Geotechnical & Environmental Associates (GEA) is an engineer-led and client-focused independent specialist providing a complete range of geotechnical and contaminated land investigation, analytical and consultancy services to the property and construction industries.

We have offices at

Tyttenhanger House
Coursers Road
St Albans
AL4 0PG
tel 01727 824666
mail@gea-ltd.co.uk

Church Farm
Gotham Road
Kingston on Soar
Notts
NG11 0DE
tel 01509 674888
midlands@gea-ltd.co.uk

Enquiries can also be made on-line at
www.gea-ltd.co.uk
where information can be found
on all of the services that we offer.

GEA Geotechnical & Environmental Associates

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Ordnance Survey Plan

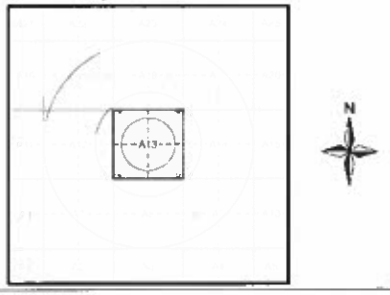
Published 1991 - 1995

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas, these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

Historical Map - Slice A



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark®
Tel 0844 844 0952
Fax 0844 844 0951
Web www.envirocheck.co.uk

GEA Geotechnical & Environmental Associates

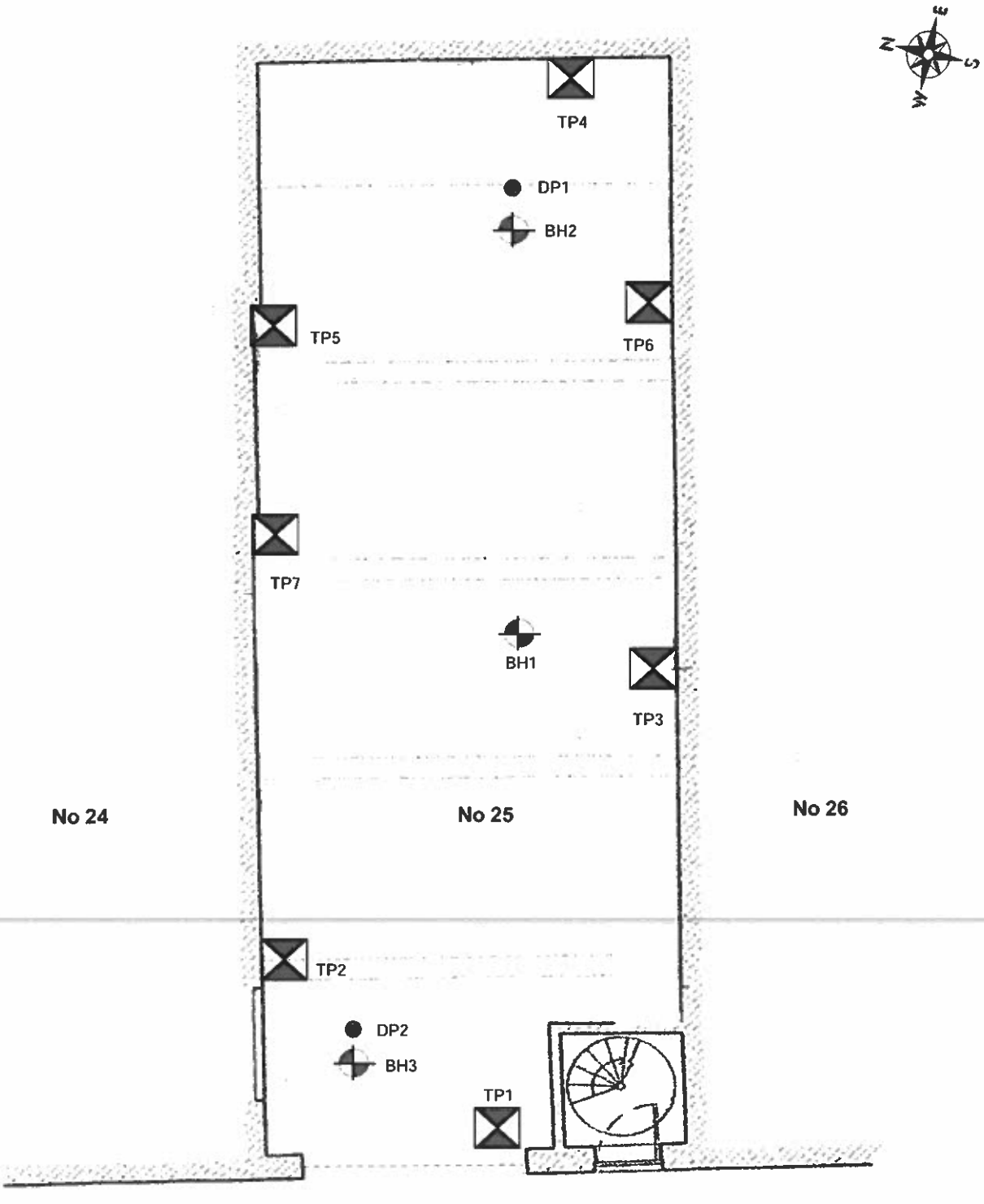
Tyttenhanger House
Coursers Road
St Albans
AL4 0PG

Site Plan

Site	25 King's Mews, London WC1N
Client	Mrs Clare Leavenworth Bakali
Engineer	Techniker

Job Number J12150

Sheet 1 / 1



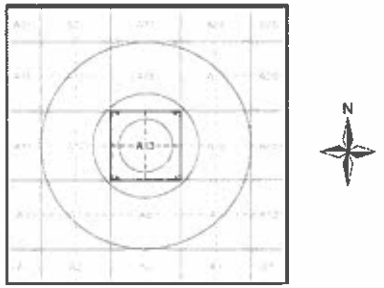
GEA Geotechnical & Environmental Associates

10k Raster Mapping
Published 2012
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

Historical Map - Slice A



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark
Tel 0844 844 9952
Fax: 0844 844 9951
Web www.envirocheck.co.uk

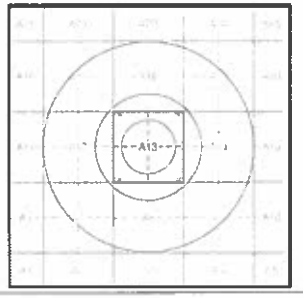
GEA Geotechnical & Environmental Associates

10k Raster Mapping
Published 2006
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

Historical Map - Slice A



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details

25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

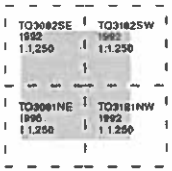
Large-Scale National Grid Data

Published 1992 - 1995

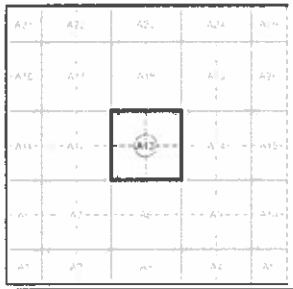
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark Information Group

Tel 0844 844 9952
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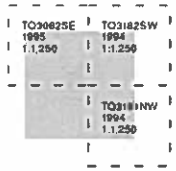
Web www.envirocheck.co.uk

GEA Geotechnical & Environmental Associates

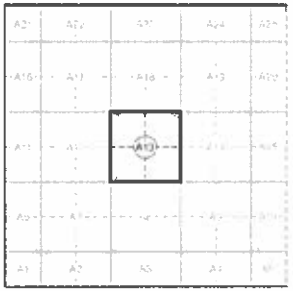
Large-Scale National Grid Data
Published 1994 - 1995
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

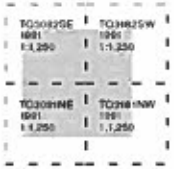
Large-Scale National Grid Data

Published 1991

Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
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Site Details

25 King's Mews, LONDON, WC1N 2JB

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Geotechnical & Environmental Associates

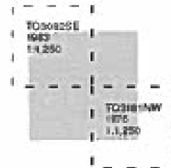
Ordnance Survey Plan

Published 1975 - 1983

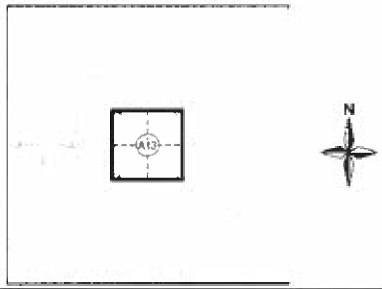
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark

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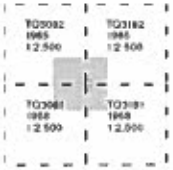
GEA Geotechnical & Environmental Associates

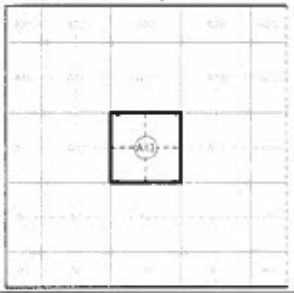
Ordnance Survey Plan
Published 1965 - 1968
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

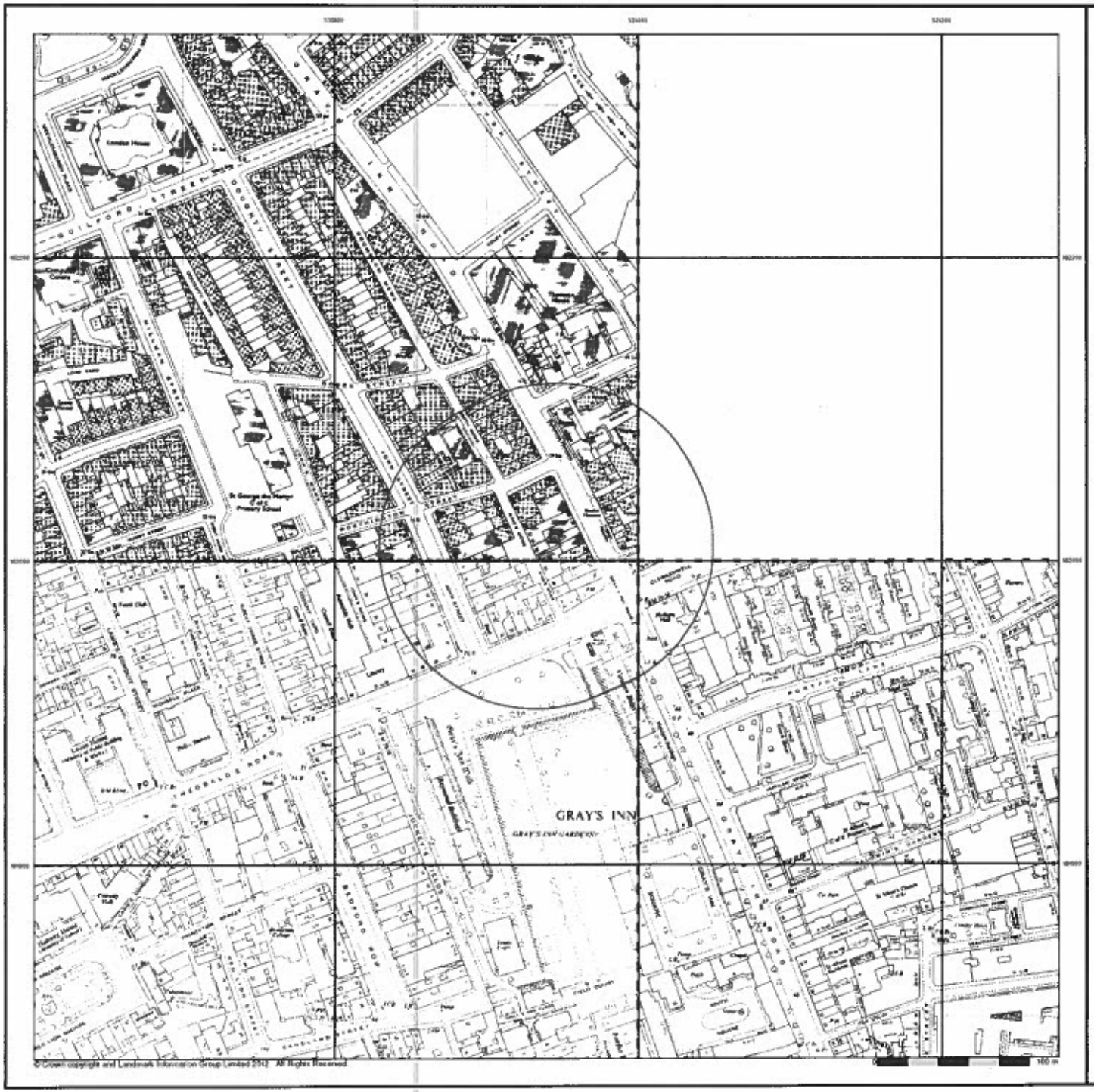


Order Details

Order Number:	39696470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB



GEA Geotechnical & Environmental Associates

Ordnance Survey Plan

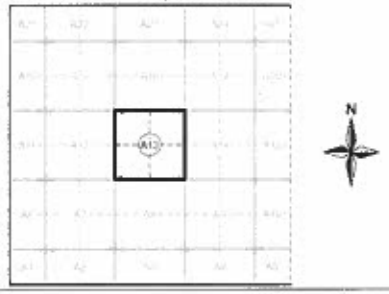
Published 1963 - 1974

Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark
Tel 0844 844 9952
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Geotechnical & Environmental Associates

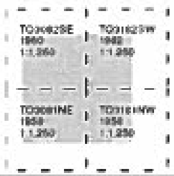
Ordnance Survey Plan

Published 1958 - 1962

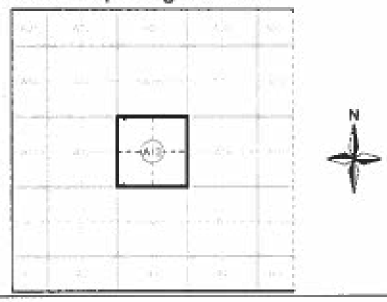
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

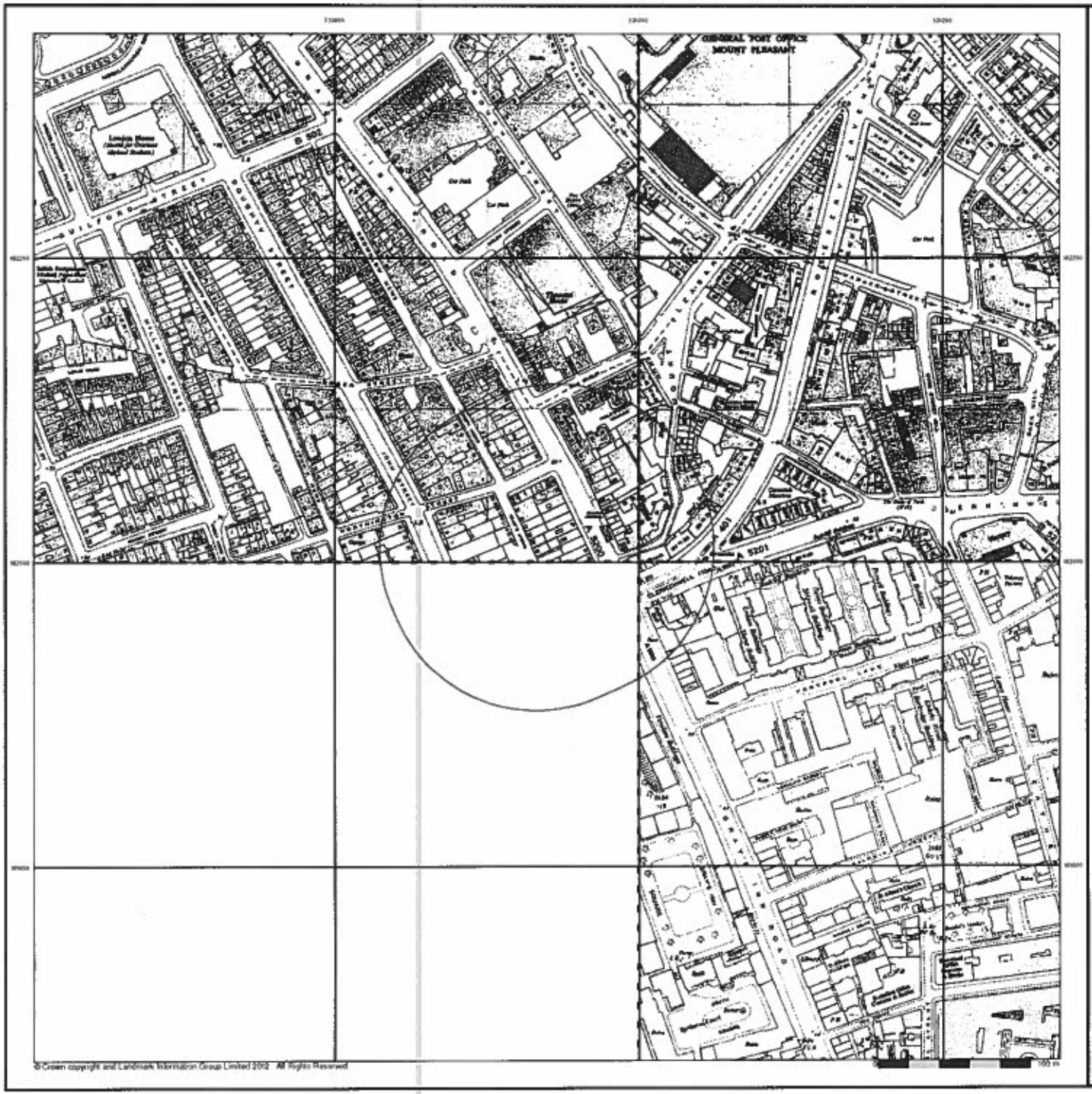
Order Number: 39896470_1_1
Customer Ref: J12150
National Grid Reference: 530940, 182010
Slice: A
Site Area (Ha): 0.02
Search Buffer (m): 100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



GEA Geotechnical & Environmental Associates

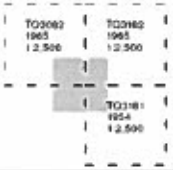
Additional SIMs

Published 1954 - 1965

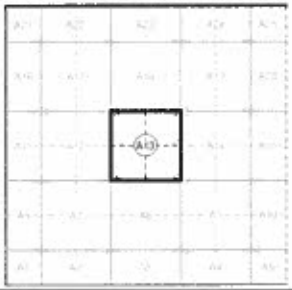
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
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Site Details

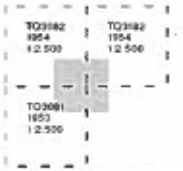
25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

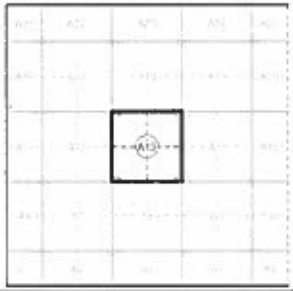
Ordnance Survey Plan
Published 1953 - 1954
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
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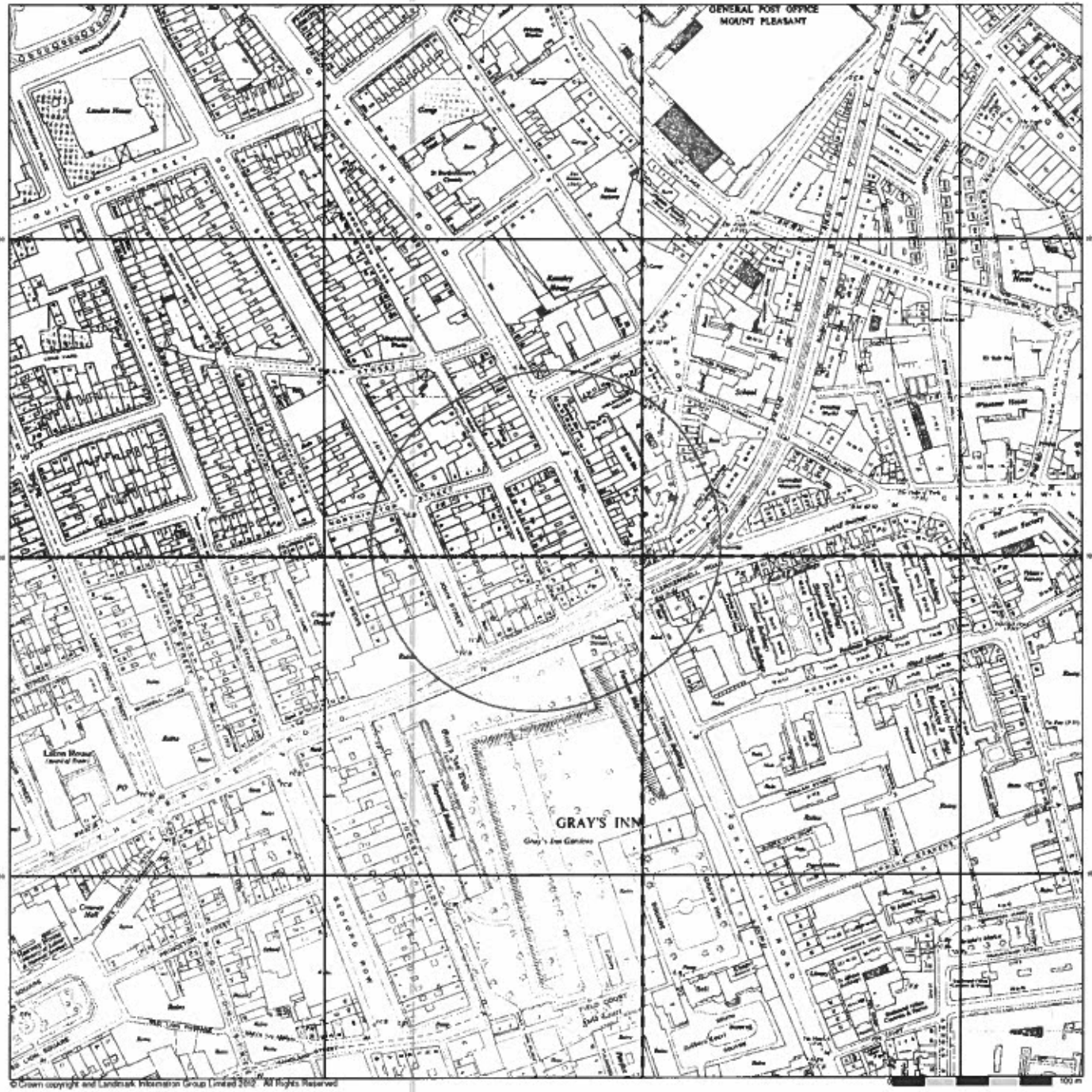
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB



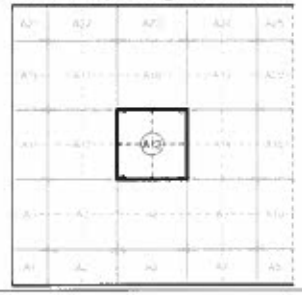
GEA Geotechnical & Environmental Associates

Ordnance Survey Plan
Published 1952 - 1953
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

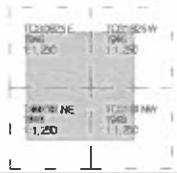
25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

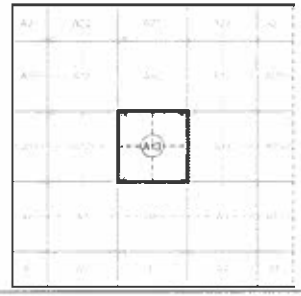
Historical Aerial Photography
Published 1946 - 1949
Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

Map Name(s) and Date(s)



Historical Aerial Photography - Segment A13



Order Details

Order Number:	39896470_1_1
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Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

London

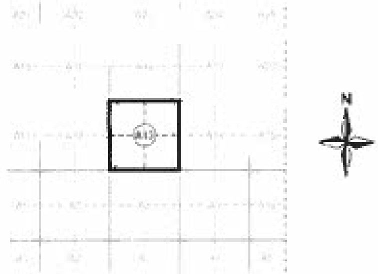
Published 1916

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
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Site Details

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Landmark

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GEA Geotechnical & Environmental Associates

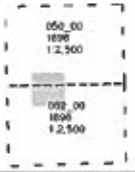
London

Published 1896

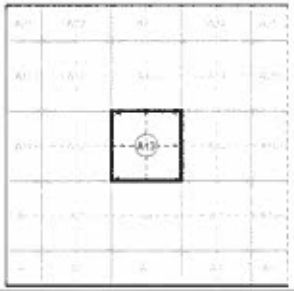
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark Information Group

Tel 0844 844 9952
Fax 0844 844 9951
Web www.envirocheck.co.uk

GEA Geotechnical & Environmental Associates

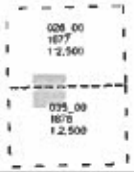
London

Published 1877 - 1878

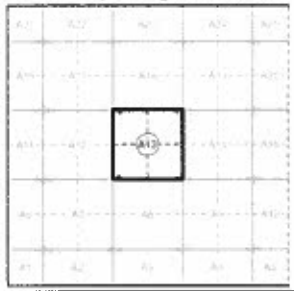
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



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Landmark
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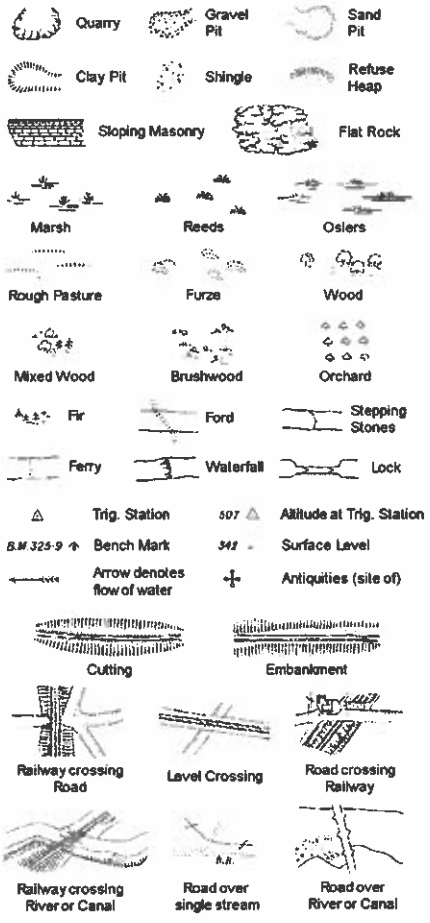
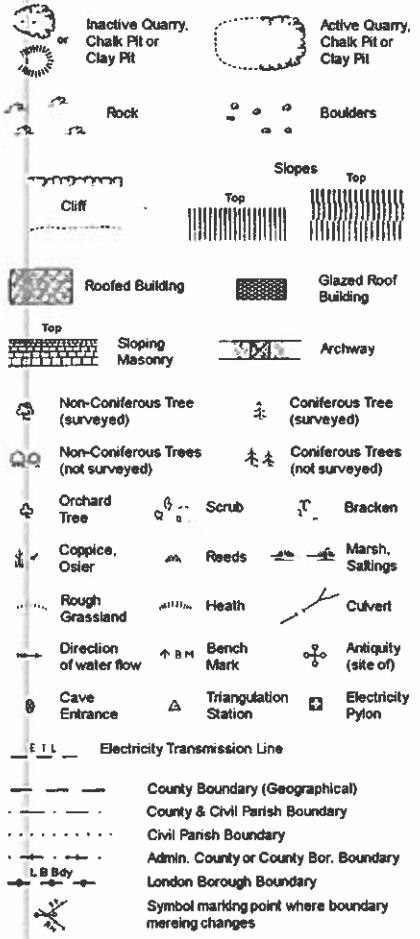
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



