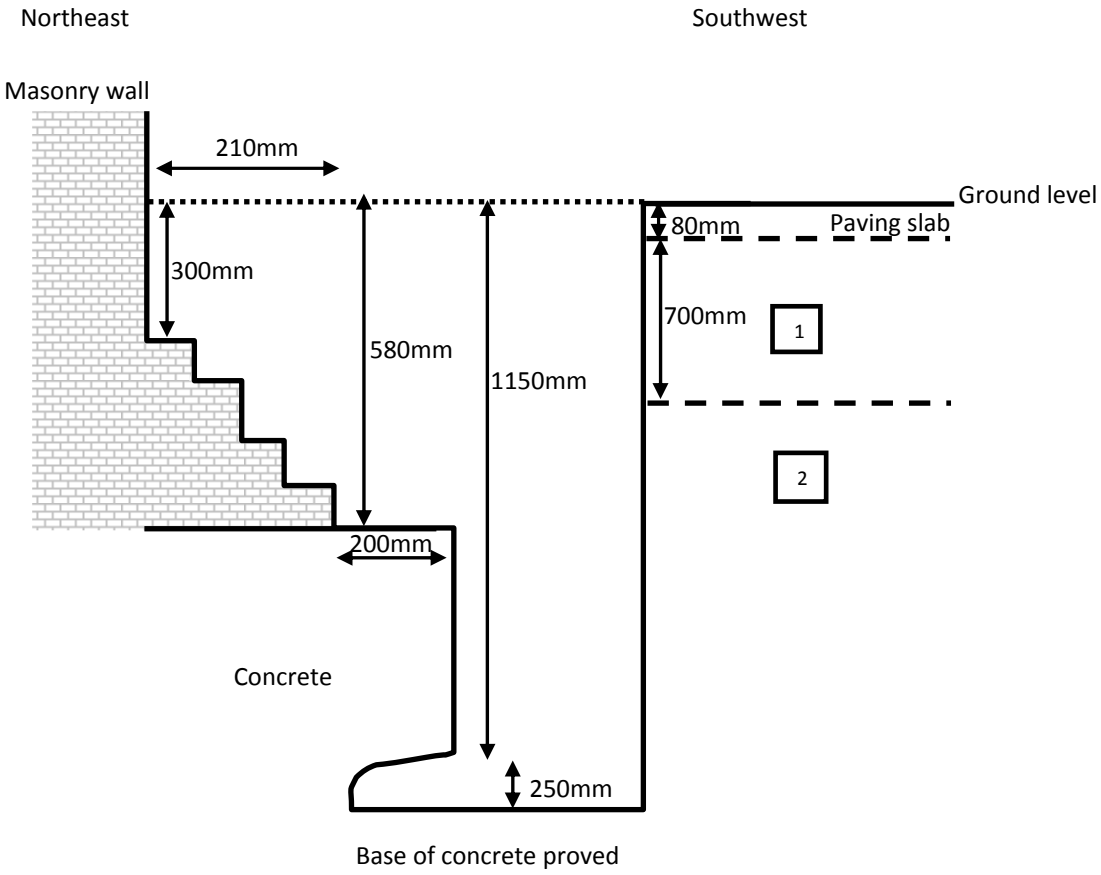
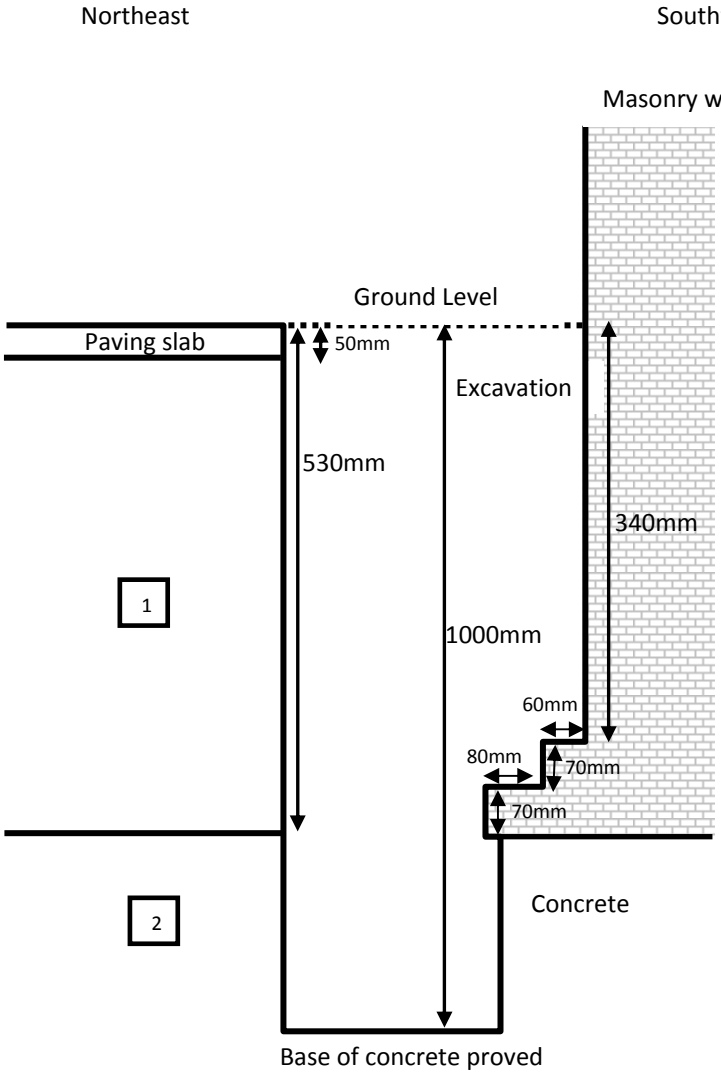



1 Loose to medium dense dark brown slightly clayey gravely fine to coarse SAND. Gravel is fine to coarse angular to subrounded of flint & brick.

2 Soft to firm dark grey mottled orange gravely very sandy CLAY. Gravel is fine to coarse angular to subrounded of flint & brick. Sand is fine to coarse.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 11 Record** | **Appendix D** |




1 [MADE GROUND]
Loose to medium dense dark greyish brown clayey fine to coarse sand. Frequent red brick fragments of fine to medium gravel size noted.

2 Soft to firm greyish brown sandy CLAY. Sand is fine. Rare fine to medium subangular to subrounded gravel of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 12 Record** | **Appendix D** |

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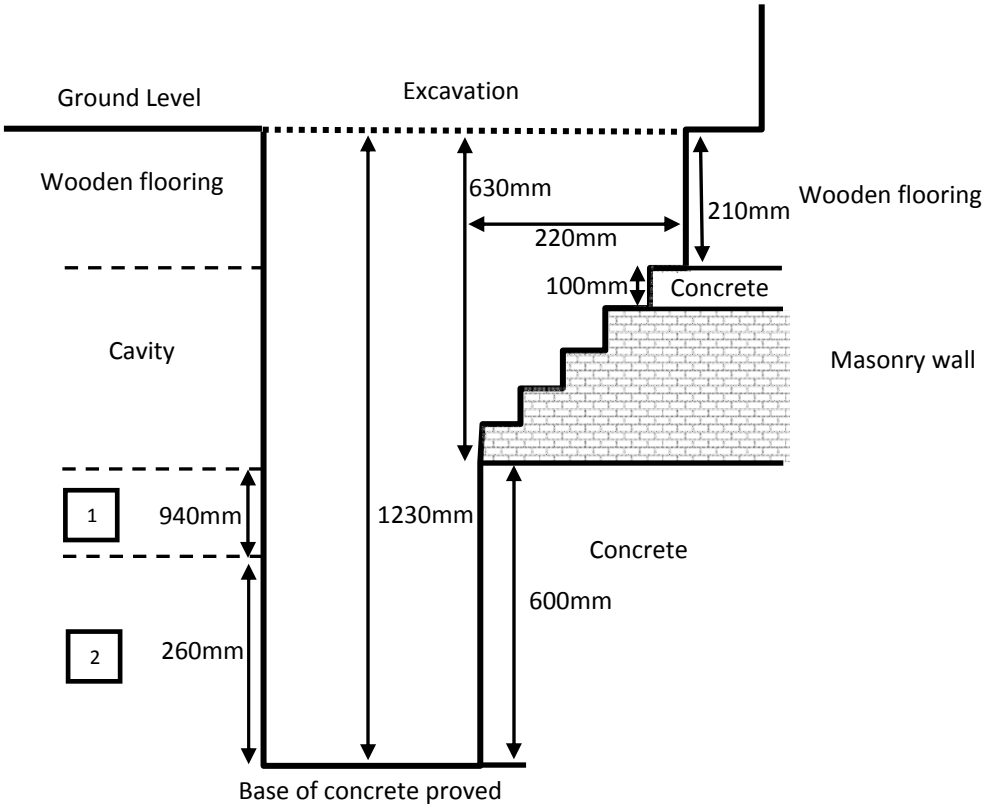
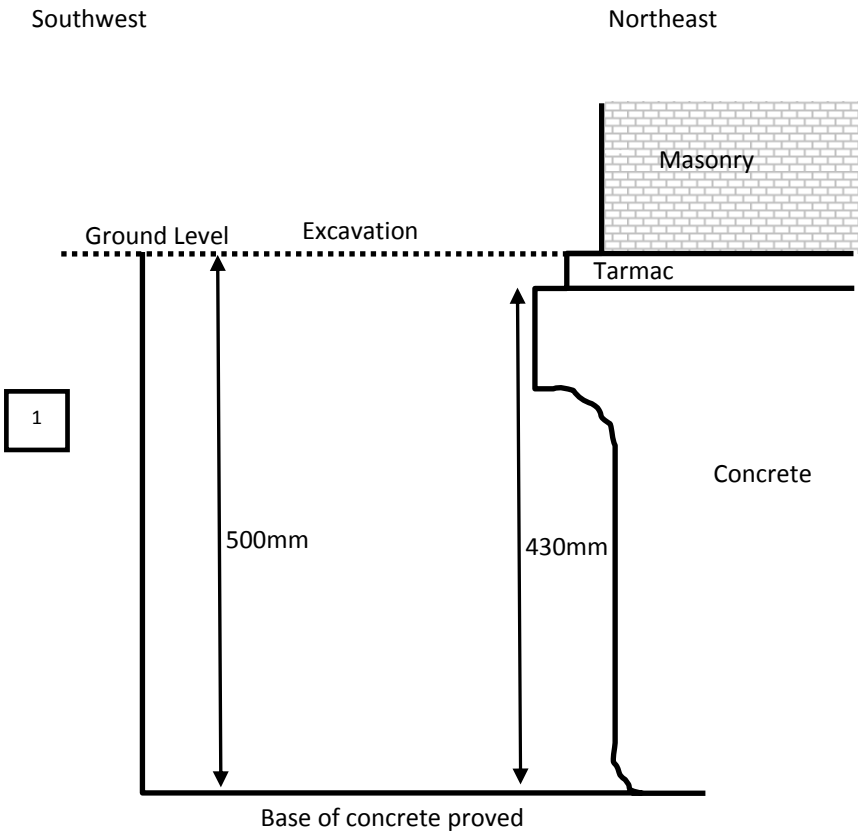



1 Loose to dense dark orange brown slightly gravelly clayey fine SAND. Gravel is subrounded to angular, fine to medium of flint.

2 Firm dark orange brown mottled grey sandy to very sandy CLAY. Sand is fine. Rare subrounded to angular, fine to medium gravel of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 13 Record** | **Appendix D** |

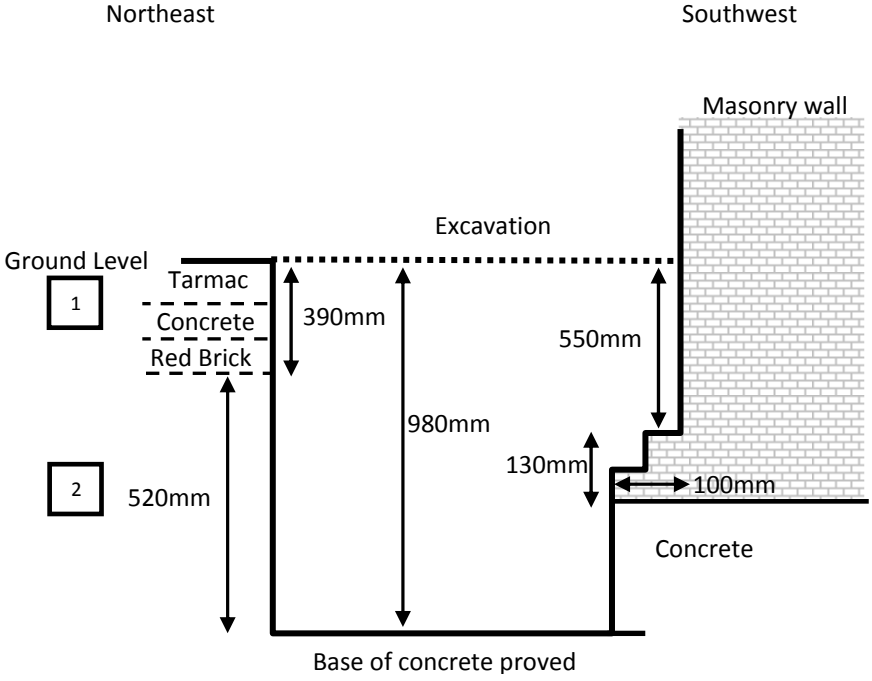
NOT TO SCALE




1 [MADE GROUND]
Loose to medium dense dark brown very gravelly sand. Sand is medium to coarse. Gravel is rounded to angular of flint and brick. Roots & rootlets noted.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Hand Dug Foundation Inspection Pit 14 Record** | **Appendix D** |

NOT TO SCALE




1 [MADE GROUND]
Loose to medium dense dark grey brown very gravelly sand. Sand is coarse. Gravel is subangular to angular, fine to coarse of concrete and brick. Occasional concrete and brick cobbles.

2 Loose to medium dense dark grey brown slightly gravelly fine SAND. Gravel is rounded to angular, fine to coarse of flint.

| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title<br>**Hand Dug Foundation Inspection Pit 15 Record** | **Appendix D** |

# Borehole BH01

**Project:** Arkwright Road

**Client:** Ironside & Malone Design & Build

**Location:** Hampstead, London

**Project No:** CG/5595

**Date:** 22-23/08/2011

**Ground level:** ~94.00mOD

**Sheet:** 1 of 5

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 0.00 | Ground Surface | | | | | | | | |
| | Tarmacadam | | 0 | | B | 0.30 - 0.40 | | | |
| 0.65 | [MADE GROUND] comprising medium dense, light brown gravelly sand. Gravel is medium-coarse, sub-rounded to angular of brick and chert. | | | | B | 0.70 - 0.80 | | | |
| | | | 1 | | SPT | 1.2 - 1.65 | 7 | | |
| | | | | | D B | 1.2 - 1.65 | | | |
| 1.70 | [MADE GROUND] comprising soft to firm brownish grey gravelly, very sandy clay. Gravel is fine-coarse, rounded to sub-angular of chert and occasional brick. | | | | | | | | |
| | | | 2 | | SPT | 2.0 - 2.45 | 13 | | |
| | Medium dense light brown and grey slightly clayey, very silty fine SAND. | | | | D B | 2.0 - 2.45 | | | |
| 2.90 | [CLAYGATE BEDS] | | | | | | | | |
| | | | 3 | | U100 | 3.0 - 3.45 | 39 blows | | |
| 3.40 | Firm light ochreous brown clayey very sandy SILT | | | | B | 3.45 - 3.55 | | | |
| | [CLAYGATE BEDS] | | | | | | | | |
| | | | 4 | | SPT | 4.0 - 4.45 | 9 | | |
| | Loose to medium dense ochreous brown slightly clayey very silty fine SAND occasionally grading to firm slightly silty sandy CLAY. | | | | D B | 4.0 - 4.45 | | | |
| | [CLAYGATE BEDS] | | 5 | | SPT | 5.0 - 5.45 | 9 | | |
| | | | | | D B | 5.0 - 5.45 | | | |
| | | | 6 | | SPT | 6.0 - 6.45 | 9 | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet from 5.80m. Seepage from 8.40m. Waterstrike at 9.20m - rose to 8.10m after 30mins.
2. Groundwater at 4.8m during monitoring visit.
3. J = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with benonite seal
   1-12m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH01

**Project:** Arkwright Road

**Client:** Ironside & Malone Design & Build

**Location:** Hampstead, London

**Project No:** CG/5595

**Date:** 22-23/08/2011

**Ground level:** ~94.00mOD

**Sheet:** 2 of 5

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | Well data | Depth to water (m) |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | | |
| | Continued.<br><br>Loose to medium dense ochreous brown slightly clayey very silty fine SAND occasionally grading to firm very clayey sandy SILT.<br><br>[CLAYGATE BEDS] | | 7<br>8<br>9 | | D B<br>SPT<br>D B<br>SPT<br>D B | 6.0 - 6.45<br>7.5 - 7.95<br>7.5 - 7.95<br>9.0 - 9.45<br>9.0 - 9.45 | 9<br>7<br>8 | | |
| 9.30 | Firm becoming stiff dark grey sandy silty CLAY with occasional sand partings.<br><br>[LONDON CLAY] | | 10<br>11<br>12 | | U100<br>B<br>SPT | 10.5 - 10.95<br>10.95 - 11.0<br>12.0 - 12.45 | 51 blows<br>15 | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet from 5.80m. Seepage from 8.40m. Waterstrike at 9.20m - rose to 8.10m after 30mins.
2. Groundwater at 4.8m during monitoring visit.
3. J = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with benonite seal
   1-12m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH01

