62 Elsworthy Road
London NW3 3BU

Structural Engineering Notes to
Wolff Architects'
Planning Application

December 2010

210448

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DOCUMENT CONTROL

Revision	Date	Filename	62 Elsworthy Road, London NW3 3BU	
P2	9th December 2010	Description	Structural Engineering Notes for Planning Application	
			Name	Signed
		Prepared by	Gary Povey - Bsc CEng MIStructE	
		Checked by	Paul Wood - BEng CEng MICE MIStructE	
		Approved by	Paul Wood - BEng CEng MICE MIStructE	

elliott wood partnership

consulting structural and civil engineers

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Contents

Structural Engineering Notes

Introduction

This statement has been prepared by Gary Povey of Elliott Wood Partnership LLP, Consulting Structural and Civil Engineers, to accompany the planning application submitted by David Wolff Architects. The purpose of the statement is to indicate the method, form and sequence of construction assumed in the refurbishment of the existing floors, the design of the new basement and lightwell at the front of the building.

The Contractor will, however, have to provide a detailed method statement including all temporary and enabling works taking in to account the permanent works design before the works can commence on site.

This statement should be read in conjunction with Elliott Wood Partnership drawings 210448/S.01-S.04 and S.10 and S.11, David Wolff Architects drawings, and GCG Hydrogeology Report.

The undertaking of such projects is specialist work and Elliott Wood Partnership will be involved in the selection of a competent Contractor who will need the relevant expertise and experience for this type of project. The Contractor will have to demonstrate his experience and competency to undertake the construction of this building.

Description of Existing Building and Site Conditions

The existing building at 62 Elsworthy Road is a detached three storey house with a rear single storey extension. It has a small swimming pool in the back garden. The back garden provides access to the communal gardens at the rear of the properties. The house at No.64 has been recently refurbished and a new basement has been constructed beneath it. Archive drawings of the engineers and Architects designs have been reviewed in the preparation of this report. Borehole records of No. 64 are included in this report.

The existing building superstructure is assumed to be constructed in traditional load bearing masonry with timber floor joists. Some investigations will be required to confirm these assumptions.

Reference to the geological map for the area indicates that the underlying soil strata is London Clay to considerable depth. There are a number of mature trees both in the garden of number No. 62 and in adjacent gardens as well as the front in the pavement. The proximity of the existing trees will need to be considered in the final design of the basement and its foundations. It is possible that the clay is desiccated as a result of the trees drawing water from the ground. This may have resulted in shrinkage of the clay as it dries out. Conversely there could be heave as a result of the ground returning to its natural moisture content or because of the removal of the overburden under the excavation.

It will also be necessary to provide a means of defence against water ingress into the basement during the excavation. This may be achieved by using secant piled walls to form the enabling works or sheet piles with the clutches welded. It is understood that the basement dug at No.64, approximately three years ago, did not encounter any ground water problems so the likelihood of water in the ground is unlikely. The report prepared by Geotechnical Consulting Group has reviewed a number of sites and boreholes in the area including at No. 64 and No. 41 opposite. Reference should be made to their report but they are also suggesting ground water is not likely to be an issue.

The foundations to the property and the adjacent house at No.60 are likely to be shallow relative to the lowest level of the buildings with corbelled brickwork bearing on to the London Clay. A detailed site investigation and site survey including trial holes and localised opening up works will be necessary to confirm these assumptions prior to construction. The GCG report suggests the inclusion of land drains around the proposal to prevent any potential problems due to ground water. These have been shown on EWP drawings. Attenuation of water and allowance for free flowing water will be included on top of the basement and are shown on EWP drawings.

The proposals

The proposal is to construct a new basement under the entire footprint of the building. The new basement also extends into the rear garden. An area of sub-basement will house the pool, pool plant and utility room beneath the upper basement. The proposal includes the creation of a lightwell at the front.

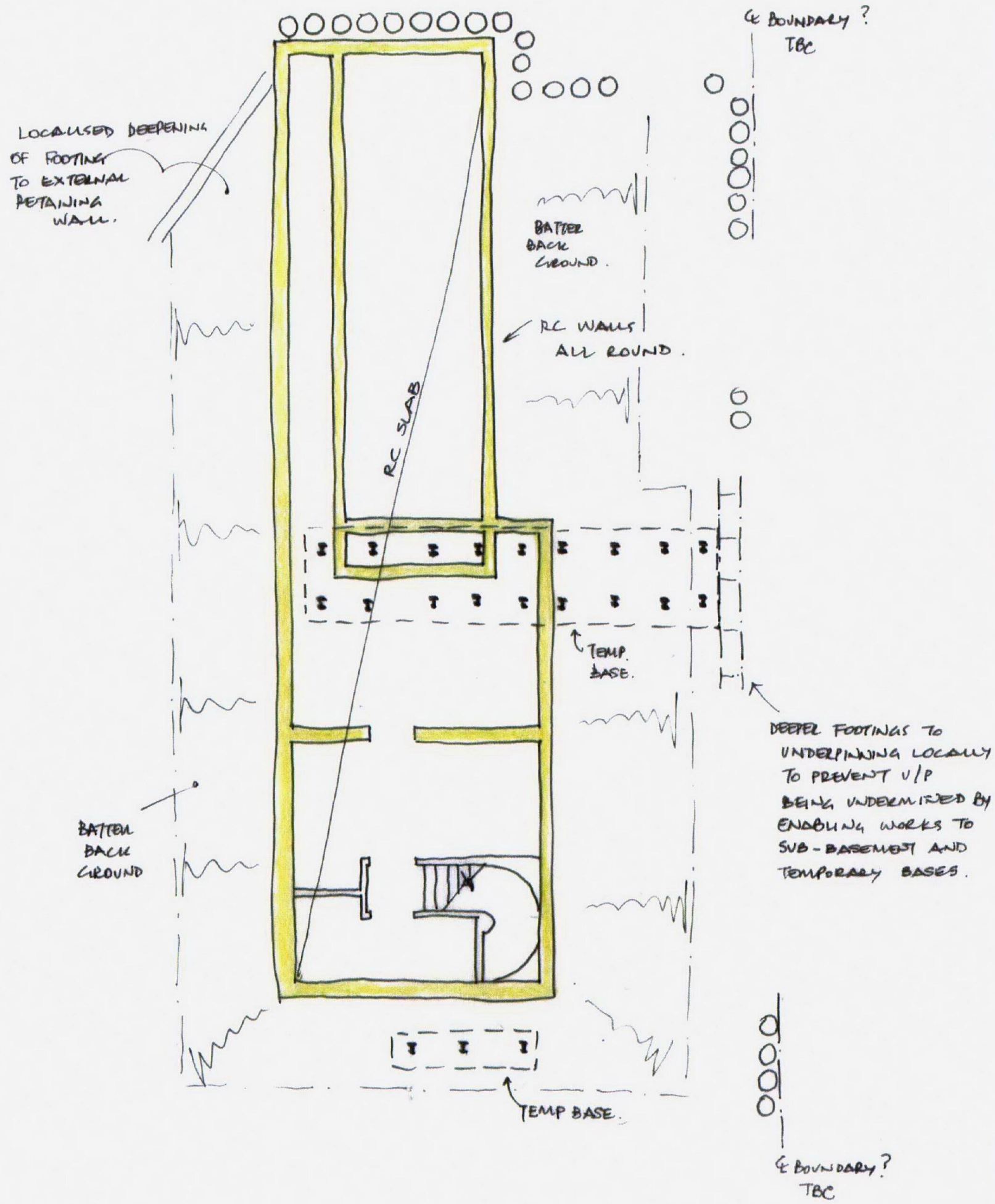
The new basement will essentially be constructed by installing a series of reinforced concrete underpins under the existing surrounding walls where necessary to transfer the existing vertical loads to a lower level. There will be also a series of piles installed to form a contiguous or secant piled wall to retain the ground during the excavation of the front lightwell and the rear section of the basement. The underpinning and piles may need to be propped at various levels. This will allow the basement to be constructed within the underpins without undermining the existing footings either during excavation or during construction of the permanent works. The propping will provide lateral restraint to the underpins and piles during excavation and therefore limit any potential movement of surrounding walls and floors to an acceptable amount.