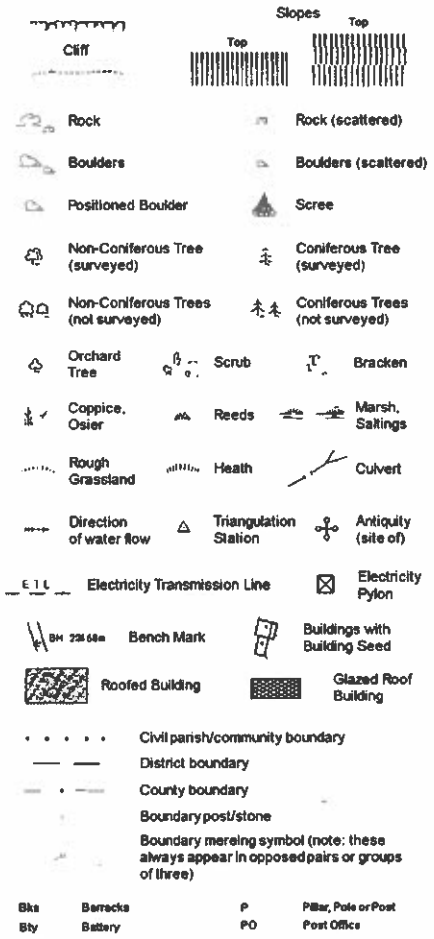
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	Sl.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cr, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



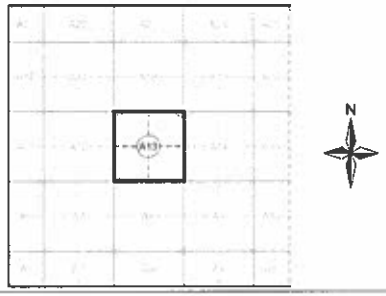
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governor	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

GEA Geotechnical & Environmental Associates

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
London	1:2,500	1877 - 1878	2
London	1:2,500	1896	3
London	1:2,500	1916	4
Historical Aerial Photography	1:1,250	1946 - 1949	5
Ordnance Survey Plan	1:1,250	1952 - 1953	6
Ordnance Survey Plan	1:2,500	1953 - 1954	7
Additional SIMs	1:2,500	1954 - 1965	8
Ordnance Survey Plan	1:1,250	1958 - 1962	9
Additional SIMs	1:1,250	1962 - 1990	10
Ordnance Survey Plan	1:1,250	1963 - 1974	11
Ordnance Survey Plan	1:2,500	1965 - 1968	12
Supply of Unpublished Survey Information	1:1,250	1974	13
Ordnance Survey Plan	1:1,250	1975 - 1983	14
Supply of Unpublished Survey Information	1:1,250	1976	15
Supply of Unpublished Survey Information	1:1,250	1976	16
Additional SIMs	1:1,250	1982 - 1989	17
Additional SIMs	1:1,250	1989	18
Large-Scale National Grid Data	1:1,250	1991	19
Large-Scale National Grid Data	1:1,250	1992 - 1995	20
Large-Scale National Grid Data	1:1,250	1994 - 1995	21

Historical Map - Segment A13



Order Details

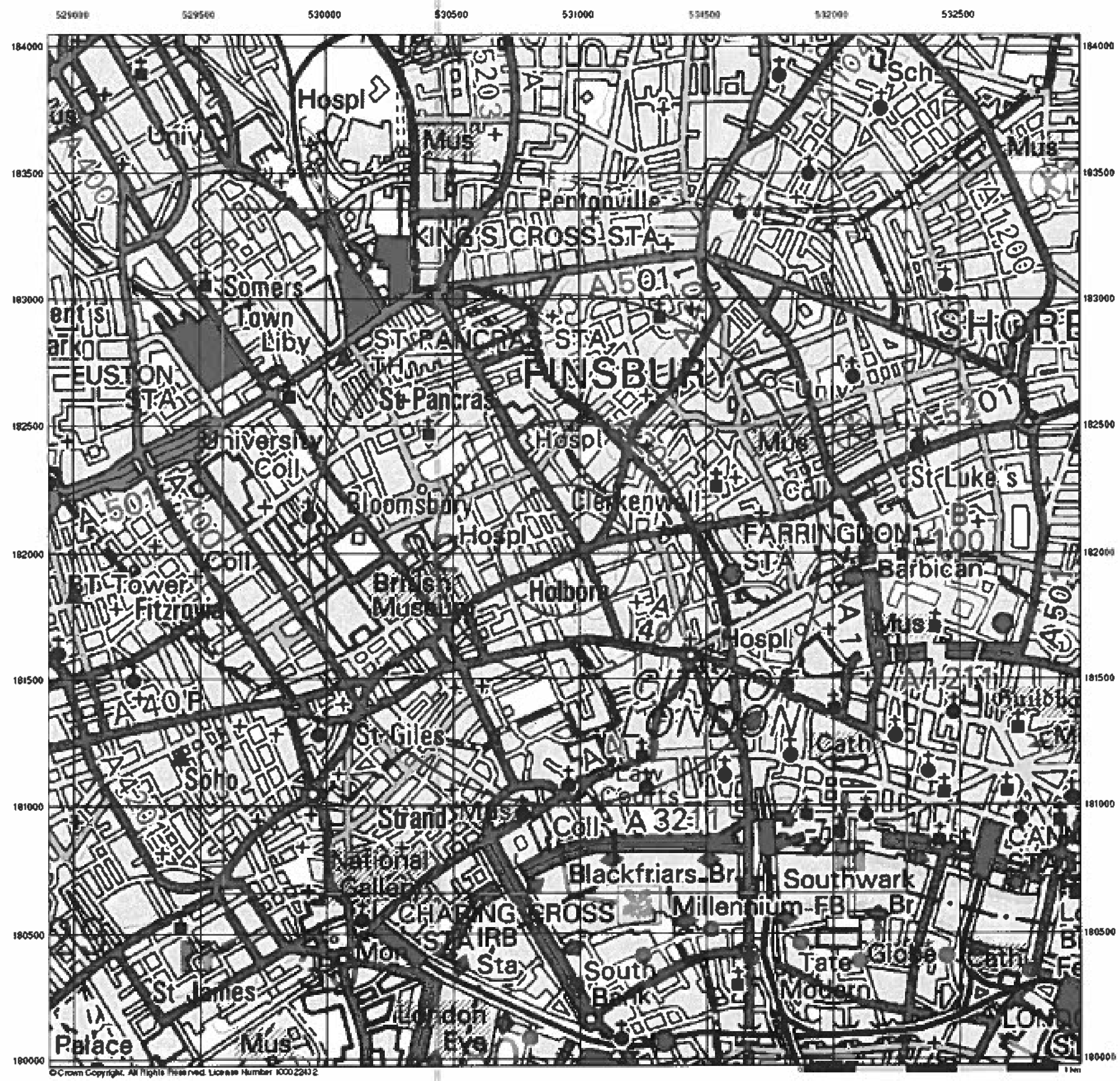
Order Number: 39896470_1_1
Customer Ref: J12150
National Grid Reference: 530940, 182010
Slice: A
Site Area (Ha): 0.02
Search Buffer (m): 100

Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark Information Group

Tel 0844 844 9952
Fax 0844 844 9951
Web www.envirocheck.co.uk



![GEA Geotechnical & Environmental Associates]

Sensitive Land Uses

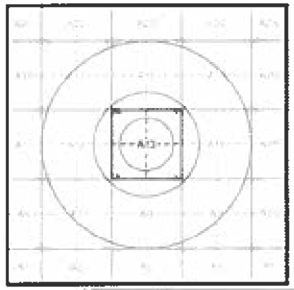
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area

Site Sensitivity Context Map - Slice A



N

Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
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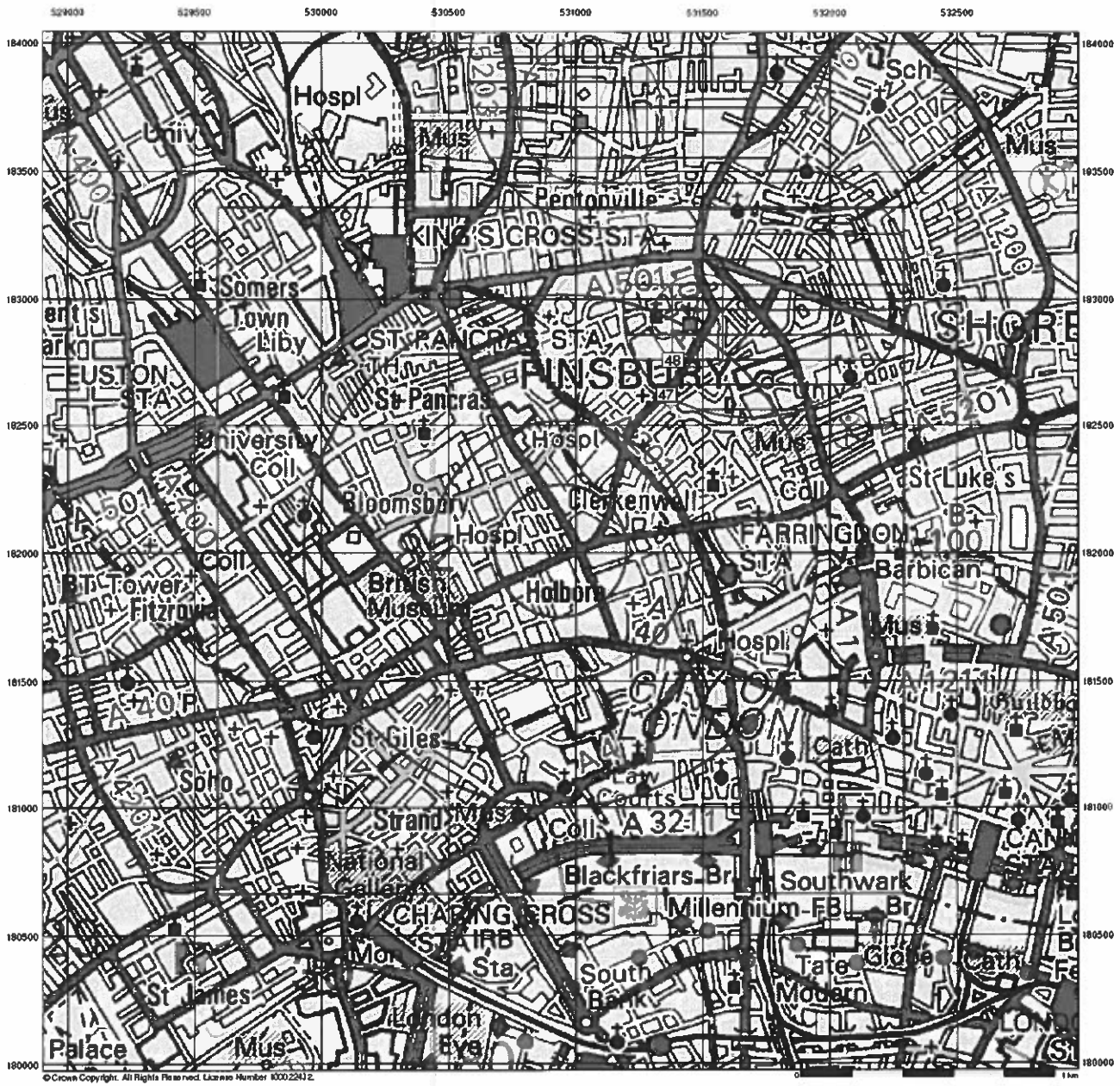


Geotechnical & Environmental Associates

Source Protection Zones

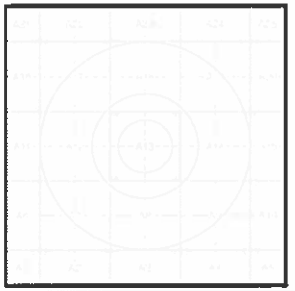
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

- Source Protection Zone I
- Source Protection Zone II
- Source Protection Zone III
- Zone of Special Interest
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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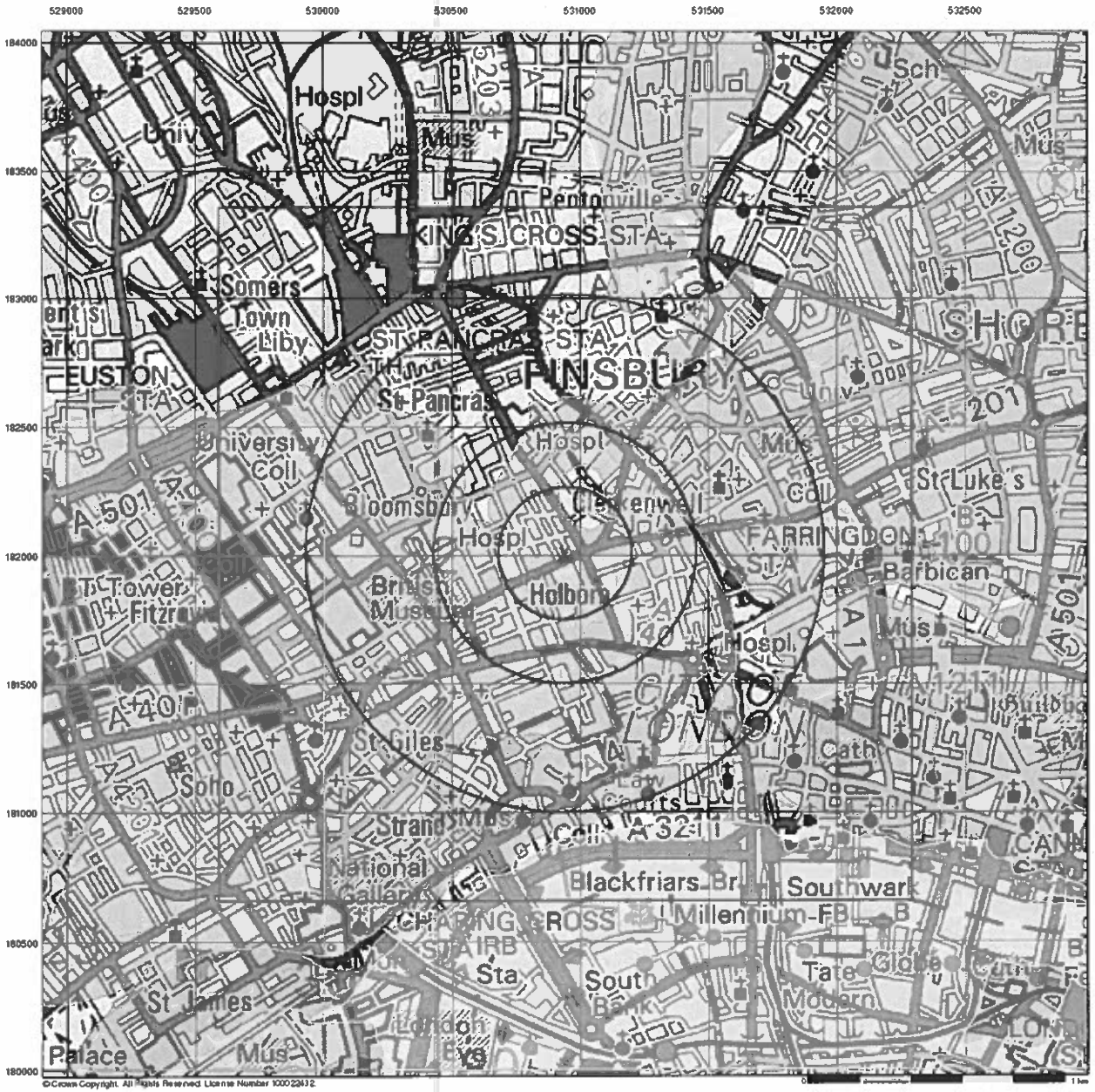


GEA Geotechnical & Environmental Associates

Superficial Aquifer Designation

General

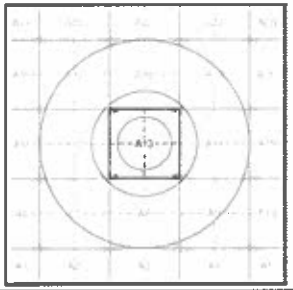
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	39896470_1_1
Customer Ref:	J12150
National Grid Reference:	530940, 182010
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details

25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

Bedrock Aquifer Designation

General

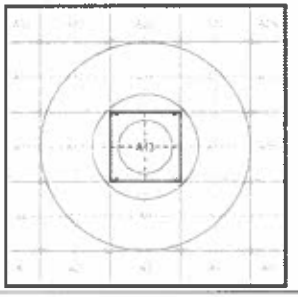
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



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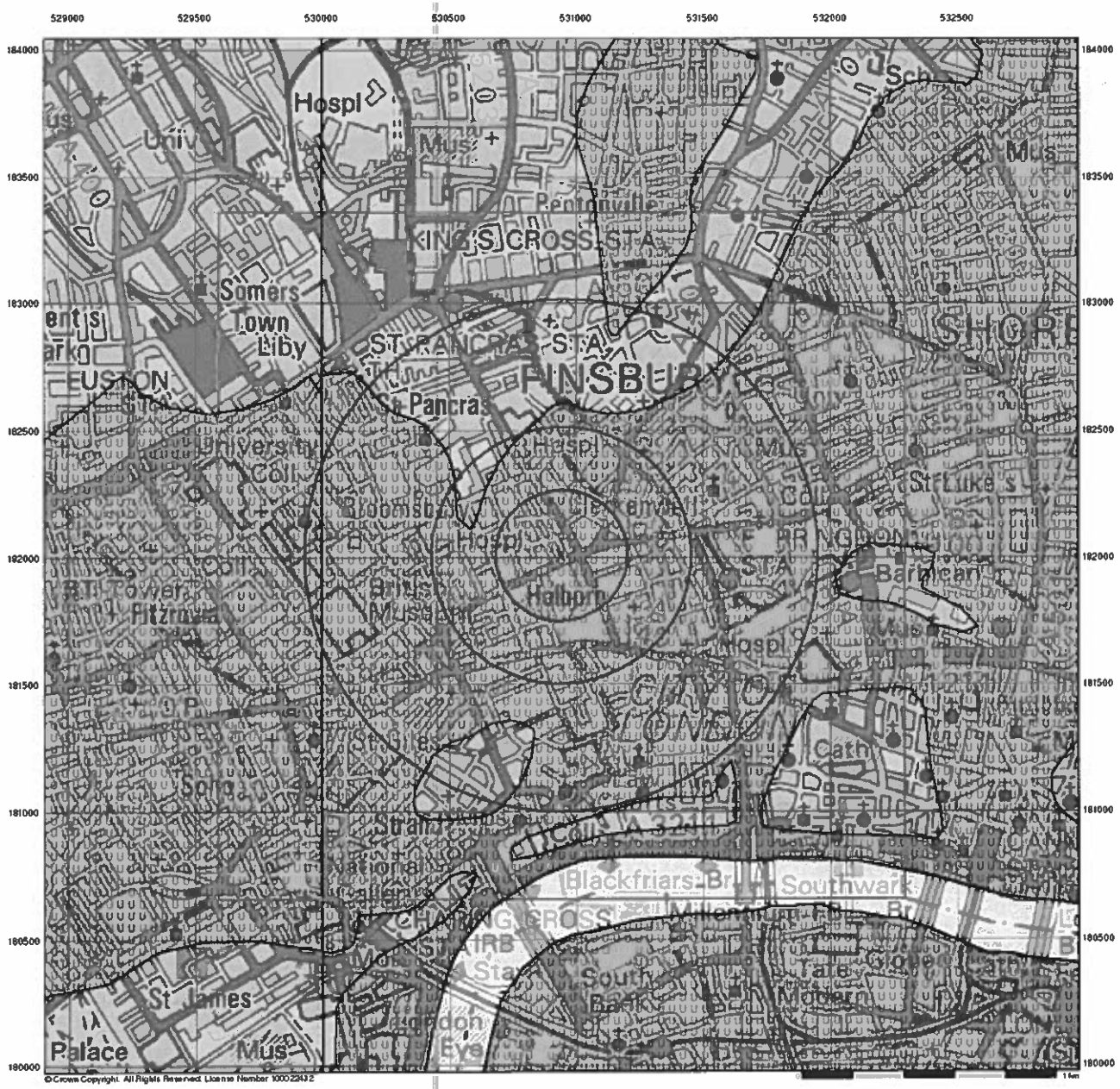
Search Buffer (m):	1000

Site Details

25 King's Mews, LONDON, WC1N 2JB



GEA Geotechnical & Environmental Associates

Groundwater Vulnerability

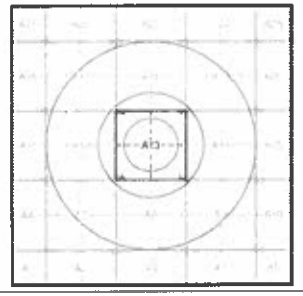
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



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Site Details

25 King's Mews, LONDON, WC1N 2JB

Landmark Information Group
Tel 0844 844 9952
Fax 0844 844 9951
Web www.envirocheck.co.uk

GEA Geotechnical & Environmental Associates

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

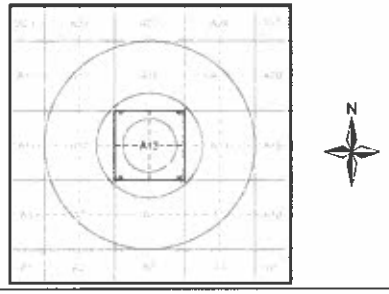
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Combined
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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Site Details

25 King's Mews, LONDON, WC1N 2JB

GEA Geotechnical & Environmental Associates

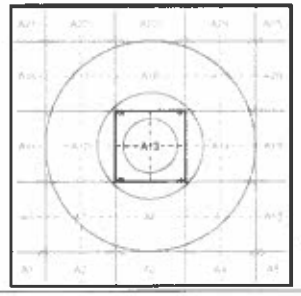
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



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Site Details

25 King's Mews, LONDON, WC1N 2JB

Geotechnical & Environmental Associates

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID
Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

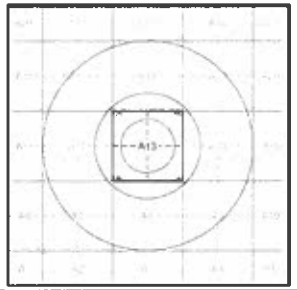
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Landfill Site (Point Buffered to 500m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A



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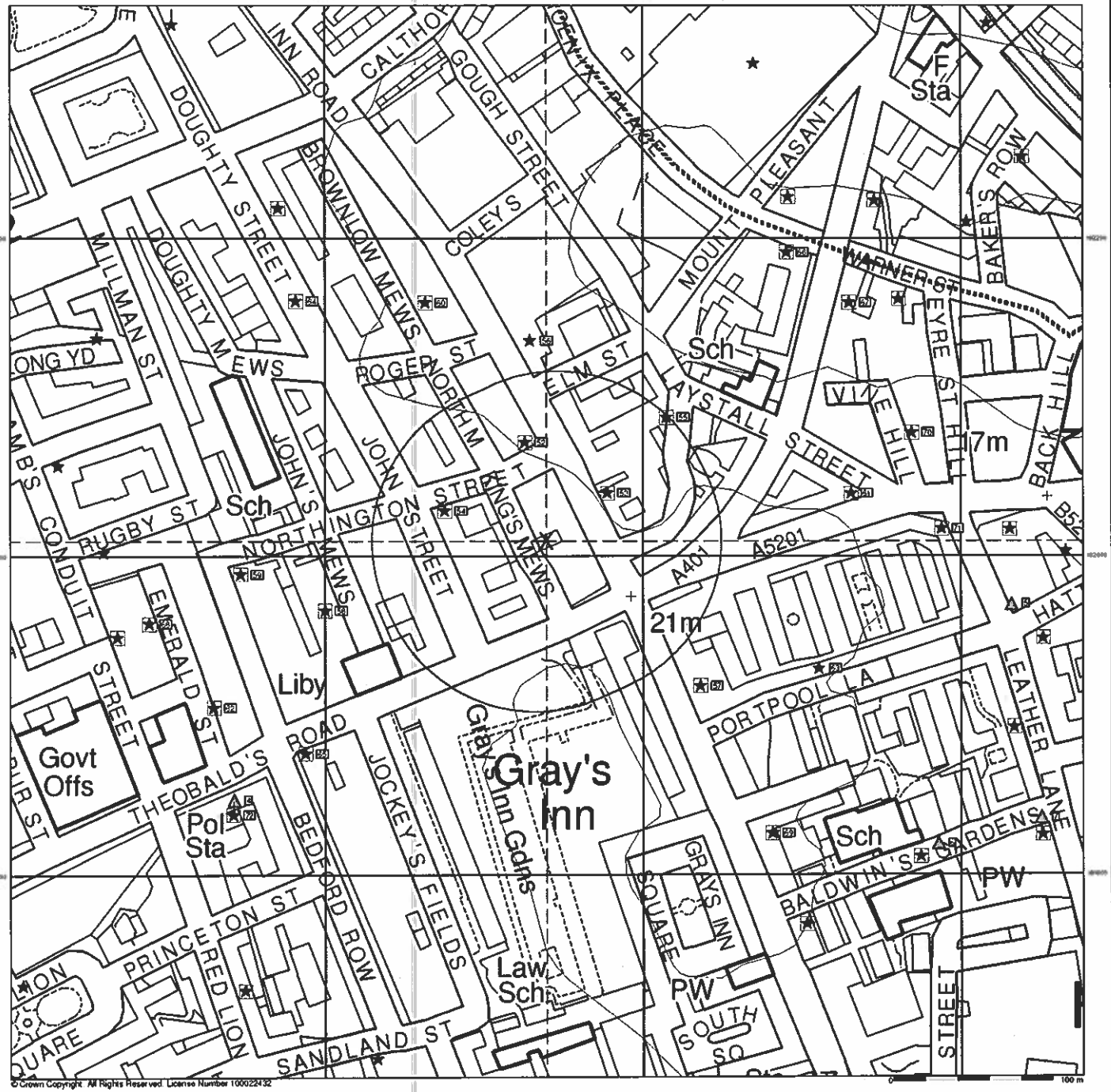

