50 WEYMOUTH STREET, MARYLEBONE, CITY OF WESTMINSTER, LONDON, W1G 6NT

ARCHAEOLOGICAL WATCHING BRIEF AND ANALYSIS, INTERPRETATION AND INTEGRATION OF THE EXISTING GEOTECHNICAL SITE INVESTIGATION REPORT

JANUARY 2019

PRE-CONSTRUCT ARCHAEOLOGY

DOCUMENT VERIFICATION

50 WEYMOUTH STREET, MARYLEBONE, CITY OF WESTMINSTER, LONDON, W1G 6NT

Type of project

ARCHAEOLOGICAL WATCHING BRIEF AND ANALYSIS, INTERPRETATION AND INTEGRATION OF THE EXISTING GEOTECHNICAL SITE INVESTIGATION REPORT

Quality Control

Pre-Construct Archaeology Limited Project Code			K5736
	Name	Signature	Date
Text Prepared by:	I Grosso		14.12.2018
Graphics Prepared by:	D Valk		21.12.2018
Graphics Checked by:	M Roughley		21.12.2018
Project Manager Sign-off:	Z Pozorski		21.12.2018

Revision No.	Date	Checked	Approved
1	02.01.2019	ZP	CAM

Pre-Construct Archaeology Ltd
Unit 54
Brockley Cross Business Centre
96 Endwell Road
London
SE4 2PD

50 WEYMOUTH STREET, MARYLEBONE, CITY OF WESTMINSTER, LONDON, W1G 6NT

ARCHAEOLOGICAL WATCHING BRIEF AND ANALYSIS, INTERPRETATION AND INTEGRATION OF THE EXISTING GEOTECHNICAL SITE INVESTIGATION REPORT

CENTRAL NGR:	**TQ 28396 81769**
ARCHAEOLOGICAL SITE CODE:	**WYU18**
COMMISSIONING CLIENT:	**Archaeology Collective**
WRITTEN BY:	**Ireneo Grosso** **Pre-Construct Archaeology Ltd**
PROJECT MANAGER:	**Zbigniew Pozorski** **Pre-Construct Archaeology Ltd**
VERSION:	**2.0 WITH ARCHAEOLOGY COLLECTIVE COMMENTS**

Contractor:	**Pre-Construct Archaeology Limited** **Unit 54, Brockley Cross Business Centre** **96 Endwell Road, Brockley** **London SE4 2PD**
Tel:	**020 7358 8957 | 020 7732 3925**
Email:	**zpozorski@pre-construct.com**
Website:	**www.pre-construct.com**

January 2019

PCA Report Number: R13514

CONTENTS

ILLUSTRATIONS

1 ABSTRACT

1.1 This report details the results of an archaeological watching brief undertaken by Pre-Construct Archaeology Limited on the site at 50 Weymouth Street, Marylebone, City of Westminster, London, W1G 6NT. The site is located within a basement of the building and is centred at National Grid Reference TQ 28396 81769.

1.2 This report also provides the analysis and interpretation of results of the earlier geotechnical site investigation which had taken place on the site in June 2016. The results were presented in the report by Risk Management Ltd and were included in the Fluid Structural Engineers and Technical Designers Limited's (Fluid) Basement Impact Assessment and Structural Methodology Statement (dated November 2016).

1.3 Planning permission has been granted for the excavation at rear lower ground floor level in connection with the use of the basement as a clinic as an extension to the mixed medical use at 42-48 Weymouth Street comprising a day clinic and overnight patient care (sui generis); reconfiguration of existing residential units and minor external alterations to the building (City of Westminster Planning Ref. 17/03621/FULL).

1.4 The archaeological monitoring was undertaken on 13th December 2018. A series of five geotechnical test pits was monitored across the basement of the building as part of the investigation. The pits were dug by hand under the constant supervision of an archaeologist.

1.5 The watching brief has shown modern deposits underlain by natural clayey sandy gravel in turn underlain by natural sands and gravel.

1.6 The analysis of the existing site investigation report revealed that no deposits suggesting activity other than of the modern date were present within the northern part of the site. Modern deposits recorded at the time of that investigation were underlain by alluvial clay above natural sands and gravel.

2 INTRODUCTION

2.1 Pre-Construct Archaeology Limited (PCA) has undertaken an archaeological watching brief at the 50 Weymouth Street, Marylebone, City of Westminster, London, W1G 6NT. The site is located within a basement of the building and is centred at National Grid Reference TQ 28396 81769 (Figures 1-2).

2.2 The fieldwork was undertaken on 13th December 2018. Five geotechnical test pits were excavated by hand within basements of the building by the overall Client's contractor, under constant archaeological supervision by PCA. This met criteria required by the Archaeology Advisor to the City of Westminster, Diane Abrams of Historic England Greater London Archaeological Advisory Service (GLAAS).

2.3 In addition, PCA carried out analysis and interpretation of the existing geotechnical site investigation report (Risk Management/Fluid 2016; Appendix 1). That investigation had comprised six hand-excavated test pits and a borehole executed on the site. The results of that work are incorporated in this report.

2.4 The project was managed by Zbigniew Pozorski (PCA) and was commissioned by Archaeology Collective on behalf of the overall client, The Howard de Walden Estate. The archaeological work was supervised by Ireneo Grosso.

2.5 The site archive was identified using the unique site code WYU18, issued by the Museum of London. The completed archive comprising written, drawn and photographic records will, upon completion of the project, be deposited with the Museum of London's London Archaeological Archive and Research Centre (LAARC), under that code.

2.6 The primary objective of the watching brief was to preserve 'by record' the extent and significance of any surviving archaeological features and deposits within the monitored area and to record the nature and extent of any previous damage to archaeological deposits or remains on site.

2.7 The other objective of the investigation was archaeological analysis and interpretation of the existing geotechnical site investigation report for the site so as to evaluate the extent and significance of any surviving archaeological features and deposits within the site. The investigation also aimed to retrieve and analyse any data indicating archaeological evidence and incorporate the findings into this report.

2.8 The specific aims of the project were as follows:

- Is there an evidence of medieval activity on the site, in particular 'back yard' activity to the rear of Weymouth Street?
- What evidence is present for the 18th-19th century development of the area?

2.9 All works were undertaken in accordance with the following documents:

- The Written Scheme of Investigation for this project (PCA 2018)

- Historic England Greater London Archaeology Advisory Service: *Standards for Archaeological Work* (HE GLAAS 2015)
- 'Standard and guidance for an archaeological watching brief' (Chartered Institute for Archaeologists (CIfA) 2014).
- Management of Research Projects in the Historic Environment (MoRPHE) Historic England 2015

3 PLANNING BACKGROUND

3.1 National Guidance: National Planning Policy Framework

3.1.1 The National Planning Policy Framework (NPPF) was adopted in 2012 and updated in 2018. The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications. Chapter 16 of the NPPF 2018 concerns the conservation and enhancement of the historic environment.

3.1.2 In considering any proposal for development, including allocations in emerging development plans, the local planning authority will be mindful of the policy framework set by government guidance, existing development plan policy and of other material considerations.

3.2 Regional Policy: The London Plan

3.2.1 Additional relevant planning strategy framework is provided by The London Plan, first published July 2011, updated March 2016, includes the following policy regarding the historic environment in central London, which should be implemented through the Local Development Framework (LDF) being compiled at the Borough level:

Historic environments and landscapes

POLICY 7.8 HERITAGE ASSETS AND ARCHAEOLOGY

Strategic

A London's heritage assets and historical environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and utilising their positive role in place shaping can be taken into account.

B Development should incorporate measures that identify, record, interpret, protect and, were appropriate, present the site's archaeology.

Planning decision

C Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.

D Development affecting heritage assets and their setting should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.

E New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological assets or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that assets.

LDF preparation

F Boroughs should, in LDF policies, seek to maintain and enhance the contribution of built, landscaped and buried heritage to London's environmental quality, cultural identity and economy as part of managing London's ability to accommodate change and regeneration.

G Boroughs, in consultation with English Heritage, Natural England and other relevant statutory organizations, should include appropriate policies in their LDFs for identifying, protecting, enhancing and improving access to the historic environment and heritage assets and their setting where appropriate, and to archaeological assets, memorials and historic and natural landscape character within their area.

3.3 Local Policy: Archaeology in Westminster

3.3.1 The local planning authority responsible for the study site is the City of Westminster whose Unitary Development Plan (UDP) is superseded in part by the Westminster City Plan: Strategic Policies adopted in January 2011. The majority of policies of the UDP have been saved pending the full introduction of the LDF, including most of those relating to the historic environment:

POLICY DES 11: SCHEDULED ANCIENT MONUMENTS, AREAS AND SITES OF ARCHAEOLOGICAL PRIORITY AND POTENTIAL

Aim

To identify archaeological remains of national and local importance, conserve them in their settings, and provide public access to them. Where new development is proposed on sites of archaeological potential, to ensure adequate archaeological impact assessment, followed by appropriate provision for preservation or investigation, recording, and publication.

The relevant section of the LDF for the City is Core Strategy 24:

POLICY CS24 HERITAGE

Recognising Westminster's wider historic environment, its extensive heritage assets will be conserved, including its listed buildings, conservation areas, Westminster's World Heritage Site, its historic parks including five Royal Parks, squares, gardens and other open spaces, their settings, and its archaeological heritage. Historic and other important buildings should be upgraded sensitively, to improve their environmental performance and make them easily accessible.

3.4 Planning permission was granted on 10th August 2017 for the excavation at rear lower ground floor level in connection with the use of the basement as a clinic as an extension to the mixed medical use at 42-48 Weymouth Street comprising a day clinic and overnight patient care (sui generis); reconfiguration of existing residential units and minor external alterations to the building including replacement windows (part of a land use swap with Suites B&C, 9 Weymouth Street) (City of Westminster Planning Ref. 17/03621/FULL).

