PRICE&MYERS

REPORT

28-30 Hanway Street, London, W1T 1UL

Structural Engineer's Report

Contents

Appendices

Prepared by: **Rachel Betts**

Job Number: **23268**

Date	Version	Notes / Amendments / Issue Purpose
June 2015	1	For Planning

1 The Site

The site is located on Hanway Street, a small side road which branches off Oxford Street in Central London. The property at 28-30 Hanway Street is located towards the western end of the road and is bounded by No 32 to the West and No 26 to the East. The existing building fronts onto Hanway Street and the rear of the property is bounded by Hanway Place, a single track side road running parallel with Hanway Street.

The current 3 storey building accommodates office space at the1st and 2nd floors with the existing lower ground floor providing storage space due to restricted head room. There are three options for the redevelopment of this site, as described below. The preferred option is to demolish the existing building and construct a new 4 storey building with office space at lower ground, ground and first and residential accommodation above. It is required to deepen the existing lower ground floor by approximately 1.0m in order to achieve adequate head height for useable office space.

2 Structural Assessment of Development Options

Option 1 - Light Refurbishment

This would require no structural works and the proposed design would have to suit the existing structural layout, which does not lend itself to decent office space at basement and ground floor. There is as an odd arrangement of columns, approximately spaced at 2.7m x 4.0m, an office space would typically have columns on a 7.5m-9.0m grid. The current head height within the basement is not suitable for office usage and would remain as a redundant area used for storage.

Option 2- Façade Retention

This would need to follow a careful temporary works sequence and the use of a temporary steelwork frame to retain the façade. The steelwork used to retain the façade would need to be placed and supported off the existing public footpath to create a clear space within the building layout to construct the new structural frame behind. The temporary steelwork could be positioned within the building footprint but this makes the practicalities of constructing the new frame very difficult.

Option 3 - Proposed Scheme

As outlined within this report.

3 Ground Conditions

Geological maps of the area indicate the site is founded on the Lynch Hill gravel formation overlain by the London Clay. A nearby site investigation indicates a varied layer of Made Ground over sandy gravels which is in turn overlain by the London Clay; extracts of this investigation are shown in Appendix A. Two trial pits, logged in Appendix B, have been excavated within the existing basement and showed Made Ground to the depth excavated (approximately 1.0m below existing floor level). The water table was encountered at approximately 4.0m below the proposed formation level to the basement. Ground water was not encountered during the trial pit investigations carried out on site.

4 Proposed Structure

Substructure

The trial pit investigations, as shown in Appendix A, encountered mass concrete strip footings to the party wall at No 26 and brick corbel footings on mass concrete to No 32. It is proposed to deepen the existing lower ground floor by approximately 1.0m. The existing basement slab will be removed and mass concrete underpins will be constructed to the perimeter walls. A 200 thick RC

liner wall will be cast in front of the underpinning. An RC raft slab will form the foundation to the new building. Structural proposals for the new lower ground floor are given in Appendix C.

Superstructure

The new building will be of reinforced concrete construction comprising of cast in-situ flat slabs and columns. The walls to the lift shaft will provide lateral stability to the structure with the floor slabs acting as diaphragms in transferring lateral forces to the core walls. Typical floor slabs will be 250 thick with a thicker slab proposed at 3rd floor due to a slight transfer in vertical load. A gap of 100mm is proposed between the existing party walls and new RC columns. The floor slabs are to extend through this gap to maintain restraint to the party walls. Details of these proposals are given within Appendix C.

5 Temporary Works and Construction Considerations

The party walls to both adjacent properties will require propping during the demolition of the existing building and until permanent restraint is provided by the new structure. The underpinning to the lower ground floor will need to follow an underpinning sequence and be back filled adequately until the next pin is constructed.