GEA Geotechnical & Environmental Associates

General

Specified Site · Specified Buffer(s) · Bearing Reference Point · Map ID · Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Waste

- BGS Recorded Landfill Site (Location)
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- EA Historic Landfill (Buffered Point)
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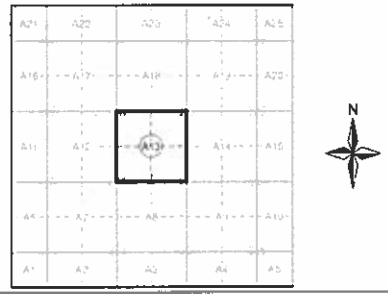
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Segment A13



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Landmark Information Group

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GEA Geotechnical & Environmental Associates

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	**London Borough of Camden - Pollution Projects Team** Seventh Floor, Town Hall Extension, Argyle Street, London, WC1H 8EQ	Telephone: 020 7278 4444 Fax: 020 7860 5713 Website: www.camden.gov.uk
3	**London Borough of Islington - Environmental Health Department** 159 Upper Street, Islington, London, N1 1RE	Telephone: 020 7527 2000 Fax: 020 7477 3057 Website: www.islington.gov.uk
4	**Westminster City Council - Environmental Health Department** Council House, Marylebone Road, London, NW1 5PT	Telephone: 020 7641 1317 Fax: 020 7641 1142 Website: www.westminster.gov.uk
5	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
6	**Landmark Information Group Limited** 5 - 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Telephone: 01392 441761 Fax: 01392 441709 Email: cssupport@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk
7	**Peter Brett Associates** Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
8	**Natural England** Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**London Borough of Camden** Town Hall, Judd Street, London, WC1H 9JE	Telephone: 020 7974 4444 Fax: 020 7974 6866 Email: info@camden.gov.uk Website: www.camden.gov.uk
10	**City of London - Environmental Health Department** P O Box 270, Corporation Of London, Guildhall, London, EC2P 2EJ	Telephone: 020 7606 3030 Fax: 020 7332 1623 Email: Ehcp.citypollution@corpoflondon.gov.uk
-	**Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	**Landmark Information Group Limited** The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**Fuel Station Entries** Name: Woburn Place Service Station Location: 3-16 Woburn Place, Coram Street, St Pancras, LONDON, WC1H 0LS Brand: Total Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A12NW (W)	875	-	530077 182204

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**Contemporary Trade Directory Entries** Name: City Dry Cleaners Location: 121 Clerkenwell Rd, London, EC1R 5BY Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (E)	163	-	531112 182002
61	**Contemporary Trade Directory Entries** Name: Central Jewellery Location: 115, Clerkenwell Road, London, EC1R 5BY Classification: Jewellery Manufacturers & Repairers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	164	-	531113 182003
61	**Contemporary Trade Directory Entries** Name: Clerkenwell Screws Ltd Location: 107-109, Clerkenwell Road, London, EC1R 5BY Classification: Nuts, Bolts & Fixings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	164	-	531113 182003
61	**Contemporary Trade Directory Entries** Name: Clerkenwell Screws Ltd Location: 107-109, Clerkenwell Road, London, EC1R 5BY Classification: Nuts, Bolts & Fixings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	164	-	531113 182003
61	**Contemporary Trade Directory Entries** Name: Clerkenwell Screws Ltd Location: 107-109, Clerkenwell Road, London, EC1R 5BY Classification: Nuts, Bolts & Fixings **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	164	-	531113 182003
61	**Contemporary Trade Directory Entries** Name: Dulay Services Location: Flat 65, Cavendish Mansions, Clerkenwell Road, LONDON, EC1R 5DH Classification: Photographic Equipment & Supplies - Wholesale **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	185	-	531131 182040
61	**Contemporary Trade Directory Entries** Name: Diana'S Location: 103, Clerkenwell Road, London, EC1R 5BX Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	189	-	531138 182012
62	**Contemporary Trade Directory Entries** Name: Polly Plouviez Location: Unit W7 Cockpit Yard,Northington St, London, WC1N 2NP Classification: Glass Engravers & Decorators **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	180	-	530767 181934
62	**Contemporary Trade Directory Entries** Name: Art Press Ltd Location: 10-12, Emerald Street, London, WC1N 3QA Classification: Greeting Card Publishers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	222	-	530726 181922
62	**Contemporary Trade Directory Entries** Name: Gold Solutions Location: 6-8, Emerald Street, London, WC1N 3QA Classification: Metal Finishing Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	225	-	530730 181905
63	**Contemporary Trade Directory Entries** Name: Royal Cleaning Services Location: Flat 47, Redman Building, Bourne Estate, Portpool Lane, London, EC1N 7UB Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	181	-	531111 181929
64	**Contemporary Trade Directory Entries** Name: Ocean Contract Cleaning Location: 57, Doughty Street, London, WC1N 2JT Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	189	-	530807 182152

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
59	**Contemporary Trade Directory Entries** Name: Camden & Islington Washing Machine Repairs Location: 19, Northington Street, London, WC1N 2NR Classification: Washing Machines - Servicing & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	149	-	530781 182002
59	**Contemporary Trade Directory Entries** Name: K Eardley Location: Cockpit Yard,Northington St, London, WC1N 2NP Classification: Ceramic Manufacturers, Supplies & Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SW (W)	154	-	530784 181962
59	**Contemporary Trade Directory Entries** Name: Rakhi Kapila Location: Studio E3,Cockpit Yard,Northington St, London, WC1N 2NP Classification: Jewellery Manufacturers & Repairers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SW (W)	154	-	530784 181962
59	**Contemporary Trade Directory Entries** Name: Mak Yee Furn Location: Unit E16,Cockpit Yard,Northington St, London, WC1N 2NP Classification: Ceramic Manufacturers, Supplies & Services **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SW (W)	158	-	530774 181984
59	**Contemporary Trade Directory Entries** Name: L'Atelier Location: Cockpit Yard,Northington St, London, WC1N 2NP Classification: Picture & Picture Frame Renovating & Restoring **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A13SW (W)	163	-	530767 182008
59	**Contemporary Trade Directory Entries** Name: Ian Stallard Location: Studio 2e, Cockpit Yard, Northington Street, London, WC1N 2NP Classification: Ceramic Manufacturers, Supplies & Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	184	-	530747 181988
59	**Contemporary Trade Directory Entries** Name: David Gates Location: Unit 1,Cockpit Yard,Northington St, London, WC1N 2NP Classification: Cabinet Makers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	185	-	530746 181988
59	**Contemporary Trade Directory Entries** Name: Gorden Jo Couture Millinery Location: West Wing 4 Cockpit Workshops,Cockpit Yard,Northington St, London, WC1N 2NP Classification: Millinery Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	185	-	530746 181988
59	**Contemporary Trade Directory Entries** Name: Hayhoe Designs Location: Cockpit Yard,Northington St, London, WC1N 2NP Classification: Stained Glass Designers & Producers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	185	-	530746 181988
60	**Contemporary Trade Directory Entries** Name: Masterpiece Location: 4, Roger Street, London, WC1N 2JX Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	157	-	530846 182142
60	**Contemporary Trade Directory Entries** Name: Campagnia Ltd Location: 4-6, Brownlow Mews, London, WC1N 2LD Classification: Leather Garments & Products **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	164	-	530864 182159

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	**Contemporary Trade Directory Entries** Name: St Barbara Llp Location: 9, John Street, London, WC1N 2ES Classification: Metals - Mining **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	58	-	530876 182029
55	**Contemporary Trade Directory Entries** Name: Origami Location: Panther House,38 Mount Pleasant, London, WC1X 0AN Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	81	-	530993 182082
55	**Contemporary Trade Directory Entries** Name: In-Toto Electronic Engineering Location: Panther House, 38, Mount Pleasant, London, WC1X 0AN Classification: Electronic Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	99	-	531015 182088
55	**Contemporary Trade Directory Entries** Name: Central London Photocopies Location: Panther House, 38, Mount Pleasant, London, WC1X 0AN Classification: Copying & Duplicating Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	99	-	531015 182088
55	**Contemporary Trade Directory Entries** Name: Amanda Coleman Location: Panther House, 38, Mount Pleasant, London, WC1X 0AN Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	99	-	531015 182088
56	**Contemporary Trade Directory Entries** Name: Valet Dry Cleaners Location: 184, Gray's Inn Road, London, WC1X 8EW Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	120	-	530929 182135
57	**Contemporary Trade Directory Entries** Name: Apex Creative Services Ltd Location: 88-90, Gray's Inn Road, London, WC1X 8AA Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	127	-	531036 181918
57	**Contemporary Trade Directory Entries** Name: Wienerberger Ltd Location: 1-5 Portpool La, London, EC1N 7UU Classification: Brick Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	149	-	531061 181912
58	**Contemporary Trade Directory Entries** Name: S J M Location: Unit W/3, Cockpit Yard, Northington Street, London, WC1N 2NP Classification: Ceramic Manufacturers, Supplies & Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	137	-	530800 181965
58	**Contemporary Trade Directory Entries** Name: Ixbalamke Location: Cockpit Yard,Northington St, London, WC1N 2NP Classification: Footwear Manufacturers & Wholesale **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	138	-	530800 181964
58	**Contemporary Trade Directory Entries** Name: Veolia Environmental Services Location: Cockpit Yard,Northington St, London, WC1N 2NP Classification: Waste Disposal Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	138	-	530800 181964
58	**Contemporary Trade Directory Entries** Name: Stacey Whale Jewellery Design & Maker Location: Studio E15,Cockpit Yard,Northington St, London, WC1N 2NP Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SW (W)	153	-	530788 181953

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**Contemporary Trade Directory Entries** Name: W Godleman & Son Ltd Location: 20-21, King's Mews, London, WC1N 2JB Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	27	-	530925 182037
52	**Contemporary Trade Directory Entries** Name: Essex Colour Location: 59, Gray's Inn Road, London, WC1X 8TL Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	53	-	530927 182066
52	**Contemporary Trade Directory Entries** Name: Lighthouse Darkroom Location: 61 Gray's Inn Rd, London, WC1X 8LT Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (N)	59	-	530926 182072
53	**Contemporary Trade Directory Entries** Name: Target Multimedia Distribution Location: 156-158, Gray's Inn Road, London, WC1X 8EU Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	36	-	530973 182041
53	**Contemporary Trade Directory Entries** Name: K P Print Location: 156-158, Gray's Inn Road, London, WC1X 8EU Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	37	-	530973 182041
53	**Contemporary Trade Directory Entries** Name: City Pumps Ltd Location: 156, Gray's Inn Road, London, WC1X 8EU Classification: Pumps - Sales, Servicing & Repairs **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	40	-	530978 182040
53	**Contemporary Trade Directory Entries** Name: Prontaprint Location: 150, Gray's Inn Road, London, WC1X 8AX Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	41	-	530983 182033
53	**Contemporary Trade Directory Entries** Name: Anthony Allen Location: Flat 1, Tiverton Mansions, 140, Gray's Inn Road, London, WC1X 8AZ Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (E)	51	-	530998 182021
53	**Contemporary Trade Directory Entries** Name: F P D Photo Ltd Location: 172, Clerkenwell Road, London, EC1R 5DD Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	62	-	531011 182007
54	**Contemporary Trade Directory Entries** Name: Howitt J & Son Ltd Location: 8, John Street, London, WC1N 2ES Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	53	-	530878 182022
54	**Contemporary Trade Directory Entries** Name: London Print & Design Plc Location: 8, John Street, London, WC1N 2ES Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	54	-	530878 182022
54	**Contemporary Trade Directory Entries** Name: C W A Consultants Ltd Location: 9, John Street, London, WC1N 2ES Classification: Marine Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	58	-	530876 182029

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Natural Cavities Easting: 530600 Northing: 182400 Distance: 511 Quadrant Reference: A17 Quadrant Reference: SE Bearing Ref: NW Cavity Type: Unknown x 1 Solid Geology Detail: London Clay Formation Superficial Geology Detail: Alluvium	A17SE (NW)	511	7	530600 182400
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	161	5	531015 182162
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	161	5	531015 182162
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	212	5	531080 182181
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	106	5	530997 182109
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	161	5	531015 182162
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	16	5	530946 182033
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	530939 182009

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Finsbury Name: Rosoman Street / Skinner Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD34094 First Input Date: 31st December 1975 Last Input Date: 31st December 1978 Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 5570/0002 BGS Ref: Not Supplied Other Ref: Not Supplied	A19SW (NE)	637	1	531383 182480
50	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Lincolns Inn Fields, London WC2A Name: Portugal Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD12040 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: IMP006	A8SW (S)	740	1	530783 181278
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	9	530939 182009
	Local Authority Landfill Coverage Name: London Borough of Islington - Has no landfill data to supply		231	3	531057 182218
	Local Authority Landfill Coverage Name: Corporation of London - Has no landfill data to supply		392	10	530967 181612
	Local Authority Landfill Coverage Name: Westminster City Council - Has supplied landfill data		640	4	530912 181363
51	**Registered Waste Treatment or Disposal Sites** Licence Holder: Imperial Cancer Research Fund Licence Reference: DL354 Site Location: 44-49 Lincoln's Inn Fields, WESTMINSTER, London, WC2A 3PX Operator Location: PO Box 123, Lincoln's Inn Fields, LONDON, Greater London, WC2A 3PH Authority: Environment Agency - Thames Region, North East Area Site Category: Incineration Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st October 1991 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Clinical - As In Coll/Disp.Regs Of '88 Lwra Cat. Bi Gen.Non-Putresc - Only Max.Waste Permitted By Licence-Stated Organic Solvents Paper/Cardboard Waste Plastics As Lab.Cont'Rs/Pack'G Mat'Ls Prohibited Waste: Special Wastes N.O.S. Waste N.O.S.	A8SW (S)	760	1	530770 181260

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**Water Industry Act Referrals** Name: Aeromet International Plc Location: 10 Norwich Street, London, EC4A 1BD Authority: Environment Agency, Thames Region Permit Reference: Bz0564 Dated: 10th March 2004 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations **Status: Application cancelled** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	643	1	531241 181437
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 40 Thames Estuary Scale: 1:100,000	A13SW (S)	0	1	530939 182009
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Unproductive Strata	A13SW (S)	0	5	530939 182009
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (S)	0	5	530939 182009
47	**Source Protection Zones** Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A19SW (NE)	731	1	531356 182622
48	**Source Protection Zones** Name: Sadlers Well Source: Environment Agency, Head Office Reference: Th416 Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A19NW (NE)	863	1	531385 182759
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: LONDON, WC1 Authority: Environment Agency, Thames Region Pollutant: Miscellaneous - Fire water / Foam Note: Not Supplied Incident Date: 6th January 1996 Incident Reference: SE960007 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	528	1	530500 181700
21	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: ST PANCROS Authority: Environment Agency, Thames Region Pollutant: Unknown Sewage Note: Confirmed incident Incident Date: 10th January 1999 Incident Reference: THNE1999041585 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A12SW (W)	929	1	530001 182001
22	**Registered Radioactive Substances** Name: Great Ormond Street Hospital For Children Nhs Trust Location: Great Ormond Street, LONDON, WC1N 3JH Authority: Environment Agency, Thames Region Permit Reference: CD1711 Dated: 24th November 2008 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Automatically positioned to the address	A12NE (W)	398	1	530533 182041
22	**Registered Radioactive Substances** Name: Great Ormond Street Hospital For Children Nhs Trust Location: Great Ormond Street, LONDON, WC1N 3JH Authority: Environment Agency, Thames Region Permit Reference: CD1584 Dated: 24th November 2008 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Automatically positioned to the address	A12NE (W)	398	1	530533 182041
22	**Registered Radioactive Substances** Name: Great Ormond Street Hospital For Children Nhs Trust Location: Great Ormond Street, LONDON, WC1N 3JH Authority: Environment Agency, Thames Region Permit Reference: Bz9731 Dated: 5th January 2006 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	398	1	530533 182040
22	**Registered Radioactive Substances** Name: Great Ormond Street Hospital For Children Nhs Trust Location: Great Ormond Street, London, WC1N 3JH Authority: Environment Agency, Thames Region Permit Reference: Bx3783 Dated: 21st February 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A12NE (W)	398	1	530533 182041

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Local Authority Pollution Prevention and Controls** Name: Capri Cleaners Location: 148 Southampton Row, London, Wc1b 5ag Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC23 Dated: 24th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	633	2	530303 181923
14	**Local Authority Pollution Prevention and Controls** Name: Texaco Location: 71-79 Kings Cross Road, London, WC1X 9LN Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 23rd December 1998 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Site Closed** Positional Accuracy: Automatically positioned to the address	A18SW (N)	656	2	530802 182656
15	**Local Authority Pollution Prevention and Controls** Name: Somerfield Clerkenwell Road Location: 96-100 Clerkenwell Road, LONDON, EC1M 5RJ Authority: London Borough of Islington, Environmental Health Department Permit Reference: PPC PERMIT-015 Dated: 26th November 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Site Closed** Positional Accuracy: Automatically positioned to the address	A14NW (E)	657	3	531595 182127
16	**Local Authority Pollution Prevention and Controls** Name: Imperial Cancer Research Fund Location: Lincoln Inns Fields, WESTMINSTER, WC2A 3PX Authority: Westminster City Council, Environmental Health Department Permit Reference: Not Given Dated: 1st July 1992 Process Type: Local Authority Air Pollution Control Description: PG5/1Clinical waste incineration processes under 1 tonne an hour **Status: Authorisation has expiredExpired** Positional Accuracy: Manually positioned to the address or location	A8SW (S)	771	4	530766 181250
17	**Local Authority Pollution Prevention and Controls** Name: Totalfinaelf Location: 3-16 Woburn Place, London, Wc1 9lw Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 1st April 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Site Closed** Positional Accuracy: Located by supplier to within 10m	A12NW (W)	877	2	530075 182204
18	**Local Authority Pollution Prevention and Controls** Name: Alex 24hr Dry Cleaners Location: 289 Grays Inn Road, London, Wc1x 8qf Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC4 Dated: 26th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	970	2	530467 182862
19	**Local Authority Pollution Prevention and Controls** Name: Tuxedo Express Location: 40 Drury Lane, London, Wc2b 5rr Authority: Westminster City Council, Environmental Health Department Permit Reference: 07/14093/EE1EP Dated: 5th September 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	983	4	530385 181187
	Nearest Surface Water Feature	A9NW (SE)	782	-	531363 181346

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

GEA Geotechnical & Environmental Associates

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 41	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 41	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 47			Yes	Yes
BGS Urban Soil Chemistry Averages	pg 49	Yes			
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities	pg 50				1
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 50	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 50		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 50	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 50	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 50		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 51		79	n/a	n/a
Fuel Station Entries	pg 57				4

GEA Geotechnical & Environmental Associates

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents					
Enforcement and Prohibition Notices	pg 1				1
Integrated Pollution Controls	pg 1				8
Integrated Pollution Prevention And Control	pg 2				6
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 3		1	5	10
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 5				Yes
Pollution Incidents to Controlled Waters	pg 6				2
Prosecutions Relating to Authorised Processes					
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances	pg 6			22	49
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 18				7 (*76)
Water Industry Act Referrals	pg 39				1
Groundwater Vulnerability	pg 39	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 39	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 39	Yes	n/a	n/a	n/a
Source Protection Zones	pg 39				2
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 40				2
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites	pg 40				1

GEA Geotechnical & Environmental Associates

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Report Version v47.0

GEA Geotechnical & Environmental Associates

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
39896470_1_1

Customer Reference:
J12150

National Grid Reference:
530940, 182010

Slice:
A

Site Area (Ha):
0.02

Search Buffer (m):
1000

Site Details:

25 King's Mews
LONDON
WC1N 2JB

Client Details:

Mr S Branch
GEA Ltd
Tyttenhanger House
Coursers Road
St Albans
Herts
AL4 0PG

Prepared For:

Mrs Clare Leavenworth Bakali

Landmark Information Group

GEA Geotechnical & Environmental Associates

Tyttenhanger House
Coursers Road
St Albans
AL4 0PG

Generic Risk-Based Soil Guideline Values

Site	25 King's Mews, London WC1N 2JB	**Job Number** J12150
Client	Mrs Clare Leavenworth Bakali	**Sheet** 1 / 1
Engineer	Techniker	

Proposed End Use **Residential without plant uptake**

Soil pH **8**

Soil Organic Matter content % **6.0**

Contaminant	Guideline Value mg/kg	Data Source
Metals		
Arsenic	35	SGV
Cadmium	80	SGV
Chromium (III)	3000	LQM/CIEH
Chromium (VI)	4.3	LQM/CIEH
Copper	2,330	LQM/CIEH
Lead	450	withdrawn SGV
Elemental Mercury	1.02	SGV
Inorganic Mercury	235	SGV
Nickel	130	LQM/CIEH
Selenium	595	SGV
Zinc	3,750	LQM/CIEH
Hydrocarbons		
Benzene	0.33	SGV
Toluene	610	SGV
Ethyl Benzene	350	SGV
Xylene	230	SGV
Aliphatic C5-C6	110	LQM/CIEH
Aliphatic C6-C8	370	LQM/CIEH
Aliphatic C8-C10	110	LQM/CIEH
Aliphatic C10-C12	540	LQM/CIEH
Aliphatic C12-C16	3000	LQM/CIEH
Aliphatic C16-C35	76,000	LQM/CIEH
Aromatic C6-C7	See Benzene	LQM/CIEH
Aromatic C7-C8	See Toluene	LQM/CIEH
Aromatic C8-C10	151	LQM/CIEH
Aromatic C10-C12	346	LQM/CIEH
Aromatic C12-C16	593	LQM/CIEH
Aromatic C16-C21	770	LQM/CIEH
Aromatic C21-C35	1230	LQM/CIEH
PRO (C_5 –C_{10})	1351	Calc
DRO (C_{12} –C_{28})	80,363	Calc
Lube Oil (C_{28} –C_{44})	77,230	Calc
TPH	**500**	Trigger for speciated testing

Contaminant	Guideline Value mg/kg	Data Source
Anions		
Soluble Sulphate	0.5 g/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	6	Methanogenic potential
Total Cyanide	140	WRAS
Total Mono Phenols	520	SGV
PAH		
Naphthalene	9.22	LQM/CIEH
Acenaphthylene	3,870	LQM/CIEH
Acenaphthene	3,910	LQM/CIEH
Fluorene	2,870	LQM/CIEH
Phenanthrene	970	LQM/CIEH
Anthracene	23,300	LQM/CIEH
Fluoranthene	1,000	LQM/CIEH
Pyrene	2,400	LQM/CIEH
Benzo(a) Anthracene	6.2	LQM/CIEH
Chrysene	10	LQM/CIEH
Benzo(b) Fluoranthene	7.4	LQM/CIEH
Benzo(k) Fluoranthene	10.4	LQM/CIEH
Benzo(a) pyrene	1.04	LQM/CIEH
Indeno(1 2 3 cd) Pyrene	4.4	LQM/CIEH
Dibenzo(a h) Anthracene	0.93	LQM/CIEH
Benzo (g h i) Perylene	48	LQM/CIEH
Total PAH	**6.9**	B(a)P / 0.15
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	28.4	LQM/CIEH
tetrachloroethane (PCA)	5.76	LQM/CIEH
tetrachloroethene (PCE)	5.26	LQM/CIEH
trichloroethene (TCE)	0.511	LQM/CIEH
1,2-dichloroethane (DCA)	0.016	LQM/CIEH
vinyl chloride (Chloroethene)	0.00107	LQM/CIEH
tetrachloromethane (Carbon tetrac	0.18	LQM/CIEH
trichloromethane (Chloroform)	3.22	LQM/CIEH

Notes

Concentrations measured below the above values may be considered to represent 'uncontaminated conditions' which do not pose a risk to human health. Concentrations measured in excess of these valuesindicate a potential risk, and thus require further, site specific risk assessment

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009

withdrawn SGV - Former SGV, derived from the CLEA 2000 model and published by DEFRA pending confirmation of new approach to modeling lead

LQM/CIEH - Generic Assessment Criteria for Human Health Risk Assessment 2nd edition (2009)derived using CLEA 1.04 model 2009

Calc - sum of nearest available carbon range specified including BTEX for PRO fraction

B(a)P / 0.15 - GEA experince indicates that Benzo(a) pyrene (one of the most common and most carcenogenic of the PAHs) rarely exceeds 15% of the total PAH concentration, hence this Total PAH threshold is regarded as being conservative

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LABORATORY TEST REPORT

Results of analysis of 6 samples received 11 July 2012

J12150 - 25 Kings Mews, London WC1N

Chemtest
The right chemistry to deliver results

Report Date 19 July 2012

					209230			
					AH51968	AH51969	AH51970	AH51971
					BH1	BH2	BH3	TP1
					3/7/2012	3/7/2012	3/7/2012	3/7/2012
					0.30m	1.00m	2.50m	0.30m
					SOIL	*SOIL*	*SOIL*	*SOIL*
2670	TPH >C8-C10		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]
	TPH >C10-C12		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	0.16 [1,2]	< 0.1 [1,2]
	TPH >C12-C16		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	5.2 [1,2]	2.9 [1,2]
	TPH >C16-C21		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	6.3 [1,2]	2.8 [1,2]
	TPH >C21-C35		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	6.1 [1,2]	7.5 [1,2]
	Total Petroleum Hydrocarbons		mg kg-1	U	< 10 [1,2]	< 10 [1,2]	18 [1,2]	13 [1,2]
2700	Naphthalene	91203	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthene	83329	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Fluorene	86737	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Phenanthrene	85018	mg kg-1	M	< 0.1	< 0.1	1.3	< 0.1
	Anthracene	120127	mg kg-1	M	< 0.1	< 0.1	0.65	< 0.1
	Fluoranthene	206440	mg kg-1	M	< 0.1	< 0.1	0.31	< 0.1
	Pyrene	129000	mg kg-1	M	< 0.1	< 0.1	0.3	< 0.1
	Benzo[a]anthracene	56553	mg kg-1	M	< 0.1	< 0.1	0.18	< 0.1
	Chrysene	218019	mg kg-1	M	< 0.1	< 0.1	0.21	< 0.1
	Benzo[b]fluoranthene	205992	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Benzo[k]fluoranthene	207089	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Benzo[a]pyrene	50328	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1
	Total (of 16) PAHs		mg kg-1	M	< 2	< 2	3	< 2
2920	Phenols (total)		mg kg-1	N	<0.3	<0.3	<0.3	<0.3

[1]The sample container/fill level was not appropriate for the specified analysis - these results may be compromised and will not be accredited (UKAS/MCerts)
[2]The stability time for this analyte has been exceeded - these results may be compromised and will not be accredited (UKAS/MCerts)

All tests undertaken between 11/07/2012 and 16/07/2012

* Accreditation status

This report should be interpreted in conjuction with the notes on the accompanying cover page.