The planning condition (11) attached to the decision reads as follows:

No demolition or development shall take place until a stage 1 written scheme of investigation (WSI) has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development shall take place other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

If heritage assets of archaeological significance are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved in writing by the local planning authority. For land that is included within the stage 2 WSI, no demolition or development shall take place other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

Reason:

To protect the archaeological heritage of the City of Westminster as set out in S25 of Westminster's City Plan (November 2016) and DES 11 of our Unitary Development Plan that we adopted in January 2007. (R32BC)

4 GEOLOGY AND TOPOGRAPHY

4.1 The British Geological Survey (BGS) identifies the bedrock geology as London Clay Formation - Clay, Silt and Sand. This sedimentary bedrock was formed approximately 34 to 56 million years ago in the Palaeogene Period in a local environment previously dominated by deep seas. The solid geology is overlain with superficial deposits of Lynch Hill Gravels, a Thames River Terrace deposit of gravel and sand. These deposits were formed up to 2 million years ago in the Quaternary Period in a local environment previously dominated by rivers.

4.2 The site lies just east and outside of the Tyburn valley. The watercourse, which rises in two springs in Hampstead to the north, is now culverted. To the south- west of the site, the river's former course can be traced by the location of the river alluvium shown on BGS mapping, roughly on the line parallel and just west of Marylebone High Street, crossing modern Oxford Street near the site of Bond Street underground station. At its closest point the river would have passed *c*. 200m west of the site.

4.3 50 Weymouth Street forms part of a mixed development of residential flats and offices belonging to the Weymouth Street Hospital. The building lies at the junction of Weymouth Street and Beaumont Mews and the ground surface outside is relatively flat. The site comprises a rectangular plot of *c*. 52m² currently undeveloped land at lower ground/basement level at the rear of 42-48 and 50 Weymouth Street (Figure 2) and the basement development within the same buildings. There are two floors of occupation above. The investigated basement's floor was recorded at the level of 25.05m above Ordnance Datum (OD).

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 The following archaeological and historical background is taken from the site-specific archaeological desk-based assessment prepared by Archaeology Collective (2016). In summary:

5.2 The site is located within the Archaeological Priority Area which identifies the historic core of Marylebone Village.

5.3 No records of prehistoric origins are known from the site and in its vicinity. Only two findspots of Roman date are also registered in the area and are though not being indicative of a local settlement.

5.4 The Saxon/early medieval evidence is also scarce. The medieval village developed to the west of the site and expanded further with construction of the parish church in 1400. Marylebone Manor House, now 55-57 Marylebone High Street, had its origins in the 13th century. The site was originally part of the Manor of Tyburn which is mentioned in Domesday Book although no Saxon remains were found on the site or nearby. Medieval Marylebone was a ribbon development along today's Marylebone High Street close to the west of the site and therefore there is a potential for medieval remains representing back yard or garden activity to the rear of properties of the medieval street frontage.

5.5 Marylebone Manor site to the west contained numerous post-medieval features including remains of the manor house. The 18th – 19th century deposits and features are known from various locations in the area, in particular the High Street. Historic maps suggest that the site was a part of gardens in the 18th century and towards the ned of that century it became, possibly hard-surfaced, an open ground to the rear of terrace buildings fronting Weymouth Street. By 1875 the site was incorporated into a building attached to that street frontage forming premises at No 50.

5.6 50 Weymouth Street was a location of Miss Pollock's Hospital for Officers during WWI. After the war the premises became the Belgravia Nursing Home. A second hospital for the same purpose was opened at 29 Wimpole Street. More WWI hospitals were opened in the area as well.

5.7 The desk-based assessment (Archaeology Collective 2016) concluded that the site has a moderate potential for medieval and post-medieval archaeological remains, and a low potential for archaeological remains dating to all other periods.

6 METHODOLOGY

6.1 The methodology of the archaeological work applied for the project was fully compatible with that widely used elsewhere in the City of Westminster and in London and conformed to relevant guidelines and practices (see Paragraph 2.9). All recording systems conformed to those developed out of the Department of Urban Archaeology Site Manual, now presented in PCAs Operations Manual 1 (Brown & Taylor 2009, updated 2018).

6.2 Six geotechnical test pits (TP1-6; Figure 3) and one borehole BH1 were excavated in 2016 without archaeological supervision. The pits were located within small open area to the back of the 42-48 and 50 Weymouth Street with TP3 located within the lightwell to the rear of No 50. The results of that investigation are included in this report.

6.3 Five test pits (TP10-14) were hand-excavated by the contractor under PCA's supervision (Figure 3). The pits were located within the basements of No 50 Weymouth Street and were excavated in order to gather information about the depth of the existing foundations of the building.

6.4 The removal of the non-archaeological deposits, such as the concrete floor, was undertaken using a manually operated breaker. Following the removal of the modern deposit, the test pits were excavated to the base of the concrete foundations. Location plans of each were drawn at 1:20 and a section of each test pit was drawn at 1:10 showing the location of all archaeological features.

6.5 The test pits had the following dimensions:

Test Pit no.	Dimension	Maximum depth (BGL)
TP1	0.75m x 0.60m	1.50m
TP2	1m x 0.60m	1.20m
TP3	1m x 0.50m	1.10m
TP4	0.75m x 0.50m	0.85m
TP5	0.75m x 0.60m	0.70m
TP6	0.80m x 0.50m	1.20m
TP10	1m x 0.70m	0.74m
TP11	1m x 0.70m	1.10m
TP12	1m x 0.70m	0.80m
TP13	1m x 0.70m	1.18m
TP14	1m x 0.70m	1.20m

7 ARCHAEOLOGICAL RESULTS

7.1 Test Pits 1 to 5 and Borehole 1 (2016 investigation)

7.1.1 Borehole 1 recorded made ground (brown silty clay with brick, brick fragments, crushed concrete and gravel), below the 0.10m of concrete, to depth of 1.40m below ground level (BGL) above soft to firm, brown, silty clay (0.70m thick). The clay overlay gravels thought to have been of the Lynch Hill Gravel formation, present at 2.10m BGL. The London Clay was not encountered as the borehole ceased at 4.50m BGL.

7.1.2 Test Pits 1, 4 and 5, excavated to the depths between 0.70m and 1.50m BGL did not reach the natural gravels but delivered the same sequence of the upper deposits of made ground and clay as above.

7.1.3 Test Pits 2 and 6 recorded only 0.40m – 0.60m of made ground (brick fill) below a void under the floor boards. The pits did not reveal the extent of the foundations.

7.1.4 Test Pit 3 contained, beneath concrete floor, 0.45m of made ground (brick fill) over 0.60m+ of gravel and sand. The gravel is thought to be a natural deposit.

7.1.5 For further details and photographs see Appendix 1.

7.2 Test pits 10 to 14

7.2.1 All five pits showed the same basic sequence of modern made ground (0.20 – 0.40m thick) above natural gravels. The made ground consisted of light brown silty clay and sand with brick and concrete fragments.

7.2.2 Capping the sequence was a 0.10m thick slab of concrete.

Plate 1: Test Pit 11, looking south-east

Plate 2: Test Pit 13, looking south-east

Plate 2: Test Pit 14, looking south-east

8 CONCLUSIONS

8.1 The natural geology was reached at a highest depth of approximately 24.85m OD.

8.2 The pits revealed layers of concrete, overlying a natural modern 20th century made ground.

8.3 Within area of higher ground, to the rear of the buildings, the made ground capped a layer of clay. The clay may have been a deposit of an alluvial character.

8.4 No deposits with archaeological significance were observed. No archaeological finds were recovered during the monitoring.

8.5 It is believed that construction of the basement truncated local deposits down to the natural gravels and removed completely any potential archaeological remains which may have been present. The area investigated in 2016 which appears to contain alluvial clay also did not contain any deposits suggesting activity other than of the modern date.

8.6 The results of the site investigation will be published as a minimum by PCA as a summary in the annual 'Round-Up' of *London Archaeologist*.

8.7 The physical and digital archive will be deposited with the London Archaeological Archive and Research Centre (LAARC) under site code WYU18.

9 BIBLIOGRAPHY

Archaeology Collective 2016, '*Archaeological Desk Based Assessment. 50 Weymouth Street, London Borough of Westminster'*. Unpublished report

Brown, G. & Taylor, J. 2009, updated 2018, '*Fieldwork Induction Manual: Operations Manual 1*', Pre-Construct Archaeology Limited.

Chartered Institute for Archaeologists, 2014 Standard and guidance for an archaeological watching brief' ClfA 2014

Risk Management, 2016, *Site Investigation at 50 Weymouth Street, Marylebone* in Fluid, 2016, 50 *Weymouth St, London W1G 6NT. Basement Impact Assessment and Structural methodology Statement*.