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 22-23/08/2011

**Location:** Hampstead, London

**Ground level:** ~94.00mOD

**Sheet:** 3 of 5

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Continued.<br><br>Stiff dark grey sandy silty CLAY with occasional sand partings.<br><br>[LONDON CLAY] | | 13<br>14<br>15<br>16<br>17<br>18 | | D B<br>B<br>SPT<br>D B<br>B<br>SPT | 12.0 - 12.45<br>13.5 - 13.95<br>15.0 - 15.45<br>15.0 - 15.45<br>16.5 - 16.95<br>18.0 - 18.45 | 15<br>U100 N\R<br>23<br>U100 N\R<br>29 | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet from 5.80m. Seepage from 8.40m. Waterstrike at 9.20m - rose to 8.10m after 30mins.
2. Groundwater at 4.8m during monitoring visit.
3. J = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with benonite seal
   1-12m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH01

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 22-23/08/2011

**Location:** Hampstead, London

**Ground level:** ~94.00mOD

**Sheet:** 4 of 5

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Continued. | | | | D B | 18.0 - 18.45 | 29 | | |
| | Stiff dark grey silty CLAY. | | | | | | | | |
| | [LONDON CLAY] | | 19 | | | | | | |
| | | | | | B | 19.5 - 19.95 | U100 N\R | | |
| | | | 20 | | | | | | |
| | | | | | D B | 21.0 - 21.45 | | | |
| | | | 21 | | SPT | 21.0 - 21.45 | 37 | | |
| | | | 22 | | | | | | |
| | | | | | B | 22.5 - 22.95 | U100 N\R | | |
| | | | 23 | | | | | | |
| | | | 24 | | SPT | 24.0 - 24.45 | 40 | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet from 5.80m. Seepage from 8.40m. Waterstrike at 9.20m - rose to 8.10m after 30mins.
2. Groundwater at 4.8m during monitoring visit.
3. J = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with benonite seal
   1-12m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH01

**Project:** Arkwright Road

**Client:** Ironside & Malone Design & Build

**Location:** Hampstead, London

**Project No:** CG/5595

**Date:** 22-23/08/2011

**Ground level:** ~94.00mOD

**Sheet:** 5 of 5

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 25.00 | Continued. Stiff dark grey silty CLAY.<br>[LONDON CLAY] | | 25<br>26<br>27<br>28<br>29<br>30 | | D B | 24.0 - 24.45 | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet from 5.80m. Seepage from 8.40m. Waterstrike at 9.20m - rose to 8.10m after 30mins.
2. Groundwater at 4.8m during monitoring visit.
3. J = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with benonite seal
   1-12m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.80mOD

**Sheet:** 1 of 4

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 0.00 | Ground Surface | | | | | | | | |
| 0.30 | TOPSOIL comprising loose dark brown gravelly sand with occasional rootlets. | | 0 | | | | | | |
| | MADE GROUND comprising loose light grey brown slightly clayey gravelly sand. Gravel is medium to coarse, sub-angular to rounded of chert and occasional brick. | | 1 | | B | 0.50 - 0.60 | | | |
| | | | | | SPT | 1.2 - 1.65 | 9 | | |
| | | | | | D B | 1.2 - 1.65 | | | |
| 2.00 | | | 2 | | SPT | 2.0 - 2.45 | 8 | | |
| | Soft to firm light brown and mottled grey slightly sandy, slightly gravelly clayey SILT. Gravel is medium to coarse, angular to rounded of chert. | | | | D B | 2.0 - 2.45 | | | |
| 2.60 | [POSSIBLE MADE GROUND] | | 3 | | U100 | 3.0 - 3.45 | 52 blows | | |
| | Firm light orange brown and occasionally mottled grey slightly clayey very sandy SILT. Sand is fine. | | | | B | 3.45 - 3.55 | | | |
| 3.40 | [CLAYGATE BEDS] | | | | | | | | |
| | Loose to medium dense ochreous brown slightly clayey very silty fine SAND. | | 4 | | SPT | 4.0 - 4.45 | 7 | | |
| | | | | | D B | 4.0 - 4.45 | | | |
| | [CLAYGATE BEDS] | | | | | | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet at 3.40m. Wet at 9.60m. Waterstrike at 11.20m - rose to 9.80m after 30mins.
2. Groundwater at 3.7m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-3m Plain Pipe with bentonite seal
   3-6m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.80mOD

**Sheet:** 2 of 4

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 5.30 | | | 5 | | SPT<br>D B | 5.0 - 5.45<br>5.0 - 5.45 | 8 | | |
| 7.80 | Firm ochreous brown and mottled grey slightly silty sandy CLAY. Sand is fine.<br><br>[CLAYGATE BEDS] | | 6<br>7 | | U100<br>B | 6.0 - 6.45<br>6.45 - 6.50 | 69 blows | | |
| | Firm becoming stiff dark grey sandy silty CLAY<br><br>Very sandy between 9.60m and 11.90m<br><br>[LONDON CLAY] | | 8<br>9 | | SPT<br>D B<br>U100 | 7.5 - 7.95<br>7.5 - 7.95<br>9.0 - 9.45 | 16<br>78 blows | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet at 3.40m. Wet at 9.60m. Waterstrike at 11.20m - rose to 9.80m after 30mins.
2. Groundwater at 3.7m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-3m Plain Pipe with bentonite seal
   3-6m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.80mOD

**Sheet:** 3 of 4

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Continued. | | | | | | 78 blows | | |
| | Firm becoming stiff dark grey sandy silty CLAY | | | | B | 9.40 - 9.50 | | | |
| | Very sandy between 9.60m and 11.90m | | 10 | | | | | | |
| | | | | | SPT | 10.5 - 10.95 | 12 | | |
| | | | | | D B | 10.5 - 10.95 | | | |
| | | | 11 | | | | | | |
| | Possible claystone band at 13.60m | | | | | | | | |
| | | | 12 | | U100 | 12.0 - 12.45 | 80 blows | | |
| | | | | | B | 12.45 - 12.5 | | | |
| | | | 13 | | | | 50 | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet at 3.40m. Wet at 9.60m. Waterstrike at 11.20m - rose to 9.80m after 30mins.
2. Groundwater at 3.7m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-3m Plain Pipe with bentonite seal
   3-6m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.80mOD

**Sheet:** 4 of 4

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Continued.<br><br>Stiff dark grey sandy silty CLAY with occasional sand partings.<br><br>[LONDON CLAY] | | 14 | | SPT<br>D B | 13.5 - 13.95<br>13.5 - 13.95 | 50<br>claystone | | |
| 15.00 | | | | | U100 | 14.5 - 14.95 | N\R | | |
| | End of hole | | 15<br>16<br>17<br>18 | | | | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Wet at 3.40m. Wet at 9.60m. Waterstrike at 11.20m - rose to 9.80m after 30mins.
2. Groundwater at 3.7m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-3m Plain Pipe with bentonite seal
   3-6m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH03

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 23/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.30mOD

**Sheet:** 1 of 2

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 0.00 | Ground Surface | | 0 | | | | | | |
| 1.10 | MADE GROUND comprising soft to firm dark brown very sandy gravelly clay. Gravel is fine to coarse, angular to rounded of chert and brick. | | 1 | | B | 0.30 - 0.40 | | | |
| 3.70 | MADE GROUND comprising soft to firm light grey and yellowish brown very clayey sandy SILT with occasional medium to coarse sub-angular to rouned chert and brick gravel. | | 2 | | SPT<br>D B | 1.2 - 1.65<br>1.2 - 1.65 | 6 | | |
| | | | 3 | | SPT<br>D B | 2.0 - 2.45<br>2.0 - 2.45 | 5 | | |
| 4.80 | Medium dense grey very slightly siltly sandy GRAVEL. Gravel is fine to coarse, sub-rounded to rounded of chert.<br><br>[CLAYGATE BEDS] | | 4 | | SPT<br>D B | 3.0 - 3.45<br>3.0 - 3.45 | 9 | | |
| | | | 5 | | SPT<br>D B | 4.0 - 4.45<br>4.0 - 4.45 | 15 | | |
| | | | | | U100 | 5.0 - 5.45 | 59 blows | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. No groundwater strike. Water measured at 9.10m on 24/08/11.
2. Groundwater at 5.56m during monitoring visit (01.09.11).
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with bentonite
   1-10m Slotted pipe with geosock with gravel filter
   Flush cover and gas bung.

# Borehole BH03

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 23/08/2011

**Location:** Hampstead, London

**Ground level:** ~92.30mOD

**Sheet:** 2 of 2

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Firm light ochreous brown and mottled grey slightly sandy silty CLAY. Sand is fine. Fine to coarse subrounded to angular gravel noted at 5.45mbgl. | | | | B | 5.45 - 5.50 | | | |
| | [CLAYGATE BEDS] | | 6 | | SPT | 6.0 - 6.45 | 21 | | |
| | | | | | D B | 6.0 - 6.45 | | | |
| 7.10 | | | 7 | | | | | | |
| | Firm to stiff orange brown slightly sandy silty CLAY. | | | | U100 | 7.5 - 7.95 | 72 blows | | |
| | [LONDON CLAY] | | 8 | | B | 7.95 - 8.0 | | | |
| 8.40 | | | | | | | | | |
| | Firm to stiff dark grey very sandy silty CLAY. | | | | | | | | |
| | [LONDON CLAY] | | 9 | | SPT | 9.0 - 9.45 | 15 | | |
| | | | | | D B | 9.0 - 9.45 | | | |
| 10.00 | | | | | | | | | |
| | End of hole. | | 10 | | | | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. No groundwater strike. Water measured at 9.10m on 24/08/11.
2. Groundwater at 5.56m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-1m Plain Pipe with bentonite
   1-10m Slotted pipe with geosock with gravel filter
   Flush cover and gas bung.

# Borehole BH04

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 25/08/2011

**Location:** Hampstead, London

**Ground level:** ~94.73mOD

**Sheet:** 1 of 3

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| 0.00 | Ground Surface | | | | | | | | |
| | Tarmacadam | | 0 | | | | | | |
| 0.40 | MADE GROUND comprising dark brown very gravelly clayey sand. Gravel is fine to coarse, sub-angular to rounded of chert and brick. | | | | B | 0.50 - 0.60 | | | |
| | MADE GROUND comprising loose to medium dense grey brown clayey very gravelly sand. Gravel is medium to coarse angular to rounded of chert and occasional brick. | | 1 | | SPT | 1.2 - 1.65 | 7 | | |
| 1.60 | | | | | D B | 1.2 - 1.65 | | | |
| | Loose to medium dense light ochreous brown and grey slightly clayey very silty fine SAND. | | 2 | | U100 | 2.0 - 2.45 | 34 blows | | |
| | [CLAYGATE BEDS] | | | | B | 2.45 - 2.50 | | | |
| 3.00 | | | | | | | | | |
| | Firm ochreous brown and mottled grey sandy very silty CLAY. Sand is fine. | | 3 | | SPT | 3.0 - 3.45 | 8 | | |
| | [CLAYGATE BEDS] | | | | D B | 3.0 - 3.45 | | | |
| | | | 4 | | U100 | 4.0 - 4.45 | 41 blows | | |
| 4.40 | | | | | | | | | |
| | Loose light ochreous brown silty very clayey fine SAND. | | | | B | 4.45 - 4.50 | | | |
| | [CLAYGATE BEDS] | | 5 | | SPT | 5.0 - 5.45 | 6 | | |
| | | | | | D B | 5.0 - 5.45 | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Damp from 4.40m. Waterstrike at 13.70m - rose to 11.55m after 30mins.
2. Groundwater at 5.36m during monitoring visit (01.09.11).
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-7m Plain Pipe with bentonite
   7-10m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH04

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 25/08/2011

**Location:** Hampstead, London

**Ground level:** ~94.73mOD

**Sheet:** 2 of 3

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | Well data | Depth to water (m) |
| | Continued<br><br>Loose light ochreous brown silty very clayey fine SAND.<br><br>[CLAYGATE BEDS] | | 6 | | SPT<br>D B | 6.0 - 6.45<br>6.0 - 6.45 | 6 | | |
| | | | 7 | | SPT<br>D B | 7.5 - 7.95<br>7.5 - 7.95 | 9 | | |
| | | | 8 | | | | | | |
| | | | 9 | | U100<br><br>B | 9.0 - 9.45<br><br>9.45 - 9.50 | 62 blows | | |
| 9.40 | | | | | | | | | |
| | Firm light brown very silty CLAY<br><br>[LONDON CLAY] | | 10 | | | | | | |
| 9.90 | | | | | | | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Damp from 4.40m. Waterstrike at 13.70m - rose to 11.55m after 30mins.
2. Groundwater at 5.36m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-7m Plain Pipe with bentonite
   7-10m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Borehole BH04

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 25/08/2011

**Location:** Hampstead, London

**Ground level:** ~94.73mOD

**Sheet:** 3 of 3

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | Well data | Depth to water (m) |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | SPT N-value | | |
| | Firm becoming stiff dark grey sandy occasionally very sandy silty CLAY.<br><br>[LONDON CLAY] | | 11 | | SPT<br>D B | 10.5 - 10.95<br>10.5 - 10.95 | 23 | | |
| | | | 12 | | U100<br>B | 12.0 - 12.45<br>12.45 - 12.5 | N\R | | |
| | | | 13 | | SPT<br>D B | 13.5 - 13.95<br>13.5 - 13.95 | 25 | | |
| | | | 14 | | SPT<br>D B | 14.5 - 14.95<br>14.5 - 14.95 | 28 | | |
| 15.00 | | | | | | | | | |
| | End of hole. | | 15 | | | | | | |

Logged by: RDB

Checked by: AOD

Excavation Method: Dando 2000

Orientation:

Dimensions:

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Damp from 4.40m. Waterstrike at 13.70m - rose to 11.55m after 30mins.
2. Groundwater at 5.36m during monitoring visit.
3. D = small disturbed sample
   B = bulk sample
   SPT = standard penetration test
   N\R = no recovery
4. Installation details :
   0-7m Plain Pipe with bentonite
   7-10m Slotted pipe with geosock and gravel filter
   Flush cover and gas bung.

# Trial Pit TP01

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/11

**Location:** Hampstead, London

**Ground level:**

**Sheet:** 1 of 1

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | Well data | Depth to water (m) |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | Undrained Shear Strength | | |
| 0.00 | Ground Surface | | | | | | | | |
| 0.30 | [TOPSOIL] Comprising loose to medium dense dark grey brown slightly gravelly very silty fine to medium sand. Gravel is fine to coarse, rounded to sub-rounded of flint and occasional brick. Frequent roots and rootlets. | | 0 | | ES | 0.2 | | | |
| | | | | | B | 0.4 | | | |
| | Medium dense light brown slightly gravelly silty fine to medium SAND. Gravel is fine to coarse sub-rounded of flint. Brick fragments at 0.7m. | | 1 | | | | | | |
| | | | | | B | 1.5 | | | |
| 1.90 | [POSSIBLE REWORKED CLAYGATE BEDS] | | | | | | | | |
| | Medium dense to dense light brownish grey very gravelly fine to medium SAND. Gravel is fine to coarse rounded to sub-rounded of flint. Very occasional sandy silt inclusions. | | 2 | | B | 2.0 | | | |
| 2.50 | [CLAYGATE BEDS] | | | | B | 2.7 | | | |
| | Firm light grey slightly sandy silty CLAY. Sand is fine to medium. Occasional black organic inclusions. | | 3 | | HSV | 3.0 | 93 (10) | | |
| | | | | | HSV | 3.2 | 72 (21) | | |
| | | | | | HSV | 3.5 | 70 (12) | | |
| | | | | | B | 3.5 | | | |
| 4.20 | Becoming firm light bluish grey sandy very gravelly SILT at 4.1mbgl. Gravel is fine to coarse rounded of flint with occasional fine to coarse sand lenses. | | 4 | | B | 4.2 | | | |
| | [CLAYGATE BEDS] | | 5 | | | | | | |

Logged by: ADC

Checked by: AOD

Excavation Method: JCB

Orientation: E-W

Dimensions: 0.45m x 2.5m

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Hole terminated at 4.2mbgl.
2. No groundwater strikes encountered.
3. ES = Environmental sample;
   B = Bulk Sample;
   HSV = Hand shear vane test (kPa);
4. Pit backfilled with arisings on completion.
5. Pit sides remained stable.

# Trial Pit TP02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/11

**Location:** Hampstead, London

**Ground level:**

**Sheet:** 1 of 2

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | Well data | Depth to water (m) |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | Undrained Shear Strength | | |
| 0.00 | Ground Surface | | | | | | | | |
| 0.30 | [TOPSOIL] comprising loose dark brown gravelly silty fine to medium sand. Gravel is fine to coarse sub-rounded to rounded of flint. Frequent roots and rootlets. Occasional brick fragments. | | 0 | | ES | 0.2 | | | |
| | [MADE GROUND] comprising soft to firm dark brown slightly gravelly sandy clay with occasional brick fragments. Gravel is fine to coarse, sub-rounded of flint. | | 1 | | ES | 1.0 | | | |
| 1.66 | | | | | B | 1.5 | | | |
| 2.10 | Loose to medium dense very silty fine to medium SAND. Becoming loose to medium dense light grey very clayey very gravelly fine to coarse SAND at 1.8mbgl. Gravel is fine to coarse rounded to sub-rounded of flint | | 2 | | B | 2.0 | | | |
| | [CLAYGATE BEDS] | | | | HSV | 2.4 | 64 (14) | | |
| | | | | | B | 2.4 | | | |
| | | | 3 | | HSV | 3.0 | 80 (15) | | |
| | | | 4 | | HSV | 4.0 | 51 | | |

Logged by: ADC

Checked by: AOD

Excavation Method: JCB

Orientation: N-S

Dimensions: 0.45m x 2.5m

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Hole terminated at 4.3mbgl.
2. No groundwater strikes encountered.
3. ES = Environmental sample;
   B = Bulk Sample;
   HSV = Hand shear vane test (kPa);
4. Pit backfilled with arisings on completion.
5 Pit sides remained stable.