The underpinning will be constructed in a sequence to be agreed to avoid undermining either the remaining walls of the house or the walls of the adjacent properties. The building at No.64 has recently been constructed with a new single storey basement. Consequently the walls of No. 64 will not be undermined by the excavation at No.62 as it will be constructed at a similar level.

Further site investigations will have to be carried out to determine the depth of the foundations to the house at No.60 to ensure they are not undermined by the proposed work.

In addition, suitable monitoring arrangements should be agreed with the adjoining owners and specified to ensure that movements are maintained within acceptable limits and that early and immediate action can be taken to prevent any unexpected deflections or settlement. The permanent lateral support to the underpins and piles will be provided by the new slabs and retaining walls within the new proposal.

Proposed Drawings



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revision	date	by	checked	approved
P1	8.9.10	GP		
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tel: (020) 8544 0033 fax: (020) 8544 0066 info@elliottwood.co.uk

job title

62 ELSWORTHY ROAD LONDON NW3

drawing title

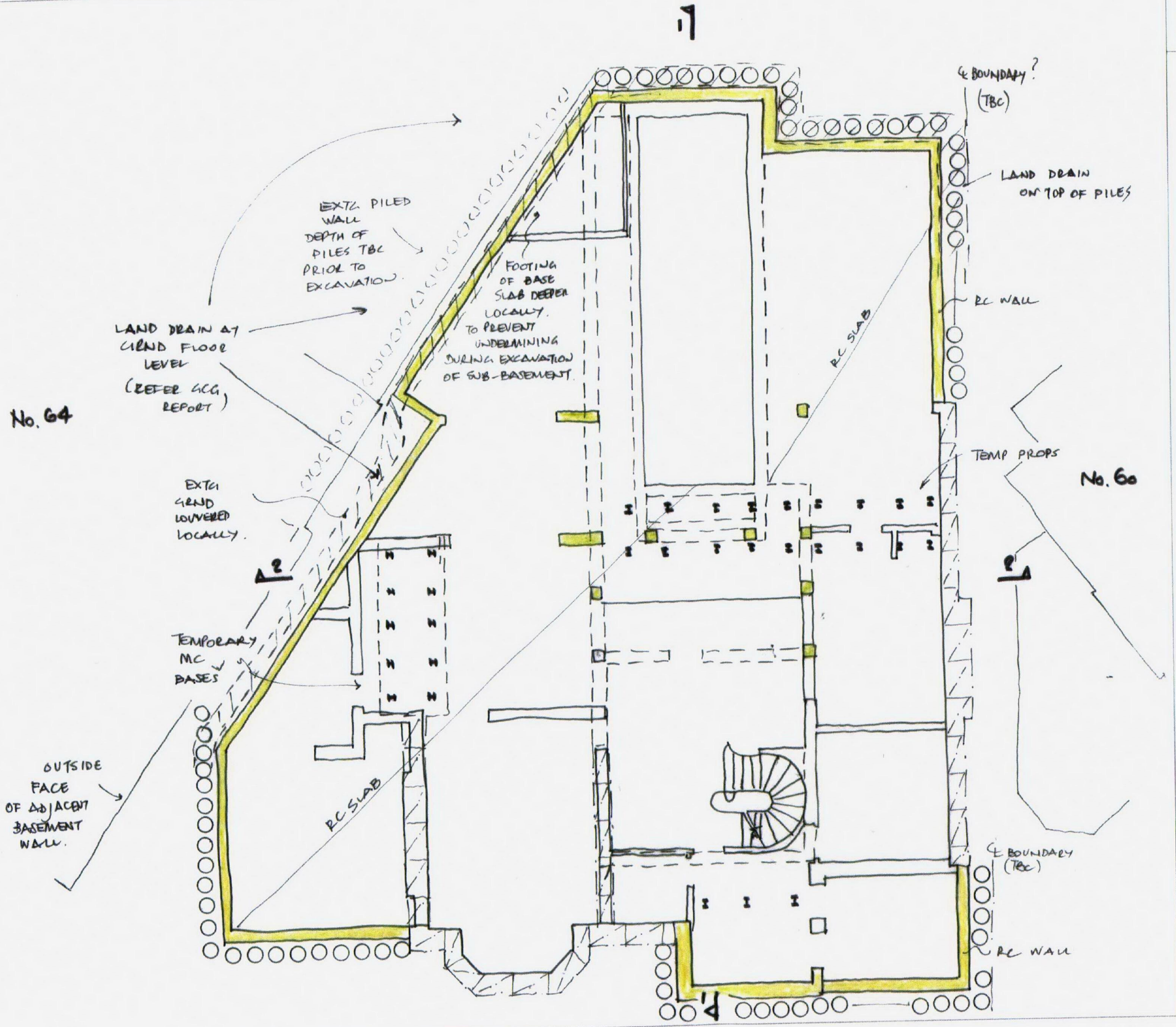
PROPOSED SUB-BASEMENT

scale(s)	date	drawn
1:100	6.9.10	GP

drawing status

INFORMATION

job no	drawing no	revision
210448	S.01	P1



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P2	9.12.10	GP		
LAND DRAIN ADDED.				
P1	8.9.10	GP		
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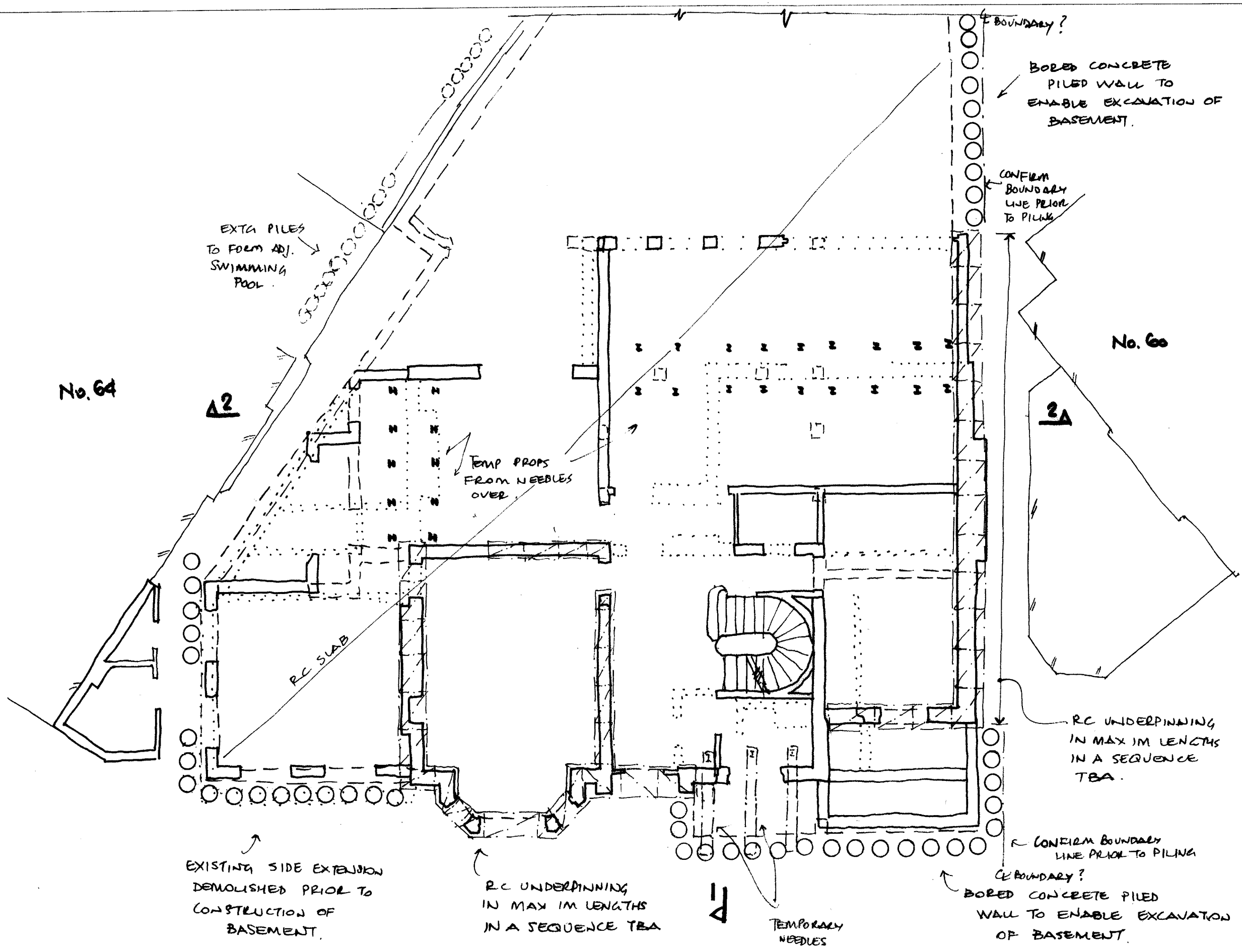
job title
62 ELSWORTHY ROAD LONDON NW3

drawing title
PROPOSED LOWER GROUND FLOOR PLAN

scale(s)	date	drawn
1:100	6.9.10	GP

drawing status
INFORMATION

job no	drawing no	revision
210448	S.02	P2



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job title

62 ELSWORTHY ROAD LONDON NW3

drawing title

PROPOSED GROUND FLOOR PLAN

scale(s)	date	drawn
1:100	6.9.10	GP

drawing status

INFORMATION

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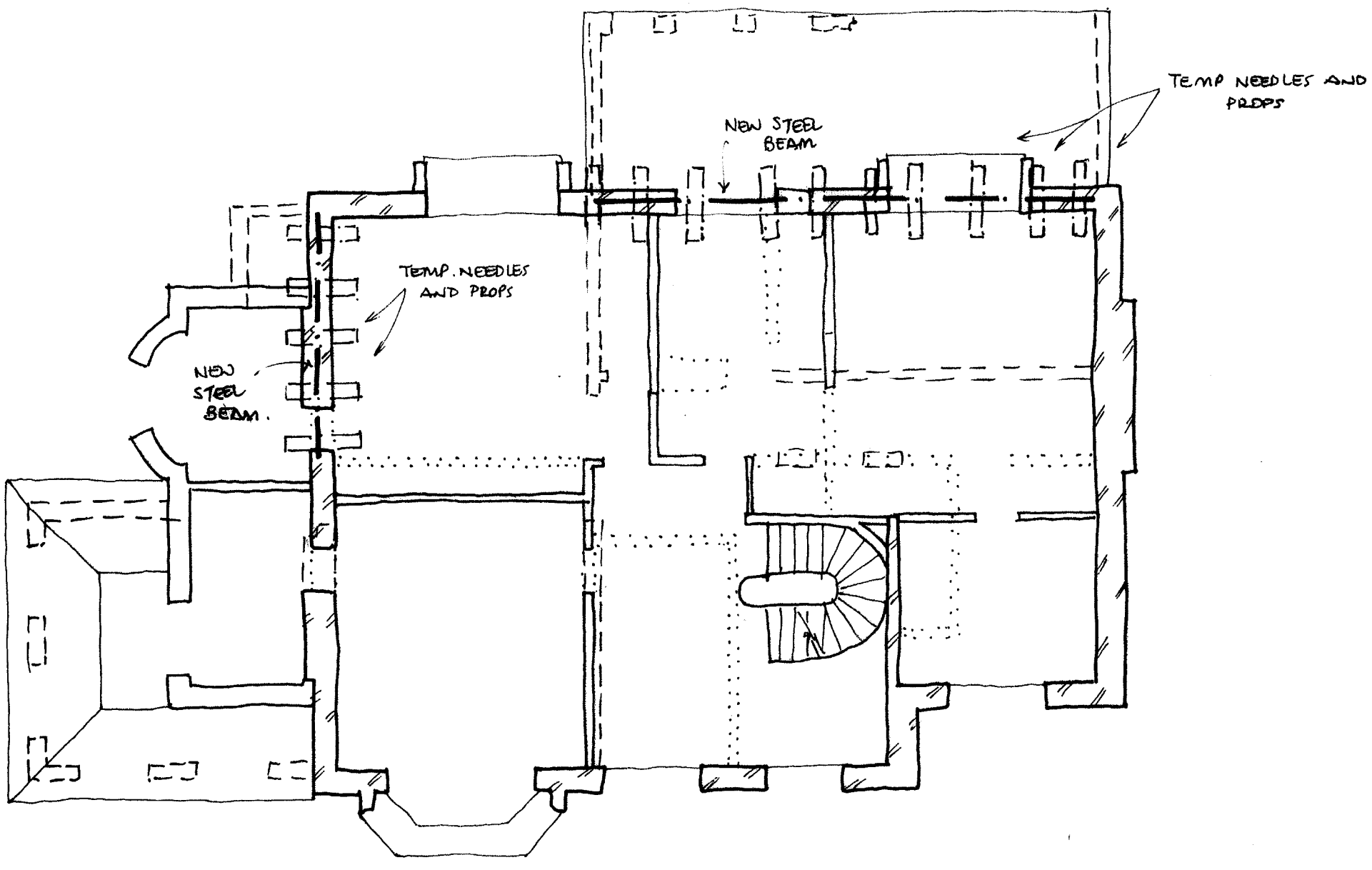