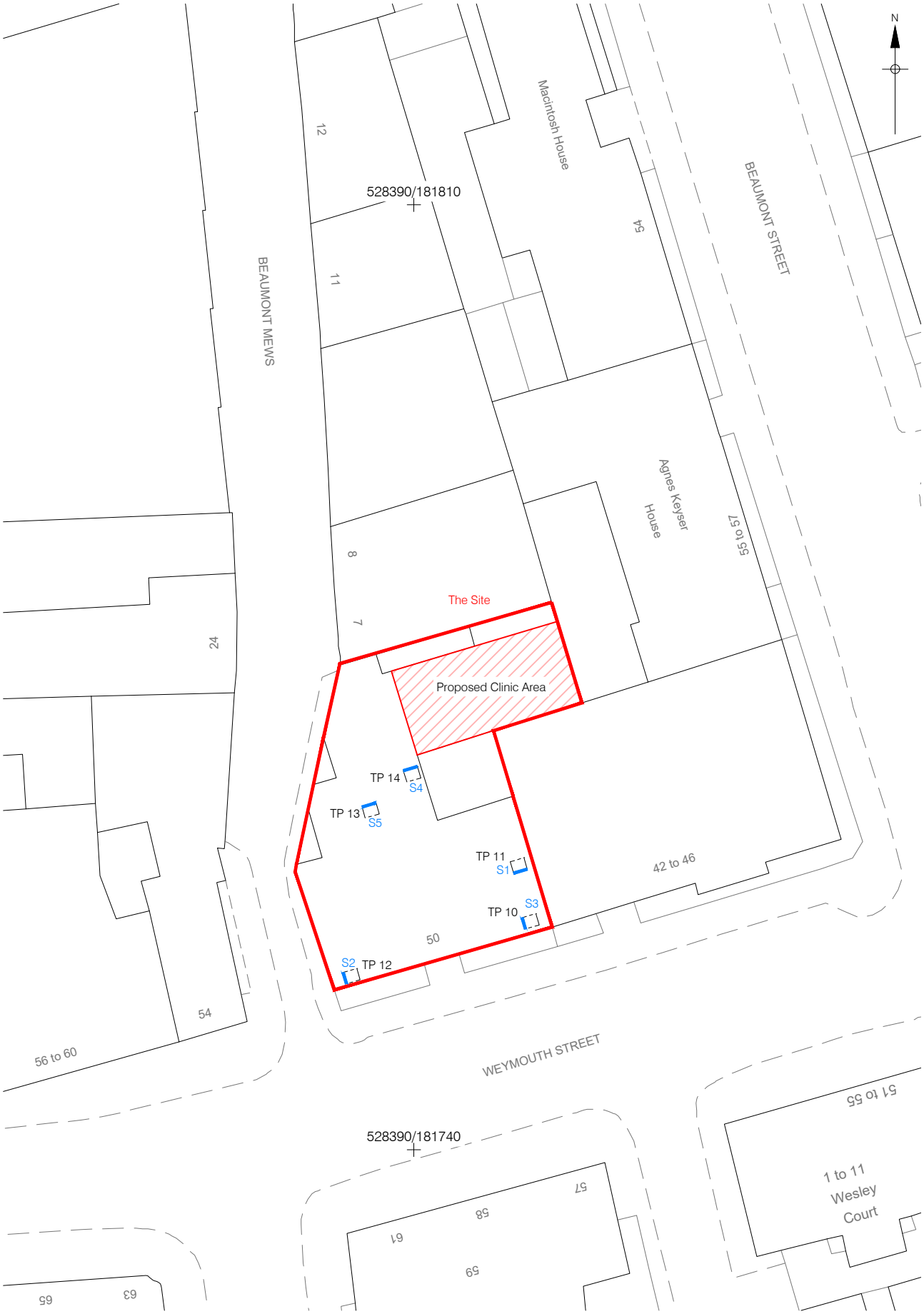
Historic England Greater London Archaeology Advisory Service, 2014, *Standards for Archaeological Work*

Historic England, 2016, Management of Research Projects in the Historic Environment MoRPHE

10 ACKNOWLEDGEMENTS

10.1 Pre-Construct Archaeology Limited would like to thank Archaeological Collective for commissioning the work.

10.2 The author would also like to thank Mark Roughley and Diana Valk for preparing the illustrations and Zbigniew Pozorski for project management and editing.



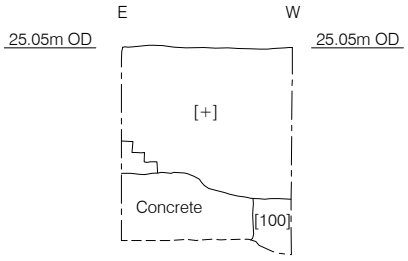
17/12/18 DV & MR

Figure 2
Detailed Site Location
1:400 at A4

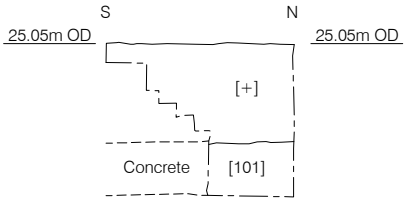
Basement Plan by Urban Mesh Design Ltd. 2016

21/12/18 DV

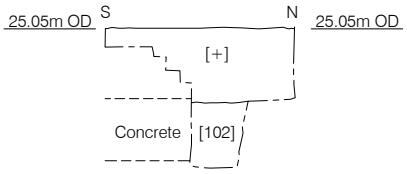
Figure 3
Basement Plan with Test Pit Locations
1:200 at A4



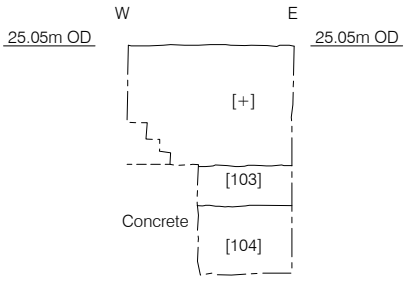
Section 1
North facing
TP 11



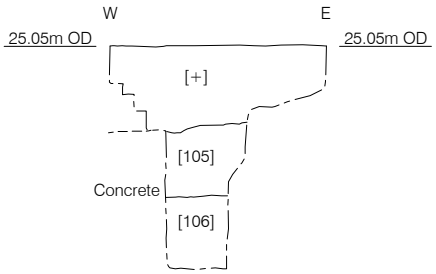
Section 2
East facing
TP 12



Section 3
East facing
TP 10



Section 4
South facing
TP 14



Section 5
South facing
TP 13

14/12/18 AT

Figure 4
Sections 1 to 5
1:40 at A4

APPENDIX 1: CONTEXT INDEX

Context	Type	Trench	Interpretation	Highest Level	Lowest Level
100	Layer	TP11	Natural terrace gravel	21.16	21.15
101	Layer	TP12	Natural terrace gravel	21.44	21.42
102	Layer	TP10	Natural terrace gravel	21.57	21.55
103	Layer	TP14	Natural clayey sandy gravel	21.33	21.31
104	Layer	TP14	Natural terrace gravel	21.12	21.11
105	Layer	TP13	Natural clayey sandy gravel	21.56	21.50
106	Layer	TP13	Natural sandy gravel	21.17	21.16

APPENDIX 2: OASIS FORM

OASIS ID: preconst1-337637

Project details

Project name	50 Weymouth Street, London W1G 6NT
Short description of the project	An Archaeological Watching Brief and Analysis, Interpretation and Integration of the Existing Geotechnical Site Investigation Report
Project dates	Start: 13-12-2018 End: 13-12-2018
Previous/future work	No / No
Any associated project reference codes	WYU18 - Sitecode
Type of project	Recording project
Site status	Local Authority Designated Archaeological Area
Current Land use	Industry and Commerce 2 - Offices
Monument type	NONE
Monument type	NONE
Significant Finds	NONE
Significant Finds	NONE
Investigation type	"Watching Brief"
Prompt	National Planning Policy Framework - NPPF

Project location

Country	England
Site location	GREATER LONDON CITY OF WESTMINSTER MARYLEBONE ST JOHNS WOOD AND MAYFAIR 50 Weymouth Street
Postcode	W1G 6NT

Study area	52 Square metres
Site coordinates	TQ 28396 81769 51.51973219319 -0.14920279672 51 31 11 N 000 08 57 W Point
Lat/Long Datum	Unknown
Height OD / Depth	Min: 24.6m Max: 26m

Project creators

Name of Organisation	Pre-Construct Archaeology Ltd
Project brief originator	Diane Abrams, GLAAS
Project design originator	Archaeology Collective
Project director/manager	Zbigniew Pozorski
Project supervisor	Ireneo Grosso
Type of sponsor/funding body	Consultancy
Name of sponsor/funding body	Archaeology Collective

Project archives

Physical Archive Exists?	No
Digital Archive recipient	LAARC
Digital Contents	''none''
Digital Media available	''Text''
Paper Archive recipient	LAARC

Paper Contents	''none''
Paper Media available	''Context sheet'',''Drawing'',''Photograph'',''Plan'',''Report'',''Unpublished Text''

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Entered by	Zbigniew Pozorski (zpozorski@pre-construct.com)
Entered on	21 December 2018

APPENDIX 3: 2016 SITE INVESTIGATION REPORT

Unit 8, Paddock Barn Farm
Godstone Road, Caterham,
Surrey CR3 6SF
Tel: 01883 343572
Fax: 01883 344060
email: enquiries@riskmanagementltd.co.uk
Web: www.riskmanagementltd.co.uk

PROJECT No. RML 6139

SITE INVESTIGATION AT 50 WEYMOUTH STREET, MARYLEBONE

ON BEHALF OF
HOWARD DE WALDEN ESTATE LIMITED

July 2016

CONTENTS

APPENDICES

1.0 INTRODUCTION & SCOPE OF WORKS

1.1 This report has been prepared by Risk Management Limited to the instructions of the Client for the work, Howard De Walden Estate Limited, under cover of their signed Instructions to Proceed, dated 27th May 2016.

1.2 Consulting Engineers for the project are Fluid Structures.

1.3 The site under consideration was located to the rear of 50 Weymouth Street, London W1G 6NT and was accessed from Beaumont Mews.

1.4 It is understood that the site is to be re-developed with a new three-storey property including a new basement built into the existing adjacent basement level.

1.5 Risk Management Limited have now been commissioned to undertake investigation work to provide information on the sub-soil conditions at this site, together with laboratory testing, to enable foundation design by others, and the work includes one initial land-borne gas monitoring visit.

1.6 This report presents the work carried out and discusses the findings.

2.0 FIELDWORK

2.1 All fieldwork was generally executed in accordance with the recommendations given in British Standard BS 5930:2015, "Code of Practice for Ground Investigations", contamination sampling was undertaken in accordance with BS 10175 : 2011, "Code of Practice for the Investigation of Potentially Contaminated Sites".

2.2 Borehole and trial pit locations are shown on the appended Sketch Fieldwork Location Plan, Drawing No. RML 6139/1.

2.3 Fieldwork was undertaken on the 8th and 9th June 2016 and comprised the following.

Drive-in-Sampler Borehole

2.4 One drive-in-sampler borehole (BH1) was drilled from within the existing building at ground floor level to a depth of 4.50m below existing floor slab level.