# Trial Pit TP02

**Project:** Arkwright Road

**Project No:** CG/5595

**Client:** Ironside & Malone Design & Build

**Date:** 24/08/11

**Location:** Hampstead, London

**Ground level:**

**Sheet:** 2 of 2

Card Geotechnics Limited

| SUBSURFACE PROFILE | | | | SAMPLE/TESTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Description | Legend | Depth (m) | Number | Type | Depth (m) | Undrained Shear Strength | Well data | Depth to water (m) |
| 4.30 | Firm dark orange mottled grey gravelly slightly sandy CLAY. Gravel is fine to coarse rounded to sub-rounded of flint. Sand is fine to medium.<br><br>Fine to medium sand lense at 3.4m (slightly damp) and at 4.0m (wet). Becoming very sandy below 3.4m - gravel absent.Clay is soft to firm in proximity to sand lenses.<br><br>[CLAYGATE BEDS]<br>End of hole. | | 5<br>6<br>7<br>8 | | | | | | |

Logged by: ADC

Checked by: AOD

Excavation Method: JCB

Orientation: N-S

Dimensions: 0.45m x 2.5m

Card Geotechnics Limited
No.1 Pickford Street
Aldershot
Hampshire

Comments and Notes

1. Hole terminated at 4.3mbgl.
2. No groundwater strikes encountered.
3. ES = Environmental sample;
   B = Bulk Sample;
   HSV = Hand shear vane test (kPa);
4. Pit backfilled with arisings on completion.
5. Pit sides remained stable.

# APPENDIX E

*Photograph sheets*

# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ASB | AOD | 01 |

FIP1 - Overview

FIP1 - Content

FIP2 - Overview

FIP2 - Content

FIP3 - Overview

FIP3 - Content

Notes

# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ASB | AOD | 02 |

FIP4 - Overview

FIP4 - Content

FIP5 - Overview

FIP5 - Content

FIP6 - Overview

FIP6 - Content

Notes

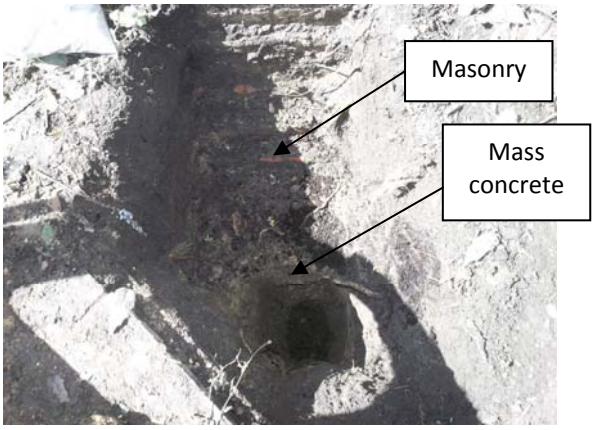
# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ASB | AOD | 03 |

FIP7 - Overview

FIP7 - Content

FIP8 - Overview




FIP8 - Content


FIP9 - Overview

FIP9 - Content

Notes

# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ASB | AOD | 04 |

FIP10 - Overview


FIP10 - Content


FIP11 - Overview


FIP11 - Content


FIP12 - Overview


FIP12 - Content

Notes

# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ASB | AOD | 05 |

FIP13 - Overview

FIP13 - Content

FIP14 - Overview

FIP14 - Content

FIP15 - Overview

FIP15 - Content

Notes

# PHOTO SHEET

| Date | Job No | Made by | Checked by | Sheet No |
|---|---|---|---|---|
| October 2011 | CG/5595 | ADC | AOD | 06 |


TP01 - Overview

TP02 - Overview

TP01 - Content

TP02 - Content

Notes

# APPENDIX F

*Chemical analysis*

**Adam Cadman**
Card Geotechnics Ltd
No. 1 Pickford Street
Aldershot
Hampshire
GU11 1TY

**t:** 01252 310364

**e:** adamc@cardgeotechnics.co.uk

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

**t:** 01923 67 00 20
**f:** 01923 67 00 30
**e:** reception@i2analytical.com

# Analytical Report Number : 11-29753

| | | | |
|---|---|---|---|
| **Project / Site name:** | Arkwright Road | **Samples received on:** | 08/09/2011 |
| **Your job number:** | CG/5595 | **Samples instructed on:** | 08/09/2011 |
| **Your order number:** | | **Analysis completed by:** | 14/09/2011 |
| **Report Issue Number:** | 1 | **Report issued on:** | 14/09/2011 |
| **Samples Analysed:** | 8 soil samples | | |

**Signed:**

Dr Claire Stone
Quality Manager
**For & on behalf of i2 Analytical Ltd.**

**Signed:**

Thurstan Plummer
Organics Technical Manager
**For & on behalf of i2 Analytical Ltd.**

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

| | |
|---|---|
| soils | - 4 weeks from reporting |
| leachates | - 2 weeks from reporting |
| waters | - 2 weeks from reporting |

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

**Analytical Report Number: 11-29753**

**Project / Site name: Arkwright Road**

| **Lab Sample Number** | | | | 189695 | 189696 | 189697 | 189698 | 189699 |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | TP01 | TP02 | BH01 | BH01 | BH02 |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Depth (m)** | | | | 0.20 | 1.00 | 0.70 | 1.20 | 2.00 |
| **Date Sampled** | | | | 24/08/2011 | 24/08/2011 | 24/08/2011 | 24/08/2011 | 24/08/2011 |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| Stone Content | % | 0.1 | NONE | 29 | < 0.1 | < 0.1 | 26 | 26 |
| Moisture Content | % | N/A | NONE | 13 | 13 | 19 | 12 | 11 |
| Total mass of sample received | kg | 0.001 | NONE | 0.66 | 0.79 | 0.78 | 0.73 | 0.89 |
| **General Inorganics** | | | | | | | | |
| pH | pH Units | N/A | MCERTS | 7.5 | 7.3 | 7.7 | 7.6 | 7.2 |
| Total Cyanide | mg/kg | 1 | MCERTS | < 1 | < 1 | < 1 | < 1 | < 1 |
| Total Sulphate as $SO_4$ | mg/kg | 100 | ISO 17025 | < 100 | 180 | 250 | 310 | < 100 |
| Organic Matter | % | 0.1 | MCERTS | 2.5 | 1.2 | 1.5 | 1.9 | 0.3 |
| **Total Phenols** | | | | | | | | |
| Total Phenols (monohydric) | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| **Speciated PAHs** | | | | | | | | |
| Naphthalene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |
| Acenaphthene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | < 0.10 | 0.42 | < 0.10 |
| Fluorene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | < 0.20 | 0.32 | < 0.20 |
| Phenanthrene | mg/kg | 0.2 | MCERTS | 0.20 | < 0.20 | < 0.20 | 2.3 | < 0.20 |
| Anthracene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | < 0.10 | 0.82 | < 0.10 |
| Fluoranthene | mg/kg | 0.2 | MCERTS | 0.88 | 0.23 | 0.41 | 4.4 | < 0.20 |
| Pyrene | mg/kg | 0.2 | MCERTS | 0.79 | 0.20 | 0.32 | 3.5 | < 0.20 |
| Benzo(a)anthracene | mg/kg | 0.2 | MCERTS | 0.52 | < 0.20 | 0.22 | 1.9 | < 0.20 |
| Chrysene | mg/kg | 0.05 | MCERTS | 0.49 | < 0.05 | 0.20 | 1.7 | < 0.05 |
| Benzo(b)fluoranthene | mg/kg | 0.1 | MCERTS | 0.76 | < 0.10 | 0.31 | 2.3 | < 0.10 |
| Benzo(k)fluoranthene | mg/kg | 0.2 | MCERTS | 0.28 | < 0.20 | < 0.20 | 0.93 | < 0.20 |
| Benzo(a)pyrene | mg/kg | 0.1 | MCERTS | 0.53 | < 0.10 | 0.18 | 1.5 | < 0.10 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.2 | MCERTS | 0.33 | < 0.20 | < 0.20 | 1.1 | < 0.20 |
| Dibenz(a,h)anthracene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | 0.40 | < 0.05 | < 0.05 | 0.97 | < 0.05 |
| Coronene | mg/kg | 0.05 | NONE | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| **Total PAH** | | | | | | | | |
| Total WAC-17 PAHs | mg/kg | 1.6 | NONE | 5.2 | < 1.6 | 1.6 | 22 | < 1.6 |
| **Heavy Metals / Metalloids** | | | | | | | | |
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 13 | 8.1 | 10 | 9.4 | 4.3 |
| Barium (aqua regia extractable) | mg/kg | 1 | MCERTS | 97 | 94 | 87 | 86 | 45 |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS | 0.9 | 0.7 | 1.0 | 0.7 | 0.3 |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | 0.3 | < 0.2 | < 0.2 |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | 0.3 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 27 | 24 | 32 | 22 | 15 |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 32 | 21 | 28 | 23 | 10 |
| Lead (aqua regia extractable) | mg/kg | 2 | MCERTS | 200 | 110 | 160 | 160 | 18 |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable) | mg/kg | 2 | MCERTS | 12 | 9.2 | 14 | 8.8 | 6.8 |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | < 1.0 | 1.1 | < 1.0 | < 1.0 | < 1.0 |
| Vanadium (aqua regia extractable) | mg/kg | 1 | MCERTS | 50 | 36 | 60 | 36 | 20 |
| Zinc (aqua regia extractable) | mg/kg | 2 | MCERTS | 82 | 61 | 180 | 83 | 30 |

**Analytical Report Number: 11-29753**

**Project / Site name: Arkwright Road**

| **Lab Sample Number** | | | | 189695 | 189696 | 189697 | 189698 | 189699 |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | TP01 | TP02 | BH01 | BH01 | BH02 |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Depth (m)** | | | | 0.20 | 1.00 | 0.70 | 1.20 | 2.00 |
| **Date Sampled** | | | | 24/08/2011 | 24/08/2011 | 24/08/2011 | 24/08/2011 | 24/08/2011 |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| **Petroleum Hydrocarbons** | | | | | | | | |
| TPH7 - Aliphatic >EC5 - EC6 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aliphatic >EC6 - EC8 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aliphatic >EC8 - EC10 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aliphatic >EC10 - EC12 | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH7 - Aliphatic >EC12 - EC16 | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| TPH7 - Aliphatic >EC16 - EC21 | mg/kg | 8 | MCERTS | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| TPH7 - Aliphatic >EC21 - EC40 | mg/kg | 10 | NONE | < 10 | < 10 | < 10 | < 10 | < 10 |
| TPH7 - Aromatic >EC5 - EC7 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aromatic >EC7 - EC8 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aromatic >EC8 - EC10 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| TPH7 - Aromatic >EC10 - EC12 | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPH7 - Aromatic >EC12 - EC16 | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | 2.0 | < 2.0 |
| TPH7 - Aromatic >EC16 - EC21 | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 | 36 | < 10 |
| TPH7 - Aromatic >EC21 - EC40 | mg/kg | 10 | NONE | < 10 | < 10 | < 10 | 99 | < 10 |

**Analytical Report Number: 11-29753**

**Project / Site name: Arkwright Road**

| **Lab Sample Number** | | | | 189700 | 189701 | 189702 | | |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | BH02 | BH03 | FIP08 | | |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | | |
| **Depth (m)** | | | | 3.45 | 1.20 | 0.59 | | |
| **Date Sampled** | | | | 24/08/2011 | 24/08/2011 | 24/08/2011 | | |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | | |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| Stone Content | % | 0.1 | NONE | < 0.1 | < 0.1 | < 0.1 | | |
| Moisture Content | % | N/A | NONE | 18 | 14 | 20 | | |
| Total mass of sample received | kg | 0.001 | NONE | 0.85 | 0.85 | 0.73 | | |
| **General Inorganics** | | | | | | | | |
| pH | pH Units | N/A | MCERTS | 7.4 | 6.7 | 7.1 | | |
| Total Cyanide | mg/kg | 1 | MCERTS | < 1 | < 1 | < 1 | | |
| Total Sulphate as $SO_4$ | mg/kg | 100 | ISO 17025 | < 100 | 110 | 810 | | |
| Organic Matter | % | 0.1 | MCERTS | < 0.1 | 0.4 | 5.1 | | |
| **Total Phenols** | | | | | | | | |
| Total Phenols (monohydric) | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | | |
| **Speciated PAHs** | | | | | | | | |
| Naphthalene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | | |
| Acenaphthylene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | < 0.20 | | |
| Acenaphthene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | < 0.10 | | |
| Fluorene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | < 0.20 | | |
| Phenanthrene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 1.3 | | |
| Anthracene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | 0.33 | | |
| Fluoranthene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 3.9 | | |
| Pyrene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 3.4 | | |
| Benzo(a)anthracene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 2.5 | | |
| Chrysene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 2.5 | | |
| Benzo(b)fluoranthene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | 3.4 | | |
| Benzo(k)fluoranthene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 1.1 | | |
| Benzo(a)pyrene | mg/kg | 0.1 | MCERTS | < 0.10 | < 0.10 | 2.1 | | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 1.7 | | |
| Dibenz(a,h)anthracene | mg/kg | 0.2 | MCERTS | < 0.20 | < 0.20 | 0.22 | | |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 1.7 | | |
| Coronene | mg/kg | 0.05 | NONE | < 0.05 | < 0.05 | < 0.05 | | |
| **Total PAH** | | | | | | | | |
| Total WAC-17 PAHs | mg/kg | 1.6 | NONE | < 1.6 | < 1.6 | 24 | | |
| **Heavy Metals / Metalloids** | | | | | | | | |
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 6.3 | 9.7 | 25 | | |
| Barium (aqua regia extractable) | mg/kg | 1 | MCERTS | 21 | 56 | 290 | | |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS | 0.8 | 0.7 | 1.2 | | |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | 0.6 | | |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | 0.6 | | |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 37 | 27 | 28 | | |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 12 | 15 | 53 | | |
| Lead (aqua regia extractable) | mg/kg | 2 | MCERTS | 9.6 | 57 | 1700 | | |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | | |
| Nickel (aqua regia extractable) | mg/kg | 2 | MCERTS | 12 | 10 | 18 | | |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | | |
| Vanadium (aqua regia extractable) | mg/kg | 1 | MCERTS | 49 | 40 | 52 | | |
| Zinc (aqua regia extractable) | mg/kg | 2 | MCERTS | 30 | 38 | 400 | | |

**Analytical Report Number: 11-29753**

**Project / Site name: Arkwright Road**

| **Lab Sample Number** | | | | 189700 | 189701 | 189702 | | |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | BH02 | BH03 | FIP08 | | |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | | |
| **Depth (m)** | | | | 3.45 | 1.20 | 0.59 | | |
| **Date Sampled** | | | | 24/08/2011 | 24/08/2011 | 24/08/2011 | | |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | | |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| **Petroleum Hydrocarbons** | | | | | | | | |
| TPH7 - Aliphatic >EC5 - EC6 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aliphatic >EC6 - EC8 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aliphatic >EC8 - EC10 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aliphatic >EC10 - EC12 | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | | |
| TPH7 - Aliphatic >EC12 - EC16 | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | | |
| TPH7 - Aliphatic >EC16 - EC21 | mg/kg | 8 | MCERTS | < 8.0 | < 8.0 | < 8.0 | | |
| TPH7 - Aliphatic >EC21 - EC40 | mg/kg | 10 | NONE | < 10 | 14 | 12 | | |
| TPH7 - Aromatic >EC5 - EC7 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aromatic >EC7 - EC8 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aromatic >EC8 - EC10 | mg/kg | 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | | |
| TPH7 - Aromatic >EC10 - EC12 | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | | |
| TPH7 - Aromatic >EC12 - EC16 | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | | |
| TPH7 - Aromatic >EC16 - EC21 | mg/kg | 10 | MCERTS | < 10 | < 10 | 13 | | |
| TPH7 - Aromatic >EC21 - EC40 | mg/kg | 10 | NONE | < 10 | < 10 | 52 | | |

**Analytical Report Number : 11-29753**

**Project / Site name: Arkwright Road**

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

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description * |
|---|---|---|---|---|
| 189695 | TP01 | None Supplied | 0.20 | Brown topsoil and sand with stones and vegetation. |
| 189696 | TP02 | None Supplied | 1.00 | Brown clay. |
| 189697 | BH01 | None Supplied | 0.70 | Brown clay with vegetation. |
| 189698 | BH01 | None Supplied | 1.20 | Brown topsoil and sand with stones and brick. |
| 189699 | BH02 | None Supplied | 2.00 | Light brown clay with stones. |
| 189700 | BH02 | None Supplied | 3.45 | Light brown clay. |
| 189701 | BH03 | None Supplied | 1.20 | Light brown clay. |
| 189702 | FIP08 | None Supplied | 0.59 | Brown clay. |