6 Assessment of Key Safety Issues

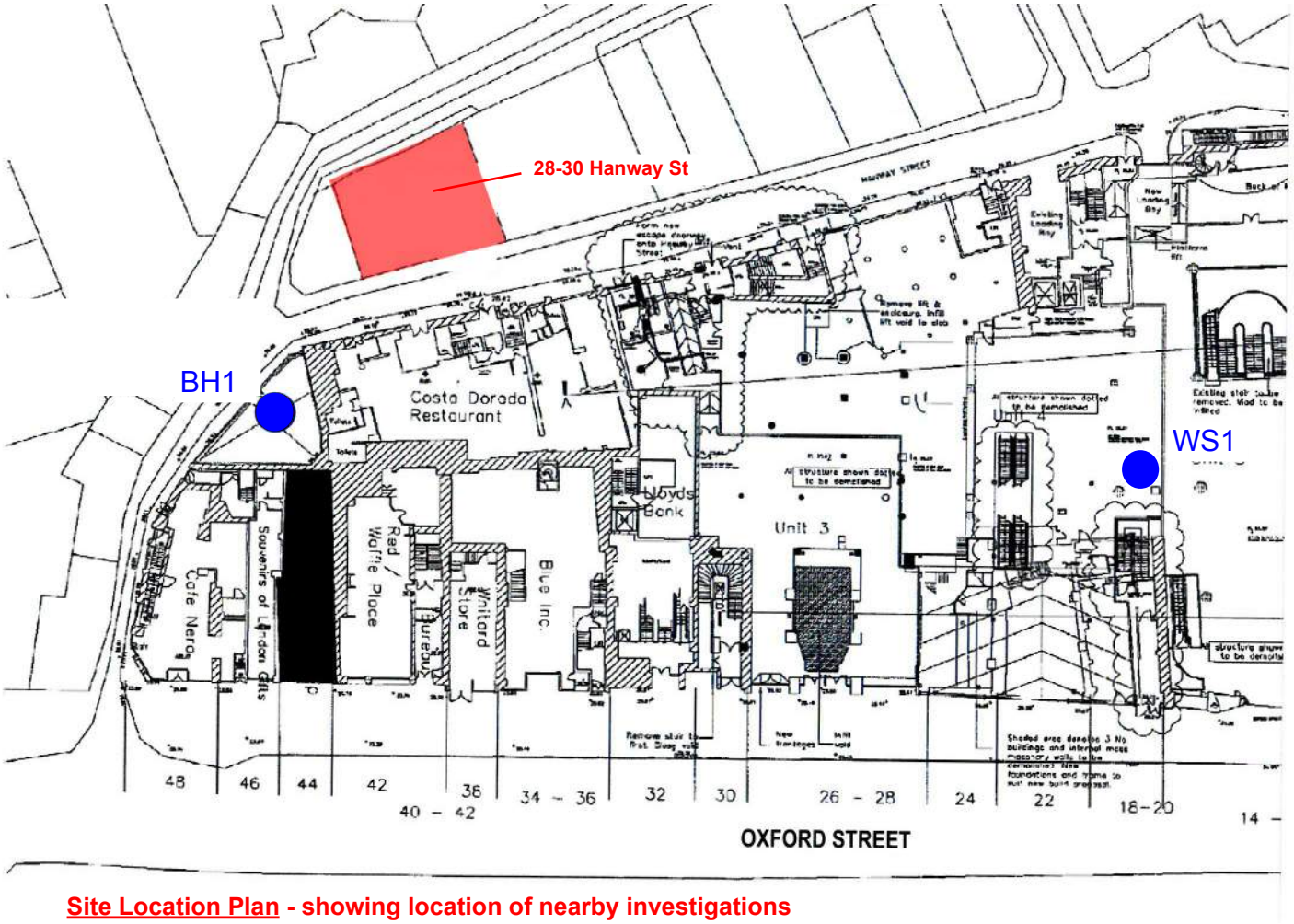
The site is bounded by a public footpath on Hanway Street and Hanway Place; adequate site hoarding will need to be provided during the demolition and construction to ensure no-one unauthorised can enter the site.

The roads to both Hanway Place and Hanway Street are quite narrow; a thorough construction traffic management plan will need to be provided.