2.5 The drive-in-sampler comprises a series of 1 and 2 metre long metal tubes, varying in diameter from 80mm down to 35mm, driven into the ground using a mini-hydraulic breaker unit. The tubes are subsequently jacked out of the ground and side windows enable the tubes to be cleaned and small disturbed samples to be taken at regular intervals within each stratum.

2.6 Small disturbed samples were taken at regular depth intervals down the borehole.

2.7 Upon completion of borehole BH1 a combined groundwater/gas monitoring standpipe was installed to a depth of 3.00m below existing ground level. The monitoring installation comprised a 1 metre length of plain 19mm diameter HDPE pipe followed by slotted geotextile wrapped HDPE pipe, capped at the base. A cement/bentonite seal was installed from 1.00m to ground level and the installation was finished with a gas valve on top of the pipe and a lockable stopcock cover concreted in flush with ground level.

2.8 Full details of the drive-in-sampler borehole findings are given on the appended borehole record sheet.

Hand Excavated Trial Pits

2.9 In addition to the above work, six hand excavated trial pits (TP1-TP6) were undertaken.

2.10 Trial Pits TP1, TP4 and TP5 were all excavated from approximate street level. Trial Pits TP2 and TP6 were excavated from a level some 1.5 metres higher and Trial Pit TP3 in a lightwell some 3 metres below street level.

2.11 Trial Pit TP1 found that the existing brick wall continued down some 400mm where it stepped out three times some 200mm and rested on a concrete footing which extended out a further 100mm and founded at approximately 1.26m below existing ground level.

2.12 Trial Pit TP2 found a 0.80m void beneath floorboards and that the brick wall extended to at least 1.20m below floorboard level.

2.13 Trial Pit TP3 found that the existing brick wall continued down some 300mm where it stepped out twice some 100mm and rested on a concrete footing which extended out a further 300mm and founded at approximately 0.81m below existing ground level.

2.14 Trial Pit TP4 found that the existing brick wall continued down some 300mm where it rested on a concrete footing which extended out some 470mm and founded at approximately 0.60m below existing ground level.

2.15 Trial Pit TP5 found that the existing brick wall continued down some 360mm where it stepped 40mm and founded at approximately 0.46m below existing ground level.

2.16 Trial Pit TP6 found a 0.72m void beneath floorboards and that the brick wall extended to at least 1.20m below floorboard level.

Landfill Gas Monitoring

2.17 Following the initial site work, one return gas/groundwater monitoring visit was made to the installation fitted within borehole BH1 on 20th June 2016.

2.18 During the visit the barometric pressure was recorded together with the level of Carbon Dioxide, Oxygen and Methane. In addition, gas flow measurements were taken and the depth to groundwater recorded.

2.19 Full details of the readings are included on the appended Gas/Groundwater Monitoring Record Sheet.

3.0 GROUND CONDITIONS

3.1 According to information published by the British Geological Survey (1:50,000 Series Sheet 256, North London) the underlying geology at this site is shown as being Recent Lynch Hill Gravel (Thames River Terrace Deposits) overlying London Clay of the Eocene Period.

3.2 River Thames Terrace Deposits generally comprise primarily gravels and sand sourced from varying materials within the rivers local catchment area. These Pleistocene deposits are widespread within the London Basin and occur typically as terraces on the valley sides. These terraces represent ancient floodplain deposits that have become isolated as the river has cut downwards to lower levels.

3.3 The underlying London Clay was not encountered during the current work.

3.4 Full details of the ground conditions encountered are presented on the borehole record appended to this report and can be summarised as follows:

Depth from (m)	Depth to (m)	Description
0.00	0.10	Concrete
0.10	1.40	MADE GROUND.
1.40	2.10	Superficial Clay
2.10	4.50 +	Lynch Hill Gravel

3.5 Groundwater was not noted during boring or within the standpipe installed within borehole BH1 during the return monitoring visit.

4.0 LABORATORY TESTING

4.1 The following geotechnical tests have been carried out on samples recovered from the boreholes at this site.

4.2 Unless otherwise stated, the geotechnical tests have generally been carried out in accordance with the recommendations given in British Standard 1377:1990, "Methods of Test for Soils for Civil Engineering Purposes".

4.3 *Atterberg Limits and Natural Moisture Contents*

The Atterberg Limits and natural moisture contents have been determined for two samples of the Superficial Clay from 1.50m and 2.00m depth.

The liquid limit (LL) was 52% and 53%, the plastic limit (PL) 15% and 17% and the plasticity index (PI) 35 and 38. The natural moisture contents were 15% and 20%.

These results indicate that the Superficial Clay can be classified as a clay of 'high' plasticity (CH) in accordance with the Casagrande Geotechnical classification system.

In addition, both samples would fall into the "medium" shrinkage potential category of the National House Building Councils (NHBC) classification system given in Part 4 of their Standards.

4.5 *Quick Undrained Triaxial Compression Tests.*

The undrained shear strength has been determined in single-stage triaxial compression for one, re-moulded, 38mm diameter sample of the Superficial Clay from 1.50m depth.

The resulting mean shear stress (undrained cohesion) C_u value was 70 kN/m^2 indicating that material tested was 'firm' in consistency.

4.6 *Particle Size Distribution*

The particle size distribution has been determined for two samples of the more granular soils encountered.

The results are presented as grading curves in the appendix to this report

4.7 *pH and Sulphate Tests*

The pH and sulphate content has been determined for two samples recovered from depths of 0.50m and 1.50m.

The pH was found to be 9.4 and 11.2 and the sulphate content, on a 2:1 water:soil extract, 0.13 g/l and 0.16 g/l.

5.0 DISCUSSION

PROPOSED DEVELOPMENT & SCOPE OF WORKS

5.1 As discussed in Section 1 above, it is understood that the proposed re-development at this site will comprise a new three-storey property including a new basement built into, and at, the existing adjacent basement level.

5.2 The current report provides information on the sub-soil conditions at this site, together with laboratory testing, in order to assist foundation design by others.

FOUNDATION DESIGN

5.3 Beneath the existing concrete floor slab at approximate street level, the current investigation has found MADE GROUND to 1.40m where a thin band of Superficial Clay was encountered to 2.10m depth. Beneath this was Lynch Hill Gravel which was not penetrated at the borehole termination depth of 4.50m below existing ground level. The borehole was terminated owing to collapse of the gravel.

5.4 Assuming a proposed basement founding depth of some 3 metres below street level then this would be founding within the Lynch Hill Gravel where an allowable bearing pressure of 150 kN/m^2 could be adopted for settlement of up to 25mm.

5.5 Foundations in both the MADE GROUND and Lynch Hill Gravel will require support in the short-term and we recommend that a contingency for this is allowed for at this stage.

5.6 The results of the Atterberg Limit tests indicate that the Superficial Clay would fall into the 'medium' shrinkage potential in accordance with the National House Building Councils (NHBC) classification system given in Part 4 of their Standards. However, the underlying Lynch Hill Gravel would be considered to be 'non-shrinkable'.

5.7 Groundwater was not noted during the current work, however, groundwater would be expected towards the base of the Lynch Hill Gravel during particularly wet periods, "perched" above the underlying relatively impermeable Weathered London Clay, the depth to which was not determined during the current work. Therefore, if seasonal groundwater or surface water accumulates at the base of basement or foundation excavations it is very important that these are kept dry by, for example, pumping from a sump, the foundation base is kept square and that any soft spots are replaced and compacted prior to pouring foundation concrete. In addition, we would recommend that the basement construction is "tanked" to prevent any future problems with ingress of groundwater.

5.8 Further, we recommend that where groundwater or surface water flows into foundation excavations, 'blinding' concrete is used at the base of the foundation excavations and that foundation concrete is poured as soon as possible thereafter

5.9 It should be noted that should ground conditions differing significantly from those described in our report be encountered during foundation excavation, then Risk Management Limited should be contacted immediately and that the above noted allowable bearing pressure or recommended foundation type may need to be altered accordingly.

BURIED CONCRETE

5.10 The results of the chemical tests at this site fell into Class DS-1 of the Building Research Establishments (BRE) classification system.

LAND-BORNE GAS

5.11 During the return gas/groundwater monitoring visit, no methane and a maximum carbon dioxide level of 0.4% was found.

5.12 CIRIA Publication C665 "Assessing Risks posed by Hazardous Ground gases to Buildings (Revised 2007) includes the NHBC "Traffic Light" system.

5.13 The carbon dioxide level was below 5% and, in addition, no flow was registered. Therefore, in accordance with the NHBC "Traffic Light" system we would consider that the current site would be classified as GREEN and, therefore, no land borne gas remedial measures would be required at this site.

SOIL SAMPLES

5.14 All soil samples will be kept for a period of 28 days after the date of the invoice for this project unless otherwise notified to Risk Management Limited in writing. Should samples be required to be stored for longer than 28 days then a storage charge may be levied.

Prepared By : Malcolm S. Price B.Sc., M.Sc., M.I.C.E., C.Eng.
Director

Distribution : Fluid Structures - 1 copy + pdf

The recommendations made and the opinions expressed in this report are based on the borehole records, examination of samples and the results of site and laboratory tests.

The report is issued on the condition that Risk Management Limited will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the boreholes or trial pits which have not been shown by the boreholes, trial pits or other tests carried out during the investigation.

In addition, Risk Management Limited will not be liable for any loss whatsoever arising directly or indirectly from any opinion given on the possible configuration of strata both between the borehole and/or trial pit positions and/or below the maximum depth of the investigation. Such opinions, where given, are for guidance only.

Groundwater levels may also vary with time from those reported during our site investigation due to factors such as tidal conditions, heavy pumping from nearby wells or seasonal changes.

No person other than the client to whom this report is addressed, shall rely on it in any respect and no duty of care shall be owed to any such third party.

BOREHOLE NO. BH1

Site : 50 Weymouth Street, Marylebone.