**Analytical Report Number : 11-29753**

**Project / Site name: Arkwright Road**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|---|---|---|---|
| Boron, water soluble, in soil | Determination of water soluble boron in soil by hot water extract followed by ICP-OES. | In-house method based on Second Site Properties version 3 | L038-PL | D | MCERTS |
| BTEX and MTBE in soil | Determination of BTEX in soil by headspace GC-MS. | In-house method based on USEPA8260 | L073S-PL | W | MCERTS |
| Metals in soil by ICP-OES | Determination of metals in soil by aqua-regia digestion followed by ICP-OES. | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil. | L038-PL | D | MCERTS |
| Moisture Content | Moisture content, determined gravimetrically. | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests | L019-UK | W | NONE |
| Monohydric phenols in soil | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080 | W | MCERTS |
| Organic matter in soil | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate. | BS1377 Part 3, 1990, Chemical and Electrochemical Tests | L023-PL | D | MCERTS |
| pH in soil | Determination of pH in soil by addition of water followed by electrometric measurement. | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests | L005-PL | W | MCERTS |
| Speciated WAC-17 PAHs in soil | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. | In-house method based on USEPA 8270 | L064-PL | D | NONE |
| Stones content of soil | Stones not passing through a 2 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample. | In-house method based on British Standard Methods and MCERTS requirements. | L019-UK | D | NONE |
| Total cyanide in soil | Determination of total cyanide by distillation followed by colorimetry. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080 | W | MCERTS |
| Total sulphate (as SO4 in soil) | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES. | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests | L038-PL | D | ISO 17025 |
| TPHCWG (Soil) | Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID. | In-house method | L076-PL | W | MCERTS |

**For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.**
**For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.**
**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.**

# APPENDIX G

*Geotechnical analysis*

| | | | |
|---|---|---|---|
| **Project Name:** | Arkwright Road, Hampstead, London | **Samples Received:** | 09/09/2011 |
| | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | **Testing Started:** | 21/09/2011 |
| **Project No:** | CG/5595 **Our job/report no:** 11586 | **Date Reported:** | 22/09/2011 |

**K4 SOILS**

| Borehole No: | Sample No: | Depth (m) | Description | Moisture content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 0.425 mm (%) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| BH1 | - | 3.00 - 3.45 | Brown, pale grey and orange brown sandy CLAY | 26 | 34 | 21 | 13 | 100 | |
| BH1 | - | 5.00 - 5.45 | Brown and pale grey slightly silty clayey SAND | 29 | 41 | 20 | 21 | 100 | |
| BH2 | - | 3.00 - 3.45 | Brown and blue grey slightly clayey slightly silty SAND | 27 | 32 | 24 | 8 | 100 | |
| BH3 | - | 5.45 - 5.50 | Brown and blue grey slightly silty slightly clayey sandy GRAVEL (gravel is fmc and sub rounded to angular) | 14 | 41 | 20 | 21 | 48 | |
| BH3 | - | 6.00 | Brown and blue grey slightly sandy clayey SILT | 29 | 45 | 20 | 25 | 99 | |
| BH4 | - | 4.45 - 4.50 | Brown slightly mottled blue grey slightly silty clayey SAND | 26 | 42 | 17 | 25 | 100 | |

UKAS TESTING 2519

## Summary of Test Results

BS 1377 : Part 2 : Clause 4.4 : 1990 Determination of the liquid limit by the cone penetrometer method.

BS 1377 : Part 2 : Clause 5 : 1990 Determination of the plastic limit and plasticity index.

BS 1377 : Part 2 : Clause 3.2 : 1990 Determination of the moisture content by the oven-drying method.

**Checked and Approved**

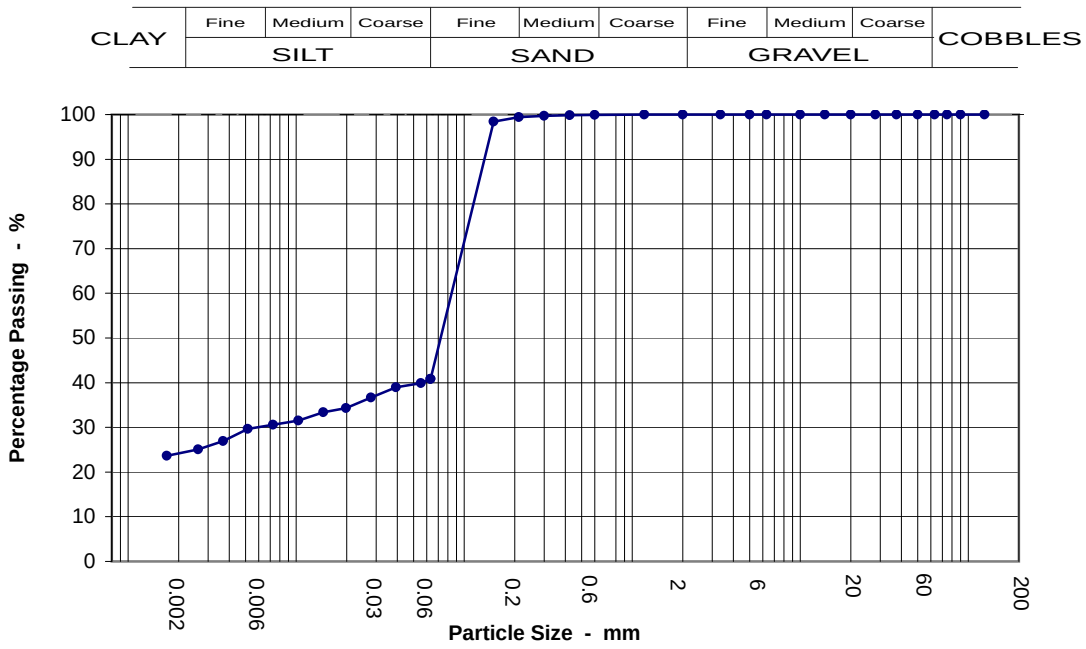
Initials: K.P

Date: 22/09/2011

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Test Results relate only to the sample numbers shown above. Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH1 |
| | | Depth | 5.00 - 5.45 m |
| Visual Soil Description | Brown and pale grey slightly silty clayey SAND | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.055 | 40 |
| 90 | 100 | 0.039 | 39 |
| 75 | 100 | 0.028 | 37 |
| 63 | 100 | 0.020 | 34 |
| 50 | 100 | 0.015 | 33 |
| 37.5 | 100 | 0.010 | 32 |
| 28 | 100 | 0.007 | 31 |
| 20 | 100 | 0.005 | 30 |
| 14 | 100 | 0.004 | 27 |
| 10 | 100 | 0.003 | 25 |
| 6.3 | 100 | 0.002 | 24 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 100 | | |
| 0.6 | 100 | | |
| 0.425 | 100 | | |
| 0.3 | 100 | | |
| 0.212 | 99 | | |
| 0.15 | 98 | | |
| 0.063 | 41 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving | Clause |
| Sedimentation | Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.0 |
| Sand | 59.5 |
| Silt | 16.3 |
| Clay | 24.1 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 0.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

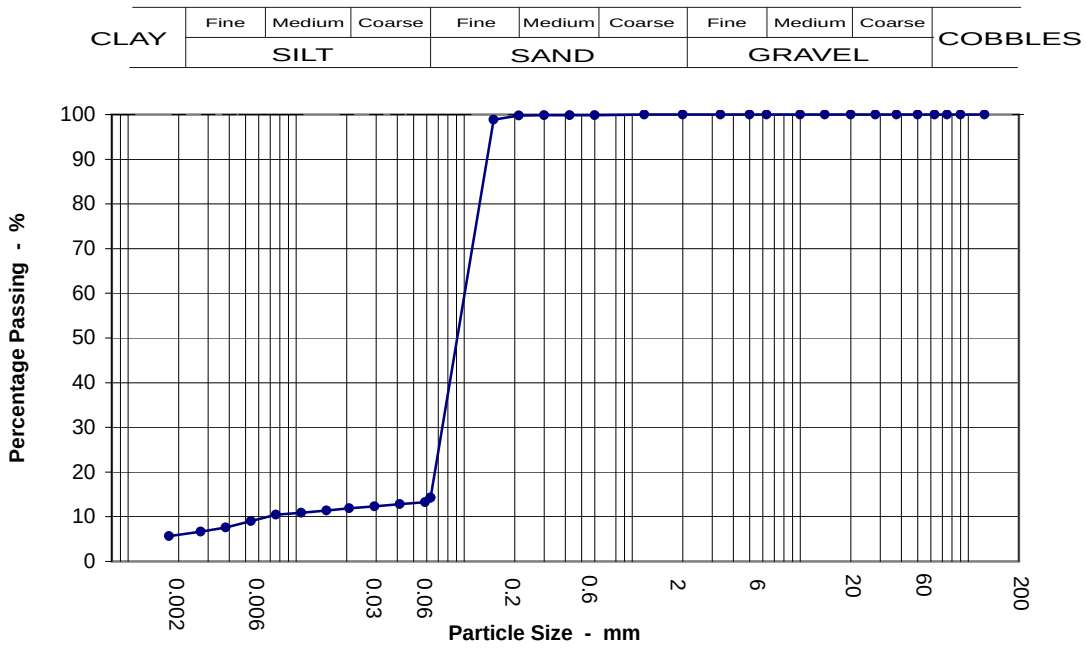
**Approved Signatories:**
K.Phaure(Tech.Mgr) J.Phaure(Lab.Mgr)
Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING
2519

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH2 |
| | | Depth | 3.00 - 3.45 m |
| Visual Soil Description | Brown and blue grey slightly clayey slightly silty SAND | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.059 | 13 |
| 90 | 100 | 0.041 | 13 |
| 75 | 100 | 0.029 | 12 |
| 63 | 100 | 0.021 | 12 |
| 50 | 100 | 0.015 | 11 |
| 37.5 | 100 | 0.011 | 11 |
| 28 | 100 | 0.008 | 10 |
| 20 | 100 | 0.005 | 9 |
| 14 | 100 | 0.004 | 8 |
| 10 | 100 | 0.003 | 7 |
| 6.3 | 100 | 0.002 | 6 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 100 | | |
| 0.6 | 100 | | |
| 0.425 | 100 | | |
| 0.3 | 100 | | |
| 0.212 | 100 | | |
| 0.15 | 99 | | |
| 0.063 | 14 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving | Clause |
| Sedimentation | Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.0 |
| Sand | 86.4 |
| Silt | 7.7 |
| Clay | 5.9 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 0.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

**Approved Signatories:**
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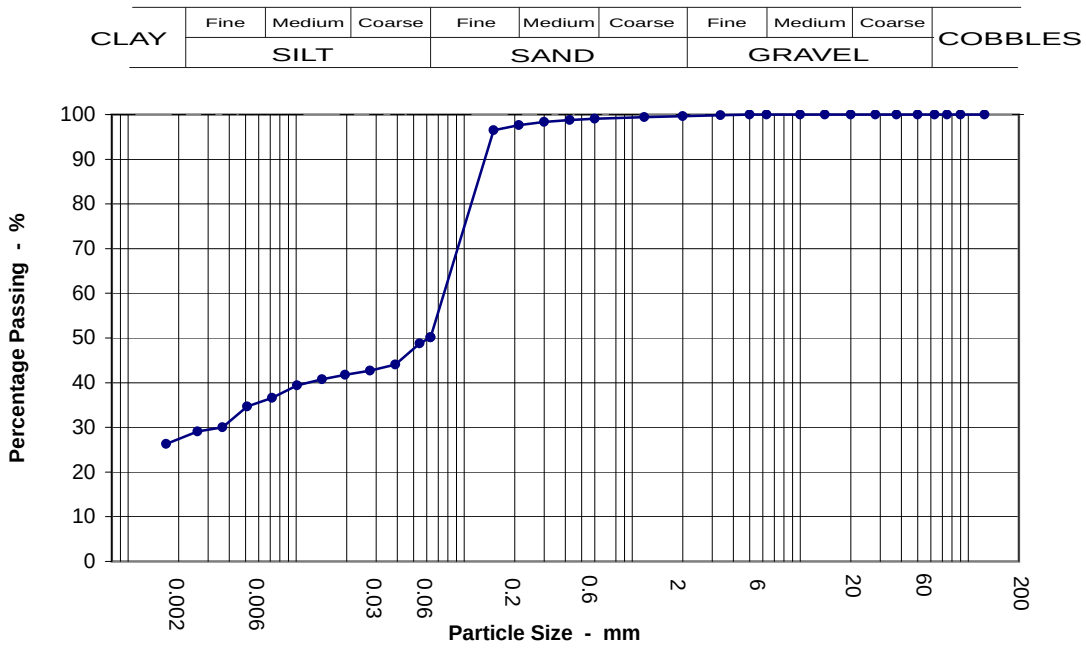
Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING
2519

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH2 |
| | | Depth | 6.00 - 6.45 m |
| Visual Soil Description | Orange brown, brown and blue grey slightly silty clayey SAND | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.054 | 49 |
| 90 | 100 | 0.039 | 44 |
| 75 | 100 | 0.028 | 43 |
| 63 | 100 | 0.020 | 42 |
| 50 | 100 | 0.014 | 41 |
| 37.5 | 100 | 0.010 | 39 |
| 28 | 100 | 0.007 | 37 |
| 20 | 100 | 0.005 | 35 |
| 14 | 100 | 0.004 | 30 |
| 10 | 100 | 0.003 | 29 |
| 6.3 | 100 | 0.002 | 26 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 99 | | |
| 0.6 | 99 | | |
| 0.425 | 99 | | |
| 0.3 | 98 | | |
| 0.212 | 98 | | |
| 0.15 | 96 | | |
| 0.063 | 50 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving | Clause |
| Sedimentation | Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.3 |
| Sand | 50.0 |
| Silt | 22.4 |
| Clay | 27.2 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 0.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

**Approved Signatories:**
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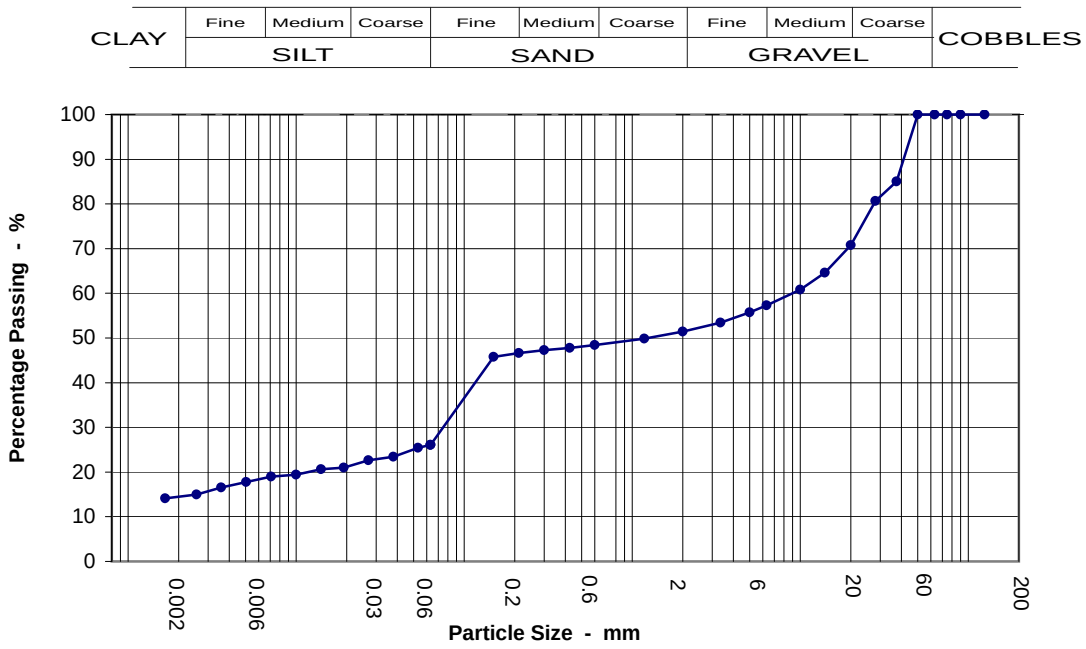
| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH3 |
| | | Depth | 5.45 - 5.50 m |
| Visual Soil Description | Brown and blue grey slightly silty slightly clayey sandy GRAVEL (gravel is fmc and sub rounded to angular) | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.053 | 25 |
| 90 | 100 | 0.038 | 23 |
| 75 | 100 | 0.027 | 23 |
| 63 | 100 | 0.019 | 21 |
| 50 | 100 | 0.014 | 21 |
| 37.5 | 85 | 0.010 | 19 |
| 28 | 81 | 0.007 | 19 |
| 20 | 71 | 0.005 | 18 |
| 14 | 65 | 0.004 | 17 |
| 10 | 61 | 0.003 | 15 |
| 6.3 | 57 | 0.002 | 14 |
| 5 | 56 | | |
| 3.35 | 53 | | |
| 2 | 51 | | |
| 1.18 | 50 | | |
| 0.6 | 48 | | |
| 0.425 | 48 | | |
| 0.3 | 47 | | |
| 0.212 | 47 | | |
| 0.15 | 46 | | |
| 0.063 | 26 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving | Clause |
| Sedimentation | Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 48.6 |
| Sand | 25.5 |
| Silt | 11.4 |
| Clay | 14.4 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 9.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