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P1	8.9.10	GP		
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job title
62 ELSWORTHY ROAD LONDON NW3

drawing title
PROPOSED FIRST FLOOR PLAN

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1:100	6.9.10	GP

drawing status
INFORMATION

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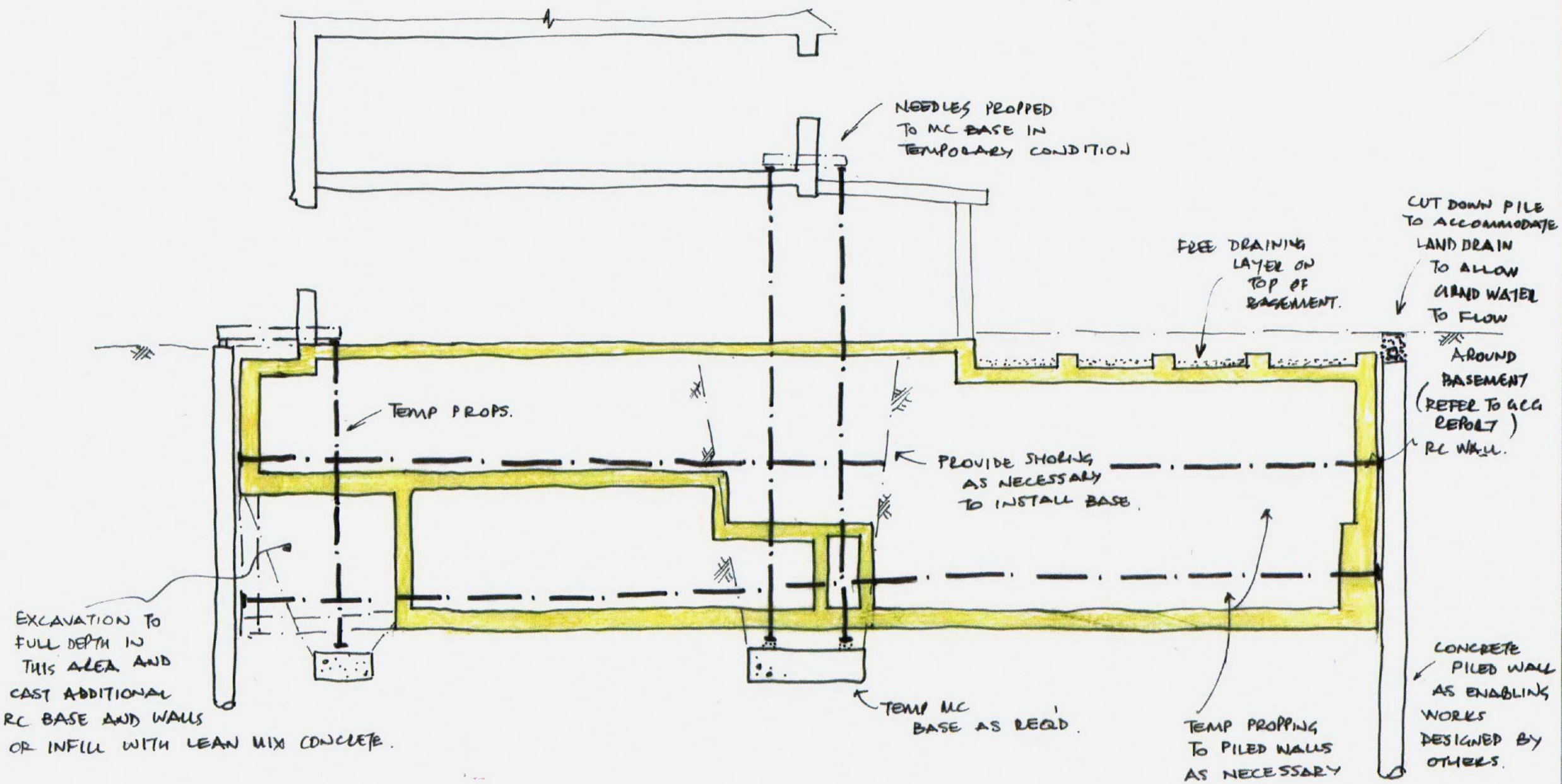

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P2	9.12.10	CJP		
LAND DRAIN ADDED				
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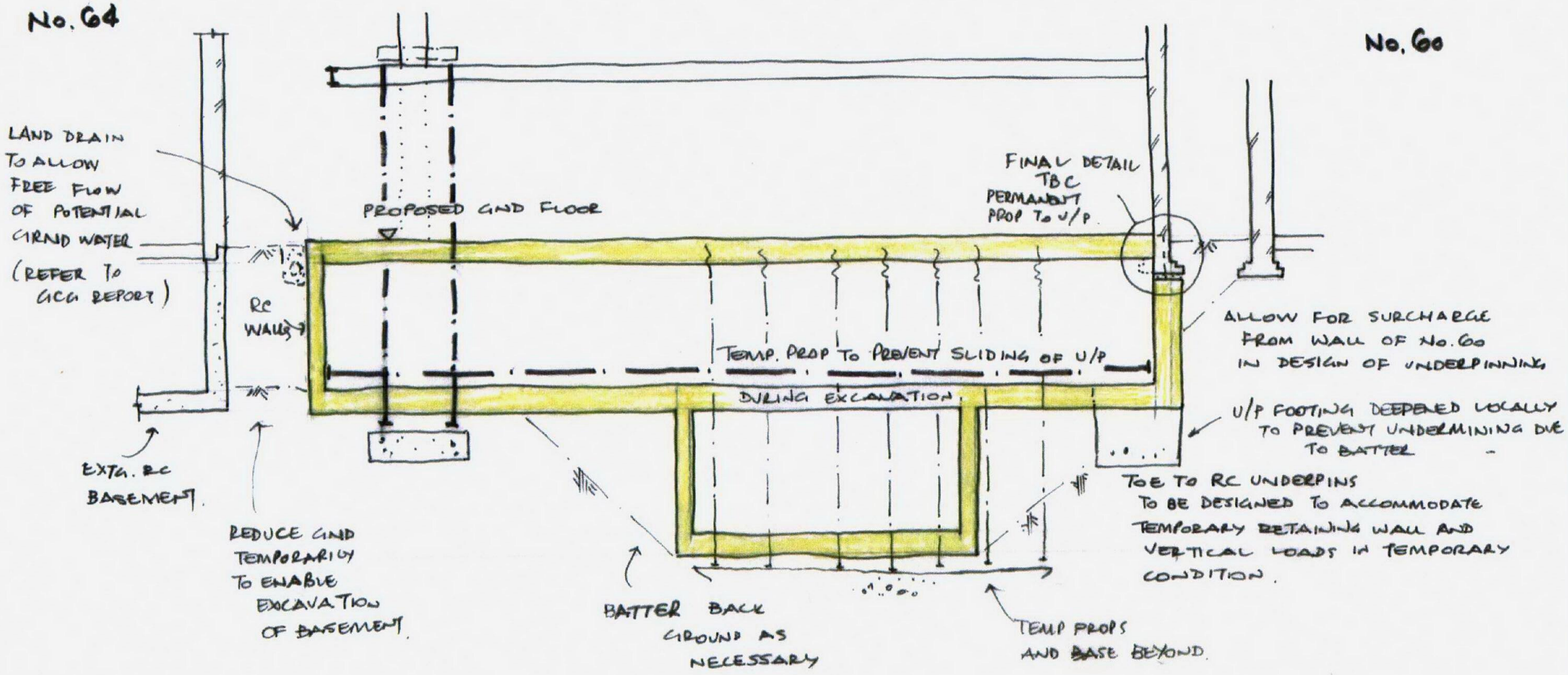
job title
62 ELSWORTHY ROAD LONDON NW3