Method : 75mm/50mm

Casing : Drive-in-Sampler

Job No. : RML 6139

Date : 8th June 2016

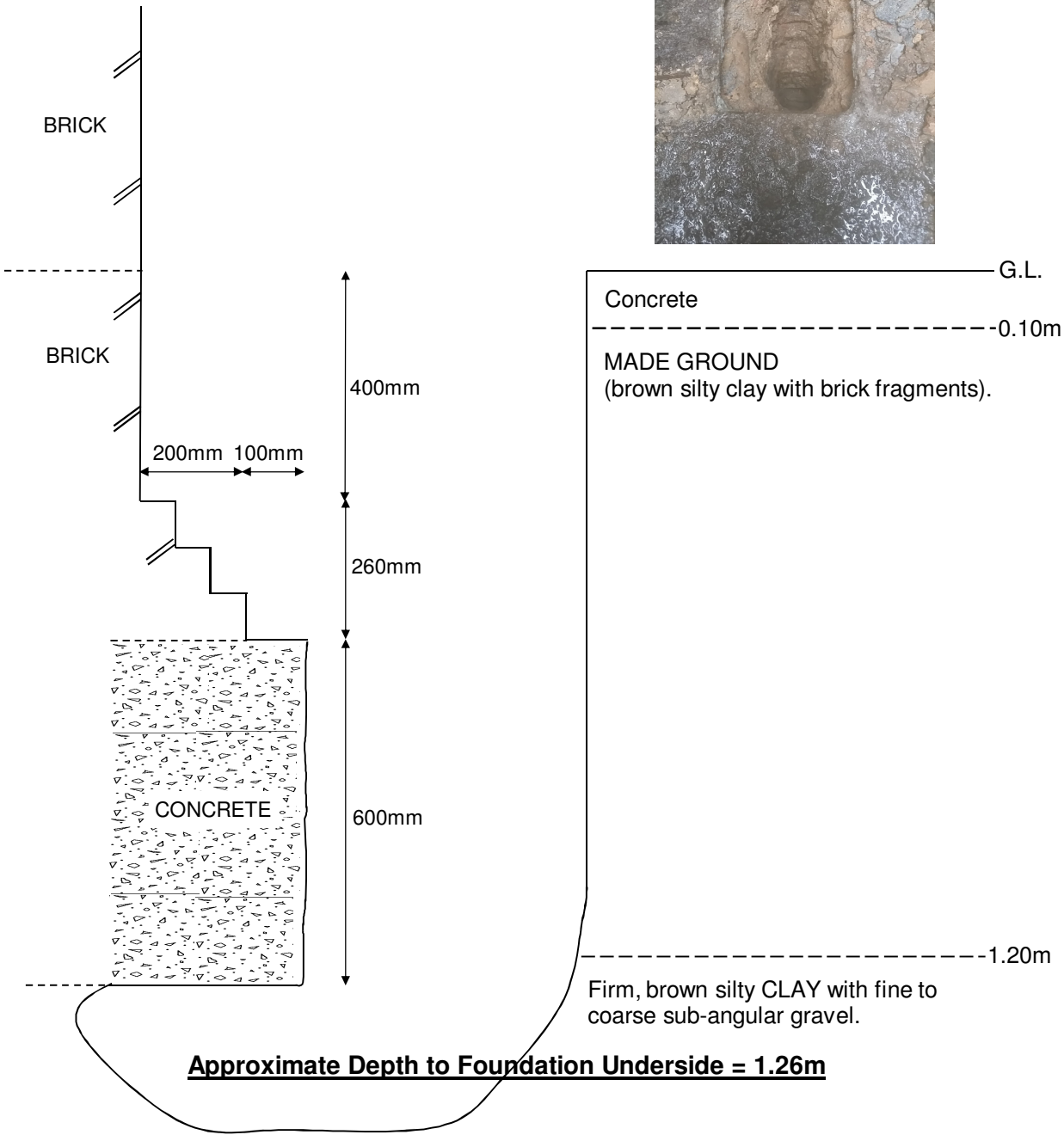
Sheet 1 of 1

(m)	Description	Strata Depth (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
0	Ground Level							
	Concrete	0.10			0.15	D1		
					0.50	D2		
	MADE GROUND (brown silty clay with brick, brick fragments, crushed concrete and gravel).							
1					1.00	D3		
	Superficial Clay Soft to firm, brown, silty, sandy CLAY with pockets of orange-brown and grey silt and fine to coarse sub-angular gravel.	1.40			1.50	D4		
2	..... tending to GRAVEL in a clay matrix with depth.	2.10			2.00	D5		
					2.50	D6		
3	***Lynch Hill Gravel*** Brown and orange-brown slightly clayey, sandy, fine to coarse sub-angular to sub-rounded GRAVEL.				3.00	D7		
					3.50	D8		
4					4.00	D9		
	End of Borehole	4.50			4.50	D10		Borehole terminated due to sides 'caving in'.
5								

Remarks : Groundwater not noted during boring.
: Standpipe installed to 3.00m depth.
:
:

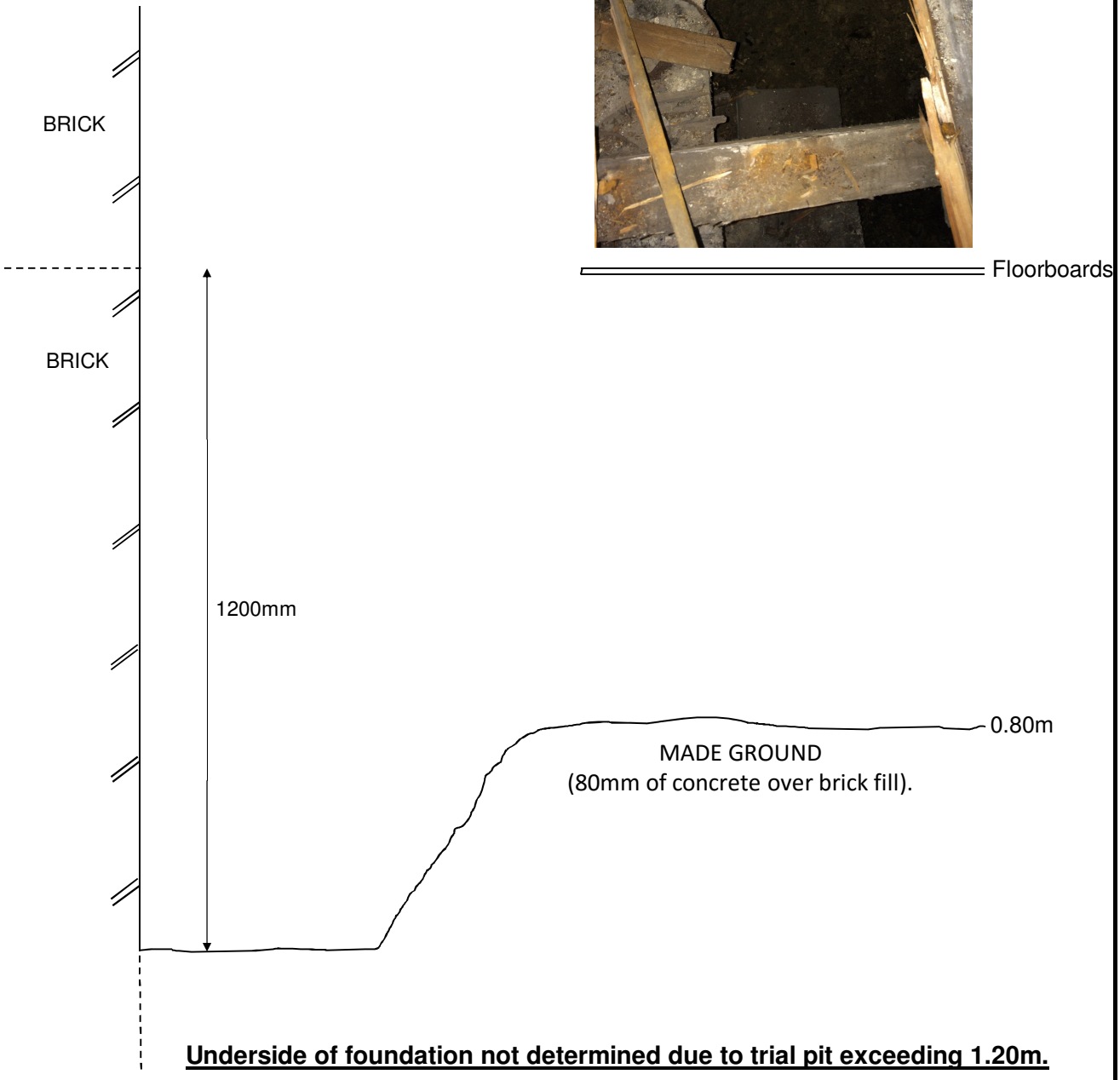
Key: D - Disturbed sample
W - Water sample
B - Bulk sample
SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample

RISK MANAGEMENT LIMITED
Unit 8 Paddock Barn Farm, Godstone Road, Caterham, Surrey CR3 6SF