**Approved Signatories:**
K.Phaure(Tech.Mgr) J.Phaure(Lab.Mgr)

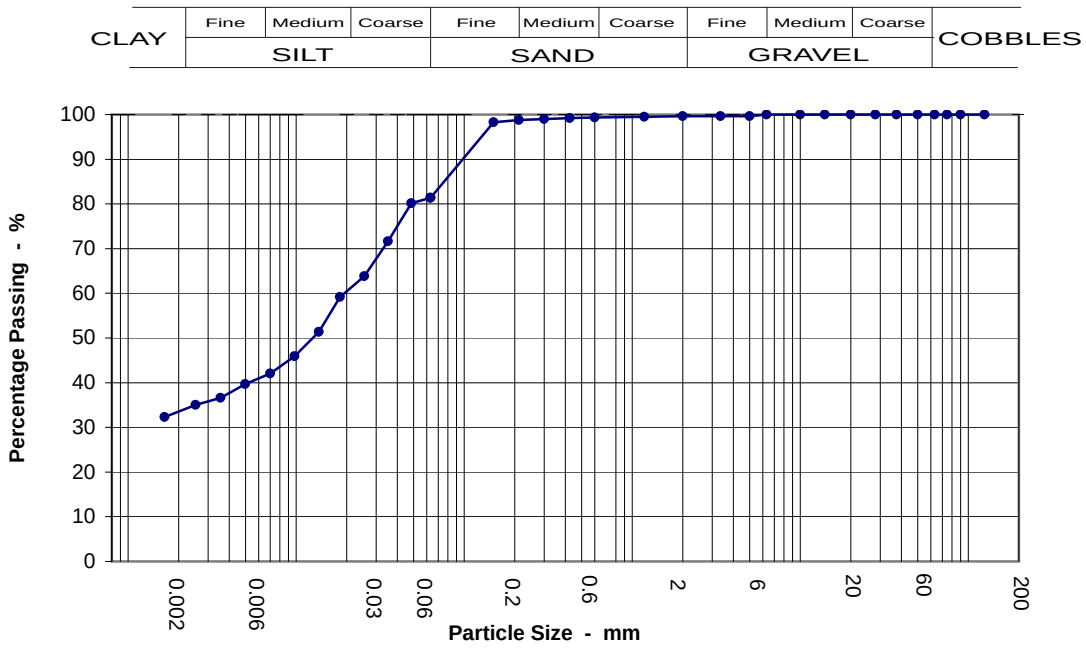
Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING
2519

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH3 |
| | | Depth | 6.00 m |
| Visual Soil Description | Brown and blue grey slightly sandy clayey SILT | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.048 | 80 |
| 90 | 100 | 0.035 | 72 |
| 75 | 100 | 0.025 | 64 |
| 63 | 100 | 0.018 | 59 |
| 50 | 100 | 0.014 | 51 |
| 37.5 | 100 | 0.010 | 46 |
| 28 | 100 | 0.007 | 42 |
| 20 | 100 | 0.005 | 40 |
| 14 | 100 | 0.004 | 37 |
| 10 | 100 | 0.003 | 35 |
| 6.3 | 100 | 0.002 | 32 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 99 | | |
| 0.6 | 99 | | |
| 0.425 | 99 | | |
| 0.3 | 99 | | |
| 0.212 | 99 | | |
| 0.15 | 98 | | |
| 0.063 | 81 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving<br>Sedimentation | Clause<br>Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.4 |
| Sand | 18.5 |
| Silt | 47.7 |
| Clay | 33.4 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | |
| D10 | |
| Uniformity Coefficient | N/A |


**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

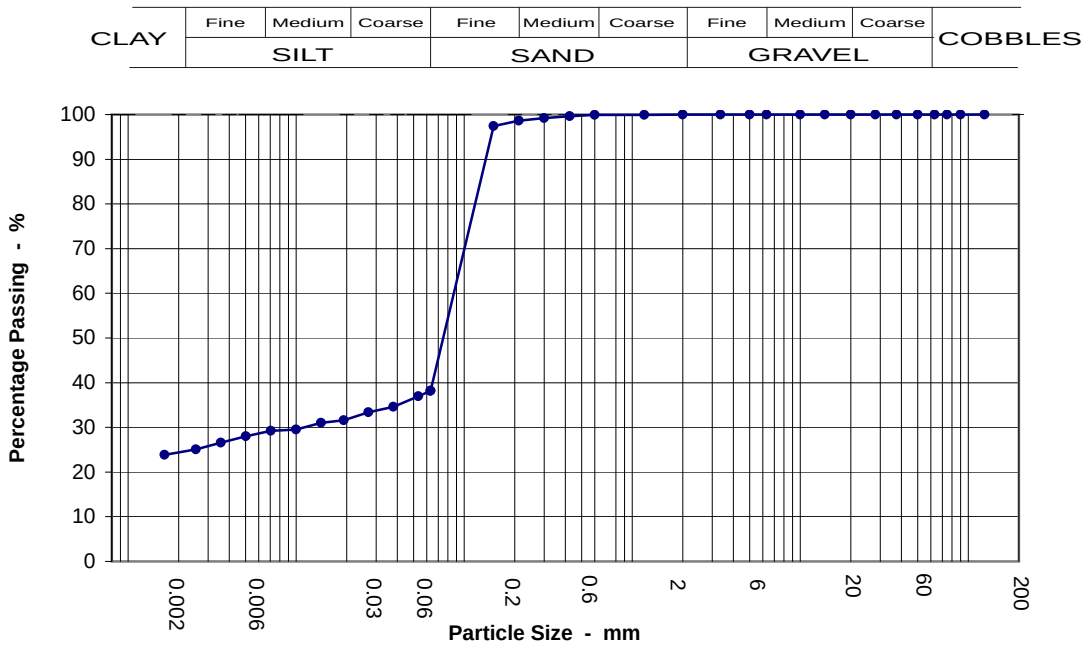

**Approved Signatories:**
K.Phaure(Tech.Mgr) J.Phaure(Lab.Mgr)

Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING
2519

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH4 |
| | | Depth | 4.45 - 4.50 m |
| Visual Soil Description | Brown slightly mottled blue grey slightly silty clayey SAND | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.053 | 37 |
| 90 | 100 | 0.038 | 35 |
| 75 | 100 | 0.027 | 33 |
| 63 | 100 | 0.019 | 32 |
| 50 | 100 | 0.014 | 31 |
| 37.5 | 100 | 0.010 | 30 |
| 28 | 100 | 0.007 | 29 |
| 20 | 100 | 0.005 | 28 |
| 14 | 100 | 0.004 | 27 |
| 10 | 100 | 0.003 | 25 |
| 6.3 | 100 | 0.002 | 24 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 100 | | |
| 0.6 | 100 | | |
| 0.425 | 100 | | |
| 0.3 | 99 | | |
| 0.212 | 99 | | |
| 0.15 | 97 | | |
| 0.063 | 38 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving | Clause |
| Sedimentation | Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.0 |
| Sand | 62.2 |
| Silt | 13.5 |
| Clay | 24.3 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 0.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU.
E-mail: k4soils@aol.com

**Approved Signatories:**
K.Phaure(Tech.Mgr) J.Phaure(Lab.Mgr)

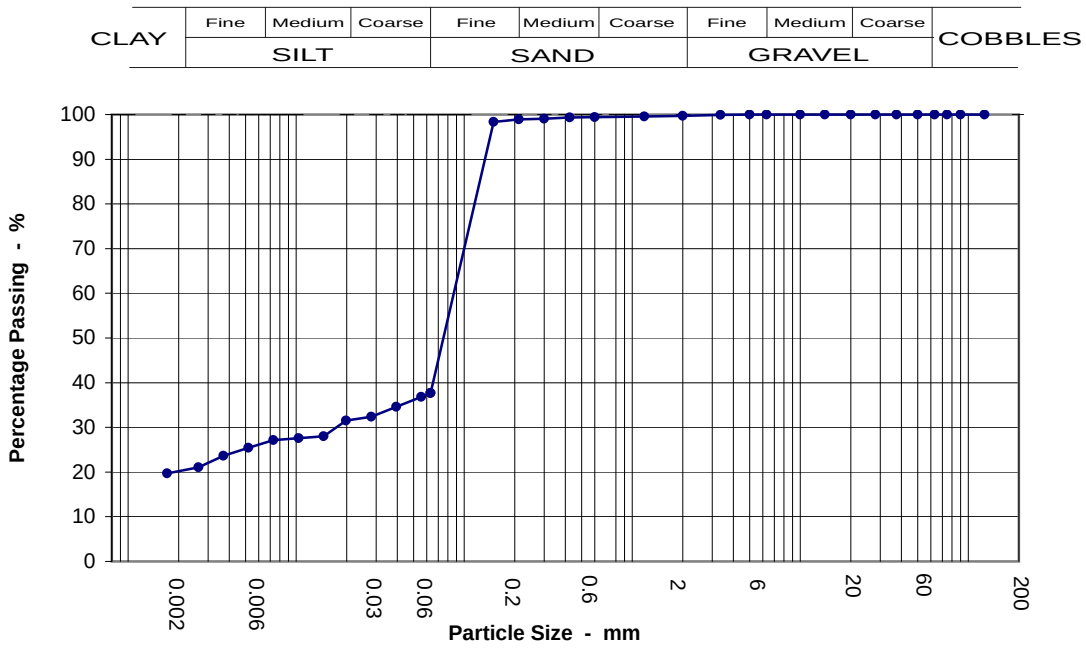
Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING
2519

| K4 SOILS | PARTICLE SIZE DISTRIBUTION<br>BS 1377 : Part 2 : 1990 : Clause 9 | Our Report No: | 11586 |
|---|---|---|---|
| | | Project No: | CG/5595 |
| Location | Arkwright Road, Hampstead, London | Borehole / Trial Pit No: | BH4 |
| | | Depth | 7.50 - 7.95 m |
| Visual Soil Description | Brown slightly silty slightly clayey SAND | Sample Type/No | - |




| Sieving | | Sedimentation | |
|---|---|---|---|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125 | 100 | 0.056 | 37 |
| 90 | 100 | 0.039 | 35 |
| 75 | 100 | 0.028 | 32 |
| 63 | 100 | 0.020 | 32 |
| 50 | 100 | 0.015 | 28 |
| 37.5 | 100 | 0.010 | 28 |
| 28 | 100 | 0.007 | 27 |
| 20 | 100 | 0.005 | 25 |
| 14 | 100 | 0.004 | 24 |
| 10 | 100 | 0.003 | 21 |
| 6.3 | 100 | 0.002 | 20 |
| 5 | 100 | | |
| 3.35 | 100 | | |
| 2 | 100 | | |
| 1.18 | 100 | | |
| 0.6 | 99 | | |
| 0.425 | 99 | | |
| 0.3 | 99 | | |
| 0.212 | 99 | | |
| 0.15 | 98 | | |
| 0.063 | 38 | | |

| Test Method | |
|---|---|
| BS 1377 : Part 2 : 1990 | |
| Sieving<br>Sedimentation | Clause<br>Clause 9.5 |
| Suitable Amount Of Sample Received | Yes |

| Sample Proportions | |
|---|---|
| Cobbles | 0.0 |
| Gravel | 0.3 |
| Sand | 62.4 |
| Silt | 17.2 |
| Clay | 20.1 |

| Grading Analysis | |
|---|---|
| D100 | 125.0 |
| D60 | 0.1 |
| D10 | |
| Uniformity Coefficient | N/A |

**K4 SOILS LABORATORY**
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| | | | | | |
|---|---|---|---|---|---|
| Project Name: | Arkwright Road, Hampstead, London | | | | K4 SOILS |
| Client: | Card Geotechnics Ltd | Project no: | CG/5595 | | |
| | | Our job no: | 11586 | | |

| Borehole No: | Sample No: | Depth m | Description | pH | Sulphate content (g/l) |
|---|---|---|---|---|---|
| BH1 | - | 3.00 | Brown, pale grey and orange brown sandy CLAY | 6.9 | 0.59 |
| BH1 | - | 5.00 | Brown and pale grey slightly silty clayey SAND | 7.1 | 0.51 |
| BH2 | - | 3.00 | Brown and blue grey slightly clayey slightly silty SAND | 7.1 | 0.40 |
| BH3 | - | 5.45 | Brown and blue grey slightly silty slightly clayey sandy GRAVEL (gravel is fmc and sub rounded to angular) | 7.3 | 0.55 |
| BH4 | - | 4.45 | Brown slightly mottled blue grey slightly silty clayey SAND | 7.3 | 0.47 |

Date 21/09/2011

## Summary of Test Results

BS 1377 : Part 3 :Clause 5 : 1990

Determination of sulphate content of soil and ground water : gravimetric method

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Initials : kp

Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

| Client : | Card Geotechnics Ltd | Our Job/report no: | 11586 | Samples Rec : | 09/09/2011 | Testing Started: | 14/09/2011 |
|---|---|---|---|---|---|---|---|
| Project name: | Arkwright Road, Hampstead, London | Project No: | CG/5595 | Project Started: | 12/09/2011 | Date reported: | 21/09/2011 |

| BH / TP No | Sample no / ref | Sample depth (m) | Description | Moisture content (%) | Bulk Density (Mg/m3) | Dry density (Mg/m3) | Cell Pressure (kPa) | Strain at failure (%) | Max Deviator Stress (kPa) | Mode of failure | Shear Strength (kPa) | Phi (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1 | - | 10.50 | High strength slightly fissured grey slightly silty CLAY | 30 | 1.93 | 1.48 | 250 | 9.0 | 157 | Brittle | 79 | NA |
| BH2 | - | 9.00 | High strength slightly fissured grey slightly silty CLAY with very occasional partings of fine grey sand | 27 | 1.94 | 1.53 | 200 | 9.0 | 160 | Brittle | 80 | NA |
| BH2 | - | 12.00 | Medium strength fissured grey silty CLAY with partings of fine grey sand | 31 | 1.95 | 1.49 | 280 | 20 | 115 | Brittle | 58 | NA |
| BH3 | - | 5.00 | Medium strength orange brown and grey silty sandy CLAY with occasional gravel at base and occasional rootlets (gravel is fm and rounded) | 22 | 2.13 | 1.75 | 120 | 20 | 109 | Brittle | 55 | NA |
| BH3 | - | 7.50 | High strength fissured brown slightly sandy CLAY with partings of yellow sand | 30 | 1.90 | 1.46 | 150 | 9.5 | 150 | Brittle | 75 | NA |
| BH4 | - | 4.00 | Low strength light brown clayey silty SAND/very sandy silty CLAY | 25 | 1.94 | 1.55 | 100 | 20 | 56 | Brittle | 28 | NA |
| BH4 | - | 9.00 | Low strength orange brown and brown mottled slightly silty slightly sandy CLAY with partings of fine yellow sand | 30 | 1.89 | 1.46 | 220 | 18 | 51 | Brittle | 26 | NA |
| BH4 | - | 12.00 | High strength slightly fissured grey slightly silty CLAY with partings of fine grey sand | 26 | 1.94 | 1.54 | 280 | 10 | 162 | Brittle | 81 | NA |

K4 SOILS

## Summary of Undrained Triaxial Compression Testing

BS 1377 : Part 7 : Clause 8 : 1990

Checked and approved

Initials kp

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH1 | **Sample no:** | | **Depth (m):** | 10.50 |

**Soil Description:** High strength slightly fissured grey slightly silty CLAY

| **Sample Details** | | **Specimen** 1 |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 30 |
| Bulk Density | Mg/m³ | 1.93 |
| Dry Density | Mg/m³ | 1.48 |

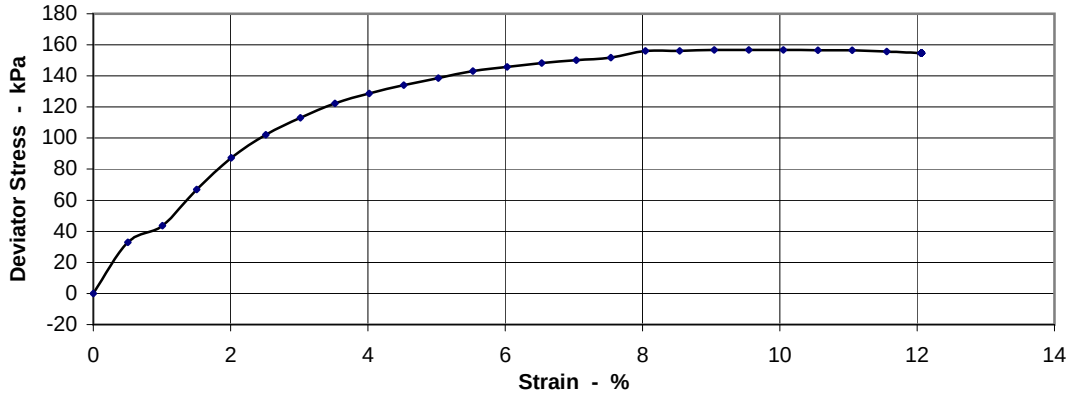
Position and orientation within the original sample

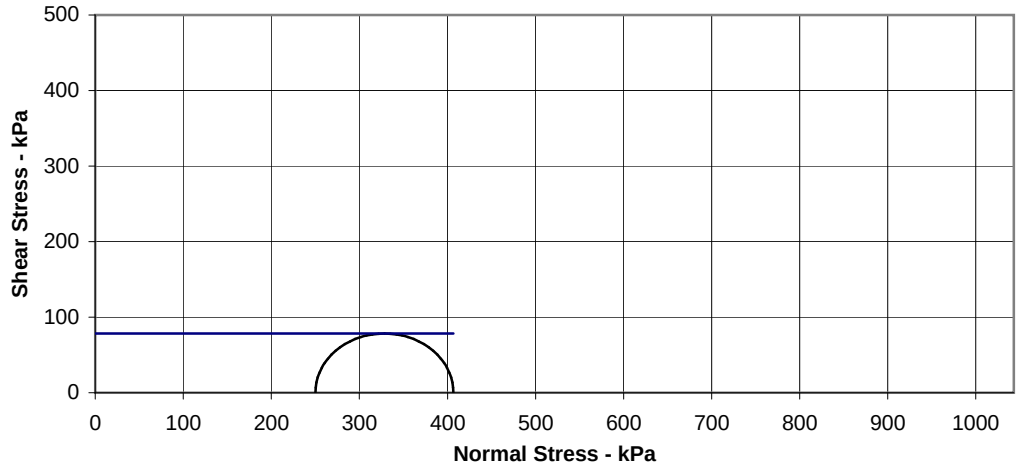
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.40 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 250 |
| Strain at Failure | % | 9.0 |
| Maximum Deviator Stress | kPa | 157 |
| Shear Strength | kPa | 78 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 78 kPa |
| Phi | 0.0 ° |