drawing title
PROPOSED SECTION 1-1

scale(s)	date	drawn
1:100	6.9.10	CJP

drawing status
INFORMATION

job no	drawing no	revision
210448	S.10	P2



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LAND DRAIN ADDED.				
P1	8.9.10	GP		
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job title
62 ELSWORTHY ROAD LONDON NW3

drawing title
PROPOSED SECTION 2-2

scale(s)	date	drawn
1:100	6.9.10	GP

drawing status
INFORMATION

job no	drawing no	revision
210448	S.11	P1

Sequence of Construction

Sequence of works assumed in the design enabling excavation of the new basements

Below is an assumed sequence of works, this needs to be clarified by the Contractor prior to commencement of the works:

- Demolish existing rear single storey extension.
- Install underpins to all the necessary walls including the front wall and side boundary walls in a sequence to be agreed. The deeper underpins may have to be done in two sections. Allowance for the new and permanent loads should be made in the design of the width of the toe of the new concrete underpins. Install upper level propping to the underpins and piles as appropriate prior to excavation.
- Contractor to ensure the underpins are designed to accommodate surcharge loads from the flank wall of the adjacent house as well as earth and water loads. He should also allow for the prevention of water ingress during construction.
- Install the necessary piled walls around the basement to provide a safe area for the excavation of the basement.
- Install the temporary foundations under the internal walls as necessary cast at a depth below the proposed basement slab level (consider shoring or temporary propping while digging out).
- Install the temporary needles and props to internal existing walls that are to remain such that they will be supported by the temporary concrete bases.
- Break off the existing toe of the brick corbel footings to the surrounding walls once the underpinning is complete and props are in place.
- Excavate to the lowest level ensuring continued back propping of the underpins and the piled wall as the ground is reduced.
- Cast the new reinforced concrete basement slab and allow it to gain sufficient strength before removing lowest level props.
- Cast the reinforced concrete walls and allow in the design for them to act as vertical cantilevers in the temporary case so that props can be removed above the cast sections.
- Cast the ground floor slab and allow it to gain strength before removing the next level of propping.
- Re-support the existing internal walls on the new structure as necessary prior to removing temporary supports.
- Complete the superstructure works once the basement is complete.
- Break down tops of piles where necessary and install land drain.

Construction of superstructure

Summary and Conclusions

It is assumed that the above measures and sequence construction of the proposed works.

Detailed method statements and calculations for the en Contractor for both approval and comment by all relevant Wood Partnership will need to ensure that adequate super