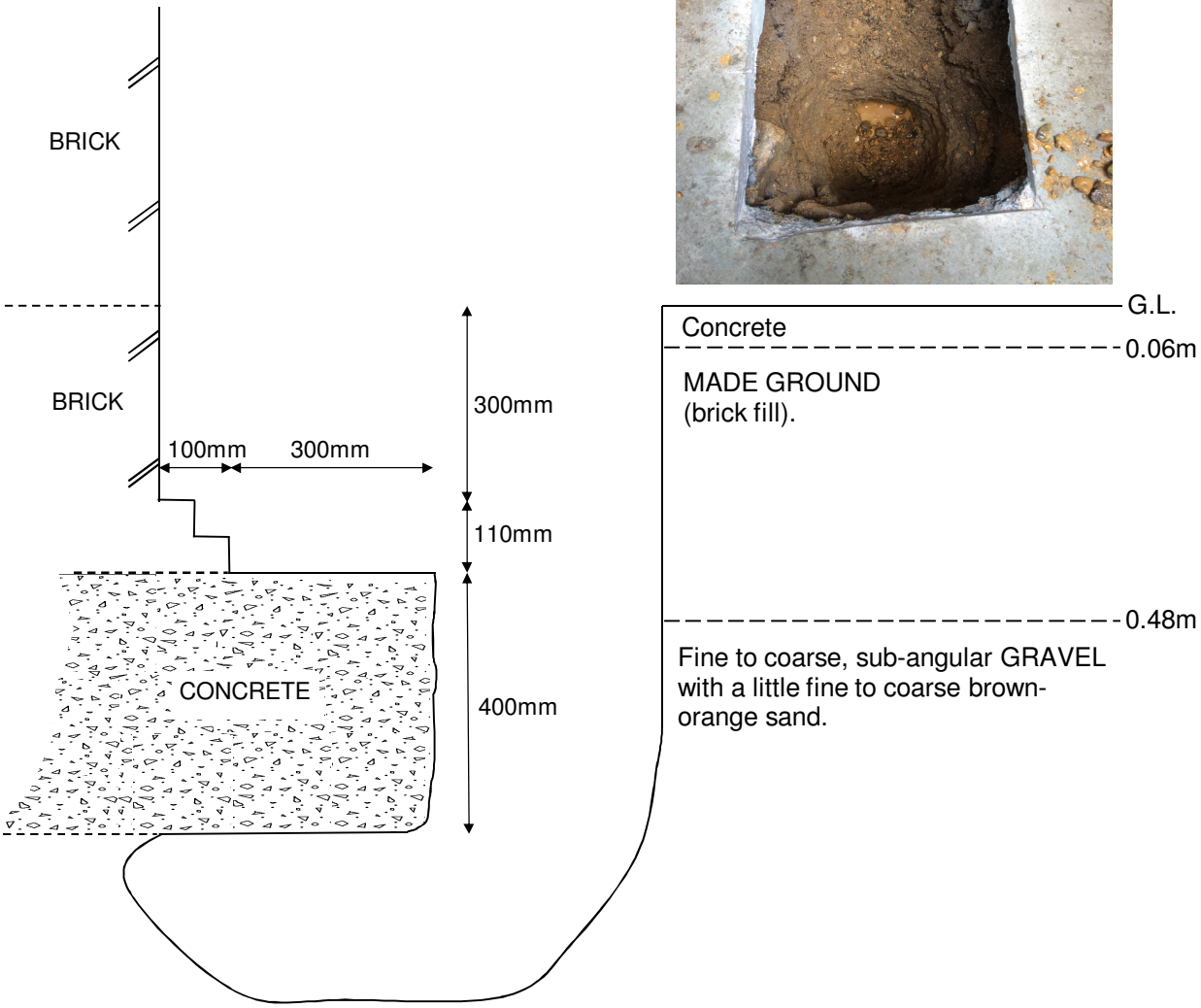
Approximate Depth to Foundation Underside = 1.26m

Title :	**TRIAL PIT 1**		
Project Location :	50 Weymouth Street, Marylebone.		
Job No :	RML 6139	Scale :	Not To Scale
Figure No.	**1**	Date :	June 2016



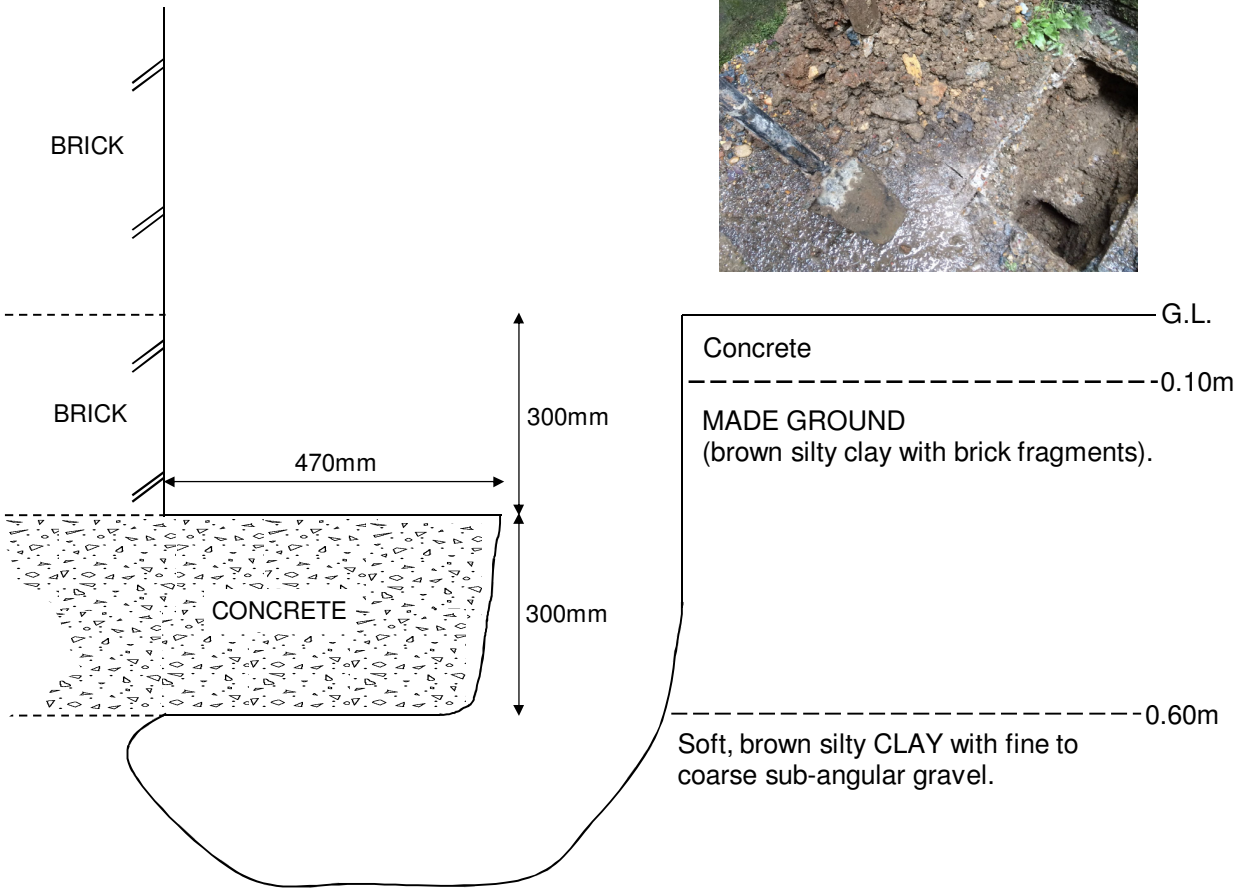
Underside of foundation not determined due to trial pit exceeding 1.20m.

	Title : **TRIAL PIT 2**		
	Project Location : 50 Weymouth Street, Marylebone.		
Risk Management	Job No : RML 6139	Scale : Not To Scale	
	Figure No. **2**	Date : June 2016	



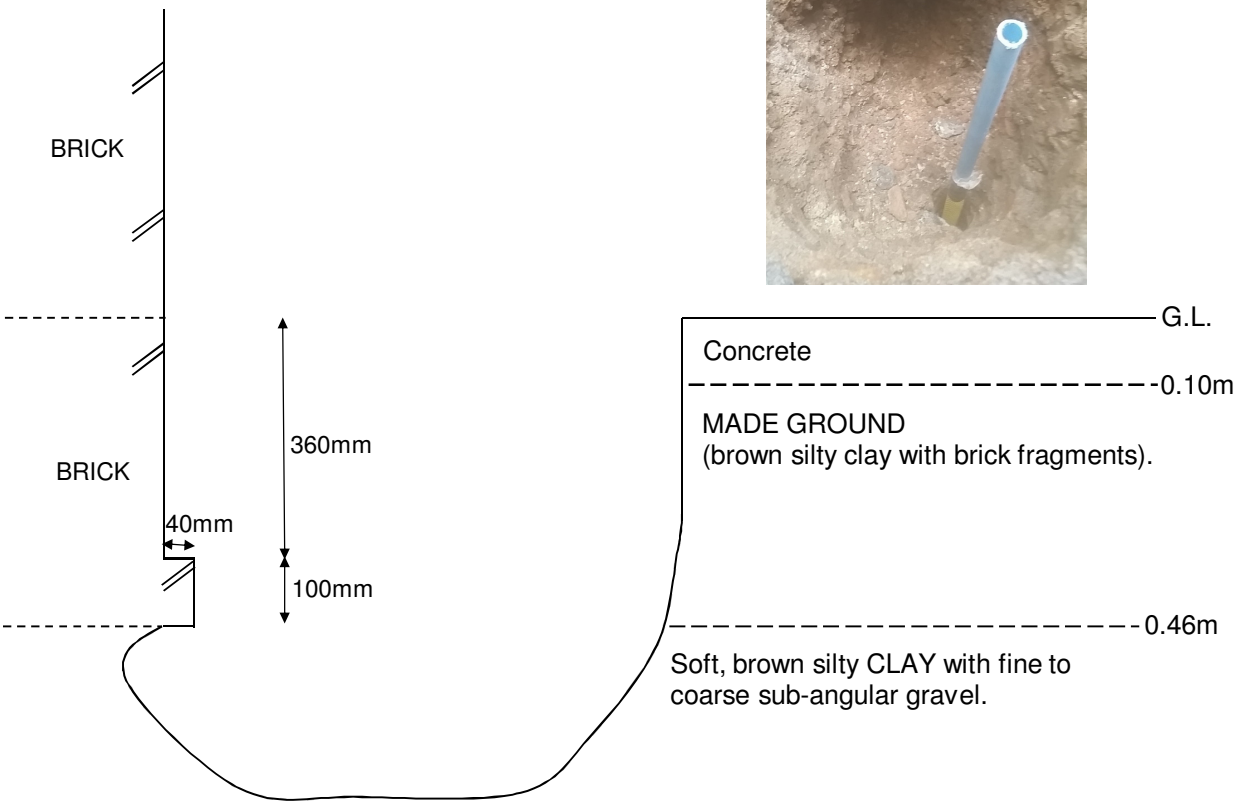
Approximate Depth to Foundation Underside = 0.81m