GEA
Tyttenhanger House
Coursers Road
St Albans Herts
AL4 0PG

FAO Matt Legg

LABORATORY TEST REPORT

Results of analysis of 6 samples received 11 July 2012

J12150 - 25 Kings Mews, London WC1N

Chemtest
The right chemistry to deliver results

Report Date 19 July 2012

Login Batch No					209230			
Chemtest LIMS ID					AH51968	AH51969	AH51970	AH51971
Sample ID					BH1	BH2	BH3	TP1
Sample No								
Sampling Date					3/7/2012	3/7/2012	3/7/2012	3/7/2012
Depth					0.30m	1.00m	2.50m	0.30m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*				
2030	Moisture		%	n/a	12.7	19.1	26.6	11
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02	<0.02
2040	Soil colour			n/a	brown	brown	brown	brown
	Soil texture			n/a	sand	sand	sand	sand
	Other material			n/a	stones	stones	stones	stones
2010	pH			M	9.9	9.0	8.1	11.4
2300	Cyanide (total)	57125	mg kg-1	M	<0.50	<0.50	<0.50	<0.50
2325	Sulfide (Easily Liberatable)	18496258	mg kg-1	M	2.2	12	2.3	3.1
2625	Total Organic Carbon		%	M	4.1	15	27	4.5
2220	Chloride (extractable)	16887006	g l-1	M	0.14	0.046	<0.010	0.028
2430	Sulfate (total) as SO4		mg kg-1	M	16000	2500	2200	2700
2450	Arsenic	7440382	mg kg-1	M	18	17	22	11
	Cadmium	7440439	mg kg-1	M	<0.10	<0.10	<0.10	<0.10
	Chromium	7440473	mg kg-1	M	15	15	15	11
	Copper	7440508	mg kg-1	M	140	87	240	66
	Mercury	7439976	mg kg-1	M	0.87	0.98	1.2	0.63
	Nickel	7440020	mg kg-1	M	14	25	31	11
	Lead	7439921	mg kg-1	M	2100	720	640	260
	Selenium	7782492	mg kg-1	M	0.97	0.63	<0.20	0.21
	Zinc	7440666	mg kg-1	M	76	100	110	47
2670	TPH >C5-C6		mg kg-1	U	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]
	TPH >C6-C7		mg kg-1	U	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]
	TPH >C7-C8		mg kg-1	M	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]	< 0.1 [1,2]

[1]The sample container/fill level was not appropriate for the specified analysis - these results may be compromised and will not be accredited (UKAS/MCerts)
[2]The stability time for this analyte has been exceeded - these results may be compromised and will not be accredited (UKAS/MCerts)

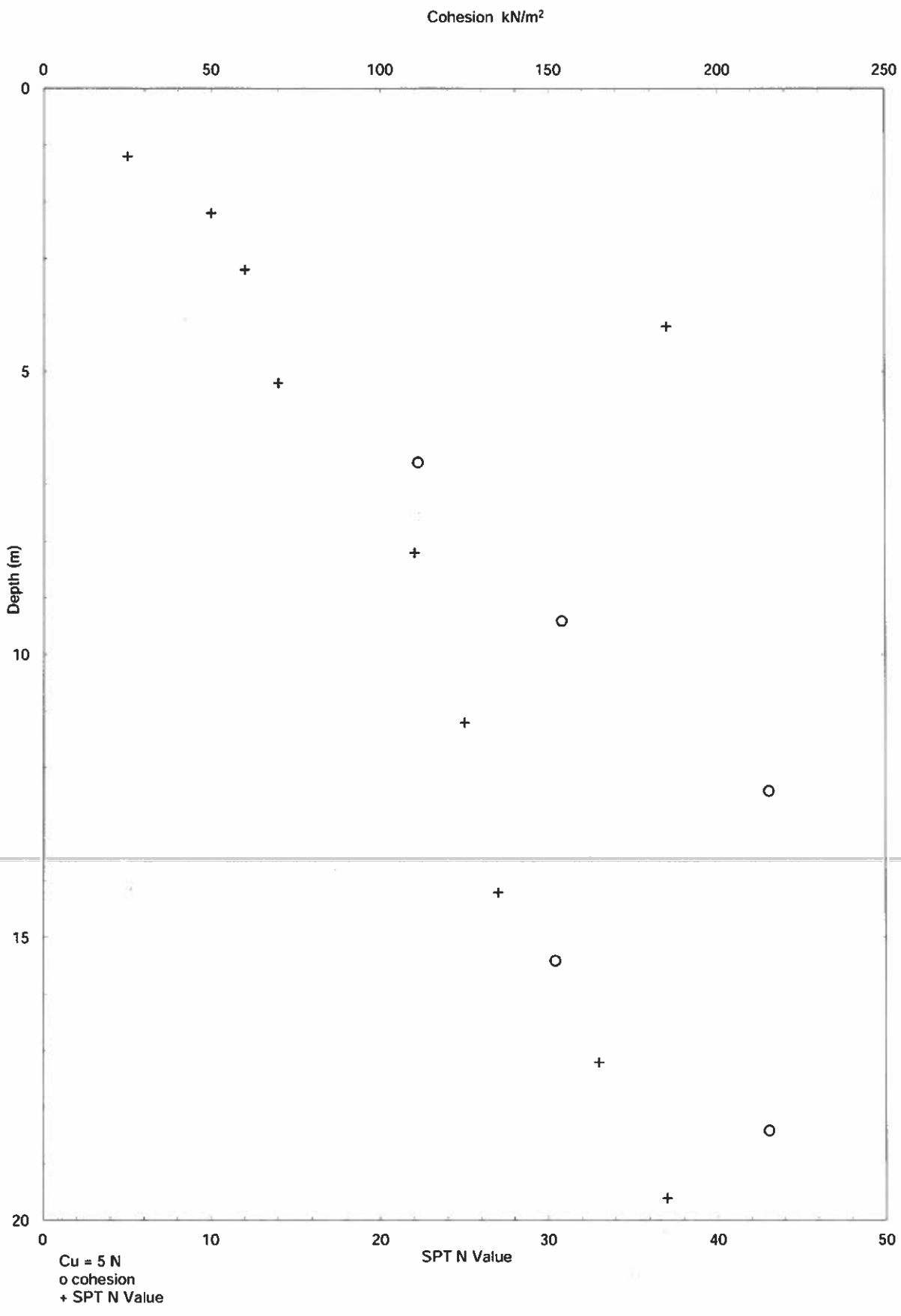
All tests undertaken between 11/07/2012 and 16/07/2012

* Accreditation status

This report should be interpreted in conjuction with the notes on the accompanying cover page.

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	**SPT & Cohesion / Depth Graph**

Site	25 King's Mews, London WC1N	**Job Number** J12150
Client	Mrs Clare leavenworth Bakali	**Sheet** 1 / 1
Engineer	Techniker	



BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Compression Test

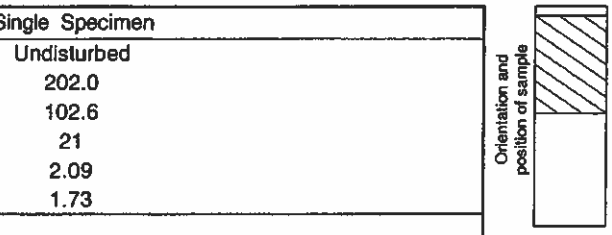
Borehole Number:	BH1
Sample Number:	U4
Depth (m):	18.50

Description:
Very stiff grey silty CLAY

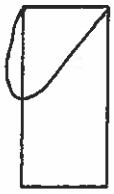
Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	102.6
Moisture Content (%):	21
Bulk Density (Mg/m³):	2.09
Dry Density (Mg/m³):	1.73
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.9
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	370
Strain at failure (%):	15.8
Maximum Deviator Stress (kPa):	430
Shear Stress Cu (kPa):	215

Orientation and position of sample



Mode of failure:



Checked and Approved
Initials: SB
Date: 27/07/2012

Project Number: GEO / 18537

Project Name: 25 KINGS MEWS, LONDON WC1N 2JB

Project Number: J12150

UKAS TESTING 1982

GEOLABS

BS1377 : Part 7 : Clause 8 : 1990

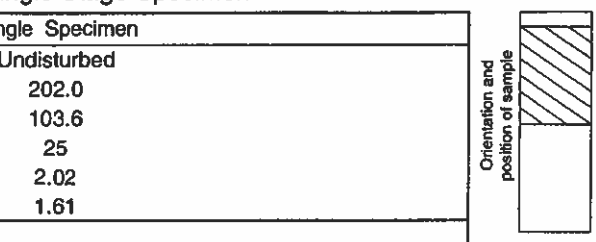
Quick Undrained Triaxial Compression Test

Borehole Number: BH1 Sample Number: U4 Depth (m): 15.50	Description: Very stiff grey silty CLAY

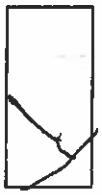
Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	103.6
Moisture Content (%):	25
Bulk Density (Mg/m³):	2.02
Dry Density (Mg/m³):	1.61
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.4
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	310
Strain at failure (%):	5.9
Maximum Deviator Stress (kPa):	304
Shear Stress Cu (kPa):	152

Orientation and position of sample



Mode of failure:



Checked and Approved Initials: SB Date: 27/07/2012	Project Number: GEO / 18537 Project Name: 25 KINGS MEWS, LONDON WC1N 2JB Project Number: J12150	GEOLABS

BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Compression Test

Borehole Number:	BH1
Sample Number:	U3
Depth (m):	12.50

Description:
Very stiff greyish brown silty CLAY with rare orange silt

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	103.0
Moisture Content (%):	26
Bulk Density (Mg/m³):	2.03
Dry Density (Mg/m³):	1.61
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	250
Strain at failure (%):	8.4
Maximum Deviator Stress (kPa):	430
Shear Stress Cu (kPa):	215

Orientation and position of sample

Mode of failure:

Checked and Approved Initials: SB Date: 27/07/2012	Project Number: GEO / 18537 Project Name: 25 KINGS MEWS, LONDON WC1N 2JB Project Number: J12150	GEOLABS

BS1377 : Part 7 : Clause 8 : 1990

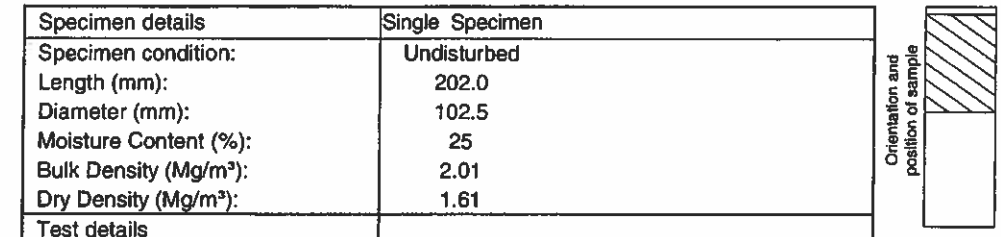
Quick Undrained Triaxial Compression Test

Borehole Number: BH1 Sample Number: U2 Depth (m): 9.50	Description: Very stiff grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	102.5
Moisture Content (%):	25
Bulk Density (Mg/m³):	2.01
Dry Density (Mg/m³):	1.61
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.4
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	190
Strain at failure (%):	5.0
Maximum Deviator Stress (kPa):	308
Shear Stress Cu (kPa):	154

Orientation and position of sample



Mode of failure:

Checked and Approved Initials: SB Date: 27/07/2012	Project Number: GEO / 18537 Project Name: 25 KINGS MEWS, LONDON WC1N 2JB Project Number: J12150	GEOLABS

BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Compression Test

Borehole Number:	BH1
Sample Number:	U1
Depth (m):	6.50

Description:
Stiff grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	102.7
Moisture Content (%):	26
Bulk Density (Mg/m³):	1.99
Dry Density (Mg/m³):	1.58
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.7
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	130
Strain at failure (%):	11.9
Maximum Deviator Stress (kPa):	223
Shear Stress Cu (kPa):	111

Orientation and position of sample

Mode of failure:

Checked and Approved
Initials: SB
Date: 27/07/2012

Project Number:
GEO / 18537
Project Name:
25 KINGS MEWS, LONDON WC1N 2JB
Project Number: J12150

UKAS TESTING 1982

GEOLABS

PROJECT NAME	25 KINGS MEWS, LONDON WC1N 2JB	Date	27/07/2012
	Project Number: J12150	Approved	Simon Burke
PROJECT NO:	GEO / 18537	Page	1 of 1

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			
Borehole No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 mic (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	pH	2:1 W/S SO4 (g/l)	Ground Water SO4 (g/l)	Other tests and comments
BH1	3.60	D8	D	Dark brown clayey SAND with fine to medium gravel														Particle Size Distribution
BH1	5.00	B2	B	Firm brown sandy gravelly CLAY. Gravel is fine to medium flint	29	75	27	48	80									
BH1	6.00	D10	D												7.6	1.30		
BH1	6.50	U1	U	Stiff grey silty CLAY	26					1.99	1.58	130	223	111				
BH1	7.50	D11	D	Stiff dark greyish brown silty CLAY	32	71	27	44	100									
BH1	9.50	U2	U	Very stiff grey silty CLAY	25					2.01	1.61	190	308	154				
BH1	12.00	D16	D												8.8	0.93		
BH1	12.50	U3	U	Very stiff greyish brown silty CLAY with rare orange silt	26					2.03	1.61	250	430	215				
BH1	15.50	U4	U	Very stiff grey silty CLAY	25					2.02	1.61	310	304	152				
BH1	18.50	U4	U	Very stiff grey silty CLAY	21					2.09	1.73	370	430	215				

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS®

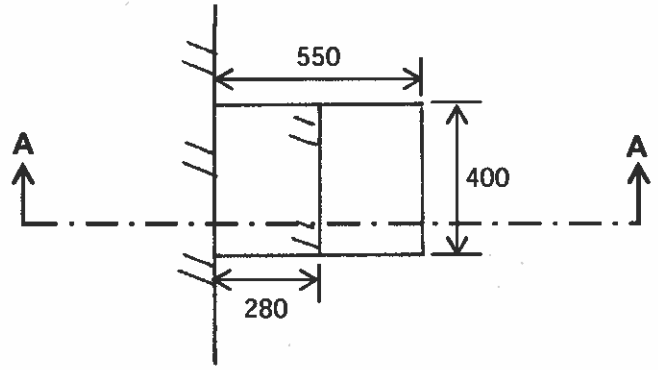
Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 7

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Manual	550 x 400 x 1100		Mrs Clare Leavenworth Bakali	J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 2 / 2

Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 7
Excavation Method Manual	Dimensions 550 x 400 x 1100	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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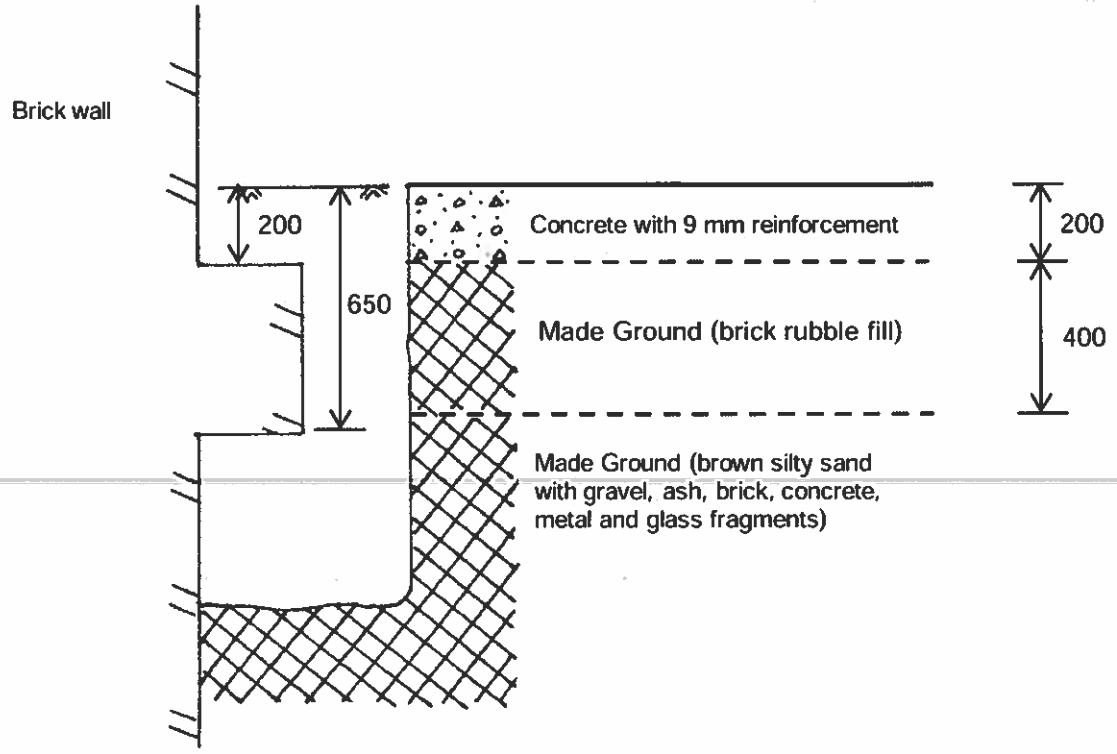


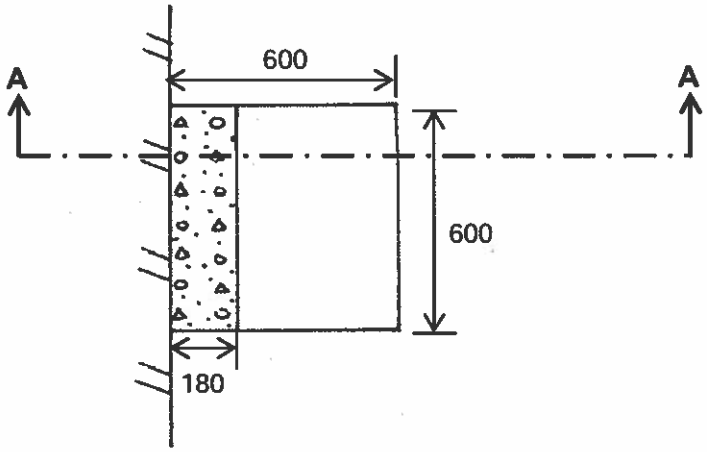
Remarks:		Scale:
All dimensions in millimetres Sides of trial pit remained stable during excavation Groundwater: Not Encountered	Base of footing not proved	1:20 Logged by: ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 6
Excavation Method Manual	**Dimensions** 600 x 600 x 1400	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 3/07/2012 - 4/07/2012	**Engineer** Techniker	**Sheet** 2 / 2

Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Ground water: Not Encountered		ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 6
Excavation Method Manual	Dimensions 600 x 600 x 1400	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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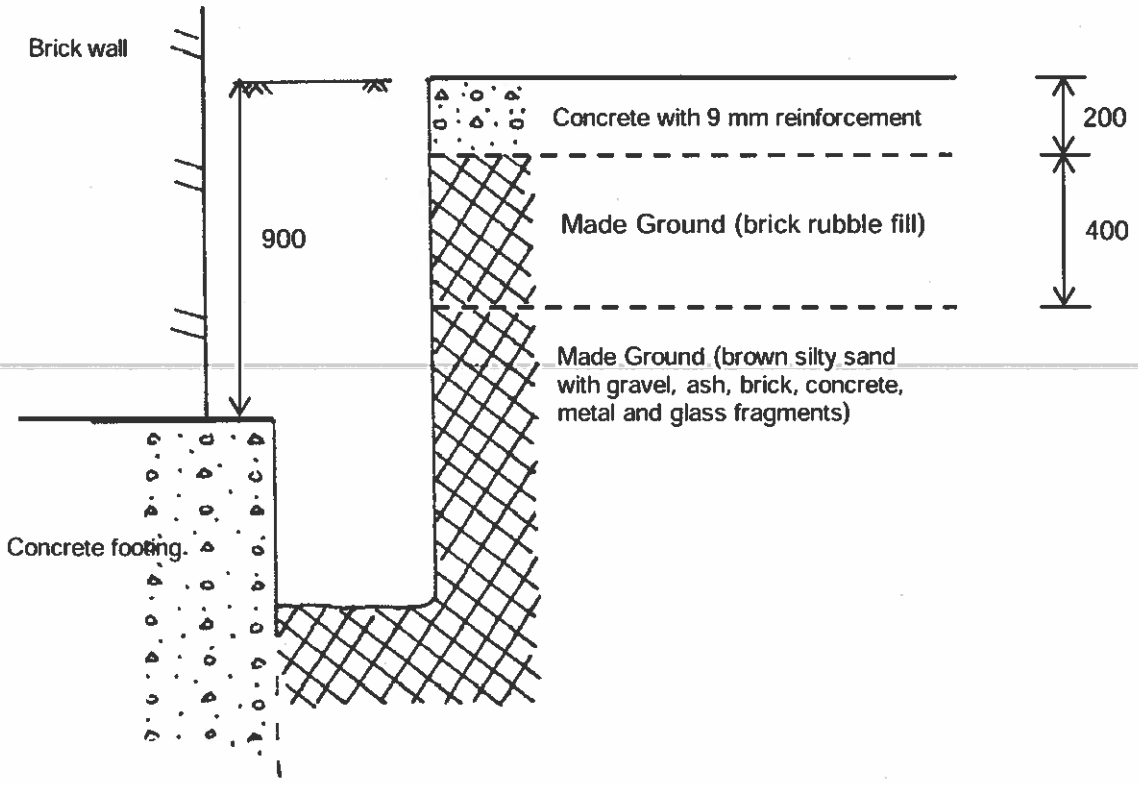


Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

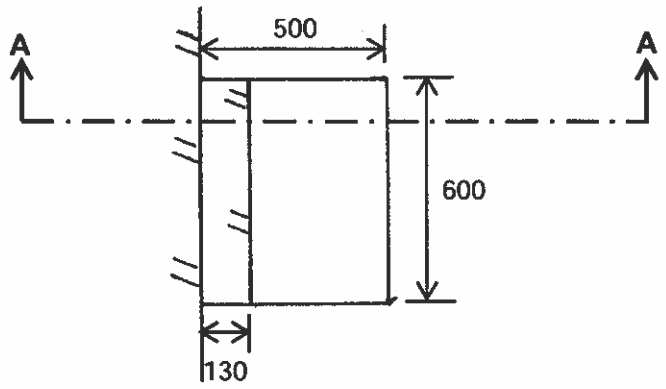
GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 5

Excavation Method Manual	Dimensions 600 x 500 x 1300	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 2 / 2

Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Ground water: Not Encountered		ML

GEA Geotechnical & Environmental Associates		Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 5
Excavation Method Manual	Dimensions 600 x 500 x 1300	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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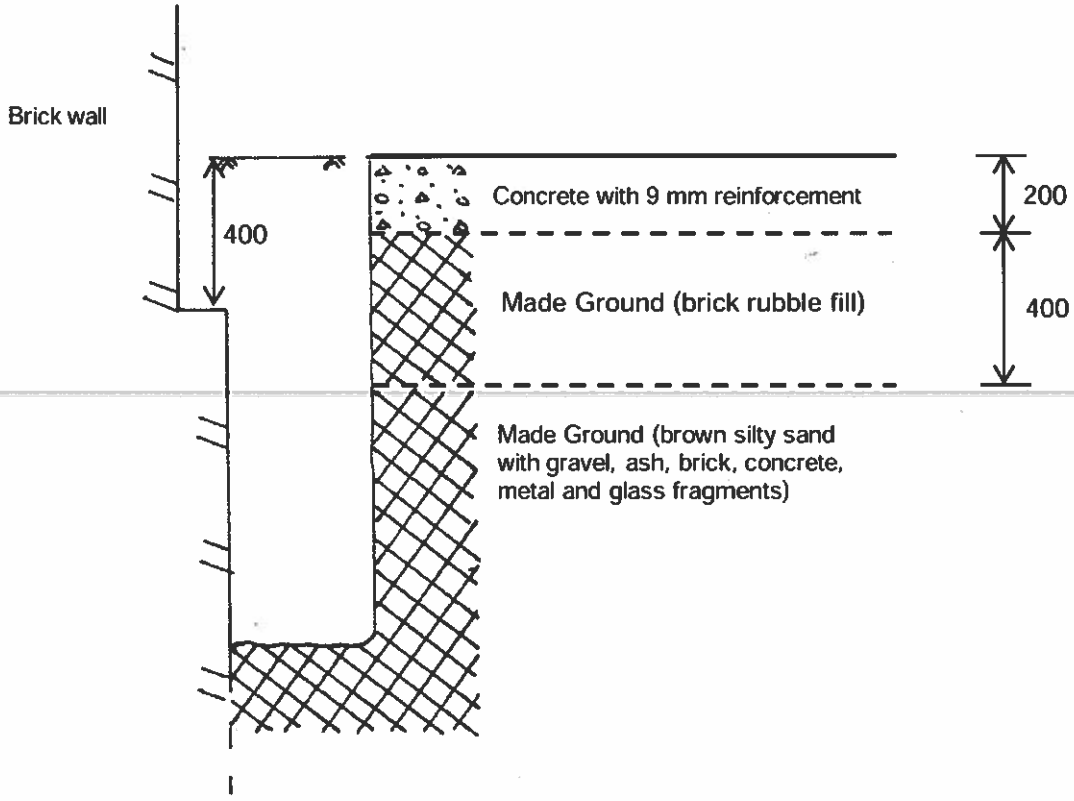


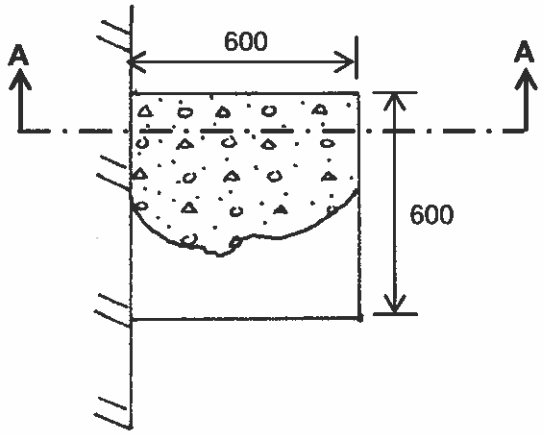
Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Ground water: Not Encountered		ML