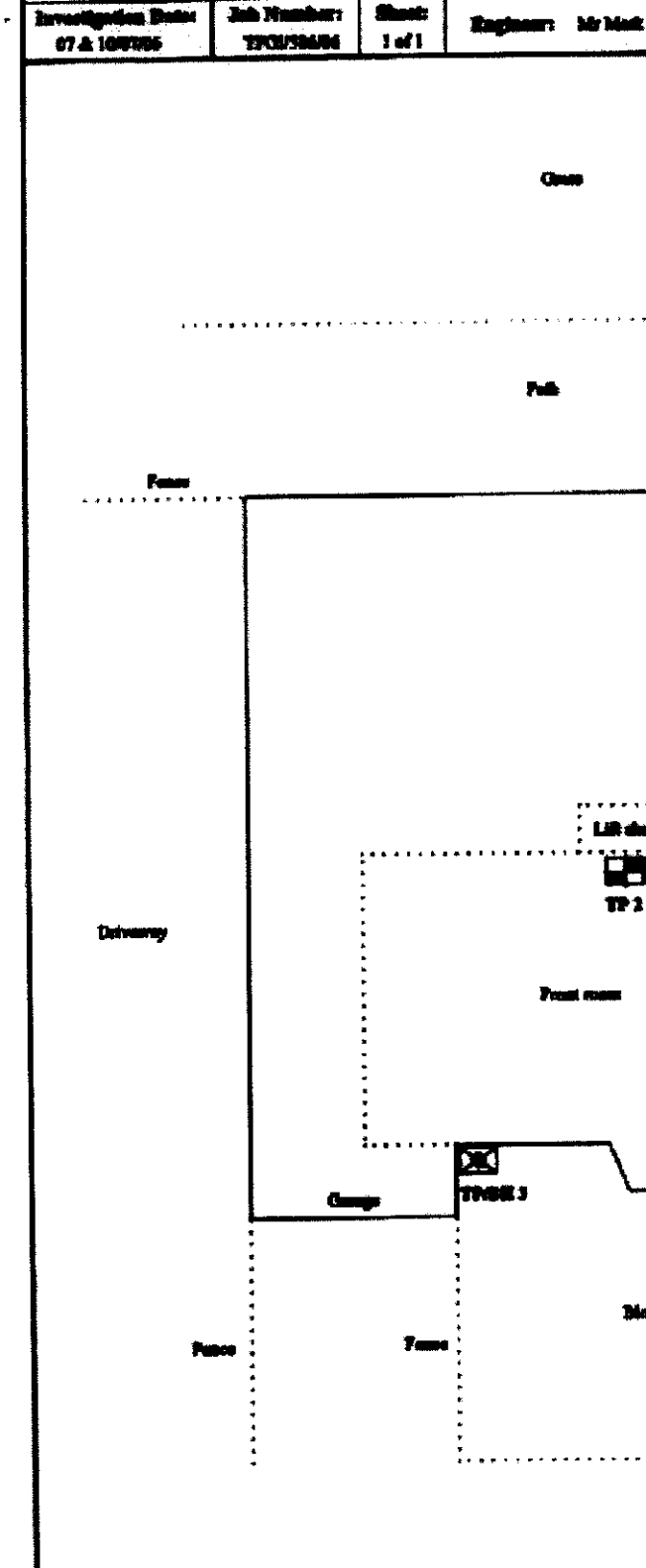
Appendix

Site Investigation Rep

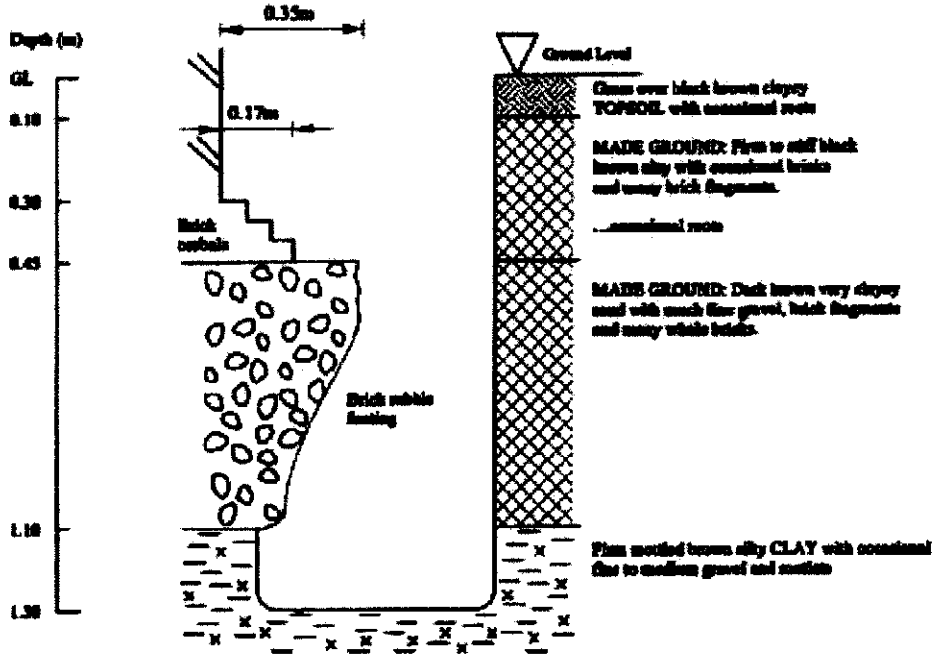
TERRA FIRMA Ground Investigation

Site Investigation Report

Property Address:	**64 Elsworthy Road, London. NW3 3BU.**
Investigation Date:	**07 & 10/07/06**
Client:	**Ian Drummond Consulting Engineers**
Report number:	**TFGI/586/06**



Dates: 07 & 10/07/06	Hand dug foundation inspection pit	Client: Ian Drummond Consulting	
		Engineer: Mr Mark Bradley	TP 1



Depth (m)	Samples
1.10/1.30	D1

COMMENTS: *The trial pit was completed at 1.30m.*

Groundwater was not encountered. Roots and rootlets were encountered.

The trial pit was backfilled with the materials arising upon completion.

Site works by: CJ MB

Drawn by: RK

Checked by:

KEY: D *Disturbed soil sample* R *Root sample* V *Pilcon vane reading (kPa)* PP *Pocket penetrometer (kPa)* M *Mackintosh probe reading (blows for 300mm penetration)* ▽ *Water strike*

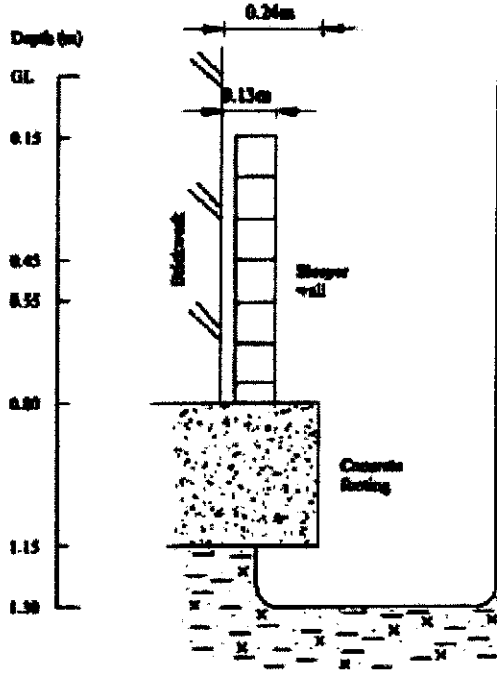
Ground conditions may exist on site which are not encompassed by the scope of these investigations. Especial conditions were or

Dates: 07 & 10/07/06

Hand dug foundation inspection pit

Client: Ian Drummond C

Engineer: Mr Mark Bradley



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The trial pit was backfilled with the materials arising upon c

KEY: D *Disturbed soil sample* R *Root sample* V *Pilcon vane reading (kPa)* PP *Pocket penetrometer (kPa)*

Ground conditions may exist on site which are not encompassed by the scope of

See Attached Map

Dates:
07 & 10/07/06

Hand dug foundation inspection pit & hand auger borehole

Client: Ian Drummond Consulting

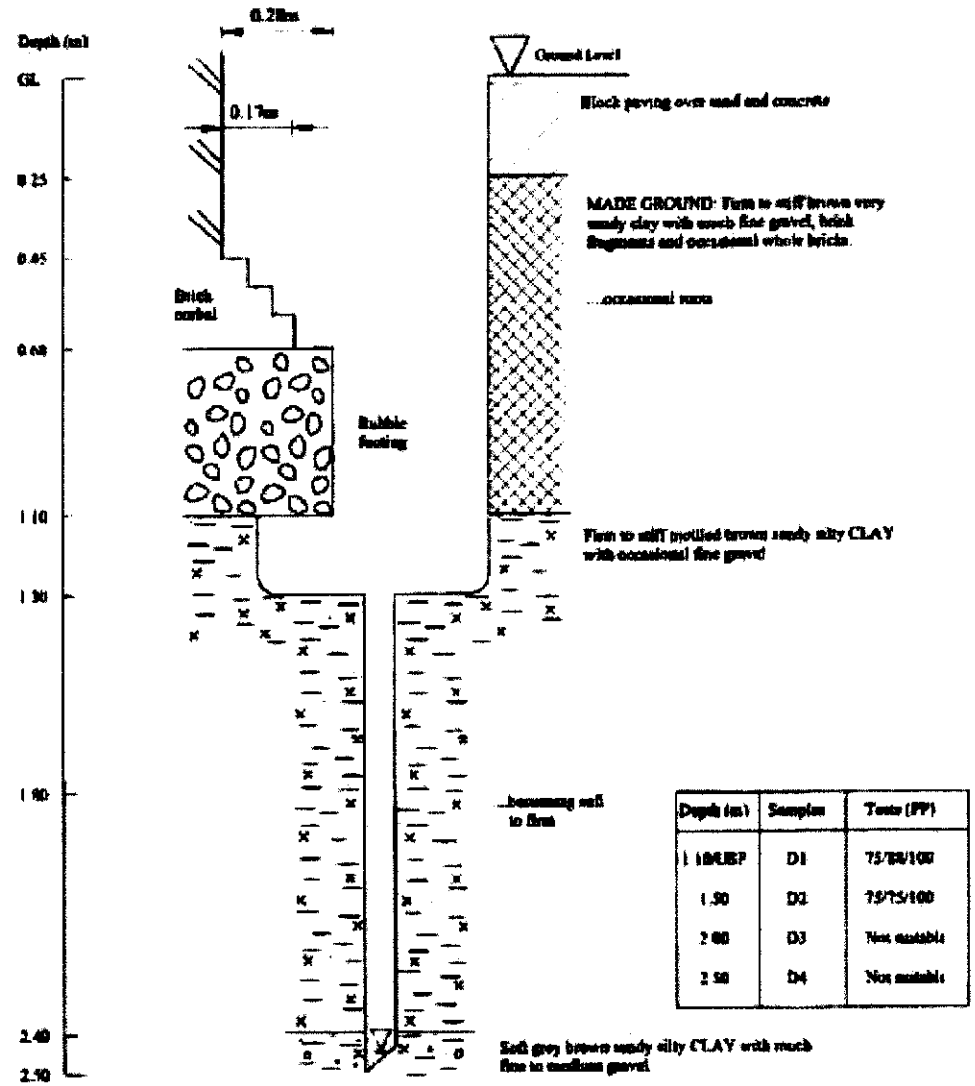
Engineer: Mr Mark Bradley

TP/BH 3

Job Number TG/GE/06/06

Sheet: 1 of 1

Internal wall section



Depth (m)	Samples	Tests (PP)
1.10/1.30	D1	75/88/100
1.50	D2	75/75/100
2.00	D3	Not suitable
2.50	D4	Not suitable

COMMENTS: *The trial pit was completed at 1.30m and the borehole refusal at 2.50m*

Groundwater was encountered at 2.45m. Roots were not encountered below 0.55.