	Title : **TRIAL PIT 3**		
	Project Location : 50 Weymouth Street, Marylebone.		
Risk Management	Job No : RML 6139	Scale : Not To Scale	
	Figure No. **3**	Date : June 2016	



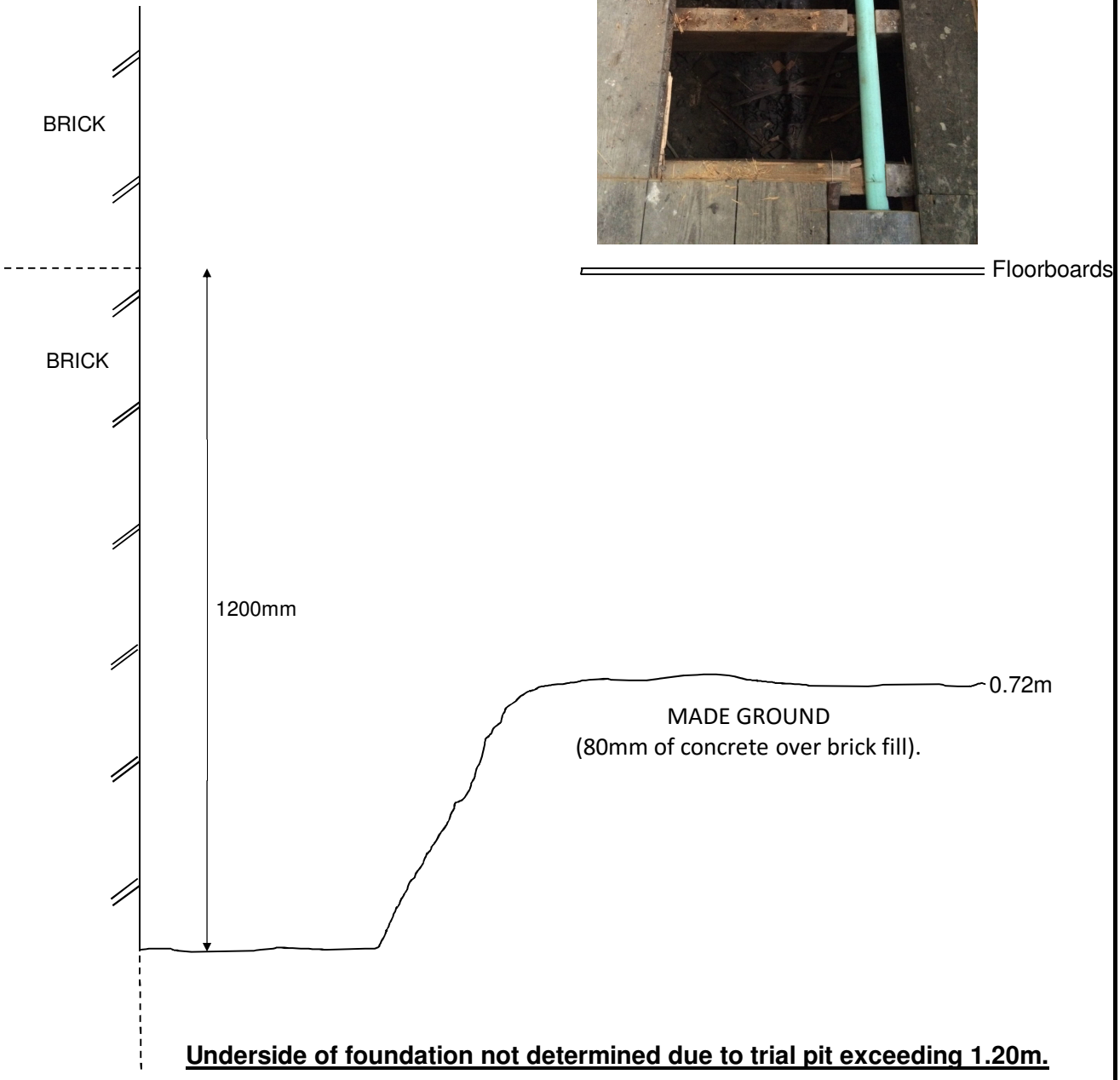
Approximate Depth to Foundation Underside = 0.60m

	Title : **TRIAL PIT 4**		
	Project Location : 50 Weymouth Street, Marylebone.		
Risk Management	Job No : RML 6139	Scale : Not To Scale	
	Figure No. **4**	Date : June 2016	



Approximate Depth to Foundation Underside = 0.46m

	Title : **TRIAL PIT 5**		
	Project Location : 50 Weymouth Street, Marylebone.		
Risk Management	Job No : RML 6139	Scale : Not To Scale	
	Figure No. **5**	Date : June 2016	



Underside of foundation not determined due to trial pit exceeding 1.20m.

Title :	**TRIAL PIT 6**	
Project Location :	50 Weymouth Street, Marylebone.	
Job No : RML 6139		Scale : Not To Scale
Figure No. **6**		Date : June 2016

Risk Management

PROJECT NAME : 50 Weymouth Street, London W1G 6NT

PROJECT NO: RML 6139

Date	July 2016
Page	1 of 1

Sample Details				Classification Tests					Density Tests		Undrained Triaxial Compression Test			Chemical Results				
BH No.	Depth (m)	Sample No.	Description	MC (%)	LL (%)	PL (%)	PI	<425 mic (%)	Bulk (Mg/m^3)	Dry (Mg/m^3)	Cell Pressure kPa	Deviator Stress kPa	Mean Shear Stress kPa	pH	W/S SO_4 (g/l)	Total SO_4 (%)	Water SO_4 (g/l)	Other tests and comments
BH1	0.50	D2												9.4	0.13			
	1.00	D3												11.2	0.16			
	1.50	D4	Firm, brown, silty, sandy CLAY with pockets of orange-brown and grey silt and fine to coarse sub-angular gravel.	20	52	17	35	66	1.96	1.63	30	139	70					Class CH
	2.00	D5	Fine to coarse sub-angular GRAVEL in a brown silty clay matrix.	15	53	15	38	30										Class CH

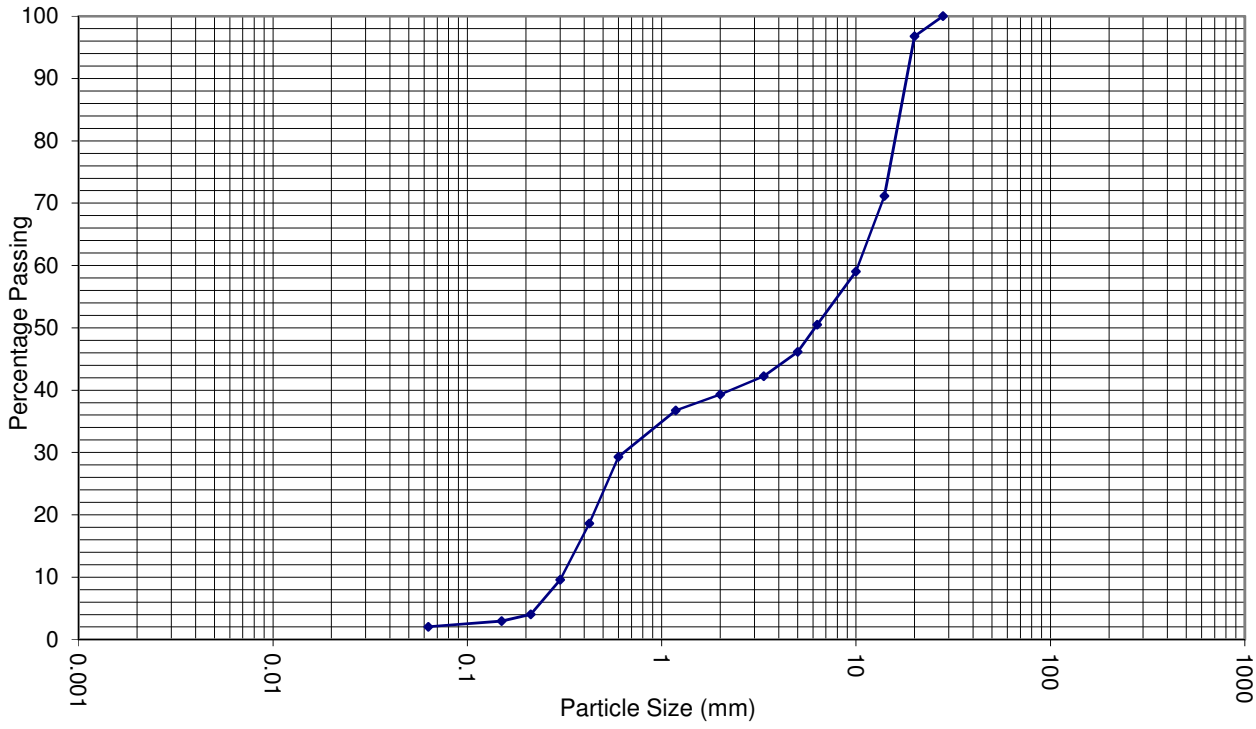
SUMMARY OF GEOTECHNICAL TESTING

Results of Particle Size Distribution Tests

Project Name :	**50 Weymouth Street, Marylebone.**			**Project No.**	**RML 6139**
Borehole No.	**BH1**	**Sample No.**	**D6**	**Depth (m)**	**2.50m**

Test Method : BS 1377 : Part 2 : 1990 : Clause 9

Sieve (mm)	Passing (%)	Sieve (mm)	Passing (%)
200	100	2	39
125	100	1.18	37
90	100	0.6	29
75	100	0.425	19
63	100	0.3	10
50	100	0.212	4
37.5	100	0.15	3
28	100	0.063	2
20	97	Pipette	
14	71	Particle Size	% Passing
10	59		
6.3	51		
5	46		
3.35	42		



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Description :