Specimen 1





**K4 SOILS LABORATORY**
Unit 8, Olds Close, Watford, Herts, WD18 9RU.
Tel:01923711288 Fax:01923711311
E-mail: k4soils@aol.com


**Approved Signatories:** K.Phaure(Tech.Mgr)
J.Phaure(Lab.Mgr)

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**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING

2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH2 | **Sample no:** | | **Depth (m):** | 9.00 |

**Soil Description:** High strength slightly fissured grey slightly silty CLAY with very occasional partings of fine grey sand

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 27 |
| Bulk Density | Mg/m³ | 1.94 |
| Dry Density | Mg/m³ | 1.53 |

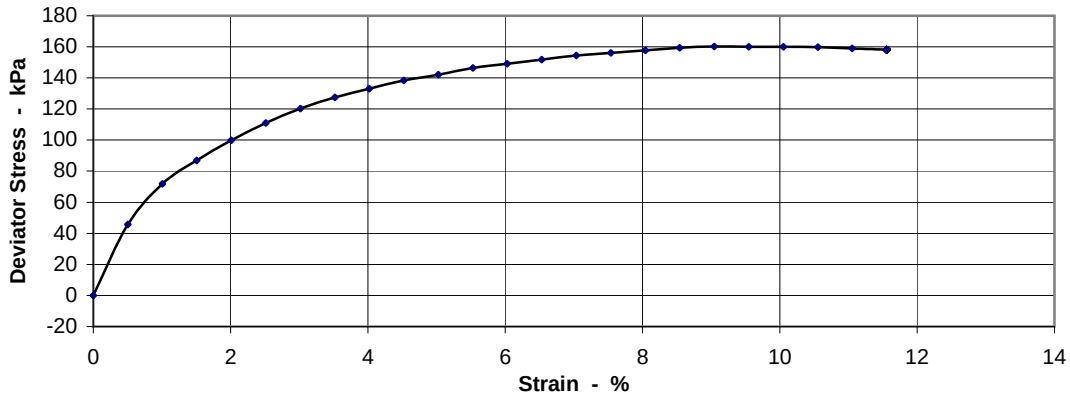
Position and orientation within the original sample

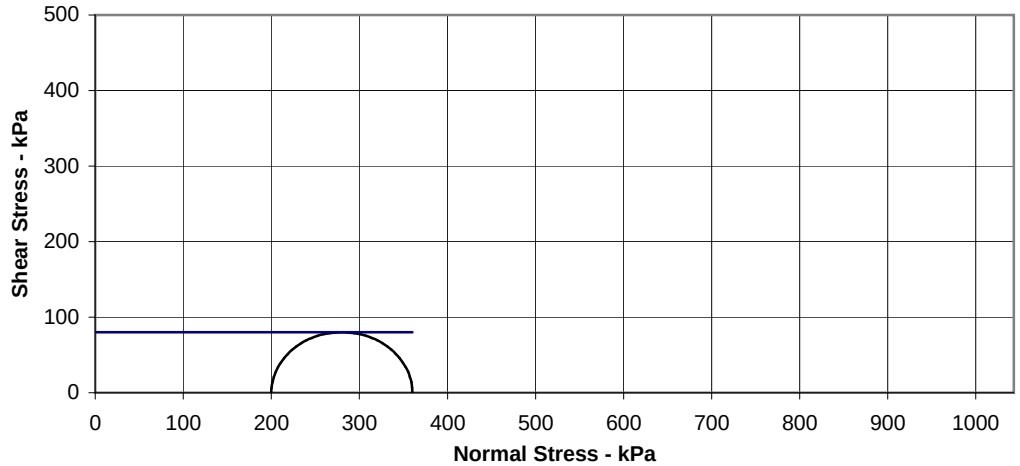
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.40 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 200 |
| Strain at Failure | % | 9.0 |
| Maximum Deviator Stress | kPa | 160 |
| Shear Strength | kPa | 80 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 80 kPa |
| Phi | 0.0 ° |

Specimen 1





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2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH2 | **Sample no:** | | **Depth (m):** | 12.00 |

**Soil Description:** Medium strength fissured grey silty CLAY with partings of fine grey sand

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 31 |
| Bulk Density | Mg/m³ | 1.95 |
| Dry Density | Mg/m³ | 1.49 |

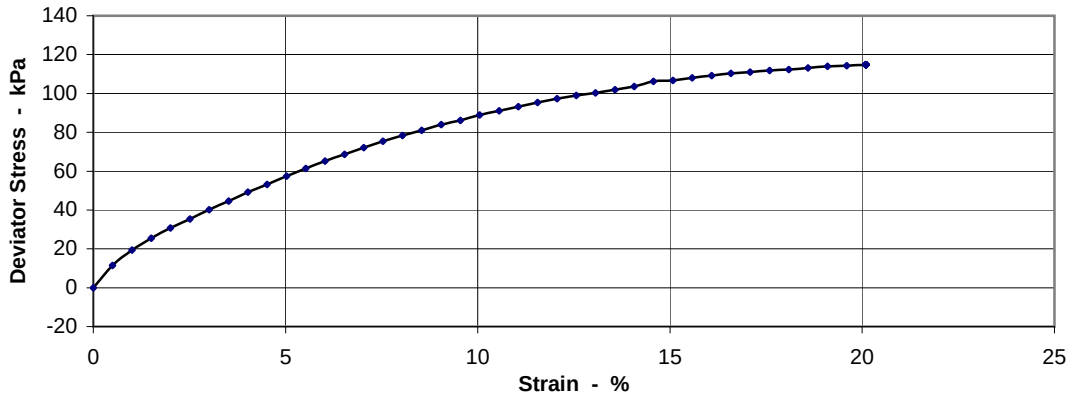
Position and orientation within the original sample

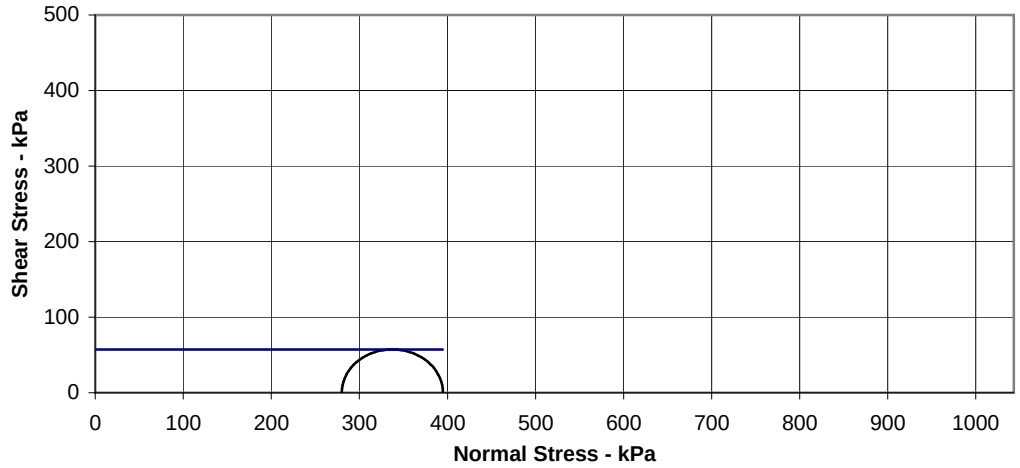
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.73 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 280 |
| Strain at Failure | % | 20.1 |
| Maximum Deviator Stress | kPa | 115 |
| Shear Strength | kPa | 57 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 57 kPa |
| Phi | 0.0 ° |

Specimen 1





**K4 SOILS LABORATORY**
Unit 8, Olds Close, Watford, Herts, WD18 9RU.
Tel:01923711288 Fax:01923711311
E-mail: k4soils@aol.com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Date: 21/09/2011

UKAS TESTING

2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH3 | **Sample no:** | | **Depth (m):** | 5.00 |

**Soil Description:** Medium strength orange brown and grey silty sandy CLAY with occasional gravel at base and occasional rootlets (gravel is fm and rounded)

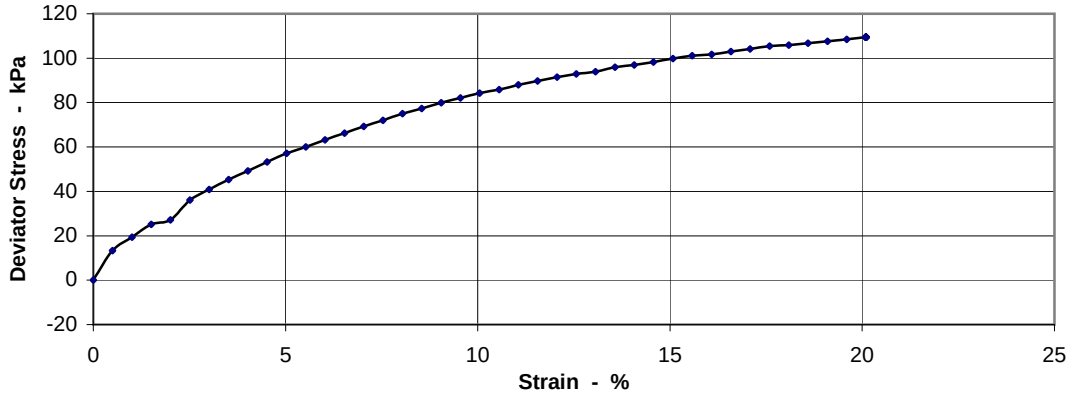
| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 22 |
| Bulk Density | Mg/m³ | 2.13 |
| Dry Density | Mg/m³ | 1.75 |

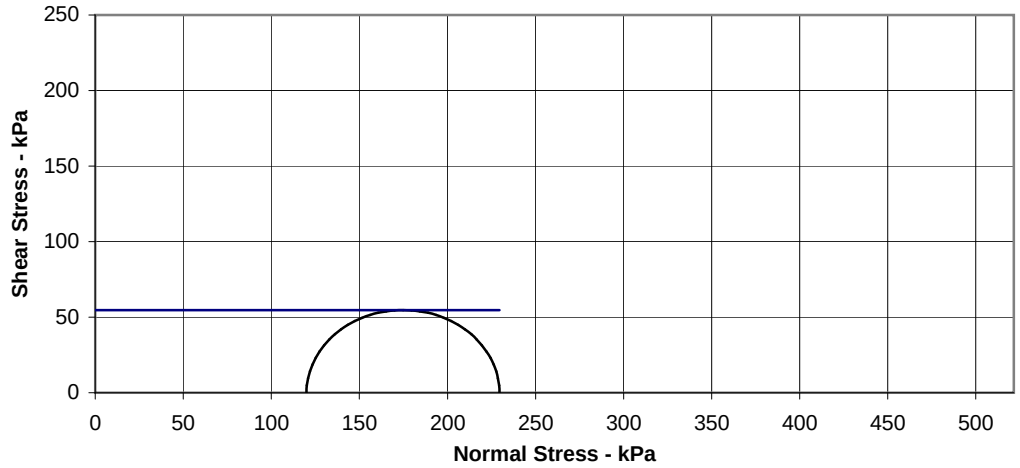
Position and orientation within the original sample

| **Test Details** | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.73 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 120 |
| Strain at Failure | % | 20.1 |
| Maximum Deviator Stress | kPa | 109 |
| Shear Strength | kPa | 55 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 55 kPa |
| Phi | 0.0 ° |

Specimen 1





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Initials: kp
Date: 21/09/2011

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**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH3 | **Sample no:** | | **Depth (m):** | 7.50 |

**Soil Description:** High strength fissured brown slightly sandy CLAY with partings of yellow sand

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 30 |
| Bulk Density | Mg/m³ | 1.90 |
| Dry Density | Mg/m³ | 1.46 |

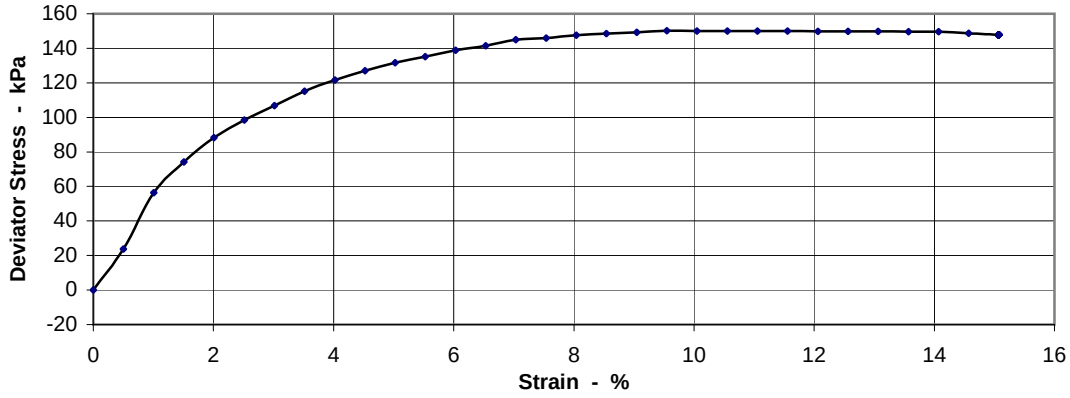
Position and orientation within the original sample

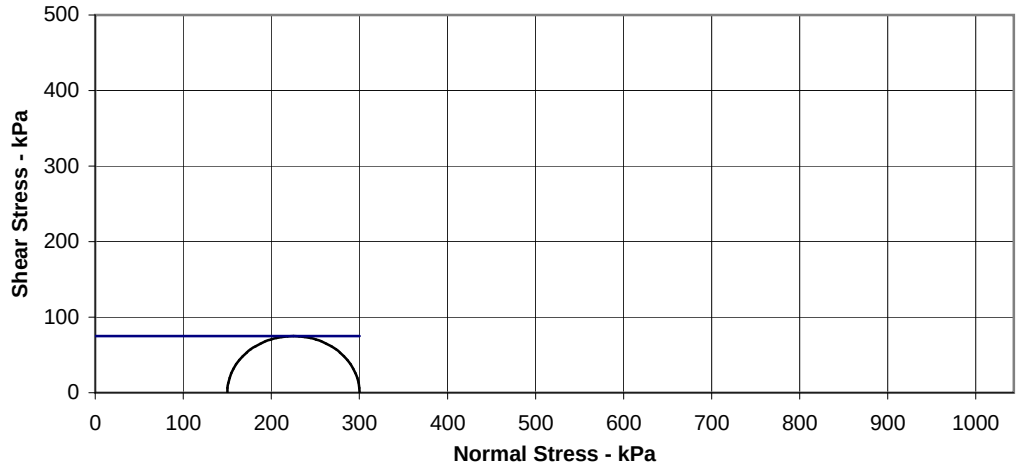
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.42 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 150 |
| Strain at Failure | % | 9.5 |
| Maximum Deviator Stress | kPa | 150 |
| Shear Strength | kPa | 75 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 75 kPa |
| Phi | 0.0 ° |

Specimen 1





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**Approved Signatories:** K.Phaure(Tech.Mgr)
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**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING

2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH4 | **Sample no:** | | **Depth (m):** | 4.00 |

**Soil Description:** Low strength light brown clayey silty SAND/very sandy silty CLAY

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 25 |
| Bulk Density | Mg/m³ | 1.94 |
| Dry Density | Mg/m³ | 1.55 |

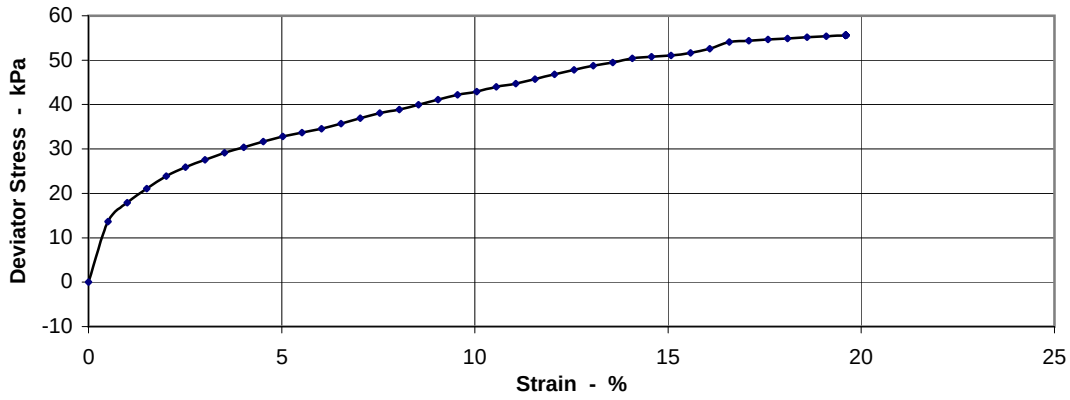
Position and orientation within the original sample