The trial pit was backfilled with the materials arising upon completion.

Site works by: CP MB

Drawn by: RK

Checked by:

KEY: D *Disturbed soil sample* V *Pilcon vane reading (kPa)* M *Maximum probe reading (blows for 300mm penetration)* ▽ *Water strike*
B *Root sample* PP *Pocket penetrometer (kPa)*

NOTE: *Ground conditions may exist on site which are not encompassed by the scope of these investigations. Reported conditions were as found on the date of visit, however these may vary with time and do not infer a steady state. Soil descriptions are based on driller's log. All dimensions are taken using serviceable tape measures and as such a margin of error should be allowed for. The water has not*

See Attached Map

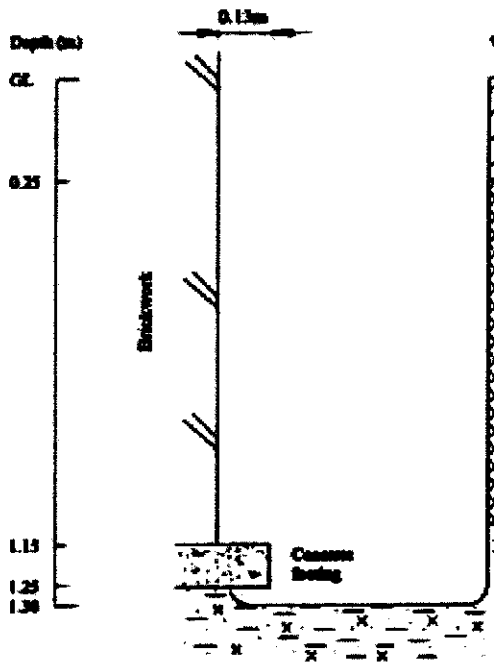
Dates:
07 & 10/07/06

Hand dug foundation inspection pit & hand auger borehole

Client: Ian Drummond Co

Engineer: Mr Mark Bradley

Cassone wall section



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Groundwater was encountered at 2.45m. Roots were not enc

The trial pit was backfilled with the materials arising upon c

KEY: D *Disturbed soil sample* V *Pilcon vane reading (kPa)*
B *Root sample* PP *Pocket penetrometer (kPa)*

NOTE: *Ground conditions may exist on site which are not encompassed by the scope found on the date of visit, however these may vary with time and do not infer*

PROJECT NAME: 64 ELSWORTHY ROAD, LONDON NW3
PROJECT NO: GEO / 10216

Date	17/08/2006
Approved	
Page	1 of 3

Sample details					Classification Tests						Chemical Tests				
TP No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	LI	<425 mic (%)	pH	2:1 WS SO4 (g/L)	Total SO4 (%)	Ground Water SO4 (g/L)	Other tests and comments
TP 1	1.10	1	D	Firm mottled brown with traces of grey silty CLAY with traces of fine to medium gravel and rootlets	35	77	30	47	0.13	97					Class CV

SUMMARY OF GEOTECHNICAL TESTING — GEOLABS

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PROJECT NAME: 64 ELSWORTHY ROAD, LONDON NW3
PROJECT NO: GEO / 10216

Date	17/08/2006
Approved	
Page	2 of 3

Sample details					Classification Tests						Chemical Tests				
TP No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	LI	<425 mic (%)	pH	2:1 WS SO4 (g/L)	Total SO4 (%)	Ground Water SO4 (g/L)	Other tests and comments
TP 2	1.15	1	D	Firm mottled brown with traces of grey sandy silty CLAY with traces of fine to medium gravel	35	74	29	45	0.15	98					Class CV

SUMMARY OF GEOTECHNICAL TESTING — GEOLABS

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PROJECT NO: GEO / 10216

Date 17/08/2006 | Approved | Page 3 of 3

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS

Sample details TP/BH No.	Depth (m)	No.	Type	Description	Classification Tests MC (%)	LL (%)	PL (%)	PI	LI	-425 fill (%)	Chemical Tests pH	2:1 Water SO4 (g/L)	Total SO4 (%)	Ground Water SO4 (g/L)	Other tests and comments
TP/BH 3	1.10	1	D	Firm mottled brown with traces of grey sandy silty CLAY with traces of fine gravel	19	46	18	28	0.04	99					Class CI
TP/BH 3	1.50	2	D	Firm grey brown silty CLAY	25	58	21	37	0.11	100					Class CH
TP/BH 3	2.00	3	D	Grey brown sandy silty CLAY	19	35	20	15	-0.07	100					Class CL / CI
TP/BH 3	2.50	4	D	Soft grey brown sandy silty CLAY with abundant fine to medium gravel	19	32	18	14	0.60	72	7.8	0.18			Class CL

Test Report by GEOLABS Limited Bushmills Lane, Garston, Watford, Hertfordshire, WD25 8GX
Authorised Signatories: • J R Masters (Qual Mgr) • C F Wallace (Tech Mgr) • G J Corlo (Tech Mgr) • R J Platt (Snr Tech) • S Burke (Snr Tech) • J Sturges (Snr Tech)
Client: Terra Firma Ground Investigation Limited, Unit P, Field Way, Metropolitan Park, Greenford, Middlesex UB6 8UN

(Ref2948.404514) Page 3 of 3
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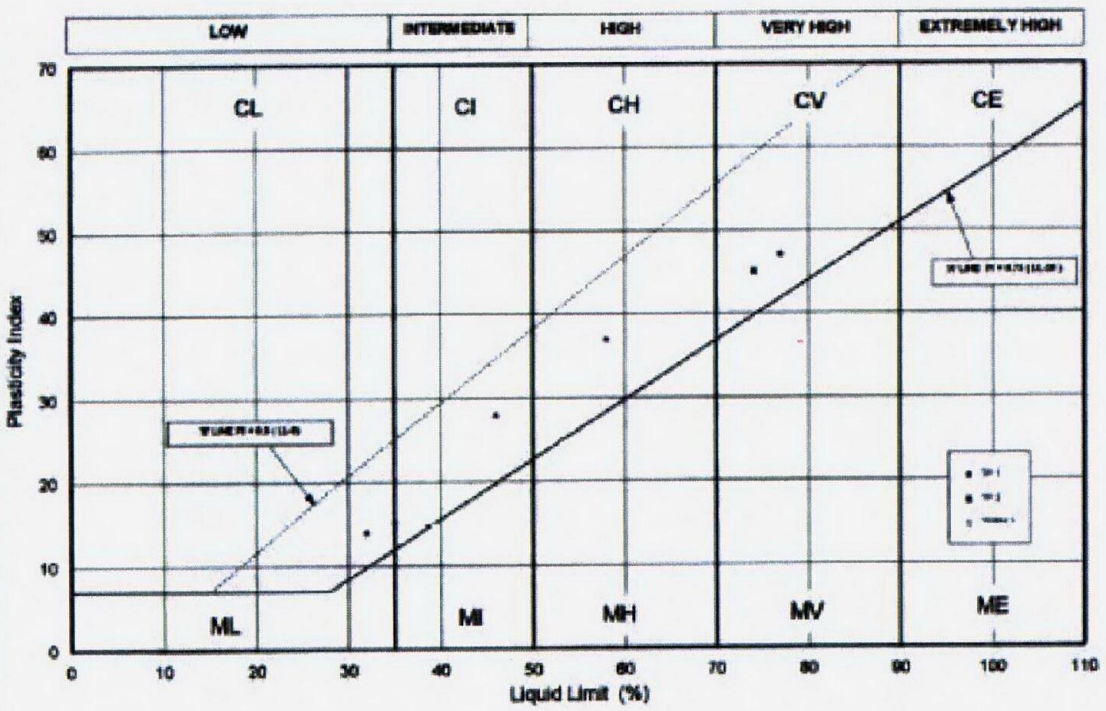
BS1377 : Part 2 : 1990
Liquid and Plastic Limits