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 4
Excavation Method Manual	**Dimensions** 600 x 600 x 950	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 3/07/2012 - 4/07/2012	**Engineer** Techniker	**Sheet** 2 / 2

Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 4
Excavation Method Manual	Dimensions 600 x 600 x 950	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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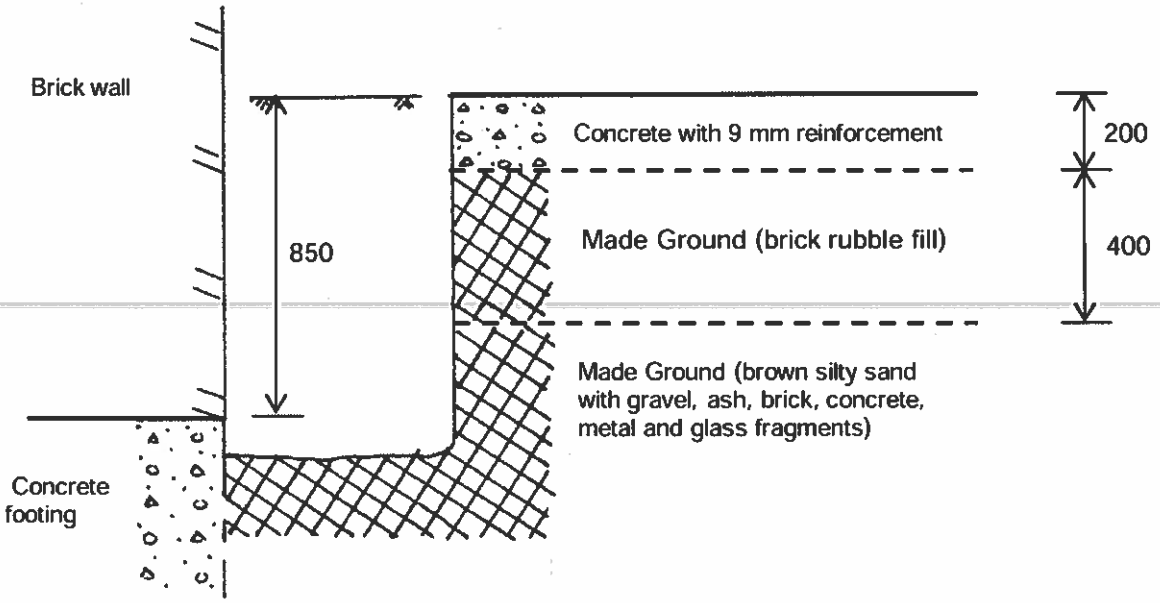
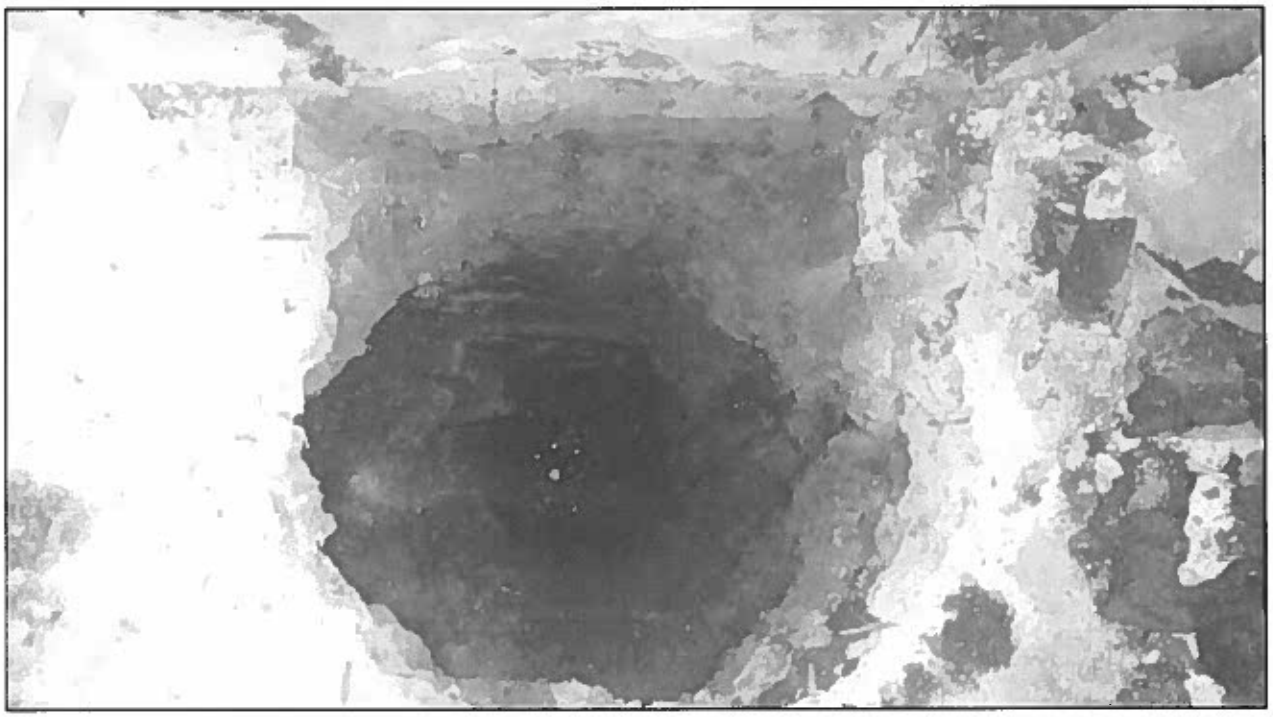


Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

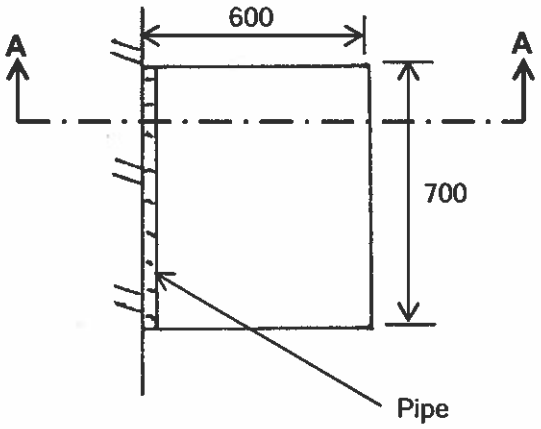
GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 3
Excavation Method Manual	**Dimensions** 600 x 700 x 1100	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 3/07/2012 - 4/07/2012	**Engineer** Techniker	**Sheet** 2 / 2



Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 3
Excavation Method Manual	Dimensions 600 x 700 x 1100	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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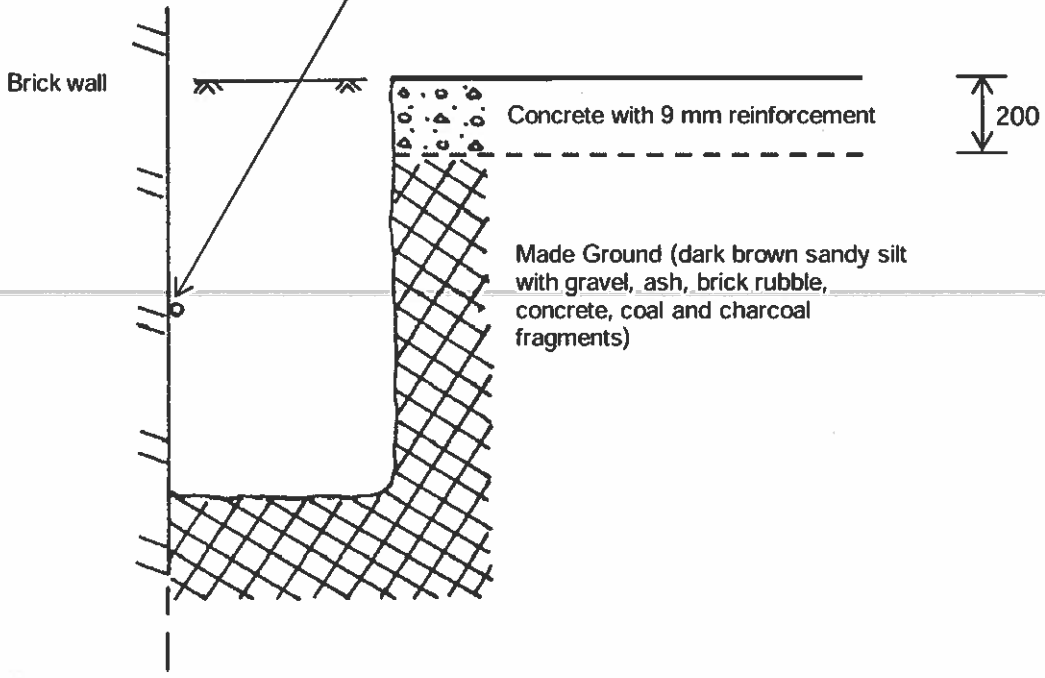
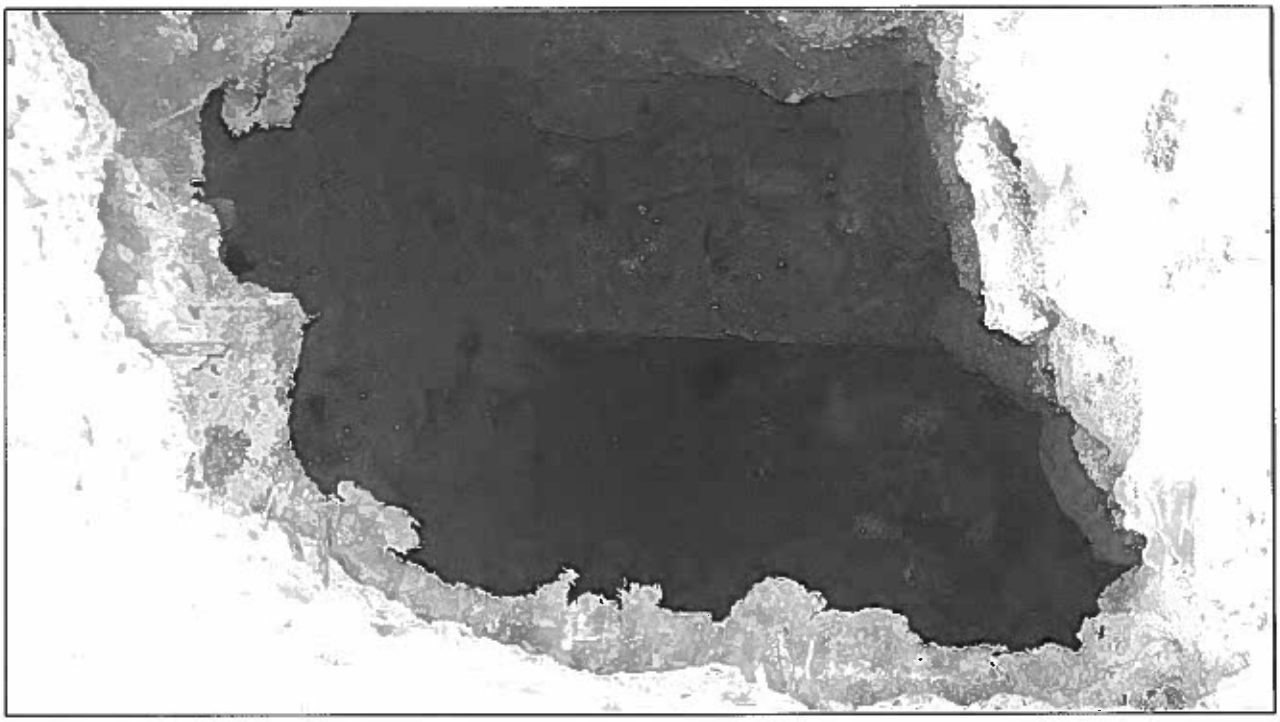


Remarks:		Scale:
All dimensions in millimetres	Base of footing not proved	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

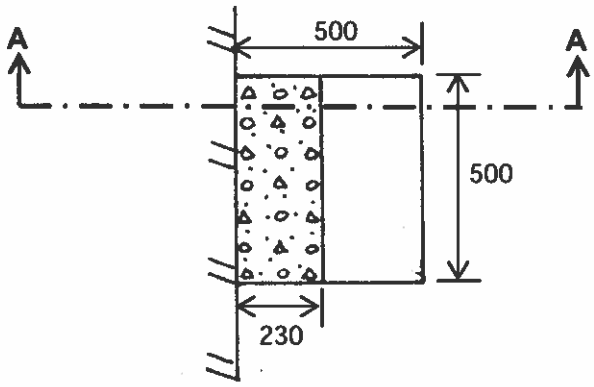
GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 2
Excavation Method Manual	**Dimensions** 500 x 500 x 1100	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 3/07/2012 - 4/07/2012	**Engineer** Techniker	**Sheet** 2 / 2



Remarks:	Scale:
All dimensions in millimetres	1:20
Sides of trial pit remained stable during excavation	Logged by:
Groundwater: Not Encountered	ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 2
Excavation Method Manual	Dimensions 500 x 500 x 1100	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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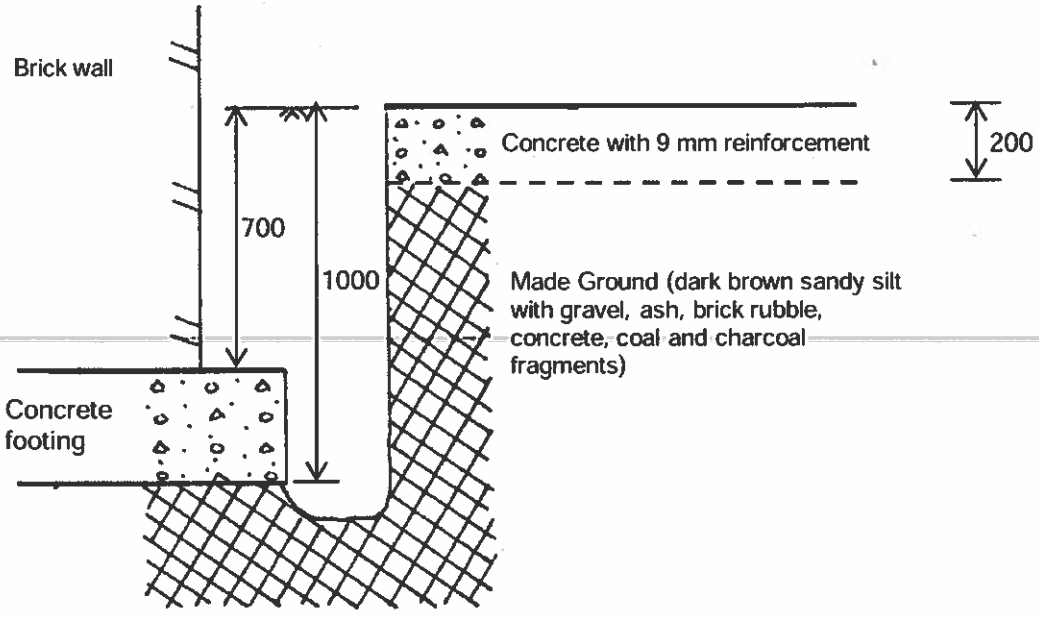


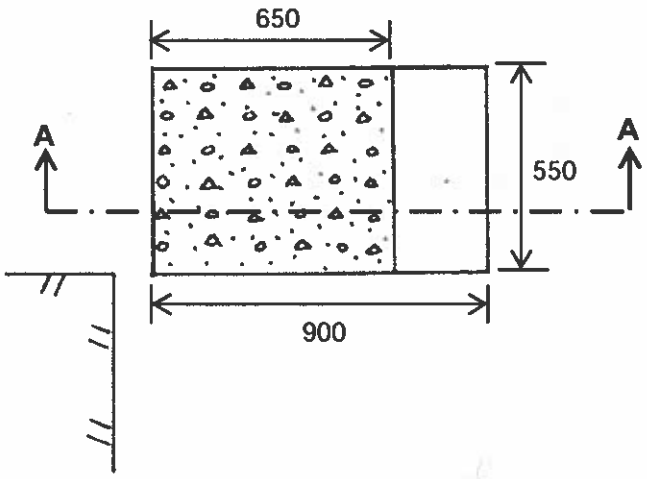
Remarks:	Scale:
All dimensions in millimetres	1:20
Sides of trial pit remained stable during excavation	Logged by:
Groundwater: Not Encountered	ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 1
Excavation Method Manual	**Dimensions** 550 x 900 x 900	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 3/07/2012 - 4/07/2012	**Engineer** Techniker	**Sheet** 2 / 2

Remarks:		Scale:
All dimensions in millimetres	Samples: 0.3 m	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

GEA Geotechnical & Environmental Associates		Tyttenhanger House Coursers Road St Albans Herts AL4 0PG	Site 25 Kings Mews, London WC1N	Trial Pit Number 1
Excavation Method Manual	Dimensions 550 x 900 x 900	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 3/07/2012 - 4/07/2012	Engineer Techniker	Sheet 1 / 2

Plan: -



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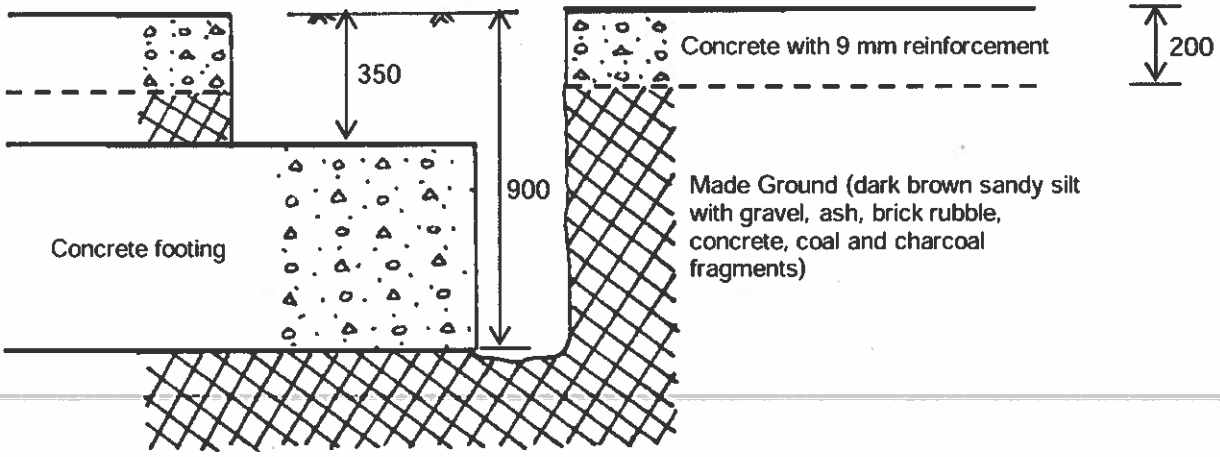


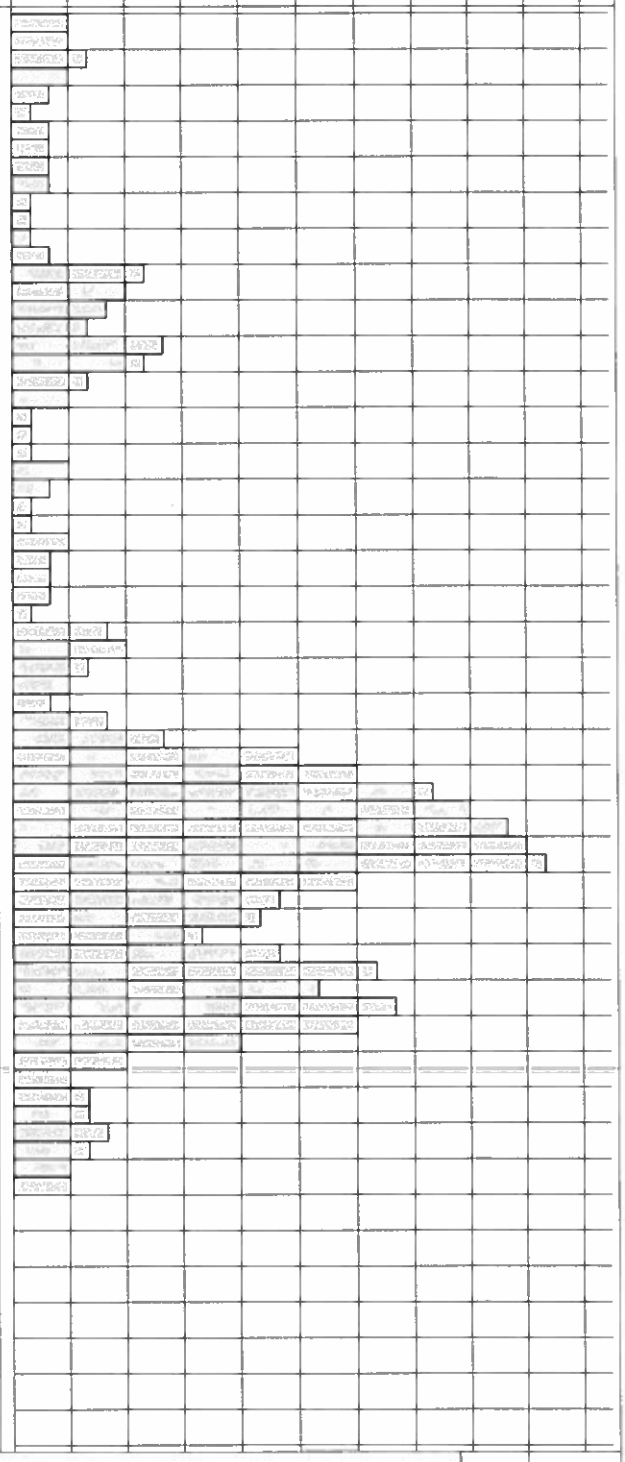
Remarks:		Scale:
All dimensions in millimetres	Samples: 0.3 m	1:20
Sides of trial pit remained stable during excavation		Logged by:
Groundwater: Not Encountered		ML

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 25 Kings Mews, London WC1N 2JB	Probe Number DP2
Method Dynamic Probe	Cone Dimensions	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali
	Location	Dates 29/06/2012	Engineer Teckniker

Job Number: J12150

Sheet: 1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	3			0.00
0.10-0.20	3			
0.20-0.30	4			
0.30-0.40	3			
0.40-0.50	2			
0.50-0.60	1			0.50
0.60-0.70	2			
0.70-0.80	2			
0.80-0.90	2			
0.90-1.00	2			
1.00-1.10	1			1.00
1.10-1.20	1			
1.20-1.30	1			
1.30-1.40	2			
1.40-1.50	7			1.50
1.50-1.60	6			
1.60-1.70	5			
1.70-1.80	4			
1.80-1.90	8			
1.90-2.00	7			2.00
2.00-2.10	4			
2.10-2.20	3			
2.20-2.30	1			
2.30-2.40	1			
2.40-2.50	1			2.50
2.50-2.60	3			
2.60-2.70	2			
2.70-2.80	1			
2.80-2.90	1			
2.90-3.00	3			3.00
3.00-3.10	2			
3.10-3.20	2			
3.20-3.30	2			
3.30-3.40	1			
3.40-3.50	5			3.50
3.50-3.60	6			
3.60-3.70	4			
3.70-3.80	3			
3.80-3.90	2			
3.90-4.00	5			4.00
4.00-4.10	8			
4.10-4.20	15			
4.20-4.30	18			
4.30-4.40	22			
4.40-4.50	24			4.50
4.50-4.60	26			
4.60-4.70	27			
4.70-4.80	28			
4.80-4.90	18			
4.90-5.00	14			5.00
5.00-5.10	13			
5.10-5.20	10			
5.20-5.30	14			
5.30-5.40	19			
5.40-5.50	16			5.50
5.50-5.60	20			
5.60-5.70	18			
5.70-5.80	12			
5.80-5.90	6			
5.90-6.00	3			
6.00-6.10	4			6.00
6.10-6.20	4			
6.20-6.30	5			
6.30-6.40	4			
6.40-6.50	3			6.50
6.50-6.60	3			
				7.00
				7.50
				8.00



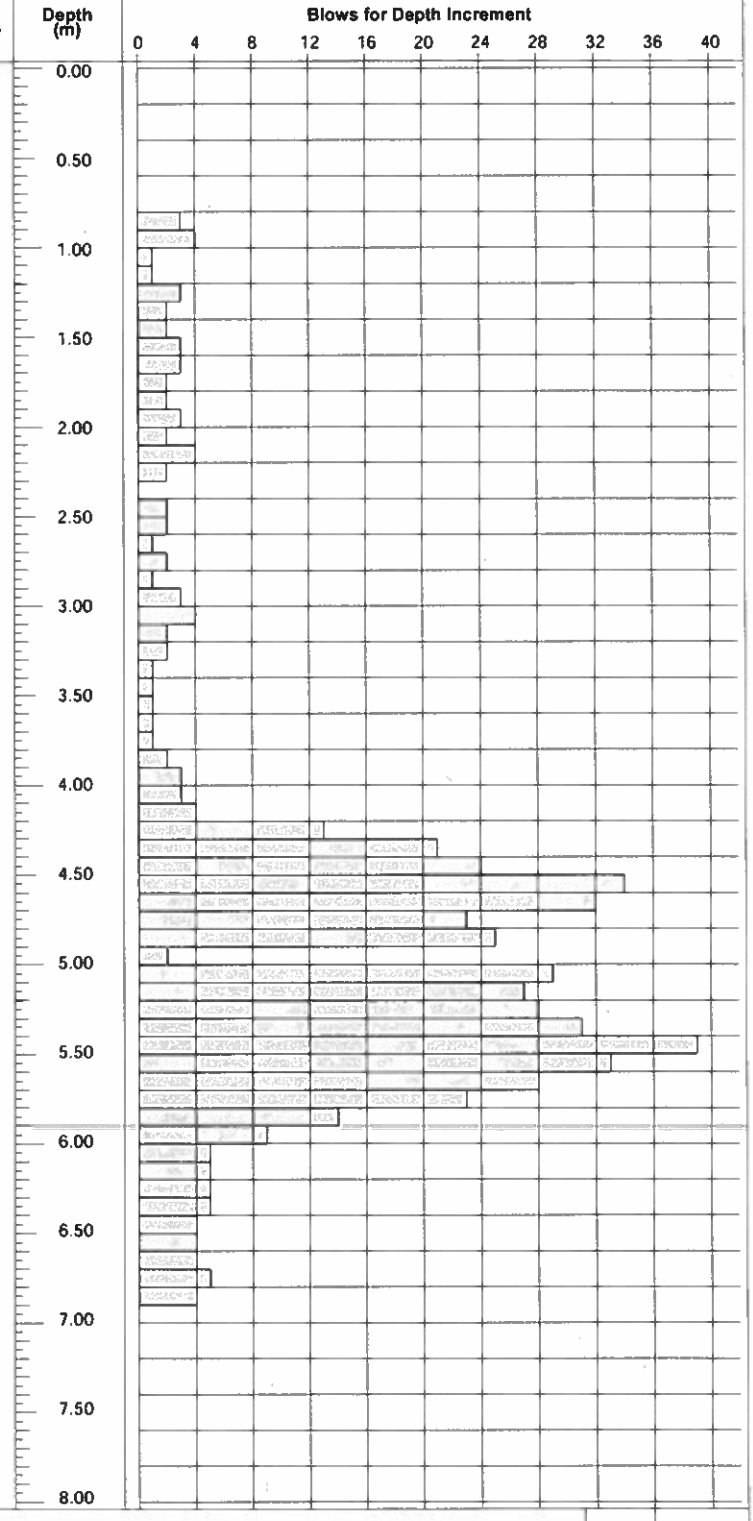
Remarks

Scale (approx)	Logged By
1:40	ML

Figure No.
J12150.DP2

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 25 Kings Mews, London WC1N 2JB	Probe Number DP1
Method Dynamic Probe	Cone Dimensions	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 29/06/2012	Engineer Teckniker	Sheet 1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.80-0.90	3		
0.90-1.00	4		
1.00-1.10	1		
1.10-1.20	1		
1.20-1.30	3		
1.30-1.40	2		
1.40-1.50	2		
1.50-1.60	3		
1.60-1.70	3		
1.70-1.80	2		
1.80-1.90	2		
1.90-2.00	3		
2.00-2.10	2		
2.10-2.20	4		
2.20-2.30	2		
2.30-2.40	0		
2.40-2.50	2		
2.50-2.60	2		
2.60-2.70	1		
2.70-2.80	2		
2.80-2.90	1		
2.90-3.00	3		
3.00-3.10	4		
3.10-3.20	2		
3.20-3.30	2		
3.30-3.40	1		
3.40-3.50	1		
3.50-3.60	1		
3.60-3.70	1		
3.70-3.80	1		
3.80-3.90	2		
3.90-4.00	3		
4.00-4.10	3		
4.10-4.20	4		
4.20-4.30	13		
4.30-4.40	21		
4.40-4.50	24		
4.50-4.60	34		
4.60-4.70	32		
4.70-4.80	23		
4.80-4.90	25		
4.90-5.00	2		
5.00-5.10	29		
5.10-5.20	27		
5.20-5.30	28		
5.30-5.40	31		
5.40-5.50	39		
5.50-5.60	33		
5.60-5.70	28		
5.70-5.80	23		
5.80-5.90	14		
5.90-6.00	9		
6.00-6.10	5		
6.10-6.20	5		
6.20-6.30	5		
6.30-6.40	5		
6.40-6.50	4		
6.50-6.60	4		
6.60-6.70	4		
6.70-6.80	5		
6.80-6.90	4		



Remarks
Dynamic probe advanced through hand dug pit at 0.7 m.