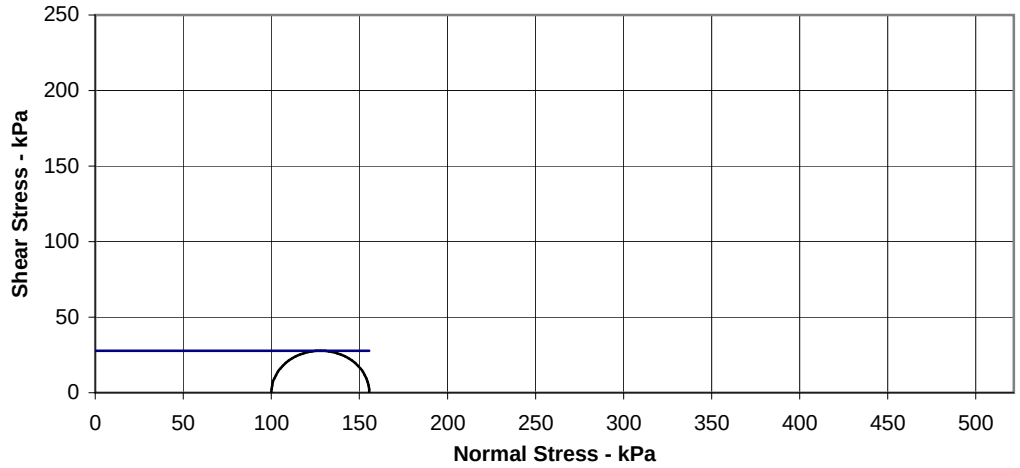
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.72 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 100 |
| Strain at Failure | % | 19.6 |
| Maximum Deviator Stress | kPa | 56 |
| Shear Strength | kPa | 28 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 28 kPa |
| Phi | 0.0 ° |

Specimen 1





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E-mail: k4soils@aol.com


**Approved Signatories:** K.Phaure(Tech.Mgr)
J.Phaure(Lab.Mgr)

Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING

2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH4 | **Sample no:** | | **Depth (m):** | 9.00 |

**Soil Description:** Low strength orange brown and brown mottled slightly silty slightly sandy CLAY with partings of fine yellow sand

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 30 |
| Bulk Density | Mg/m³ | 1.89 |
| Dry Density | Mg/m³ | 1.46 |

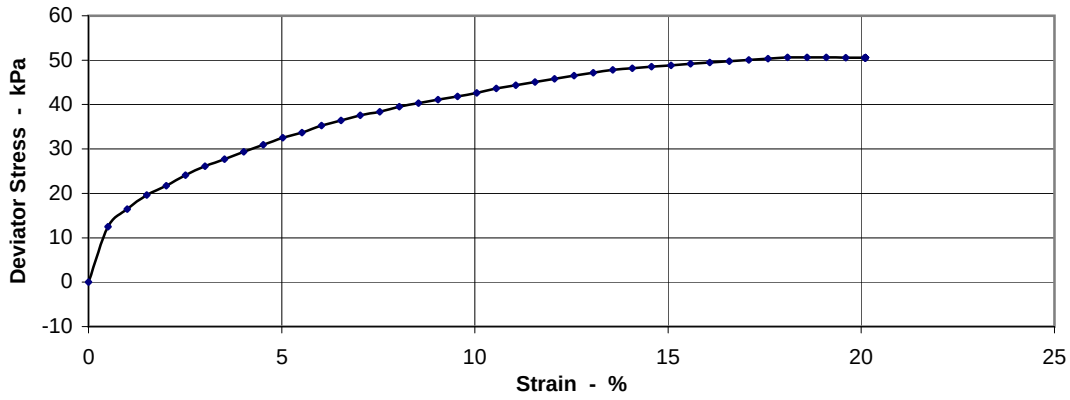
Position and orientation within the original sample

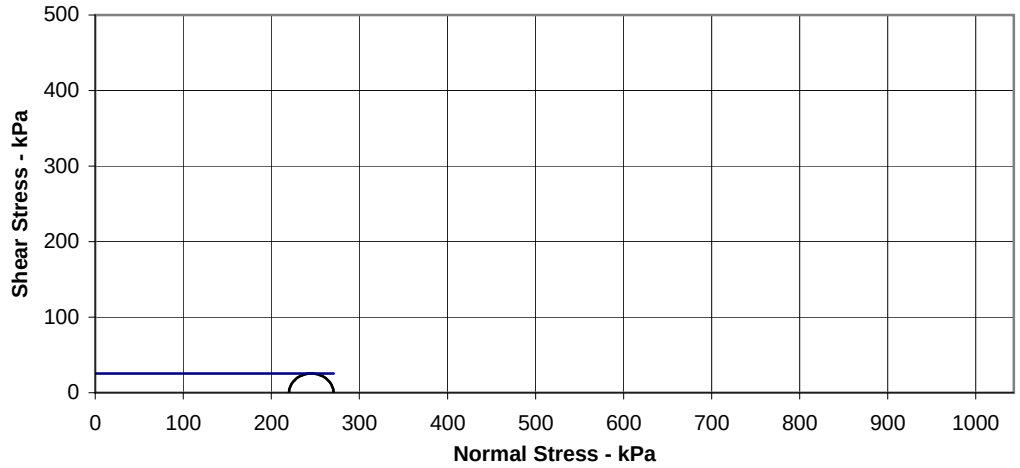
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.68 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 220 |
| Strain at Failure | % | 18.1 |
| Maximum Deviator Stress | kPa | 51 |
| Shear Strength | kPa | 25 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 25 kPa |
| Phi | 0.0 ° |

Specimen 1





**K4 SOILS LABORATORY**
Unit 8, Olds Close, Watford, Herts, WD18 9RU.
Tel:01923711288 Fax:01923711311
E-mail: k4soils@aol.com


**Approved Signatories:** K.Phaure(Tech.Mgr)
J.Phaure(Lab.Mgr)

Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING

2519

**K4 SOILS**

# Report of Undrained Triaxial Compression Test

## BS 1377 : Part 7 : 1990 Clause 8.0

| | | | | | |
|---|---|---|---|---|---|
| **Project name:** | Arkwright Road, Hampstead, London | | | **Samples Received:** | 09/09/2011 |
| | | | | **Project Started:** | 12/09/2011 |
| **Client:** | Card Geotechnics Ltd | | | **Testing Started:** | 14/09/2011 |
| **Project no:** | CG/5595 | **Our job /report no:** | 11586 | **Date Reported:** | 21/09/2011 |
| **BH / TP no:** | BH4 | **Sample no:** | | **Depth (m):** | 12.00 |

**Soil Description:** High strength slightly fissured grey slightly silty CLAY with partings of fine grey sand

| **Sample Details** | **Specimen** | **1** |
|---|---|---|
| Sample Condition | | Undisturbed |
| Height | mm | 199.0 |
| Diameter | mm | 104.0 |
| Moisture Content | % | 26 |
| Bulk Density | Mg/m³ | 1.94 |
| Dry Density | Mg/m³ | 1.54 |

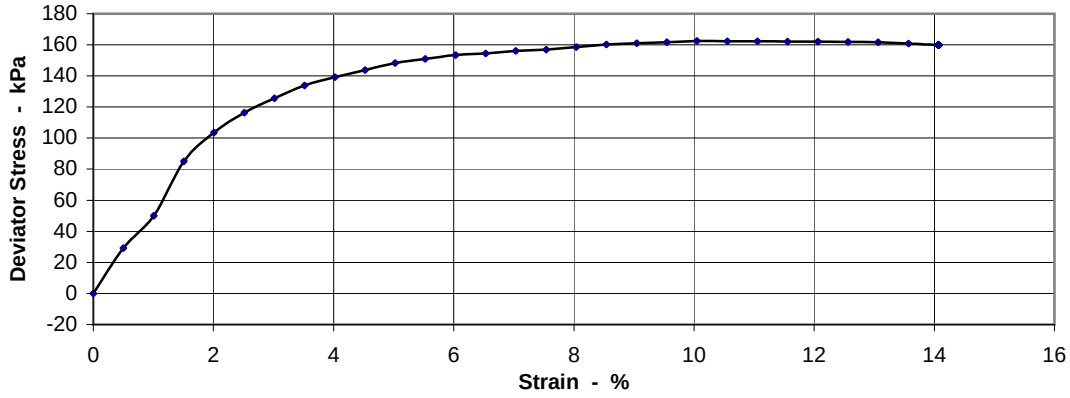
Position and orientation within the original sample

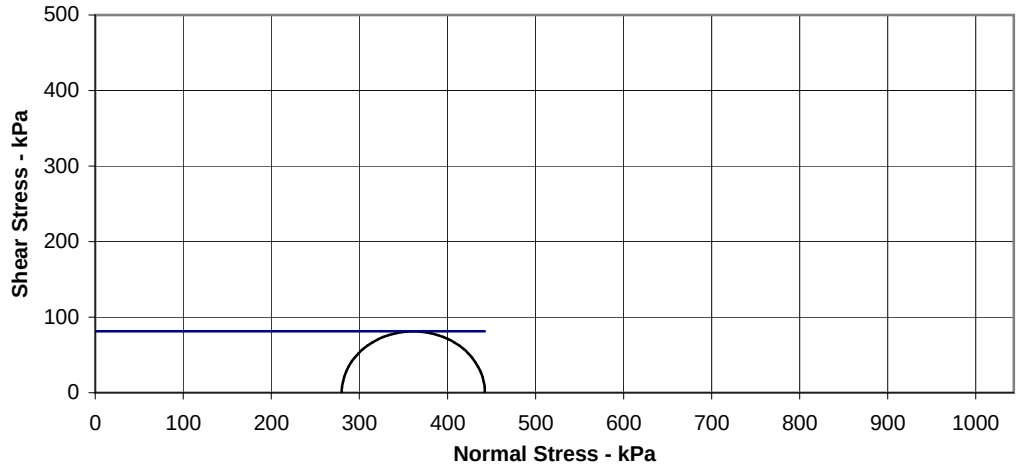
**Test Details**

| | | |
|---|---|---|
| Membrane Thickness | mm | 0.2 |
| Membrane Correction | kPa | 0.44 |
| Rate of Axial Displacement | %/min | 2.01 |
| Cell Pressure | kPa | 280 |
| Strain at Failure | % | 10.1 |
| Maximum Deviator Stress | kPa | 162 |
| Shear Strength | kPa | 81 |
| Mode of Failure | | Brittle |

| Shear Strength Parameters | |
|---|---|
| C | 81 kPa |
| Phi | 0.0 ° |

Specimen 1





**K4 SOILS LABORATORY**
Unit 8, Olds Close, Watford, Herts, WD18 9RU.
Tel:01923711288 Fax:01923711311
E-mail: k4soils@aol.com


**Approved Signatories:** K.Phaure(Tech.Mgr)
J.Phaure(Lab.Mgr)

Test results relate only to the sample numbers shown above

**Checked and Approved**
Initials: kp
Date: 21/09/2011

UKAS TESTING

2519

# APPENDIX H

*Monitoring records*

# GAS MONITORING RECORD SHEET

| JOB DETAILS | | | |
|---|---|---|---|
| Site: | Arkwright Road, Hampstead | Job No: | CG/5595 |
| Date: | 1.9.11 | Engineer: | ASB |
| Time: | 14:44 | Client | Ironside & Malone Design & Build |

| METEOROLOGICAL & SITE INFORMATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| State of ground: | x | Dry | | Moist | | Wet | | | |
| Wind: | | Calm | x | Light | | Moderate | | Strong | |
| Cloud cover: | | None | x | Slight | | Cloudy | | Overcast | |
| Precipitation: | x | None | | Slight | | Moderate | | Heavy | |
| Barometric pressure (mb): | 1003/1002 | | | | Air temperature (oC): | | | | |

| Well No. | Time (s) | Flow (l/hr) | dA (PA) | $O_2$ (% vol. in air) | $CO_2$ (% vol. in air) | $CH_4$ (% vol. in air) | $H_2S$ (ppm) | PID (ppm) | Depth to GW (mbgl) | Free product (mm) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 19.2 | 0.1 | 0 | 0 | 0 | 4.82 | | depth of BH = 11.12m |
| | 15 | 0 | 0.2 | 16.2 | 3 | 0 | 0 | 0 | | | |
| | 30 | 0 | 0 | 15.1 | 3.2 | 0 | 0 | 0 | | | |
| | 45 | 0 | -0.2 | 14.9 | 3.3 | 0 | 0 | 0 | | | |
| BH 1 | 60 | 0 | -0.2 | 14.9 | 3.3 | 0 | 0 | 0 | | | |
| | 90 | 0.1 | 0.6 | 14.9 | 3.3 | 0 | 0 | 0 | | | |
| | 120 | 0 | 0.1 | 14.8 | 3.3 | 0 | 0 | 0 | | | |
| | 150 | 0.1 | 0.3 | 14.8 | 3.3 | 0 | 0 | 0 | | | |
| | 180 | 0 | 0 | 14.7 | 3.3 | 0 | 0 | 0 | | | |
| | 0 | 0 | 0.1 | 20.3 | 0.1 | 0 | 0 | 1.4 | 3.73 | | depth of BH = 5.00m |
| | 15 | 0 | 0 | 20.3 | 0.2 | 0 | 0 | 1.3 | | | |
| | 30 | 0 | 0.1 | 20.4 | 0.2 | 0 | 0 | 1.15 | | | |
| | 45 | 0 | 0 | 20.4 | 0.1 | 0 | 0 | 1 | | | |
| | 60 | 0 | 0.1 | 20.4 | 0.1 | 0 | 0 | 0.9 | | | |
| | 90 | 0 | 0.1 | 20.4 | 0.1 | 0 | 0 | 0.3 | | | |
| | 120 | 0 | 0 | 20.5 | 0.1 | 0 | 0 | 0 | | | |
| | 150 | 0 | 0 | 20.5 | 0.1 | 0 | 0 | 0 | | | |
| BH 2 | 180 | 0 | 0.1 | 20.5 | 0 | 0 | 0 | 0 | | | |
| | 0 | -0.1 | -0.4 | 20.3 | 0.1 | 0 | 0 | 1.4 | 5.56 | | depth of BH = 8.17m |
| | 15 | 0 | -0.2 | 17.3 | 1.6 | 0 | 0 | 1.1 | | | |
| | 30 | 0 | 0 | 16.4 | 1.7 | 0 | 0 | 0.9 | | | |
| | 45 | 0 | 0 | 16.4 | 1.8 | 0 | 0 | 0.7 | | | |
| | 60 | 0 | 0 | 16.3 | 1.8 | 0 | 0 | 0.4 | | | |
| | 90 | 0 | 0 | 16.3 | 1.8 | 0 | 0 | 0 | | | |
| | 120 | 0 | 0 | 16.1 | 1.8 | 0 | 0 | 0 | | | |
| | 150 | 0 | 0 | 16.2 | 1.8 | 0 | 0 | 0 | | | |
| BH 3 | 180 | 0 | 0 | 16.2 | 1.8 | 0 | 0 | 0 | | | |
| | 0 | -0.1 | -0.3 | 20.1 | 0 | 0 | 0 | 0 | 5.36 | | depth of BH = 10.13m |
| | 15 | 0 | 0.1 | 18.6 | 0.5 | 0 | 0 | 0 | | | |
| | 30 | 0 | 0.1 | 18.1 | 0.6 | 0 | 0 | 0 | | | |
| | 45 | 0 | 0.1 | 17.8 | 0.7 | 0 | 0 | 0 | | | |
| | 60 | 0 | 0.2 | 17.8 | 0.8 | 0 | 0 | 0 | | | |
| | 90 | 0.1 | 0.3 | 17.8 | 0.8 | 0 | 0 | 0 | | | |
| | 120 | 0 | 0.1 | 17.8 | 0.8 | 0 | 0 | 0 | | | |
| | 150 | 0 | 0.2 | 17.8 | 0.8 | 0 | 0 | 0 | | | |
| BH 4 | 180 | 0 | 0 | 17.8 | 0.8 | 0 | 0 | 0 | | | |

# GAS MONITORING RECORD SHEET

| JOB DETAILS | | | |
|---|---|---|---|
| Site: | Arkwright Road, Hampstead | Job No: | CG/5595 |
| Date: | 7.9.11 | Engineer: | ASB |
| Time: | 08:00 | Client | Ironside & Malone Design & Build |

**METEOROLOGICAL & SITE INFORMATION**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| State of ground: | | Dry | x | Moist | | Wet | | |
| Wind: | | Calm | | Light | x | Moderate | | Strong |
| Cloud cover: | | None | | Slight | x | Cloudy | | Overcast |
| Precipitation: | x | None | | Slight | | Moderate | | Heavy |
| Barometric pressure (mb): | 1001/1000/999 | | | | Air temperature (oC): | | | |

| Well No. | Time (s) | Flow (l/hr) | dA (PA) | $O_2$ (% vol. in air) | $CO_2$ (% vol. in air) | $CH_4$ (% vol. in air) | $H_2S$ (ppm) | PID (ppm) | Depth to GW (mbgl) | Free product (mm) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0.2 | 0.6 | 19.3 | 0.1 | 0 | 0 | | 4.78 | | depth of BH = 11.00m |
| | 15 | -0.4 | -1.5 | 18 | 2.9 | 0 | 0 | | | | |
| | 30 | 0 | 0.2 | 15.7 | 3.9 | 0 | 0 | | | | |
| | 45 | 0.2 | 0.6 | 14.9 | 4.2 | 0 | 0 | | | | |
| BH 1 | 60 | -0.2 | -0.8 | 14.7 | 4.2 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 14.7 | 4.2 | 0 | 0 | | | | |
| | 120 | 0.3 | 1.3 | 14.7 | 4.2 | 0 | 0 | | | | |
| | 150 | 0 | 0 | 14.7 | 4.2 | 0 | 0 | | | | |
| | 180 | -0.2 | -0.6 | 14.7 | 4.1 | 0 | 0 | | | | |
| | 0 | 0 | 0 | 20.7 | 0.1 | 0 | 0 | | 3.39 | | depth of BH = 4.86m |
| | 15 | 0 | 0.1 | 19.6 | 0.9 | 0 | 0 | | | | |
| | 30 | 0 | 0 | 19.1 | 1 | 0 | 0 | | | | |
| | 45 | 0 | -0.1 | 19.2 | 1 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 19.9 | 0.6 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 20.3 | 0.5 | 0 | 0 | | | | |
| | 120 | 0 | -0.3 | 20.5 | 0.3 | 0 | 0 | | | | |
| | 150 | -0.1 | -0.4 | 20.8 | 0.2 | 0 | 0 | | | | |
| BH 2 | 180 | 0 | 0 | 20.8 | 0.2 | 0 | 0 | | | | |
| | 0 | 0 | 0 | 19 | 1.1 | 0 | 0 | | 5.6 | | depth of BH = 8.15m |
| | 15 | 0 | 0 | 18.6 | 1.1 | 0 | 0 | | | | |
| | 30 | 0 | 0 | 16 | 2.7 | 0 | 0 | | | | |
| | 45 | 0 | 0 | 15.2 | 2.3 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 14.7 | 2.7 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 15.4 | 2.4 | 0 | 0 | | | | |
| | 120 | 0 | 0 | 15.9 | 2.2 | 0 | 0 | | | | |
| | 150 | 0 | 0 | 13.4 | 4.1 | 0 | 0 | | | | |
| | 180 | 0 | 0 | 15.1 | 3.6 | 0 | 0 | | | | |
| | 210 | | | 14.8 | 2.8 | 0 | 0 | | | | |
| BH 3 | 240 | 0 | 0 | 14.7 | 3.4 | 0 | 0 | | | | |
| | 0 | 0.2 | 0.9 | 19.2 | 0.7 | 0 | 0 | | 5.34 | | depth of BH = 10.00m |
| | 15 | 0.1 | 0.4 | 18 | 0.9 | 0 | 0 | | | | |
| | 30 | 0.5 | 1.9 | 17.7 | 1 | 0 | 0 | | | | |
| | 45 | 0 | -0.2 | 17.7 | 1 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 17.5 | 1 | 0 | 0 | | | | |
| | 90 | 0.2 | 0.7 | 17.5 | 1 | 0 | 0 | | | | |
| | 120 | 0.2 | 0.9 | 17.5 | 1 | 0 | 0 | | | | |
| | 150 | 0 | 0.1 | 17.5 | 1 | 0 | 0 | | | | |
| BH 4 | 180 | 0.1 | 0.3 | 17.5 | 1 | 0 | 0 | | | | |