BS1377 : Part 2 : Clause 4.4 : 1990 Determination of Liquid Limit (1 Point Cone Penetrometer Method)
BS1377 : Part 2 : Clause 5 : 1990 Determination of Plastic Limit and Plasticity Index

PLASTICITY CLASSIFICATION CHART



Checked and Approved	Project Name: 64 ELSWORTHY ROAD, LONDON NW3	GEOLABS
Initials:	Project Number: GEO / 10216	
Date: 17/8/06		

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Authorised Signatories: • J R Masters (Qual Mgr) • C F Wallace (Tech Mgr) • G J Corlo (Tech Mgr) • R J Platt (Snr Tech) • S Burke (Snr Tech) • J Sturges (Snr Tech)
Client: Terra Firma Ground Investigation Limited, Unit P, Field Way, Metropolitan Park, Greenford, Middlesex UB6 8UN

(Ref2948.404514) Page 1 of 3
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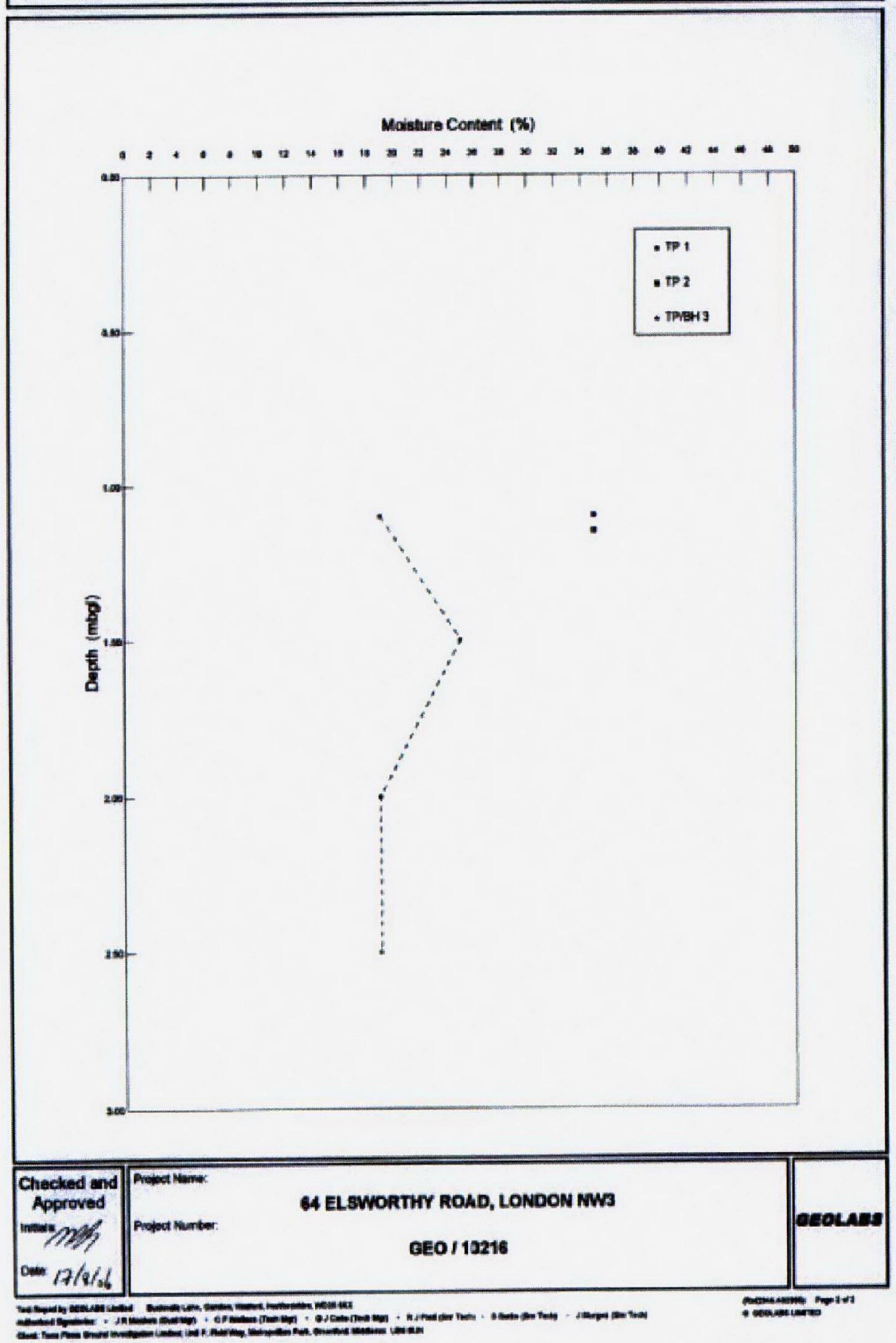
Moisture Content v Depth Profile



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Initials:	Project Number: GEO / 13216	
Date: 17/8/06		

Test Report by GEOLABS Limited Bushmills Lane, Garston, Watford, Hertfordshire, WD25 8EZ (Re2264.A0200) Page 2 of 2
Authorised Signatories: • J R Meakins (Soil Mgr) • G F Bolton (Tech Mgr) • D J Cole (Tech Mgr) • R J Pask (Snr Tech) • S Banks (Snr Tech) • J Burgess (Snr Tech)
Client: Terra Firma Ground Investigation Limited, Unit F, Rabbit Way, Metropolitan Park, Greenford, Middlesex UB6 8UH © GEOLABS LIMITED

TERRA FIRMA Ground Investigation	Declaration

Client:	Ian Drummond Consulting Engineers
Property Address:	64 Elsworthy Road, London. NW3 3BU.
Our Ref. No:	TFGI/586/06

This report has been compiled by:		Ray Krystofiak (Office Manager)
Report checked by:		M A Bradley BSc (Hons). FGS (Engineering Geologist)
Date:	17/8/06	

Ground conditions may exist on site that are not encompassed within the scope of these investigations. Reported conditions were as found on the date of visit, however, these may vary with time and do not infer a steady state. Soil descriptions are based on driller's logs, and, or a visual inspection of samples away from site. The writer has not visited site. All dimensions are taken using retractable tape measures and as such a margin of error should be allowed for.