Scale (approx)	Logged By
1:40	ML

Figure No.
J12150.DP1

GEA Geotechnical & Environmental Associates

Tyttenhanger House
Coursers Road
St Albans
AL4 0PG

Standard Penetration Test Results

Site : 25 Kings Mews, London WC1N 2JB

Client : Mrs Clare Leavenworth Bakali

Engineer : Teckniker

Job Number J12150

Sheet 1 / 1

Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH1	1.20	1.35	1.65	CPT	1	2	1	1	1	2	N=5	
BH1	2.00	2.15	2.45	CPT	1	2	4	2	2	2	N=10	
BH1	3.00	3.15	3.45	CPT	1	1	3	3	3	3	N=12	
BH1	4.00	4.15	4.45	CPT	5	8	8	9	9	11	N=37	
BH1	5.00	5.15	5.45	CPT	5	4	5	3	3	3	N=14	
BH1	8.00	8.15	8.45	SPT	3	4	5	5	5	7	N=22	
BH1	11.00	11.15	11.45	SPT	4	5	6	6	6	7	N=25	
BH1	14.00	14.15	14.45	SPT	6	5	6	6	7	8	N=27	
BH1	17.00	17.15	17.45	SPT	7	6	7	7	8	11	N=33	
BH1	19.55	19.70	20.00	SPT	5	6	8	8	9	12	N=37	

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 25 Kings Mews, London WC1N 2JB	Number BH3
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 29/06/2012	**Engineer** Teckniker	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Concrete with 9mm reinforcement		
					0.20	Made Ground (crushed brick and concrete fill)		
					(0.80)			
					1.00	NO RECOVERY		
					(1.00)			
					2.00	Made Ground (brown sandy crushed brick and gravel fill)		
					(0.50)			
2.50	D1				2.50	Made Ground (dark brown mottled black clayey silt with gravel, ash, brick, coal and charcoal fragments)		
					(1.50)			
					4.00	Orange-brown silty coarse SAND with fine to medium angular gravel		
4.40	D2				(1.00)			
					5.00	Complete at 5.00m		

Remarks
Groundwater not encountered.

Scale (approx)	Logged By
1:50	ML

Figure No.
J12150.BH3

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 25 Kings Mews, London WC1N 2JB	Number BH2
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)**	**Client** Mrs Clare Leavenworth Bakali	**Job Number** J12150
	Location	**Dates** 29/06/2012	**Engineer** Teckniker	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Concrete with 9 mm reinforcement		
					0.20			
					(0.30)	Made Ground (crushed brick fill)		
					0.50			
					(0.10)	Concrete		
					0.60			
					(0.40)	Made Ground (brown clayey sandy silt with gravel, brick and concrete fragments)		
1.00	D1				1.00			
						Made Ground (dark brown mottled black clayey silt with gravel, ash, brick, coal and charcoal fragments)		
					(1.50)			
					2.50			
2.60	D2				(0.50)	Made Ground (orange-brown silty sandy clay with gravel and brick fragments)		
					3.00			
						Made Ground (dark grey silty organic clay)		
					(1.00)			
4.00-5.00	D3				4.00			
						Orange-brown silty coarse SAND with fine to medium angular gravel		
					(1.00)	Strata damp at 5.5 m.		
					5.00			
						Complete at 5.00m		

Remarks
Groundwater not encountered.

Scale (approx)	Logged By
1:50	ML

Figure No.
J12150.BH2

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 25 Kings Mews, London WC1N 2JB	Borehole Number BH1
Boring Method Cable Percussion	Casing Diameter 150mm cased to 6.00m	Ground Level (mOD)	Client Mrs Clare Leavenworth Bakali	Job Number J12150
	Location	Dates 28/06/2012	Engineer Teckniker	Sheet 2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.50	D14									
11.00-11.45 11.00	SPT N=25 D15	6.00	DRY	4,5/6,6,6,7						
12.00	D16									
12.50-12.95	U3			25 blows						
						(6.50)				
13.50	D17									
14.00-14.45 14.00	SPT N=27 D18	6.00	DRY	6,5/6,6,7,8						
15.00	D19									
15.50-15.95	U4			26 blows						
						16.00	Very stiff fissured very high strength dark grey CLAY with occasional partings of pale grey silt, shells and traces of selenite			
16.50	D20									
17.00-17.45 17.00	SPT N=33 D21	6.00	DRY	7,6/7,7,8,11						
18.00	D22					(4.00)				
18.50-18.95	U4			30 blows						
19.55-20.00 19.55	SPT N=37 D24	6.00	DRY	5,6/8,8,9,12						
						20.00				

Remarks	Scale (approx)	Logged By
	1:50	ML
	Figure No. J12150.BH1	

GEA Geotechnical & Environmental Associates	Tyttenhanger House, Coursers Road, St Albans, AL4 0PG	Site: 25 Kings Mews, London WC1N 2JB	Borehole Number: BH1
Boring Method: Cable Percussion	Casing Diameter: 150mm cased to 6.00m	Ground Level (mOD):	Client: Mrs Clare Leavenworth Bakali
	Location:	Dates: 28/06/2012	Engineer: Teckniker

Job Number: J12150

Sheet: 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(0.20)	Concrete with 9 mm reinforcement			
0.30	D1					0.20	Made Ground (crushed brick fill)			
0.50	D2					(0.80)				
						1.00	Made Ground (dark brown sandy silt with gravel, ash, brick, concrete and coal fragments)			
1.20-1.65	CPT N=5	1.00	DRY	1,2/1,1,1,2						
1.20	D3									
1.85	D4									
2.00-2.45	CPT N=10	2.00	DRY	1,2/4,2,2,2						
2.00	D5					(2.60)				
2.75	D6									
3.00-3.45	CPT N=12	3.00	DRY	1,1/3,3,3,3						
3.00	D7									
3.60	D8					3.60 (0.30)	Brown silty fine to medium SAND with fine to medium gravel			
						3.90	Dense sandy medium to coarse GRAVEL			
4.00-4.45	CPT N=37	4.00	DRY	5,8/8,9,9,11						
4.00-4.45	B1									
						(1.20)				
4.75	D9									
5.00-5.45	CPT N=14	5.00	DRY	5,4/5,3,3,3		5.10	Stiff brown fissured silty CLAY			
5.00-5.45	B2									
						(0.90)				
6.00	D10					6.00	Stiff becoming very stiff fissured high strength dark grey fsilty CLAY with traces of selenite, pockets of pale grey silt and occasional shells and pyrite nodules			
6.50-6.95	U1			18 blows						
7.50	D11					(3.50)				
8.00-8.45	SPT N=22	6.00	DRY	3,4/5,5,5,7						
8.00	D12									
9.00	D13									
9.25	D23									
9.50-9.95	U2			23 blows		9.50	Very stiff fissured high strength dark grey silty CLAY with partings of brownish grey silt and traces of selenite			

Remarks
Groundwater not encountered.
Unloading and setting up rig for 1 hr.
Excavating services inspection pit from GL to 1.2 m for 1 hr.
Water addedd to aid drilling from 3.5 m to 5.1 m.
Groundwater monitoring standpipe installed in borehole to a depth of 6 m.
Dismantle rig and loading up for 1 hr.
Groundwater monitoring visit on 4/7/12 recorded groundwater at a depth of 3.9 m.
Groundwater monitoring visit on 24/7/12 recorded groundwater at a depth of 4.2 m.

Scale (approx)	Logged By
1:50	ML

Figure No. J12150.BH1

APPENDIX

Borehole Records

SPT Summary Sheet

Dynamic Probe Records

Trial Pit Records

Geotechnical Test Results

SPT & Cohesion / Depth Graph

Chemical Analyses (Soil)

Generic Risk Based Screening Values

Envirocheck Extracts

Historical Maps

Site Plan

has indicated that the existing foundations are bearing on made ground and therefore extending the foundations to more a competent strata will improve the stability of the overall structure.

The site is not located on a slope of greater than 7° and nor will the proposed development alter existing or create new slopes of such angles. Therefore the new basement development will not have an effect on slope stability and a slope stability analysis should not be required.

10.0 OUTSTANDING RISKS AND ISSUES

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive, but covers the main areas where additional work may be required.

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

Continued monitoring of the standpipe installed in the borehole should be carried out to allow equilibrium groundwater levels to be established and the magnitude of any seasonal variations in level to be determined. In addition, it has been recommended within this report that trial excavations are carried out, in order to suitably assess the stability of the made ground. This should be carried out if traditional mass concrete underpinning is considered for the excavation of the proposed basement structure.

These areas of doubt should be drawn to the attention of prospective contractors and sufficient contingency should be provided to cover the outstanding risk.

gradient as result of these groundwater level fluctuations, may also give rise to higher flow velocities at the sides of the basement structure, which could result in the subsurface erosion or piping of loose sandy material. This could cause a loss of material from around and below foundations of adjacent properties and therefore cause instability. All of these factors should be considered in assessing the likely effect of the proposed basement structure on the hydrogeological setting.

Groundwater has been recorded in the Lynch Hill Gravel during monitoring visits at depths of 3.9 m and 4.2 m. This is likely to be close to the formation level, although it should be noted that, the groundwater levels measured are not considered to represent equilibrium level, particularly as the window sampler boreholes, advanced to a depth of 5.0 m, did not encounter groundwater. The groundwater table would therefore be expected to be at greater depths than those indicated by the monitoring to date. On this basis the basement excavation is unlikely to encounter groundwater and therefore will not have an impact on the local hydrogeology. However, it is recommended that further monitoring is carried out in order to establish equilibrium levels, as seasonal variations in groundwater level would be expected to occur, although it should be noted that this investigation and subsequent groundwater monitoring has been carried out during a period of abnormally high rainfall for the time of year. Groundwater level would therefore not be expected to rise significantly.

As the site is occupied in its entirety by the present building in the existing condition, the current proposals will not increase the proportion of hard surfaced areas on the site and therefore the volume of surface water inflow from surface run-off is unlikely to change due to the proposed development. The desk study research has indicated that the site is not within close proximity of the Hampstead Ponds and nor is it located in close proximity to an existing or historical water course. Therefore the site is not at risk from flooding and in particular the site is not located within an area at risk from surface water flooding. On this basis a flood risk assessment should not be required.

Location of public highway

The road structure of King's Mews is located adjacent to the western boundary of the site. The stability of this structure, and the other surrounding structures, should be ensured at all times. Given the size of the site, the excavation of the basement is unlikely to compromise the stability of the highway, provided that the basement retaining walls are designed to current best practise, including the use of temporary support systems where necessary, as detailed within this report.

The basement increasing the differential depth of foundations

As the site forms part of a terrace of buildings, existing party wall foundations will need to be underpinned or supported by new retaining walls. Consideration maybe given to the use of traditional concrete underpinning, although due to the thickness of made ground present on site, it is recommended that trial excavations are carried out in order to check the stability of the fill material. It is possible that this method may result in loss of ground from below existing foundations. This should not be an issue provided that the existing foundations are sufficiently able to bridge across any loose material. Minimising the width of the individual underpins would be beneficial in this respect.

As detailed above, provided that the basement structure is designed and constructed using current best practise, there is no reason for the excavation of the basement to cause instability of the surrounding structures. In fact, the trial pitting carried out as part of this investigation,

The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing. If consideration were to be given to the re-use of the soil as a structural fill on this or another site, in accordance with the Code of Practice for the definition of waste, it would be necessary to confirm its suitability for use, its certainty of use and to confirm that only as much material is to be used as is required for the specific purpose for which it was being used. A materials management plan could then be formulated and a tracking system put in place such that once placed the material would no longer be regarded as being a waste and thus waste management licensing and landfill tax would not apply.

9.0 BASEMENT IMPACT ASSESSMENT

The screening identified a number of potential impacts. The desk study and ground investigation information has been used below to review the potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

The table below summarises the previously identified potential impacts and the additional information that is now available from the site investigation in consideration of each impact.

Screening Flowchart Question	Site Investigation Conclusions
Is the site directly underlain by an aquifer? Will the proposed basement extend beneath the water table?	The investigation has confirmed that the site is underlain by Lynch Hill Gravel, a Secondary 'A' Aquifer. On the basis of the findings of the investigation the proposed basement will not be located below the measured groundwater level and therefore will not have an effect on the local hydrogeology.
12. Is the site within 5 m of a highway or pedestrian right of way?	King's Mews runs adjacent to the western boundary of the site.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	In order to excavate the basement, the existing foundations will need to be underpinned or supported by new retaining walls. The extension of the foundations will increase the differential depth of foundations.

The results of the site investigation have therefore been used below to review the remaining potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

Site is underlain by an aquifer

The current development proposal includes the excavation of a 3 m deep basement, prior to the construction a new three-storey terraced house. The formation level of the final basement will be within the made ground, although foundations will need to extend to a depth of 4.0 m to bear on the Lynch Hill Gravel.

Where the construction of a basement intercepts the groundwater table, groundwater will be diverted around the basement structure. The effect that this will have on groundwater flow will be largely governed by several factors, including the gradient of the local topography and thus the groundwater level contours, the permeability of the underlying geology and the shape and orientation of the basement structure compared to the local topography and groundwater flow direction. These factors may lead to a rise in the upstream groundwater level and reduction in downstream groundwater level, which has the potential to affect the local hydrogeology and sensitive features, such as springs and wells. The increase in hydraulic

Local Authority Environmental Health Officer.

A watching brief should also be maintained during the groundwork, and if suspicious soils are encountered then a suitably qualified engineer should inspect the soils and further testing carried out if required.

8.8 Waste Disposal

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE guidance[10], will need to be disposed of to a licensed tip. Under the European Waste Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste going to landfill is subject to landfill tax at either the standard rate of £64 per tonne (about £120 per m^3) or at the lower rate of £2.50 per tonne (roughly £5 per m^3). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring rocks and soils, which are accurately described as such in terms of the 2011 Order[11], would qualify for the 'lower rate' of landfill tax.

Based upon on the technical guidance provided by the Environment Agency[12] it is considered likely that the made ground from this site, as represented by the chemical analyses carried out, would be classified as HAZARDOUS waste under the waste code 17 05 04 (soils and stones containing dangerous substances) and would be taxable at the standard rate. It is likely that the natural soils, if separated out, could be classified as an INERT waste also under the waste code 17 05 03. This material would be taxable at the lower rate, if accurately described as naturally occurring clay in terms of the 2011 Order on the waste transfer note. As the site has not had a potentially contaminative history, WAC leaching tests are unlikely to be required for such inert waste going to landfill. This would however need to be confirmed by the receiving landfill site.

Under the requirements of the European Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper[13] which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be "segregated" on site by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils and its likely landfill taxable rate is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified.

Association

10 CL:AIRE (2011) *The Definition of Waste: Development Industry Code of Practice* Version 2, March 2011

11 *Landfill Tax (Qualifying Material) Order 2011*

12 Environment Agency (2008) *Hazardous Waste: Interpretation of the definition and classification of hazardous waste. Technical Guidance* WM2 Second Edition Version 2.2, May 2008

13 Regulatory Position Statement (2007) *Treating non-hazardous waste for landfill - Enforcing the new requirement* Environment Agency 23 Oct 2007

site.

8.5 Basement Floor Slabs

Following the excavation of the basement, it should be possible to adopt a ground bearing slab following a proof rolling exercise and the infilling of any soft spots with suitably compacted granular fill. Consideration may need to be given to suspending the slab over a void in order to accommodate heave movements, unless the slab can be suitably reinforced to cope with these pressures. This should be reviewed once the levels and loads are known. Groundwater has been measured close to the base of the proposed basement excavation and therefore there may be a requirement to design the slab to withstand groundwater pressure. BS8102 states that for basements not exceeding 4m deep, a design water level should be ¾ of the depth of the excavation.

8.6 Effect of Sulphates

Moderate concentrations of total sulphate have been measured in selected soil samples and therefore indicate that buried concrete could be designed in accordance with Class DS-2 conditions of Table C2 of BRE Special Digest 1: SD1 Third Edition (2005). The measured pH conditions are near neutral and therefore on the basis of mobile groundwater conditions being assumed for buried concrete an ACEC classification of AC-2 may be adopted.

The guidelines contained in the above digest should be followed in the design of foundation concrete.

8.7 Site Specific Risk Assessment

The results of chemical testing have indicated elevated concentrations of lead and total organic carbon within the made ground. Although the exact source is unknown, the made ground was noted as containing abundant amounts of extraneous material, such as coal, charcoal, brick and concrete and it is therefore likely that the contamination is attributable to fragments of such material being present in the sample tested. Lead is a common constituent of made ground that may include products of demolition, as it can originate from paint, roofing materials and pipework, amongst other sources.

Whilst the above contamination can pose a risk to end users, the proposed building will occupy the whole site, thus providing a barrier between any contamination in the made ground and sensitive receptors. In any case, the excavation of the basement is likely to remove the majority of the made ground from site, therefore removing the source of the contamination. On this basis, remediation in order to protect end users is not envisaged.

The contamination does however pose a risk to site workers in the short term.

8.7.1 Site Workers

The chemical analyses have highlighted the presence of lead concentrations within the made ground, which could be potentially toxic and pose an unacceptable risk to human health through direct contact, accidental ingestion or inhalation of soil or soil derived dust. Site workers should be made aware of the potential contamination and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE[8] and CIRIA[9] and the requirements of the

8 HSE (1992) HS(G)66 *Protection of workers and the general public during the development of contaminated land* HMSO

9 CIRIA (1996) *A guide for safe working on contaminated sites* Report 132, Construction Industry Research and Information

The basement excavation will result in a net unloading of approximately 55 kN/m^2, although the total unloading will be higher due to the unloading of the soil through the demolition of the existing buildings. This unloading will result in heave of the underlying soils, which will be resisted to some extent by the remaining thickness of gravel and the loads applied by the new buildings. The raft would need to be designed to be rigid to resist the variation in upwards and downwards forces and it is recommended that further analysis of the likely movements is carried out if a raft foundation is considered and once the loads and design have been finalised.

8.4 Piled Foundations

Should piled foundations be considered, for the ground conditions at this site, some form of bored pile is likely to be the most appropriate type. A conventional rotary augered pile may be appropriate, with temporary casing installed into the top of the clay in order maintain stability and prevent perched groundwater inflows. Alternatively the use of bored piles installed using continuous flight auger (cfa) techniques could be considered, which would not require the provision of temporary casing. The final choice of pile type will be largely governed by the access restrictions and working area, which at this site is very small and it is most likely that the use of mini piling techniques will be required.

The following table of ultimate coefficients may be used for the preliminary design of bored piles, which have been based on the SPT & Cohesion / depth graph in the appendix.

Ultimate Skin Friction		**kN/m^2**
Made Ground	All soil above 4.0 m	Ignore (basement)
Lynch Hill Gravel	4.0 m to 5.0 m	25
London Clay ($\alpha = 0.5$)	5.0 m to 15.0 m	Increasing linearly from 35 to 75
Ultimate End Bearing		**kN/m^2**
London Clay	12.0 m to 15.0 m	Increasing linearly from 1170 to 1395

In the absence of pile tests, guidance from the London District Surveyors Association[7] (LDSA) suggests that a factor of safety of 2.6 should be applied to the above coefficients in the computation of safe theoretical working loads. On the basis of the above coefficients and a factor of safety of 2.6, it has been estimated that a 300 mm diameter pile founding at a depth of, 12 m below ground level, should provide a safe working load of about 165 kN. Alternatively, a 300 mm diameter pile founding at a depth of 15 m below ground level should provide an increased safe working load of 245 kN.

The above examples are not intended to constitute any form of recommendation with regard to pile size or type, but merely serve to illustrate the use of the above coefficients. Specialist piling contractors should be consulted with regard to the design of a suitable piling scheme for this

7 LDSA (2009) *Foundations No 1 – Guidance notes for the design of straight shafted bored piles in London Clay.* LDSA Publication

within the basement.

The ground movements associated with the basement excavation will depend on the method of excavation and support and the overall stiffness of the basement structure in the temporary condition. Thus, a suitable amount of propping will be required to provide the necessary rigidity. In this respect the timing of the provision of support to the wall will have an important effect on movements.

8.1.1 Basement Retaining Walls

The following parameters are suggested for the design of the permanent basement retaining walls.

Stratum	Bulk Density (kg/m^3)	Effective Cohesion (c' – kN/m^2)	Effective Friction Angle (Φ' – degrees)
Made ground	1800	Zero	27
Lynch Hill Gravel	1850	Zero	36
London Clay	2000	Zero	25

Groundwater is unlikely to be encountered within the excavation, although monitoring of the standpipe should be continued in order to establish equilibrium levels. Consideration should be given to the risk of groundwater and surface water collecting behind the retaining walls and unless a fully effective drainage system can be ensured it would be prudent to assume a design water level equivalent to two-thirds of the retained height. The advice in BS8102:2009[6] should be followed in the design of the basement retaining walls and with regard to waterproofing requirements.

8.1.2 Basement Heave

The excavation of an approximately 3.0 m thickness of soil will result in an unloading of about 55 kN/m^2. This unloading will result in heave of the underlying London Clay, which will comprise short term elastic movement and longer term swelling that will continue over a number of years. These movements will be mitigated to some extent by the remaining thickness of gravel and the pressure applied by the proposed building, although it is recommended that a more detailed analysis of the possible heave should be carried out once the basement design has been finalised.

8.2 Spread Foundations

The excavation of the basement will result in a formation level within the made ground. Therefore foundations will need to extend to a depth of 4.0 m in order to bear within the Lynch Hill Gravel. It should be possible to adopt moderate width pad or strip foundations in the dense sand and gravel, designed to apply a net allowable bearing pressure of 180 kN/m^2. This value incorporates an adequate factor of safety to protect against bearing capacity failure and should ensure that settlement remains within normal tolerable limits.

8.3 Basement Raft Foundation

The suitability of a raft foundation will depend on the net pressure applied by the new structure at basement level, which is likely to be relatively low given the proposed three-storey domestic buildings.

6 BS8102 (2009) *Code of practice for protection of below ground structures against water from the ground*

- the contamination analysis has indicated elevated concentrations of lead and total organic carbon to be present in the made ground;

8.0 ADVICE AND RECOMMENDATIONS

Excavations for the proposed basement structure will require temporary support to maintain stability of the surrounding structures and to prevent any excessive ground movements. Based on the groundwater observations to date, groundwater is not expected to be encountered within the basement excavation.

The excavation of a 3 m deep basement will result in a formation level in the made ground. Therefore foundations will need to extend to a depth of 4.0 m in order to bear within the Lynch Hill Gravel, which should provide an eminently suitable bearing stratum for spread foundations excavated from basement level.

8.1 Basement Excavation

It is understood that it is proposed to excavate a single level basement to a depth of 3.0 m below existing ground level. Groundwater has been measured at depths of 3.9 m and 4.2 m on two occasions over a one month period, although it is not thought that the standpipe had reached an equilibrium level and therefore theses measurements are not considered to represent true groundwater level. This is particularly so as the window sampler boreholes, advanced to a depth of 5.0 m, did not encounter groundwater. It would therefore be prudent to continue monitoring the standpipe in order to establish equilibrium levels, although on the basis of the groundwater observations to date, groundwater is not expected to be encountered in the basement excavation.

The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation and surrounding structures and to protect against perched groundwater inflows. The choice of wall may be governed to a large extent by the access restrictions and will depend, to a large extent, on the need to protect nearby structures from movements, the required overall stiffness of the support system, and the need to control groundwater movement through the wall in the temporary condition. In view of the fact that the existing building, which is to be demolished, forms part of a terrace of buildings, the stability of neighbouring structures, including the existing highway, will be paramount.