As the proposed construction techniques are relatively straight forward and conventional, the other safety issues are common problems that all competent contractors should be aware of such as working from heights, lifting heavy objects (with a crane), managing site traffic and working around open excavations.

Appendix A

Extract from nearby Site Investigation Report



Site Location Plan - showing location of nearby investigations

Contract & Location	LAND OFF HANWAY STREET, LONDON, W1T	BOREHOLE No	BH1
Client	Oriana GP Ltd	Sheet 1 of 3	
Engineer	RICHARD WATKINS AND ASSOCIATES	Report No	4699/HA

Comments	Samples Type Depth	SPT (N)	Level mOD	Depth m	Strata Description
			+26.00	0	
Started on 20 Aug 2009 Approx. GL +26mOD Casing diameter 150mm			+25.85	0.15	Made Ground: Tarmacadam surfacing … road base / brick fill from 0.08m
	D 0.50				Made Ground: Brown silty sand with some brick gravel and occasional clinker
	D 1.00		+25.00	1.00	… possible old floor at 0.6m
	C B 1.50	7			Made Ground: Loose dark brown / grey sand mixed with brick and concrete
Driller observed damp conditions from 1m to 5m	D 2.00			2	… with rare slag at 1.5m … grey clay bands and occasional concrete gravel at 2m
Formation Level to 28-30 Hanway St ~22.8 mOD	C B 2.50	11	+23.50	2.50	Made Ground: Firm dark brown / grey sandy gravelly clay with rare pieces of wire and metal. Gravel of much fine to medium flint and occasional brick
	D 3.00			3	
	C B 3.50	6	+22.50	3.50	Made Ground: Firm to stiff dark grey brown sandy to silty clay with flint and brick gravel, occasional clinker and organic odour
	D 4.00			4	
	C B 4.50	20	+21.55	4.45	Made Ground: Stiff brown / dark brown slightly sandy clay with some flint gravel and natural organic traces
	D 5.00			5	… clayey gravel with rare brick at 5m
			+20.90	5.10	Very dense orange brown sandy to very sandy GRAVEL. Gravel of fine to coarse subangular to subrounded flint
	C B 5.50	56			
	D 6.00			6	
Water table encountered at ~18.8 mOD	C B 6.50	36			… sandy GRAVEL, becoming dense from 6.5m
	D 7.00			7	
	C B 7.50	48			… dense to very dense at 7.5m
Medium inflow at 7.9m, rising to 7.2m in 20mins.	W 7.90				
	D 8.00			8	
Water strike sealed at 8.3m			+17.80	8.20	Stiff brown CLAY with occasional orange silt partings
Cased to 8.50m	S D 8.50	17	+17.50	8.50	Stiff grey fissured CLAY with occasional silt partings
	D 9.00			9	
	U 9.50				… with fine silt partings on fissures at 9.5m
	D 10.00			10	

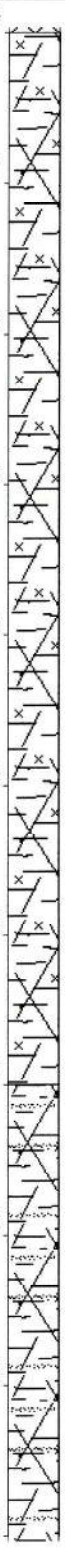
Constructed by Cable-Percussion Techniques U = Undisturbed B = Bulk D = Disturbed W = Water Vertical Scale = 1:50 Approx

Remark :- **Service inspection pit hand dug to depth of 1.2m. Water added to assist progress of boring from 5.1m to 8.2m**

BOREHOLE No BH1

Contract & Location	LAND OFF HANWAY STREET, LONDON, W1T	BOREHOLE No	BH1
Client	Oriana GP Ltd	Sheet 2 of 3	
Engineer	RICHARD WATKINS AND ASSOCIATES	Report No	4699/HA