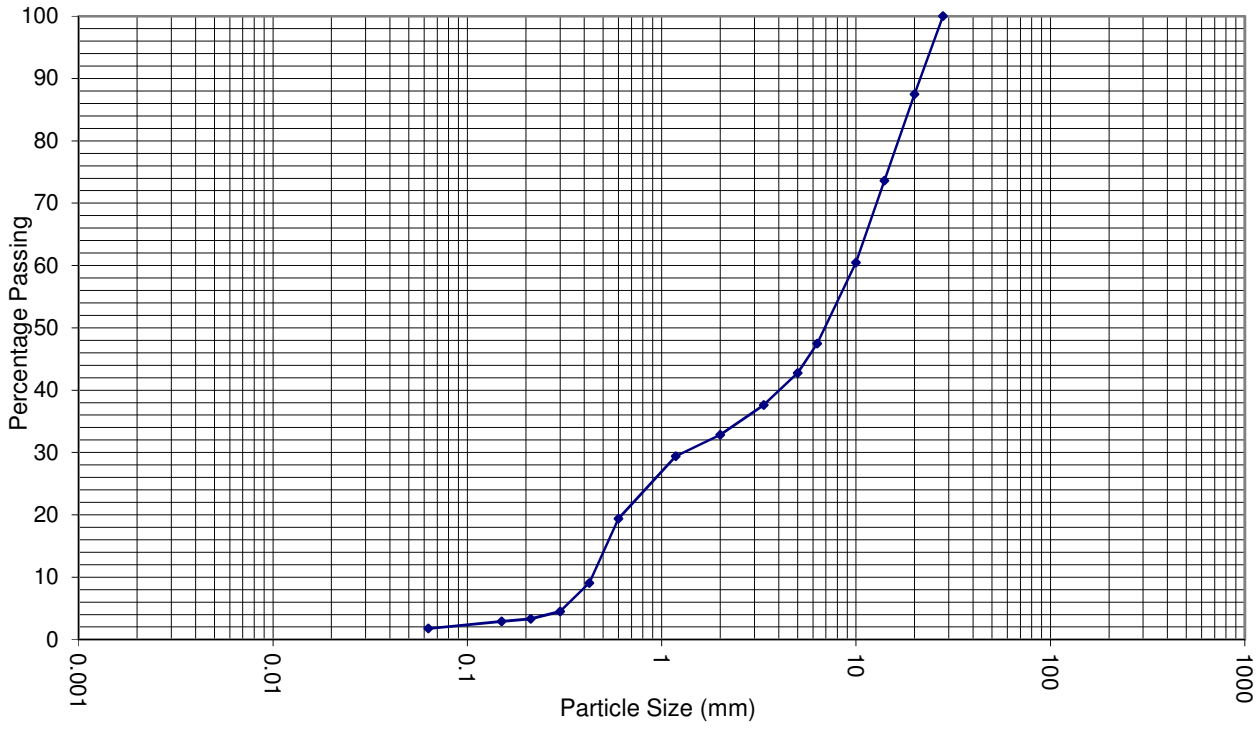
Brown and orange-brown, slightly clayey, sandy fine to coarse sub-angular to sub-rounded GRAVEL.

Results of Particle Size Distribution Tests

Project Name :	**50 Weymouth Street, Marylebone.**	**Project No.**	**RML 6139**
Borehole No.	**BH1**	**Sample No.**	**D7**
Depth (m)	**3.00m**		

Test Method : BS 1377 : Part 2 : 1990 : Clause 9

Sieve (mm)	Passing (%)	Sieve (mm)	Passing (%)
200	100	2	33
125	100	1.18	29
90	100	0.6	19
75	100	0.425	9
63	100	0.3	4
50	100	0.212	3
37.5	100	0.15	3
28	100	0.063	2
20	87	Pipette	
14	74	Particle Size	% Passing
10	60		
6.3	47		
5	43		
3.35	38		



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Description :

Brown and orange-brown, slightly clayey, sandy fine to coarse sub-angular to sub-rounded GRAVEL.

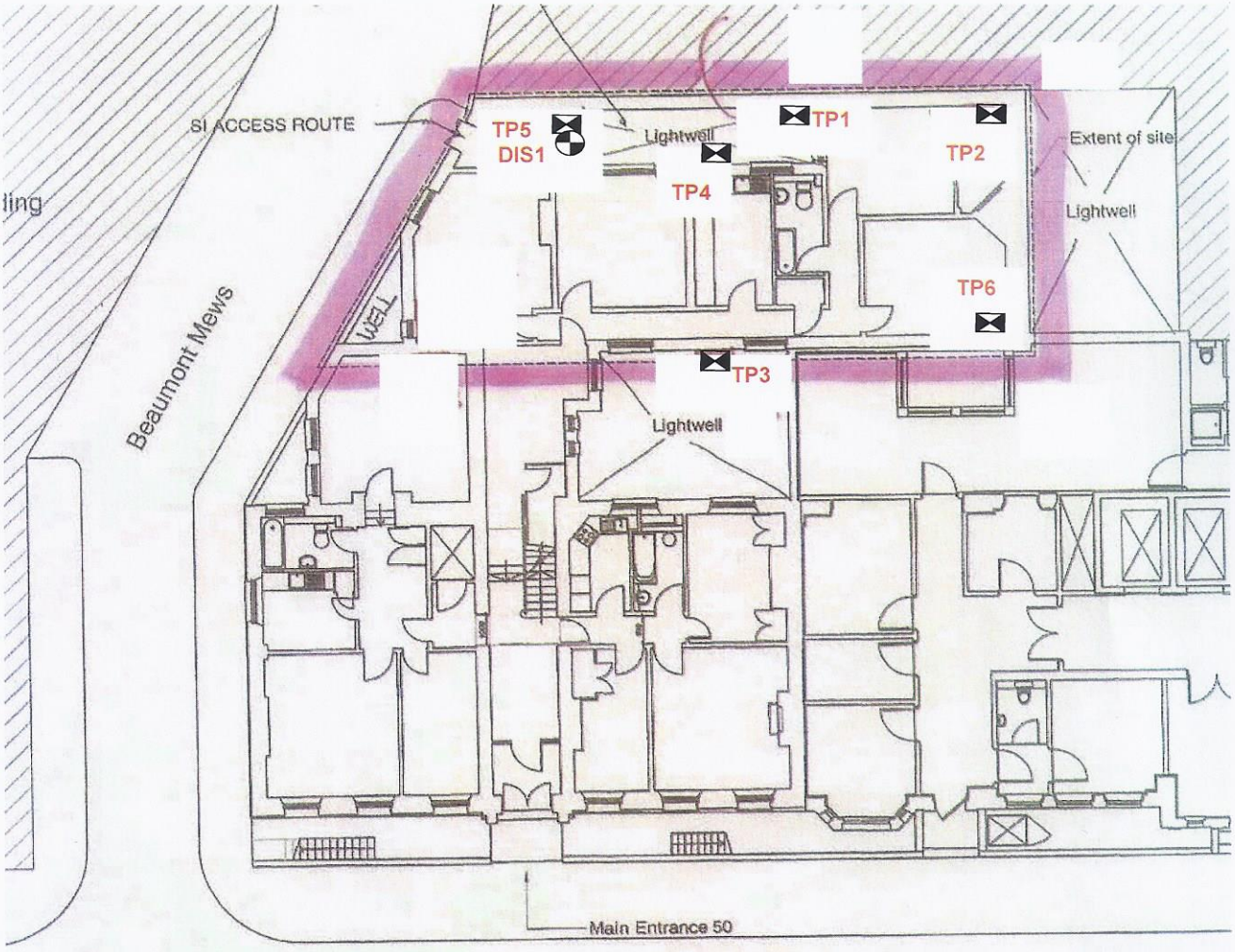
Risk Management

Risk Management Limited
Tel : 01883 343572

GROUNDWATER & GAS MONITORING RESULTS

Project Name:	50 Weymouth Street, London W1G 6NT	Project No. :	RML 6139
		Date :	July 2016

BH No.	Date	Pressure (mb)	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Methane LEL (%)	Flow Rate (l/hr)	Groundwater Level (m)
BH1	20th June 2016	1010	19.6	0.4	0.0	0.0	0	'dry'



Risk Management

Title : **SKETCH FIELDWORK LOCATION PLAN**

RISK MANAGEMENT LIMITED

Tel : 01883 343572
Fax : 01883 344060

Project Location : 50 Weymouth Street, London W1G 6NT	
Report Date : July 2016	Scale : NTS
Drawn By : MSP	Drg. No. RML 6139 /1

Fluid Structural Engineers
2nd Floor
21 St George's Road
London, SE1 6ES

t: 020 7820 7766

e: david@fluidstructures.com
w: www.fluidstructures.com

P C A

PCA CAMBRIDGE
THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN
t: 01223 845 522
e: cambridge@pre-construct.com

PCA DURHAM
UNIT 19A, TURSDALE BUSINESS PARK
TURSDALE
DURHAM DH6 5PG
t: 0191 377 1111
e: durham@pre-construct.com

PCA LONDON
UNIT 54, BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD, BROCKLEY
LONDON SE4 2PD
t: 020 7732 3925
e: london@pre-construct.com

PCA NEWARK
OFFICE 8, ROEWOOD COURTYARD
WINKBURN, NEWARK
NOTTINGHAMSHIRE NG22 8PG
t: 01636 370410
e: newark@pre-construct.com

PCA NORWICH
QUARRY WORKS, DEREHAM ROAD
HONINGHAM
NORWICH NR9 5AP
T: 01223 845522
e: cambridge@pre-construct.com

PCA WARWICK
UNIT 9, THE MILL, MILL LANE
LITTLE SHREWLEY, WARWICK
WARWICKSHIRE CV35 7HN
t: 01926 485490
e: warwick@pre-construct.com

PCA WINCHESTER
5 RED DEER COURT, ELM ROAD
WINCHESTER
HAMPSHIRE SO22 5LX
t: 01962 849 549
e: winchester@pre-construct.com