# GAS MONITORING RECORD SHEET

| JOB DETAILS | | | |
|---|---|---|---|
| Site: | Arkwright Road, Hampstead | Job No: | CG/5595 |
| Date: | 15.9.11 | Engineer: | ADC |
| Time: | 10:00 | Client | Ironside & Malone Design & Build |

**METEOROLOGICAL & SITE INFORMATION**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| State of ground: | | Dry | x | Moist | | Wet | | |
| Wind: | | Calm | x | Light | | Moderate | | Strong |
| Cloud cover: | | None | x | Slight | | Cloudy | | Overcast |
| Precipitation: | x | None | | Slight | | Moderate | | Heavy |
| Barometric pressure (mb): | 1009 | | | | Air temperature (oC): | | | |

| Well No. | Time (s) | Flow (l/hr) | dA (PA) | $O_2$ (% vol. in air) | $CO_2$ (% vol. in air) | $CH_4$ (% vol. in air) | $H_2S$ (ppm) | PID (ppm) | Depth to GW (mbgl) | Free product (mm) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH 1 | 0 | -0.1 | -0.4 | 20.3 | 0 | 0 | 0 | - | 4.83 | | depth of BH = 11.00m |
| | 15 | 0 | 0 | 20.8 | 0 | 0 | 0 | | | | |
| | 30 | 0 | 0 | 21 | 0 | 0 | 0 | | | | |
| | 45 | 0 | 0 | 19.8 | 1 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 18.2 | 1.8 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 17.2 | 2.1 | 0 | 0 | | | | |
| | 120 | 0 | 0 | 17 | 2.1 | 0 | 0 | | | | |
| | 180 | | | 16.8 | 2.4 | 0 | 0 | | | | |
| BH 2 | 0 | 0 | -0.1 | 20.4 | 0 | 0 | 0 | - | 3.71 | | depth of BH = 4.86m |
| | 15 | 0 | 0 | 17.8 | 1.5 | 0 | 0 | | | | |
| | 30 | 0 | 0 | 18.2 | 1.3 | 0 | 0 | | | | |
| | 45 | 0 | 0 | 18.6 | 1.1 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 18.9 | 1 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 19.3 | 0.8 | 0 | 0 | | | | |
| | 120 | 0 | 0 | 19 | 0.6 | 0 | 0 | | | | |
| BH 3 | 0 | 0 | 0.2 | 20.5 | 0 | 0 | 0 | - | 5.6 | | depth of BH = 8.15m |
| | 15 | 0 | -0.2 | 20.6 | 0.1 | 0 | 0 | | | | |
| | 30 | 0 | -0.2 | 20.8 | 0 | 0 | 0 | | | | |
| | 45 | 0 | -0.2 | 21 | 0 | 0 | 0 | | | | |
| | 60 | 0 | -0.2 | 21 | 0 | 0 | 0 | | | | |
| | 90 | 0 | -0.1 | 21 | 0 | 0 | 0 | | | | |
| | 120 | 0 | -0.1 | 21 | 0 | 0 | 0 | | | | |
| | 180 | | | 20 | 0.1 | 0 | 0 | | | | |
| BH 4 | 0 | -0.4 | -1.5 | 20.4 | 0 | 0 | 0 | - | 5.5 | | depth of BH = 10.00m |
| | 15 | 0 | -0.2 | 20.3 | 0.3 | 0 | 0 | | | | |
| | 30 | 0 | 0 | 20.4 | 0.3 | 0 | 0 | | | | |
| | 45 | 0 | 0 | 20.8 | 0 | 0 | 0 | | | | |
| | 60 | 0 | 0 | 20.8 | 0 | 0 | 0 | | | | |
| | 90 | 0 | 0 | 21 | 0 | 0 | 0 | | | | |
| | 120 | 0 | 0 | 21 | 0 | 0 | 0 | | | | |
| | 180 | 0 | 0 | 21 | 0 | 0 | 0 | | | | |

# APPENDIX I

*Rising head test records*

# Rising Head Test - BH01

9 Arkwright Road, Hampstead
CG/5595
7th September 2011

| Time (mins) | Time(s) | Depth (m) | H (m) | H/Ho |
|---|---|---|---|---|
| 0 | 0 | 5.44 | -0.66 | 1 |
| 1 | 60 | 5.34 | -0.56 | 0.848485 |
| 2 | 120 | 5.31 | -0.53 | 0.80303 |
| 3 | 180 | 5.28 | -0.5 | 0.757576 |
| 4 | 240 | 5.23 | -0.45 | 0.681818 |
| 5 | 300 | 5.18 | -0.4 | 0.606061 |
| 6 | 360 | 5.15 | -0.37 | 0.560606 |
| 7 | 420 | 5.12 | -0.34 | 0.515152 |
| 8 | 480 | 5.1 | -0.32 | 0.484848 |
| 10 | 600 | 5.04 | -0.26 | 0.393939 |
| 15 | 900 | 4.97 | -0.19 | 0.287879 |
| 25 | 1500 | 4.9 | -0.12 | 0.181818 |
| 46 | 2760 | 4.84 | -0.06 | 0.090909 |
| 62 | 3720 | 4.84 | -0.06 | 0.090909 |
| 75 | 4500 | 4.83 | -0.05 | 0.075758 |

**General Case**

| | | |
|---|---|---|
| F | 0.1375 | intake Factor - Fig 6 BS5930 |
| D | 0.05 | m - Diameter of standpipe |
| H1 | -0.56 | m |
| H2 | -0.06 | m |
| t1 | 60 | s |
| t2 | 3720 | s |
| A | 0.001963495 | m2 |
| BH depth | 11 | m |
| k | 8.71465E-06 | m/s |

**Basic Time Lag Method**

| | | |
|---|---|---|
| T | 650 | Basic Time Lag - from graph (s) |
| k | 2.19692E-05 | m/s |

# Rising Head Test - BH02

9 Arkwright Road, Hampstead
CG/5595
7th September 2011

| Time (mins) | Time(s) | Depth (m) | H (m) | H/Ho |
|---|---|---|---|---|
| 0 | 0 | 3.85 | -0.46 | 1 |
| 1 | 60 | 3.84 | -0.45 | 0.978261 |
| 2 | 120 | 3.84 | -0.45 | 0.978261 |
| 3 | 180 | 3.83 | -0.44 | 0.956522 |
| 4 | 240 | 3.83 | -0.44 | 0.956522 |
| 5 | 300 | 3.83 | -0.44 | 0.956522 |
| 6 | 360 | 3.82 | -0.43 | 0.934783 |
| 7 | 420 | 3.82 | -0.43 | 0.934783 |
| 8 | 480 | 3.81 | -0.42 | 0.913043 |
| 9 | 540 | 3.81 | -0.42 | 0.913043 |
| 10 | 600 | 3.81 | -0.42 | 0.913043 |
| 15 | 900 | 3.8 | -0.41 | 0.891304 |
| 25 | 1500 | 3.79 | -0.4 | 0.869565 |
| 35 | 2100 | 3.78 | -0.39 | 0.847826 |
| 60 | 3600 | 3.75 | -0.36 | 0.782609 |
| 80 | 4800 | 3.72 | -0.33 | 0.717391 |
| 95 | 5700 | 3.67 | -0.28 | 0.608696 |

General Case

| | | |
|---|---|---|
| F | 0.1375 | intake Factor - Fig 6 BS5930 |
| D | 0.05 | m - Diameter of standpipe |
| H1 | -0.45 | m |
| H2 | -0.33 | m |
| t1 | 60 | s |
| t2 | 4800 | s |
| A | 0.001963495 | m2 |
| BH depth | 4.86 | m |
| k | 9.34E-07 | m/s |

Basic Time Lag Method

| | | |
|---|---|---|
| T | n/a | Basic Time Lag - from graph (s) |
| k | n/a | m/s |

# Rising Head Test - BH03

9 Arkwright Road, Hampstead
CG/5595
7th September 2011

| Time (mins) | Time(s) | Depth (m) | H (m) | H/Ho |
|---|---|---|---|---|
| 0 | 0 | 7.23 | -1.63 | 1 |
| 1 | 60 | 7.23 | -1.63 | 1 |
| 2 | 120 | 7.23 | -1.63 | 1 |
| 3 | 180 | 7.225 | -1.625 | 0.996933 |
| 4 | 240 | 7.225 | -1.625 | 0.996933 |
| 5 | 300 | 7.22 | -1.62 | 0.993865 |
| 6 | 360 | 7.22 | -1.62 | 0.993865 |
| 7 | 420 | 7.22 | -1.62 | 0.993865 |
| 8 | 480 | 7.22 | -1.62 | 0.993865 |
| 9 | 540 | 7.22 | -1.62 | 0.993865 |
| 10 | 600 | 7.22 | -1.62 | 0.993865 |
| 15 | 900 | 7.22 | -1.62 | 0.993865 |
| 20 | 1200 | 7.22 | -1.62 | 0.993865 |
| 30 | 1800 | 7.22 | -1.62 | 0.993865 |
| 45 | 2700 | 7.22 | -1.62 | 0.993865 |
| 60 | 3600 | 7.215 | -1.615 | 0.990798 |

**General Case**

| | | |
|---|---|---|
| F | 0.1375 | intake Factor - Fig 6 BS5930 |
| D | 0.05 | Diameter of standpipe |
| H1 | -1.63 | m |
| H2 | -1.62 | m |
| t1 | 60 | s |
| t2 | 2700 | s |
| A | 0.001963495 | m2 |
| BH depth | 8.15 | m |
| k | 3.33E-08 | m/s |

**Basic Time Lag Method**

| | | |
|---|---|---|
| T | n/a | Basic Time Lag - from graph (s) |
| k | n/a | m/s |

# Rising Head Test - BH04

9 Arkwright Road, Hampstead
CG/5595
7th September 2011

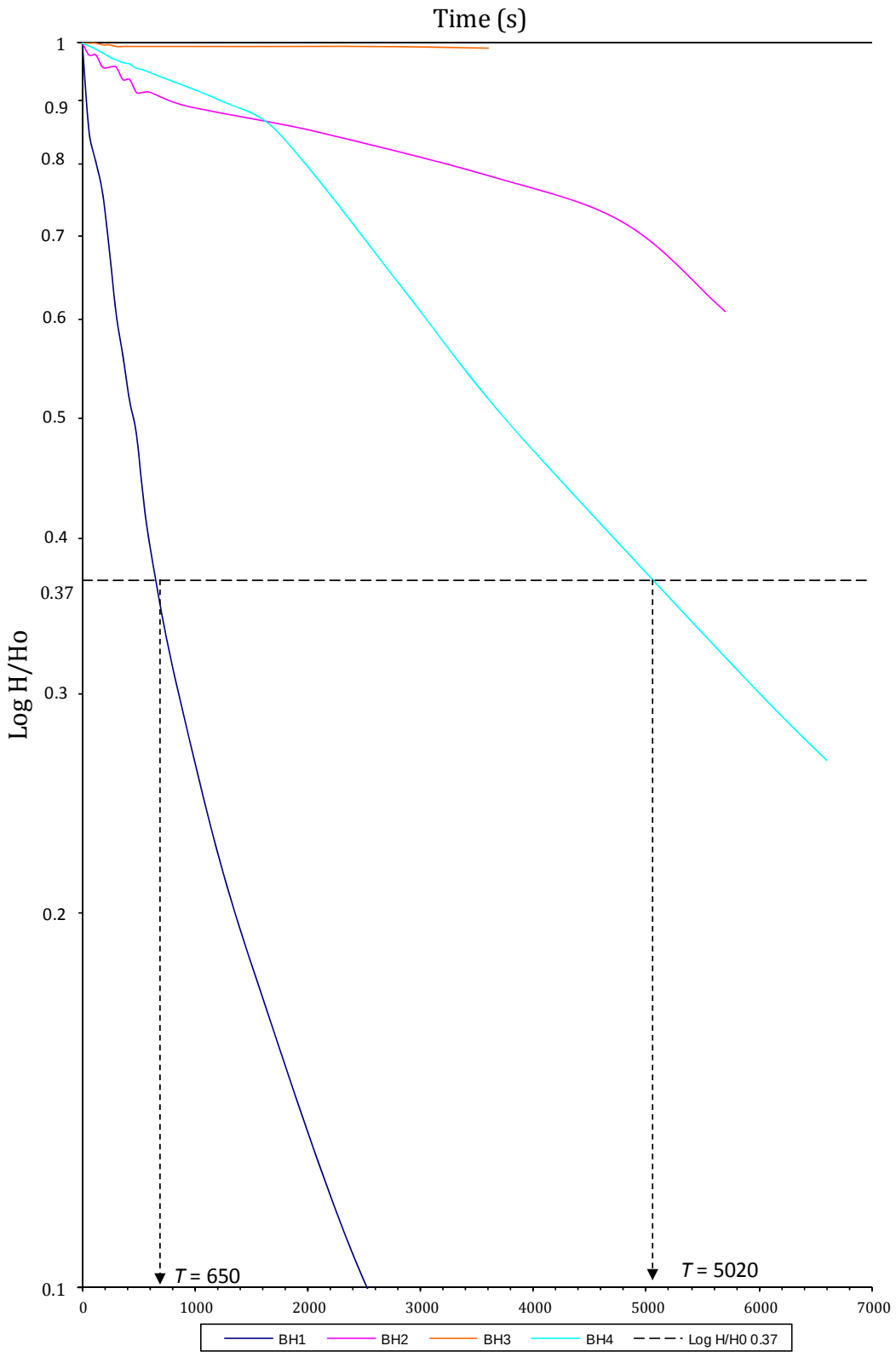
| Time (mins) | Time(s) | Depth (m) | H (m) | H/Ho |
|---|---|---|---|---|
| 0 | 0 | 9.3 | -3.96 | 1 |
| 1 | 60 | 9.28 | -3.94 | 0.994949 |
| 3 | 180 | 9.23 | -3.89 | 0.982323 |
| 4 | 240 | 9.2 | -3.86 | 0.974747 |
| 5 | 300 | 9.18 | -3.84 | 0.969697 |
| 6 | 360 | 9.16 | -3.82 | 0.964646 |
| 7 | 420 | 9.15 | -3.81 | 0.962121 |
| 8 | 480 | 9.12 | -3.78 | 0.954545 |
| 9 | 540 | 9.11 | -3.77 | 0.95202 |
| 10 | 600 | 9.09 | -3.75 | 0.94697 |
| 21 | 1260 | 8.89 | -3.55 | 0.896465 |
| 29 | 1740 | 8.695 | -3.355 | 0.847222 |
| 47 | 2820 | 7.87 | -2.53 | 0.638889 |
| 60 | 3600 | 7.39 | -2.05 | 0.517677 |
| 76 | 4560 | 6.98 | -1.64 | 0.414141 |
| 100 | 6000 | 6.53 | -1.19 | 0.300505 |
| 110 | 6600 | 6.39 | -1.05 | 0.265152 |

General Case

| | | |
|---|---|---|
| F | 0.1375 | intake Factor - Fig 6 BS5930 |
| D | 0.05 | Diameter of standpipe |
| H1 | -3.96 | m |
| H2 | -1.19 | m |
| t1 | 0 | s |
| t2 | 6000 | s |
| A | 0.001963495 | m2 |
| BH depth | 10 | m |
| k | 2.86E-06 | m/s |

Basic Time Lag Method

| | | |
|---|---|---|
| T | 5020 | Basic Time Lag - from graph (s) |
| k | 2.84E-06 | m/s |




| Client | Project | Job No |
|---|---|---|
| **Ironside & Malone Design & Build Ltd** | **9 Arkwright Road, Hampstead, London** | **CG/5595** |
| CGL | Title: **Log H/Ho versus time** | **Appendix I** |