The best option of forming the basement retaining walls is likely to be through the use of traditional concrete underpinning constructed by means of a "hit and miss" approach. The viability of this method will depend on whether or not the made ground will remain sufficiently stable to allow the underpins to be formed and whether significant groundwater inflows are encountered. It is possible that this method will result in localised instability of the made ground and consequent loss of ground from below adjacent foundations. This may not be significant if the foundations are relatively deep and / or are sufficiently stiff to bridge over any loosened areas. In this respect trial excavations to the proposed basement depth should be carried out to confirm the stability of the soil and whether or not any groundwater inflows can be suitably controlled. If trial excavations indicate traditional underpinning to be impractical, consideration could be given to the use of jet grouting or bored pile retaining walls.

Consideration could be given to the use of a contiguous bored pile wall, with localised grouting to prevent any perched water inflows. However, the use of a secant bored pile wall would negate the need for secondary groundwater control and maximise the usable space

Part 2: DESIGN BASIS REPORT

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to foundation options and other aspects of the development.

6.0 INTRODUCTION

Consideration is being given to the redevelopment of this site through the demolition of the existing building and the subsequent construction of a new three-storey terraced house that will include a single level basement to a depth of 3.0 m. Loads are not known at this stage but are anticipated to relatively light to moderate.

7.0 GROUND MODEL

The desk study has revealed that the site has not had a potentially contaminative history, having apparently been developed with the existing terraced building throughout its developed history. On the basis of the fieldwork, the ground conditions at this site can be characterised as follows.

- Beneath a surface covering of concrete hardstanding and a significant thickness of made ground, Lynch Hill Gravel is present overlying the London Clay Formation, which was proved to the maximum depth investigated;
- the concrete hardstanding is 200 mm in thickness and reinforced with 9 mm reinforcement;
- the made ground extends to depths of between 3.6 m and 4.0 m and generally comprises a layer of crushed brick fill over dark brown clayey sandy silt with gravel, brick, concrete, charcoal and coal fragments;
- the Lynch Hill Gravel comprises dense orange-brown silty coarse sand with fine to medium angular gravel and extends to a depth of 5.1 m;
- below the granular soils, weathered London Clay is present and comprises stiff fissured brown silty clay, which extends to a depth of 6.0 m;
- below this depth typical unweathered London Clay is present and comprises stiff becoming very stiff fissured high strength dark grey silty clay with traces of selenite, pockets of pale grey silt and occasional shells and pyrite nodules;
- the above horizon extends to a depth of 9.5 m, whereupon very stiff fissured very high strength silty clay with partings of brownish grey silt, traces of selenite and occasional shells, that become progressively less silty with depth and was proved to the maximum depth investigated of 20.0 m;
- groundwater has been measured at a depths of 3.9 m and 4.2 m during two monitoring visits, carried out over a one month period; and

Trial Pit Nos 3 and 6 were excavated adjacent to the southern elevation and were terminated at depths of 1.1 m and 1.4 m, without proving the base of the footings. Both trial pits were terminated within the made ground, although Trial Pit No 6 encountered a concrete footing at a depth 0.9 m, whilst Trial Pit No 3 had not encountered a footing at 1.1 m. In Trial Pit No 4, the eastern elevation was found to be supported by a concrete footing, although the base of the footing was not proved, with the trial pit being terminated in the made ground at a depth of 0.95 m, due to a concrete obstruction and the 'rubbly' nature of the made ground.

Trial Pit Nos 2, 5 and 7 were excavated adjacent to the northern elevation. Trial Pit 2 encountered a concrete footing bearing on the made ground at a depth of 1.0 m below ground level. Trial Pit Nos 5 and 7 were however terminated within the made ground at depths of 1.3 m and 1.1 m respectively, without the base of the footing bearing proved.

Minor instabilities occurred within the made ground, although groundwater was not encountered in any of the trial pits. Logs and photographs are included within the appendix.

available, or is a Generic Guideline Value calculated using the CLEA UK Version 1.06 software assuming a residential end use. The key generic assumptions for this end use are as follows:

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be a young female child aged 0 to 6 years old;
- that young children will not have prolonged exposure to the site;
- that the exposure duration will be 6 years;
- that the critical exposure pathways will be direct soil and indoor dust ingestion, consumption of homegrown produce, consumption of soil adhering to homegrown produce, skin contact with soils and dust, and inhalation of dust and vapours; and
- that the building type equates to a two-storey small terraced house

It is considered that these assumptions are acceptable for this generic first assessment of this site, albeit slightly conservative. As the proposed house and basement cover the entire site, the majority of the exposure pathways between the contamination and end users are not considered to be active. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix. The risk to groundwater is considered later in the report.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include:

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

The significance of these results is considered further in Part 2 of the report.

5.6 Existing Foundations

Trial Pit No 1 was excavated adjacent to the western elevation and encountered a concrete footing bearing on made ground at a depth of 0.9 m below ground level.

for specific contaminants; all DEFRA and Environment Agency.

inflows. Subsequent monitoring visits, carried out approximately one week and three weeks after installation, recorded groundwater at depths of 3.9 m and 4.2 m respectively. The depths recorded are not thought to represent groundwater equilibrium levels, particularly as the window sampler boreholes, which were advanced to a depth of 5.0 m, did not encounter groundwater. It would therefore be prudent to carry out further monitoring.

5.4 Soil Contamination

The table below sets out the values measured within four samples analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	Maximum concentration recorded (mg/kg)	Minimum concentration recorded (mg/kg)	Number of samples below detection limit	Normalised upper bound US_{95}
pH	11.4	8.1	-	-
Arsenic	22	11	None	22.3
Cadmium	<0.1	<0.1	All	<0.1
Chromium	15	11	None	16.4
Copper	240	66	None	224.6
Mercury	1.2	0.63	None	1.2
Nickel	31	11	None	31.3
Lead	**2100**	260	None	**1877.6**
Selenium	0.97	<0.20	1	0.9
Zinc	110	47	None	116.3
Total Cyanide	<0.5	<0.5	All	<0.5
Total Phenols	<0.3	<0.3	All	<0.3
Sulphide	12	2.2	None	10.5
Total TPH	18	<10	2	17.2
Naphthalene	<0.1	<0.1	All	<0.1
Benzo(a)pyrene	<0.1	<0.1	All	<0.1
Total PAH	3	<2	3	2.8
Total organic carbon %	**27**	4.1	None	**25.4**

Note: Figure in bold indicates concentration in excess of risk-based soil guideline values, as discussed below

The results of the contamination testing have indicated elevated concentrations of lead and total organic carbon in samples of the made ground tested.

4.5.1 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. To this end the contaminants of concern are those that have values in excess of a generic human health risk based guideline value, which is either that of the CLEA[5] Soil Guideline Value where

5 *Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009* and Soil Guideline Value reports

are likely to be involved in a human exposure or groundwater pathway and to provide advice in respect of re-use or for waste disposal classification.

The contamination analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. Details of the MCERTs accreditation and test methods are included in the Appendix together with the analytical results.

5.0 GROUND CONDITIONS

The investigation has encountered the expected ground conditions in that, below a surface covering of concrete hardstanding and a significant thickness of made ground, Lynch Hill Gravel was encountered and was in turn underlain by the London Clay Formation, which was proved to the maximum depth investigated.

5.1 Made Ground

The concrete was found to be 200 mm in thickness and reinforced with 9 mm reinforcement. The underlying made ground extended to depths of 3.6 m and 4.0 m and generally comprised a layer of crushed brick fill over dark brown clayey sandy silt with gravel, brick, concrete, charcoal and coal fragments.

With the exception of notable fragments of extraneous material, such as ash, brick and coal fragments, no visual or olfactory evidence of significant contamination was observed within these soils, although four samples have been analysed for a range of contaminants and the results are discussed in Section 5.5.

5.2 Lynch Hill Gravel

The underlying Lynch Hill Gravel comprised orange-brown silty coarse sand with fine to medium angular gravel and extended to a depth of 5.1 m. The results of dynamic probing and SPTs have indicated the sand to be in a dense condition.

These soils were observed to be free of any contamination.

5.2 London Clay

This stratum comprised an initial weathered horizon of stiff fissured brown silty clay, to a depth of 6.0 m, which was underlain by typical unweathered London Clay, comprising stiff becoming very stiff fissured high strength dark grey silty clay with traces of selenite, pockets of pale grey silt and occasional shells and pyrite nodules. This horizon extended to a depth of 9.5 m, whereupon very stiff fissured very high strength silty clay with partings of brownish grey silt, traces of selenite and occasional shells, that become progressively less silty with depth and was proved to the maximum depth investigated of 20.0 m.

Plasticity index tests have indicated the clay to be of high shrinkability. These soils were observed to be free of any evidence of soil contamination.

5.3 Groundwater

Groundwater was not encountered during the drilling of the boreholes, although the necessary addition of water to the boreholes to aid drilling within the gravel may have masked any

Screening Flowchart Question	Potential Impact
Is the site directly underlain by an aquifer?	The site is underlain by the Secondary Aquifer of the Lynch Hill Gravel. These soils are capable of supporting groundwater supplies at a local level and in some cases form an important source for river base flow. Should the groundwater intercept the groundwater, it can cause fluctuations in local groundwater levels.
Will the proposed basement extend beneath the water table?	Being underlain by a Secondary A aquifer it is possible that the proposed basement will extend beneath the water table, which can cause fluctuations in local groundwater levels. This is more the case if foundations penetrate the base of the granular soils and bear in the underlying London Clay.
12. Is the site within 5 m of a highway or pedestrian right of way?	King's Mews runs adjacent to the western boundary of the site. The excavation of the basement may result in loss of ground from below the highway, causing instability. The stability of the highway and other surrounding structures will need to be ensured at all times.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	In order to excavate the basement, the existing foundations will need to be underpinned or supported by new retaining walls. The extension of the foundations may cause instability of adjacent properties and this will need be checked during the design of the basement retaining walls.

These potential impacts have been investigated through the site investigation, as detailed below.

4.2 Exploratory Work

In order to meet the objectives described in Section 1.2, a single cable percussion borehole was drilled using a dismantlable cable percussion rig to a depth of 20.0 m. Standard penetration tests (SPTs) were carried out at regular intervals in the borehole and disturbed and undisturbed samples were recovered for subsequent laboratory examination, geotechnical testing and contamination analysis. A groundwater monitoring standpipe was installed in the borehole to a depth of 6.0 m and has subsequently been monitored on two occasions over a one month period.

The deep borehole was supplemented by two window sampler boreholes, advanced to a depth of 5.0 m, and two dynamic probes, advanced to depths of 7.0 m. In addition, a series of six trial pits was manually excavated adjacent to various elevations in order to determine the configuration of existing foundations.

The borehole, dynamic probe and trial pit records and results of the laboratory analyses are appended, together with a site plan indicating the exploratory positions.

4.3 Sampling Strategy

The boreholes and dynamic probes were positioned on site by GEA in accessible areas in order to provide coverage of the site, whilst avoiding known buried services. The trial pit locations were specified by the consulting engineers and confirmed on site by GEA.

Four samples of made ground were subjected to analysis for a range of common industrial contaminants and contamination indicative parameters. For this investigation the analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The soil sample was selected to provide a general view of the chemical conditions of the soils that

Question	Response for 25 Kings Mews
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	No
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	No
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	No
5. Is the London Clay the shallowest strata at the site?	No
6. Will any trees be felled as part of the proposed development and / or are any works proposed within any tree protection zones where trees are to be retained?	No
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	No
8. Is the site within 100 m of a watercourse or potential spring line?	No
9. Is the site within an area of previously worked ground?	No
10. Is the site within an aquifer?	Yes
11. Is the site within 50 m of Hampstead Heath ponds?	No
12. Is the site within 5 m of a highway or pedestrian right of way?	Yes
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Yes
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No

The above assessment has identified the following potential issues that need to be assessed:

Q10 The site is within an aquifer.
Q12 The site is within 5 m of a highway.
Q13 The basement will increase the differential depth of foundations relative to neighbouring properties.

4.0 SCOPING AND SITE INVESTIGATION

The purpose of scoping is to assess in more detail the factors to be investigated in the impact assessment. Potential impacts are assessed for each of the identified potential impact factors.

4.1 Potential Impacts

The following potential impacts have been identified.

Question	Response for 25 King's Mews
1. Is the site within the catchment of the pond chains on Hampstead Heath?	No
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No
4. Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	No
5. Will the proposed basement result in changes to the quantity of surface water being received by adjacent properties or downstream watercourses?	No
6. Is the site in an area known to be at risk from surface water flooding such as South Hampstead, West Hampstead, Gospel Oak and Kings Cross, or is it at risk of flooding because the proposed basement is below the static water level of a nearby surface water feature?	No

3.1.2 Hydrogeological

Question	Response for 25 King's Mews
1a. Is the site located directly above an aquifer?	Yes
1b. Will the proposed basement extend beneath the water table surface?	Unknown / possible
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	No
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No
5. As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to or lower than, the mean water level in any local pond or spring line?	No

The above assessment has identified the following potential issues that need to be assessed:

Q1a The site is located directly above an aquifer.
Q1b It is possible that the proposed basement will extend below the water table.

3.1.3 Slope Stability

Question	Response for 25 Kings Mews
1. Does the existing site include slopes, natural or manmade, greater than 7°?	No

the existing concrete hardstanding was noted to be in good condition with no visible signs of past leakage or staining. There are thus no sources of contamination on the site.

Apart from a small vehicle repair garage, approximately 100 m north of the site, there have been no off-site potential sources of contamination identified.

2.6.2 Receptor

It is proposed to redevelop the site with a new three-storey residential house and therefore end users represent relatively high sensitivity receptors. The underlying Lynch Hill Gravel is classified as a Secondary A aquifer; therefore groundwater and thus off site sensitive receptors are considered to be potential receptors. Site workers will come into contact with underlying soils during the construction phase, as will new buried services.

2.6.3 Pathway

The new terraced house will occupy the whole of the site with no areas of soft landscaping proposed; end users will therefore be isolated from the underlying soils by the presence of the new development. In addition, the excavation of the basement is likely to remove any made ground from below the site and thus remove any contamination within the fill materials. Being underlain by a Secondary A Aquifer, the groundwater is considered to be a potential pathway for mobile contaminants to move off site. The construction phase is also considered to be a pathway by which site workers and new buried services may come in contact with any contamination.

2.6.4 Preliminary Risk Appraisal

On the basis of the above it is considered that there is a very low risk of there being a significant contaminant linkage at this site, which would result in a requirement for major remediation work. Furthermore as there is no evidence of filled ground within the vicinity, there is not considered to be a significant potential for hazardous soil gas to be present on or migrating towards the site: there should thus be no need to consider soil gas exclusion systems.

3.0 SCREENING

The LBC guidance suggests that any development proposal that includes a subterranean basement should be screened to determine whether or not a full BIA is required.

3.1 Screening Assessment

A number of screening tools are included in the Arup document and for the purposes of this report reference has been made to Appendices E1, E2 and E3 which include a series of questions within screening flowcharts for surface flow and flooding, subterranean (groundwater) flow and land stability. The flowchart questions and responses to these questions are tabulated below.

3.1.1 Hydrological

This element of the BIA is provided for guidance only and should be confirmed by a suitably qualified engineer experienced in carrying out surface water assessments.

The topographical maps show that there are no surface water features within 1 km of the site, which is also not located in the catchment of the Hampstead Ponds. The site is not within an area at risk from flooding as defined by the EA and in addition, King's Mews is not listed as being at risk from surface water flooding, nor is there a record of it having suffered from such an event in the past.

Historically, a tributary of the River[4] Fleet, one of London's "lost" rivers, flowed in a easterly direction approximately 200 m to the north of the site, as shown by the adjacent map extract. The source of this river is in Hampstead, north London and flowed in a generally southerly direction towards the River Thames. The tributary to the north of the site, issued into the main river channel to the west of the site, from where the river flowed south along Farringdon Road and issued into the Thames below Blackfriars Bridge. Although the river is no longer an open water course, surface and near surface waters, along with groundwater within the Lynch Hill gravel, will still flow towards the former river course, which has mostly been culverted or diverted through sewers. Groundwater below the site is therefore likely to be flowing in an easterly / southeasterly direction, with the local topography and towards the former river course.

The permeability of the Lynch Hill Gravel is expected to range between about 1 x 10^{-6} m/s and 1 x 10^{-4} m/s, whereas in contrast, any groundwater flow within the London Clay will be at a very slow rate, due to its negligible permeability. The permeability will be predominantly secondary, through fissures in the clay. Published data indicates the horizontal permeability of the London Clay to generally range between 1 x 10^{-11} m/s and 1 x 10^{-9} m/s.

The site is completely covered by the existing building and therefore there is currently very little opportunity for infiltration of rain water into the ground beneath the site and the majority of surface runoff is likely to drain into combined sewers in the road.

2.6 Preliminary Risk Assessment

Part-IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach, which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

2.6.1 Source

The historical usage of the site that has been established by the desk study and the site walkover indicates that the site does not have a potentially contaminative history by virtue of it having been occupied by the existing terraced building. It is possible that the building has been in use as a light commercial unit comprising a small workshop / garage unit, however

[4] Nicholas Barton (2000) *London's Lost Rivers*. Historical Publications Ltd

to the north and south by No 24 and No 26 King's Mews respectively. The building occupies the whole site with the ground floor occupied by a garage / storage area that is accessed via a roller shutter door. The building was presumably last used as either an office or some form of small-scale workshop. Most of the buildings along the eastern side of King's Mews also appear to be used for commercial purposes, one of which is currently used as a vehicle repair garage. Although the building was generally not in use at the time of the investigation, the ground floor was noted to contain building equipment and materials.

The site is devoid of vegetation and sensibly level, although the surrounding area slopes gently down towards the east / southeast.

2.2 Site History

The site history has been researched by reference to historical Ordnance Survey (OS) maps sourced from the Envirocheck database.

The earliest map studied, Greenwood's Map of London dated 1827, shows King's Mews to have been constructed and the site developed with what was presumably a terraced building. The earliest Ordnance Survey map, dated 1877, shows the site in more detail and appears to show the site to form part of a terraced building that fronted onto both Gray's Inn Road to the east and King's Mews to the west. Some time between 1916 and 1953, the site became separated from the remainder of the terraced building, with the map dated 1953 showing the site in its existing layout and labelled as No 25 King's Mews. The subsequent historical maps suggest that the site has remained unaltered since that time until the present day. In general, the surrounding area has also remained essentially unaltered throughout the 20th Century, although several of the terraced buildings neighbouring the site have undergone minor layout changes.

2.3 Other Information

A search of public registers and databases has been made via the Envirocheck database and relevant extracts from the search are appended. Full results of the search can be provided if required.

The search has revealed that there are no landfills, waste management, transfer, treatment or disposal sites within 500 m of the site. There have also not been any recorded pollution incidents to controlled waters within 250 m of the site.

The search has indicated that the site is located in an area where less than 1% of homes are affected by radon emissions; which is the lowest classification given by the Health Protection Agency (HPA) and therefore no radon protective measures will be necessary.

2.4 Geology

The Geological Survey map of the area (sheet 256) indicates that the site is underlain by Lynch Hill Gravel over the London Clay Formation.

2.5 Hydrology and Hydrogeology

The Lynch Hill Gravel is classified as a Secondary A Aquifer, which refers to a stratum with low permeability that has negligible significance for water supply or river base flow, as defined by the Environment Agency (EA).

Geotechnical Engineering, a chartered geologist (CGeol) and Fellow of the Geological Society (FGS) with 25 years experience in geotechnical engineering, engineering geology and hydrogeology. Both assessors meet the Geotechnical Specialist criteria of the Site Investigation Steering Group and satisfy the qualification requirements of the Council guidance.

1.4 Limitations

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the investigation. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled and the number of soil, gas or groundwater samples tested; no liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by GEA.

2.0 THE SITE

2.1 Site Description

The site is located in central London, approximately 400 m north of Chancery Lane London Underground station and 600 m northwest of Farringdon Railway Station. It may be additionally located by National Grid Reference 530922,182020 and is shown on the map below.

The site forms a rectangular area with dimensions of approximately 16 m east-west by 6 m north-south and is occupied by No 25 King's Terrace, a two-storey terraced building that was vacant at the time of the investigation. The site as a whole fronts onto King's Mews to the west and is bordered to the east by a four-storey building fronting onto Gray's Inn Road and

sourced from the Envirocheck database;

- a walkover survey of the site carried out in conjunction with the fieldwork.

In the light of this desk study an intrusive ground investigation was carried out which comprised, in summary, the following activities:

- a single cable percussion borehole, advanced to a depth of 20.0 m, by means of a demountable cable percussion drilling rig;
- standard penetration tests (SPTs), carried out at regular intervals in the borehole, to provide additional quantitative data on the strength of the soils;
- two window sampler boreholes advanced to a depth of 5.0 m in order to further investigate the shallow ground conditions;
- two dynamic probes advanced to 7.0 m in order to investigate the depth and density of the sand and gravel;
- a series of six manually excavated trial pits, advanced adjacent to various elevations in order to investigate the extent and bearing stratum of existing foundations;
- the installation of a groundwater monitoring standpipe in the cable percussion borehole to a depth of 6.0 m, and two subsequent monitoring visits over a one month period;
- laboratory testing of selected soil samples for geotechnical purposes and for the presence of contamination; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

The report includes a contaminated land assessment which has been undertaken in accordance with the methodology presented in Contaminated Land Report (CLR) 11[1] and involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. The risk assessment is thus divided into three stages comprising Preliminary Risk Assessment, Generic Quantitative Risk Assessment, and Site-Specific Risk Assessment.

1.3.1 Basement Impact Assessment

The work carried out also includes a Hydrogeological Assessment and Land Stability Assessment (also referred to as Slope Stability Assessment), both of which form part of the BIA procedure specified in the London Borough of Camden (LBC) Planning Guidance CPG4[2] and their Guidance for Subterranean Development[3] prepared by Arup. The aim of this work is to provide information on the groundwater conditions specific to this site. The BIA elements of the work have been carried out by Martin Cooper, a BEng in Civil Engineering, a chartered engineer (CEng) and member of the Institution of Civil Engineers (MICE), who has over 20 years specialist experience in ground engineering. The assessment has been made in conjunction with Steve Branch, a BSc in Engineering Geology and Geotechnics, MSc in

1 *Model Procedures for the Management of Land Contamination* issued jointly by the Environment Agency and the Department for Environment, Food and Rural Affairs (DEFRA) Sept 2004
2 London Borough of Camden Planning Guidance CPG4 *Basements and lightwells*
3 Ove Arup & Partners (2010) *Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development.* For London Borough of Camden November 2010

Part 1: INVESTIGATION REPORT

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 INTRODUCTION

Geotechnical and Environmental Associates (GEA) has been commissioned by Techniker, on behalf of Mrs Clare Leavenworth Bakali, to carry out a site investigation at the site of 25 King's Mews, London WC1N 2JB.

This report also forms part of a Basement Impact Assessment (BIA), which has been carried out in accordance with guidelines from the London Borough of Camden in support of a planning application.

1.1 Proposed Development

It is proposed to demolish the existing terraced building and subsequently construct a new three-storey house with a single level basement, which will extend to a depth of approximately 3.0 m.

This report is specific to the proposed development and the advice herein should be reviewed once the development proposals have been finalised.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- to check the history of the site with respect to previous contaminative uses;
- to determine the ground conditions and their engineering properties;
- to assess the possible impact of the proposed development on the local hydrogeology and slope stability;
- to provide advice with respect to the design of suitable foundations and retaining walls;
- to provide an indication of the degree of soil contamination present; and
- to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, followed by a ground investigation. The desk study comprised:

- a review of readily available geological and hydrogeological maps;
- a review of historical Ordnance Survey (OS) maps and environmental searches

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

BRIEF

This report describes the findings of a site investigation carried out by Geotechnical and Environmental Associates Limited (GEA), on the instructions of Techniker, on behalf of Mrs Clare Leavenworth Bakali, with respect to the construction of a new three-storey terraced property with a single level basement. The purpose of the investigation has been to research the history of the site with respect to possible contaminative uses, to determine the ground and hydrogeological conditions, to assess the extent of any contamination and to provide information to assist with the design of the basement and suitable foundations for the proposed development. The report also includes a Basement Impact Assessment carried out in accordance with guidelines from London Borough of Camden in support of a planning application.

DESK STUDY FINDINGS

The earliest map studied, Greenwood's Map of London dated 1827, shows King's Mews to have been constructed and the site developed with what was presumably a terraced building. The earliest Ordnance Survey map, dated 1877, shows the site in more detail and appears to show it to form part of a terraced building that fronted onto both Gray's Inn Road to the east and King's Mews to the west. Some time between 1916 and 1953, the site became separated from the remainder of the terraced building, with the map dated 1953 showing the site in its existing layout and labelled as No 25 King's Mews. The subsequent historical maps suggest that the site has remained unaltered since that time until the present day. In general, the surrounding area has also remained essentially unchanged throughout the 20th Century, although several of the terraced buildings neighbouring the site have undergone minor layout changes.

GROUND CONDITIONS

Below a surface covering of concrete hardstanding and a significant thickness of made ground, Lynch Hill Gravel was encountered and was in turn underlain by the London Clay Formation, which was proved to the maximum depth investigated. The concrete was found to be 200 mm in thickness and reinforced with 9 mm reinforcement. The made ground extended to depths of 3.6 m and 4.0 m and generally comprised a layer of crushed brick fill over dark brown clayey sandy silt with gravel, brick, concrete, charcoal and coal fragments. The underlying Lynch Hill Gravel comprised orange-brown silty coarse sand with fine to medium angular gravel and extended to a depth of 5.1 m. The results of dynamic probing and SPTs have indicated the sand to be in a dense condition. Below this depth, the London Clay comprised an initial weathered horizon of stiff fissured brown silty clay, which extended to a depth of 6.0 m. The initial horizon was found to be underlain by typical unweathered London Clay, comprising stiff becoming very stiff fissured high strength dark grey silty clay with traces of selenite, pockets of pale grey silt and occasional shells and pyrite nodules. This horizon extended to a depth of 9.5 m, whereupon very stiff fissured very high strength silty clay with partings of brownish grey silt, traces of selenite and occasional shells, that become progressively less silty with depth and was proved to the maximum depth investigated of 20.0 m.

Groundwater was not encountered during the drilling of the boreholes, although the necessary addition of water to the boreholes to aid drilling within the gravel may have masked any inflows. Subsequent monitoring visits, carried out approximately one week and three weeks after installation, recorded groundwater at depths of 3.9 m and 4.2 m. Contamination testing has indicated elevated concentrations of lead within the made ground.

RECOMMENDATIONS

On the basis of the borehole findings, formation level for the new 3.0 m deep basement will still be within the made ground. Consideration may be given to traditional mass concrete underpinning, although the concrete underpins will need to extend beyond the made ground and will therefore need to extend to a depth of at least 4.0 m in order to bear within the Lynch Hill Gravel. Consideration will need to be given to the instability of the made ground, which may result in loss of ground below party wall foundations, and the presence of groundwater inflows. Trial excavations and further monitoring would be prudent in this respect. As the basement structure will not intercept the groundwater table, it is unlikely to have an effect on the local hydrogeology. In addition, the nature of the proposed development and the site setting is such that it will not affect the stability of existing slopes and therefore neighbouring properties.

CONTENTS

Document Control

Project title	25 King's Mews, London WC1N 2JB	**Project ref**	J12150
Report prepared by	Matthew Legg BEng FGS		
With input from	Martin Cooper BSc CEng MICE		
Report checked and approved for issue by	Steve Branch BSc MSc CGeol FGS FRGS MIEnvSc		

Issue No	Status	Date	Approved for Issue
1	Final	7 August 2012	

This report has been issued by the GEA office indicated below. Any enquiries regarding the report should be directed to the office indicated or to Steve Branch in our Herts office.

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Desk Study & Ground Investigation Report

25 King's Mews
London
WC1N 2JB

Client Mrs Clare Leavenworth Bakali

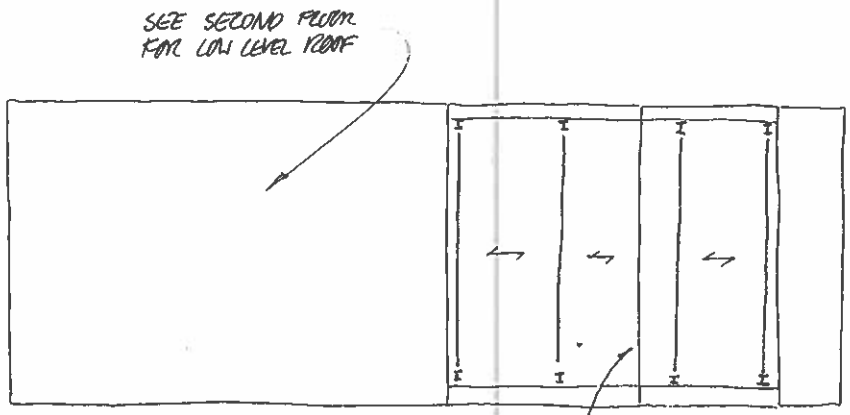
Engineer Techniker

J12150

August 2012

GEA Geotechnical & Environmental Associates

Appendix B



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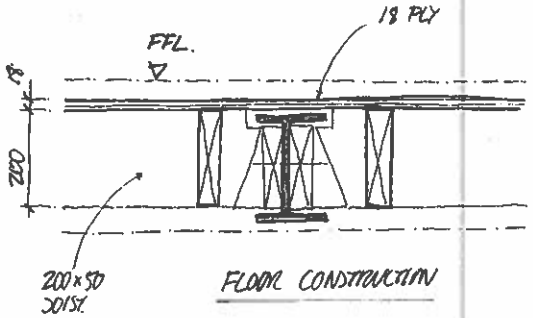

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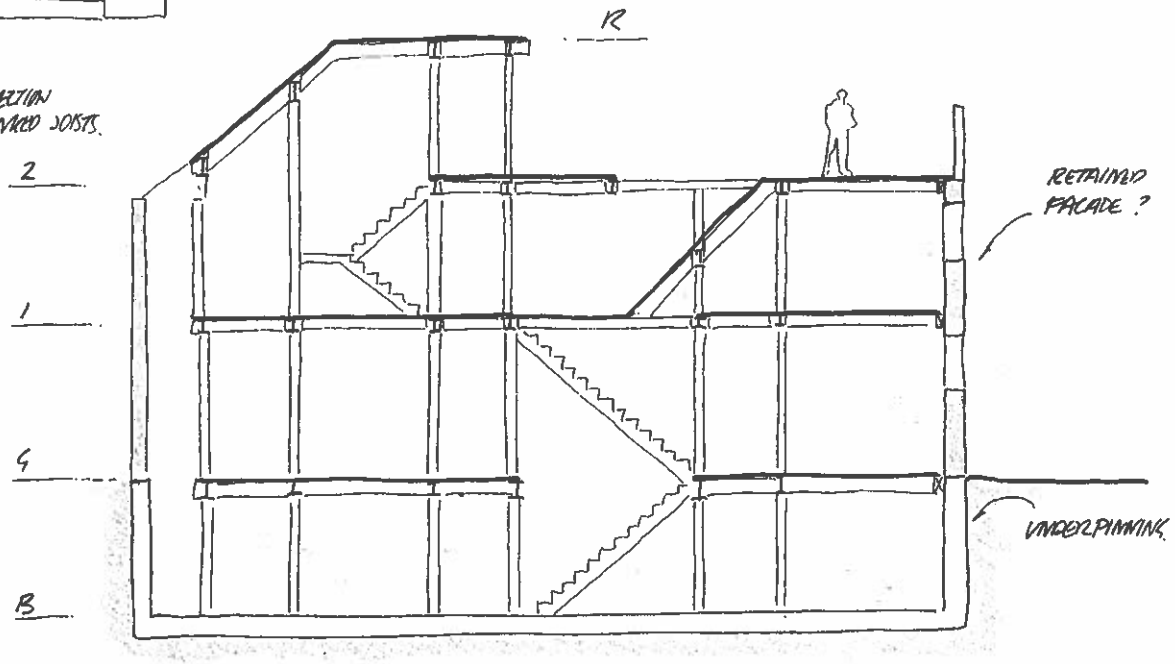

REV	COMMENTS	DATE	CHK
01	ISSUED FOR REVIEW	16.04.12.	

NOTES

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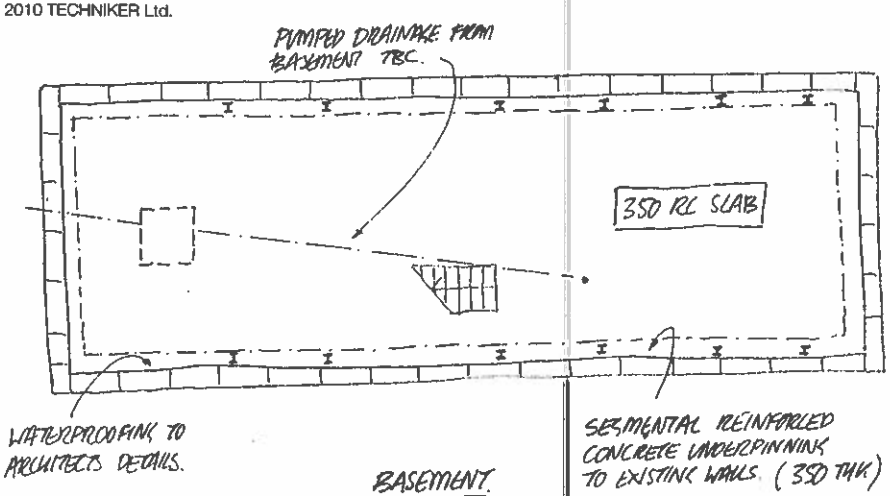
PROJECT	25 KINGS MEWS		
SUBJECT	STRUCTURAL SCHEME SHEET 2		
SCALE @ A3 1:100	BY DY	DATE APR 12	CHK
DRG. No. 11093 - SK002			Rev 01



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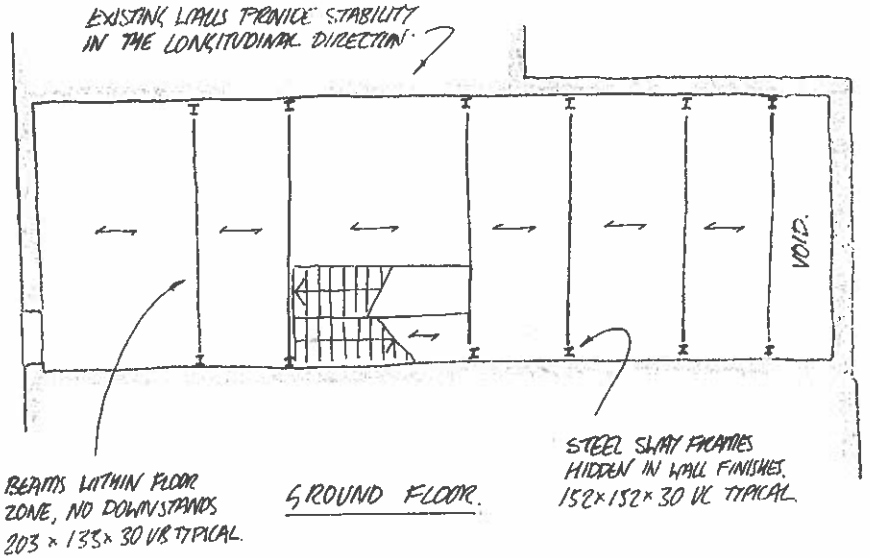

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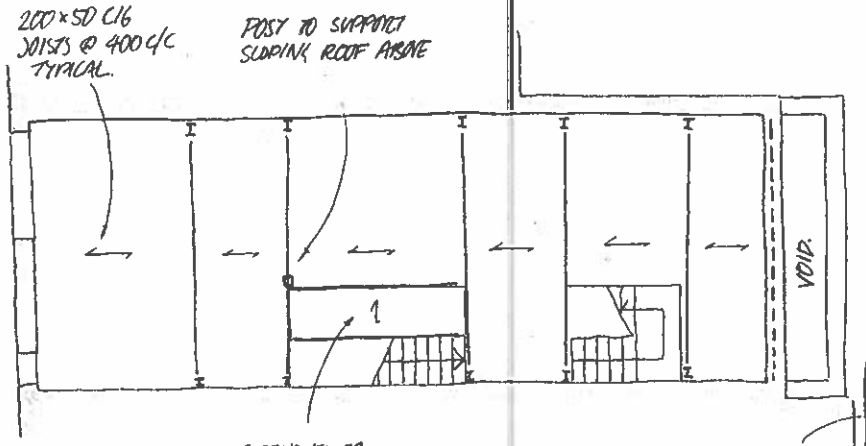

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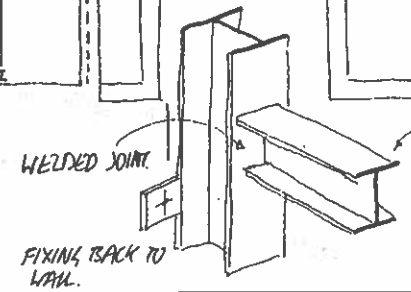

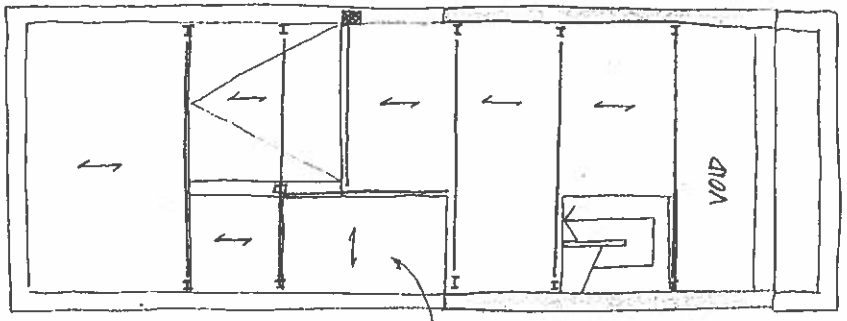

SECOND FLOOR.

REV	COMMENTS	DATE	CHK
01	ISSUED FOR REVIEW	16.04.12	

NOTES

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PROJECT	25 KINGS MEWS		
SUBJECT	STRUCTURAL SCHEME SHEET 1		
SCALE @ A3 1:100	BY DP	DATE APR 12.	CHK
ORG. No. 11093 - SK001			Rev 01

Appendix A

3. The ground slab will be broken away in localised areas to allow the base of the footing to be exposed. Mass concrete footings will be broken away to allow the underpinning be constructed beneath the party wall.

4. Underpinning will commence in a conventional hit and miss sequence in small segments to avoid instability of the made ground. Short term jet grouting may be used to stabilise the ground locally if necessary.

5. Trench sheeting will be installed to form the rear wall of the excavations for pins around the perimeter of the site. The underpinning will then be propped back to this sheeting. Once the underpinning is complete the remainder of the excavation work can take place with propping installed as the work progresses.

6. Excavated material will be tested and any cleaning required before disposal will be carried out.

7. When the bulk excavation and underpinning is complete the excavation will be backfilled to reach the required founding level for the slab. To bottom surface will be blinded and a heave protection matt laid. The basement slab will then be constructed.

8. The construction of the steel frame structure can commence.

The design of the new structure will take into account adjacent structures. A visual survey will be undertaken prior to works commencing and the adjacent properties will be monitored during the basement excavation works.

The potential for movement to the party walls during underpinning and potential differential settlement in adjacent structures has been considered. An allowable bearing pressure in the Lynch Hill Gravels has been established in the site investigation and used to predict the maximum settlement anticipated due to the construction of the new building. Based on the bearing pressure from the GEA Site Investigation report the following settlements have been calculated:

	Under current building loads	Under proposed building loads	Max. predicted vertical movement
Settlement of party wall	~11mm	~ 17.4mm	~ 6.4mm

These calculations assume the bearing pressure as being the same, this is a conservative approach as the footings of the adjacent building are all expected to be within the made ground which will have a lower bearing capacity.

The horizontal and vertical movements have been assessed in accordance with the guidance in CIRIA C580. The bearing pressure on the footings and the stiffness of the basement wall has will be such that predicted movements will give rise to a predicted damage category (from Burland) in adjacent structures of no more that 1 (very slight).

The temporary works will be designed to limit the movement of the basement wall to ensure horizontal movement of the wall is within the criteria outlined above.

8. Construction Method Statement

The following provides an outline for the method statement for the construction of the basement on 25 Kings Mews:

1. The existing building will be fully vacated before work commences.

2. The existing floors will be demolished and any temporary required to ensure stability of the retained party walls installed.

2. A trial excavation will be carried out by the contractor before excavation work commences to demonstrate that the water level is below the founding level of the underpinning works. Should the findings prove otherwise the proposed construction method will be adjusted to suit.

6. Stage 3 (Site Investigation and Study)

A detailed desk study and site investigation was undertaken by GEA (Appendix B).

7. Stage 4 (Impact Assessment)

Following the screening stage, desk study and site investigation the potential impacts identified have been assessed.

The GEA Report reviews the potential impacts and assesses the likelihood of them occurring and the scope for mitigation. This information has been summarised below and the basement design reviewed in more detail following the findings of this report.

7.1. The site is underlain by an aquifer (Groundwater: Q1a and b, Slope Stability Q10)

The underpinning for the proposed basement design would be founded 4m below existing ground level in the Lynch Hill Gravels. The water levels recorded in the GEA site investigation were 3.9m and 4.2m. These levels are not expected to represent true groundwater levels as the window sampler boreholes did not encounter any groundwater at depths of 5m. It is therefore expected that the groundwater had not reached equilibrium on the monitoring dates. The basement structure is therefore not expected to cause obstruction to the groundwater flow.

7.2. Proximity of public highway (Slope Stability Q12)

Given the size of the basement the stability of the public highway is unlikely to be compromised. The design of the basement structure will take into account the proximity of the highway to ensure the stability of the structure in both the long and short term.

7.3. The impact of the construction of the basement on adjoining properties (Slope Stability Q13)

Although the groundwater level is expected to be below the founding level of the basement the basement structure will be designed to resist potential hydrostatic forces equivalent to a water level of two thirds of the basement depth as recommended in the GEA site investigation report. The basement structure will also be designed to resist uplift forces due to heave. These forces will be resisted by the self-weight of the structure.

The reinforced concrete underpinning will be cast in small segments to avoid potential instability of the made ground. Should unstable ground be encountered in localised areas then localised short term jet grouting would be used to stabilise the ground.

5. Scoping

5.1. The scoping study included a site visit, desk study and site investigation. The desk study and site investigation form part of the GEA Site Investigation Report (Appendix B).

5.2. A ground model has been compiled from the results of the site investigation please refer to section 7.0 of the GEA Site Investigation Report.

5.3. The potential impacts of areas highlighted in the screening process have been assessed in the table below, this table should be read in conjunction with section 4.0 of the GEA Site Investigation Report:

Question	Potential Impact
The site is above a secondary aquifer (Groundwater: Q1a)	Given the ground water measurements recorded the basement structure may extend below the water table and intercept groundwater flow. Given that the proposed basement structure would not be bearing on the clay strata and its limited plan area the potential impact of the basement structure on the groundwater flow is considered minimal.
The basement extends below the water table (Groundwater: Q1b)	
The potential for dewatering being required (Slope Stability :Q10)	
The impact of the construction of the basement on the adjacent highway (Slope Stability: Q12)	Given the size of the site and limited basement footprint the potential effect on the adjacent highway is considered minimal.
The impact of the construction of the basement on the adjacent properties (Slope Stability: Q13)	The made ground found on site does not have high allowable bearing pressure and settlement can also be an issue with such soils. The scheme addresses this by bearing on the gravels below which have higher allowable bearing pressures to reduce potential settlement and instability. The made ground should be supported during excavations. The scheme proposes to use conventional RC underpinning to form the basement walls in order to avoid undermining the adjacent properties foundations. This would be constructed in conventional hit and miss sequence and in strips of no more than 1 metre to reduce the potential for movement. Jet grouting may also be used to stabilise the ground locally to act as a blinding layer for the RC underpinning if necessary.

4.3. Surface Flow and Flooding

The impact of the proposed development with respect to surface flow and flooding is considered as set out in the Camden Planning Guidance CPG4. Question references relate to Figure 3 of the screening flowchart.

Question	Response	Notes
1: Is the site within the catchment of the pond chains on Hampstead Heath?	No	11 Section 4.2
2: As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run off) be materially changed from the existing route?	No	The proposed plans in Appendix A do not show significant changes to the landscape.
3: Will the proposed basement result in a change of in the proportion of hard surface/ paved external areas?	No	The current site is covered with hard standing. The proposed scheme has a small roof terrace and a green roof.
4: Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	No	The proposed scheme will not impact on adjacent properties as the area of hardstanding is not increasing. The site is not near any watercourses.
5: Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourse?	No	The site is not in an area of known surface water flood risk and the site is not near any water features.

No potential impacts on surface flow and flooding need to be considered at scoping stage.

basement extend beneath the water table such that dewatering may be required during construction		basement. The proposed basement depth is approximately 0.5m above the groundwater levels measured in both the GEA and Ground Engineering site investigations, therefore groundwater control may be necessary during the construction of the basement.
11: Is the site within 50m of the Hampstead Heath ponds?	No	Refer to section 4.1 question 3.
12 : Is the site within 5m of a highway or pedestrian right of way?	Yes	The site adjoins a public highway - it is adjacent to the road that forms Kings Mews.
13: Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Yes	The trial pits from the site investigation indicate that the adjacent foundations are of varying depths between 0.8m and 1.2m+.
14: Is the site over (or within the exclusion zone of) any tunnels?	No	The site is remote from safeguarding zones for Cross rail 1 and 2. No tunnels or exclusion zones within proximity of the site were found in the desk study.

The potential impacts which need to be considered at scoping stage are:

- Is the site an area of previously worked ground? (Q9)
- The potential for dewatering being required (Q10)
- The impact of the construction of the basement on the adjacent highway (Q12)
- The impact of the construction of the basement on the adjacent basements (Q13)

4.2. Slope Stability

The impact of the proposed development on slope stability is considered as set out in the Camden Planning Guidance CPG4. Question references relate to Figure 2 of the screening flowchart.

Question	Response	Notes
1: Does the existing site include slopes, natural or manmade greater than 7°?	No	Referring to the topographic survey the site is effectively flat.
2: Will the proposed re-profiling of the landscaping at site change slopes at the property boundary to more than 7°?	No	The proposals maintain the existing external levels.
3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	No	The development does not neighbour land with slopes greater than 7 degrees.
4: Is the site within a wider hillside setting in which the general slope is greater than	No	The site is not within a wider hillside setting with slopes greater than 7 degrees.
5: Is the London clay the shallowest strata on site?	No	Ground investigation data shows made ground and terrace gravels as the lowest strata
6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be maintained?	No	Site visit confirmed that there are no trees on or immediately adjacent to the site.
7: Is there a history of seasonal shrink-swell subsidence in the area, and/ or evidence of such effects on site?	No	The site investigation results show that lynch hill gravel and made ground overlay the London clay to a depth of approximately 5.1m below ground level. Therefore it is unlikely that shrink-swell subsidence is an issue in the area.
8: Is the site within 100m of a watercourse or a potential spring line?	No	See answer 2 of section 4.1.
9: Is the site an area of previously worked ground?	No	The desk study and site investigation show there is made ground extended to depths of between 3.6 and 4m below ground level. However there is no historical evidence that this is worked ground.
10: Is the site within an aquifer? If so, will the proposed	Possible	It is possible that some dewatering may be required during the construction of the

		Catchment and Drainage Map, the site is not within a catchment area.
4: Will the proposed basement development result in a change in the proportion of hard surface/ paved area	No	The existing building occupies the full footprint of the site. The proposed scheme does not change the proportion of hard surfaced/paved areas.
5: As part of the site drainage will more surface water (e.g.Rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and / or SUDS)?	No	The drainage proposals do not discharge more surface water to the ground.
6 : Is the lowest point of the excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line.	No	There are no local ponds or surface water features in close vicinity of the site.

- The site is above a secondary aquifer (Q1a)
- The basement extends below the water table (Q1b)

All other matters need not be taken forward to the Scoping Stage.

4. Screening

4.1. Groundwater

The impact of the proposed development on ground water flows is considered as set out in the Camden Planning Guidance CPG4. Question references relate to Figure 1 of the screening flowchart.

Question	Response	Notes
1a. Is the site located directly above an aquifer?	Yes	Referring to the Camden Geological, Hydrogeological and Hydrological Study Camden Aquifer Designation Map the site and the Environment Agency website the Lynch Hill gravels are designated as a Secondary A Aquifer by the environment agency. The Environment Agency describes a Secondary A aquifer as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'. London clay is considered unproductive stratum in this location.
1b: Will the proposed basement extend beneath the water table surface?	Possible	A groundwater level of 3.9m and 4.2m below ground level was recorded in the GEA site investigation, this correlates with the levels measured in the ground engineering site investigation of between 3.6m and 3.74m below ground level. The excavation depth for the proposed basement is approximately 3.5m below existing ground level Based on an allowance of 1 metre to allow for a possible future rise in ground water levels a level of 2.6m below ground level will be assumed for design.
2: Is the site within 100m of a watercourse (used/disused) or potential spring line?	No	Referring to the Camden Geological, Hydrogeological and Hydrological Study Camden Surface Water Features Map, the site is not within 100m of a surface water course.
3: Is the site within the catchment of the pond chains on Hampstead Heath?	No	Referring to the Camden Geological, Hydrogeological and Hydrological Study Hampstead Heath Surface Water

2.4. The presence of pavement lights in observations of buildings on Grays Inn Road within the vicinity of the site would suggest that they have basements.

2.5. The proposals for 25 Kings Mews involve the demolition of the existing structure with the exception of the masonry party walls, the excavation of a basement level and the construction of a single three storey residential dwelling to Passivhaus standard.

2.6. The proposed basement will extend 3m below ground level with the underpinning extending 4m to ensure bearing on adequate ground.

2.7. Geology: The GEA site investigation encountered made ground to a depth of 3.6 to 4.0m. Beneath the made ground Lynch Hill Gravel extended to a depth of 5.1m with London clay beneath which was found to extend to 20.00m, the maximum depth investigated. Ground water was recorded at depths of 3.9m and 4.2m.

3. Structural Proposals

3.1. The structural proposals comprise retention of the masonry party walls, new reinforced concrete underpinning to achieve a new single storey basement over the entire footprint of the site and a new steel and timber superstructure for the new house.

3.2. Sketch drawings 11093-SK001 and SK002 show the principles of the proposed structure. These drawings are included in Appendix A.

3.3. The new basement will be constructed using reinforced concrete underpinning that and will be Type C to BS8102. The waterproofing strategy to achieve Type C will be a drained cavity to the architect's specification.

1. Introduction

1.1. Techniker have been appointed as structural engineers for the redevelopment of 25 Kings Mews as single private dwelling. As part of the development the client wishes to form a new single storey basement.

1.2. This report is prepared with reference to the following documents:

Camden Planning Guidance Document 4: Basements and Lightwells and the London Borough of Camden Guidance for subterranean development.

Camden Development Policy (DP)27: Basements and lightwells

Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners

1.3. This document provides a summary of the proposed basement structure and evaluates its impact considering groundwater, slope stability and surface water flow and flooding

The report has been structured to follow the methodology defined in CPG4 of: screening, scoping, site investigation and study and impact assessment for the issues defined above. This is then followed by a construction method statement (6.0) and conclusions and recommendations (7.0).

1.4. Along with the screening and scoping processes this report considers the desk study and site investigation results carried out by GEA in July 2012 (Appendix B) to evaluate the potential impact of the proposed basement scheme. The client also has access to a Site Investigation carried out by Ground Engineering in 2007 (Appendix C)

2. Site Description

2.1. The existing property is of masonry construction and forms part of a mews located to the north of Theobold's Road and to the rear of Gray's Inn Road. It is bordered by 24 and 26-28 Kings Mews to the north and south respectively, the east of the building is boarded by a four storey town house fronting onto Gray's Inn Road. The building currently comprises ground and first floors. It appears to have been extended to the rear to fill the current site and was formerly used as a warehouse.

2.2. The majority of the buildings on the eastern side of Kings Mews appear to be of commercial use. The buildings in the surrounding area are mainly of commercial or residential use. There is no vegetation on the site.

2.3. There is no external evidence of any of the immediate neighbours on Kings Mews having basements. The trial pits from the site investigation showed the party walls extending the entire depth of the pit or a concrete footing below the masonry walls.

Contents Page

Document Verification

Project Name: 25 King's Mews
Document Title: Basement Impact Assessment

Project No: 11093
Ref: 01

Revision	Date	Description		
01	16.08.2012	Issued for Planning		
		Prepared by	Checked by	Approved by
	Name	Sara Bird	Douglas Pow	Douglas Pow
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Revision	Date	Description		
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Basement Impact Assessment

Ref: 11093/01/001