Comments	Samples Type Depth	SPT (N)	Level mOD	Depth m	Strata Description
				10	… continued Stiff grey fissured CLAY
	S D 10.50	22			… pyritised timber fragments at 10.5m
	D 11.00			11	
	U 11.50				
	D 12.00			12	
	S D 12.50	25			… organic traces at 13m
BH continued 21 Aug	D 13.00			13	
	U 13.50				
	D 14.00			14	
	S D 14.50	27			… slightly silty with rare pyrite at 15m and 15.5m
	D 15.00			15	
	U 15.50				… becoming very stiff below about 16m
	D 16.00			16	
	S D 16.50	33			
	D 17.00		+9.00	17.00 17	Very stiff grey fissured CLAY with occasional bands of silty sand
	U 17.50				… with bands of silty sand, pyrite gravel and organic traces at 17.5m
	D 18.00			18	
	S D 18.50	39			
	D 19.00			19	
	U 19.50				
	D 20.00			20	



Constructed by Cable-Percussion Techniques U = Undisturbed B = Bulk D = Disturbed W = Water Vertical Scale = 1:50 Approx

Remark :- **Driller met small claystones from 15.4m to 21.2m**

BOREHOLE No BH1

Contract & Location	LAND OFF HANWAY STREET, LONDON, W1T	BOREHOLE No	BH1
Client	Oriana GP Ltd	Sheet 3 of 3	
Engineer	RICHARD WATKINS AND ASSOCIATES	Report No	4699/HA

Comments	Samples Type Depth	SPT (N)	Level mOD	Depth m	Strata Description	Legend
				20	… continued Very stiff grey fissured CLAY with occasional bands of silty sand	
	S D 20.50	42				
	D 21.00			21		
	U 21.50				… rare silt partings at 21.5m	
	D 22.00			22	… rare fine shell fragments at 22m	
	S D 22.50	44				
	D 23.00			23		
	U 23.50				… silt partings and pyrite gravel at 23.5m	
	D 24.00			24	… pyrite at 24m	
	S D 24.50	47				
	D 25.00		+1.00	25.00 25	End of Borehole	
				26		
				27		
				28		
				29		
				30		

Constructed by Cable-Percussion Techniques U = Undisturbed B = Bulk D = Disturbed W = Water Vertical Scale = 1:50 Approx

Remark :- **Installation details: 50mm dia. pipe, GL to 1m plain [bentonite seal], 1m to 8.5m slotted pipe [gravel response zone]. Backfilled with arisings below pipe. Completed with gas tap and flush lockable cover.**

BOREHOLE No BH1

Site Location: **Project Oriana, Oxford Street, London W1D 1AS**

Borehole No: **WS 1**

Formation Level to 28-30 Hanway St ~22.8 mOD

C **P Ltd**

E **Watkins & Associates**

Sheet 1 of 1

Report No: **4666A/JRCB**

Comments	Samples Type	Depth [m]	Field tests	Strata depth [m]	Strata Description	Legend
				0	BL = +20.72mOD approx [interpolated from survey drawing]	
BH carried out on 11 May 2010 and commenced at basement level					CONCRETE basement slab	
				0.15	MADE GROUND: brown sandy gravel with concrete fragments and clay pockets	
Water table encountered at ~19.5 mOD				0.90	Medium dense brown/orange and pale brown sandy to very sandy GRAVEL. Occasional seams of grey fine to coarse sand	
Strata wet below about 1.1m						
	D	1.50				
BH dia: 80mm to 2.00m					....below 1.90m - occasional pockets of stiff brown/grey gravelly clay	
				2.40	Stiff brown/grey CLAY	
	PP	2.60	3.0			
	D	2.70				
	PP	2.90	2.9			
BH dia: 60mm to 3.00m				3.00	**End of borehole at 3m**	

Constructed using hand-held window sample equipment

Key: PP = Pocket Penetrometer [kg/cm^2], HV = Hand Vane [kPa], D = small disturbed sample

Remarks:
a] Borehole commenced at 1.1m depth [bbl] at base of trial pit excavated by others
b] Borehole continually collapsing which prevented progress below 3m
c] Water standing at about 1.50m depth [bbl] on completion

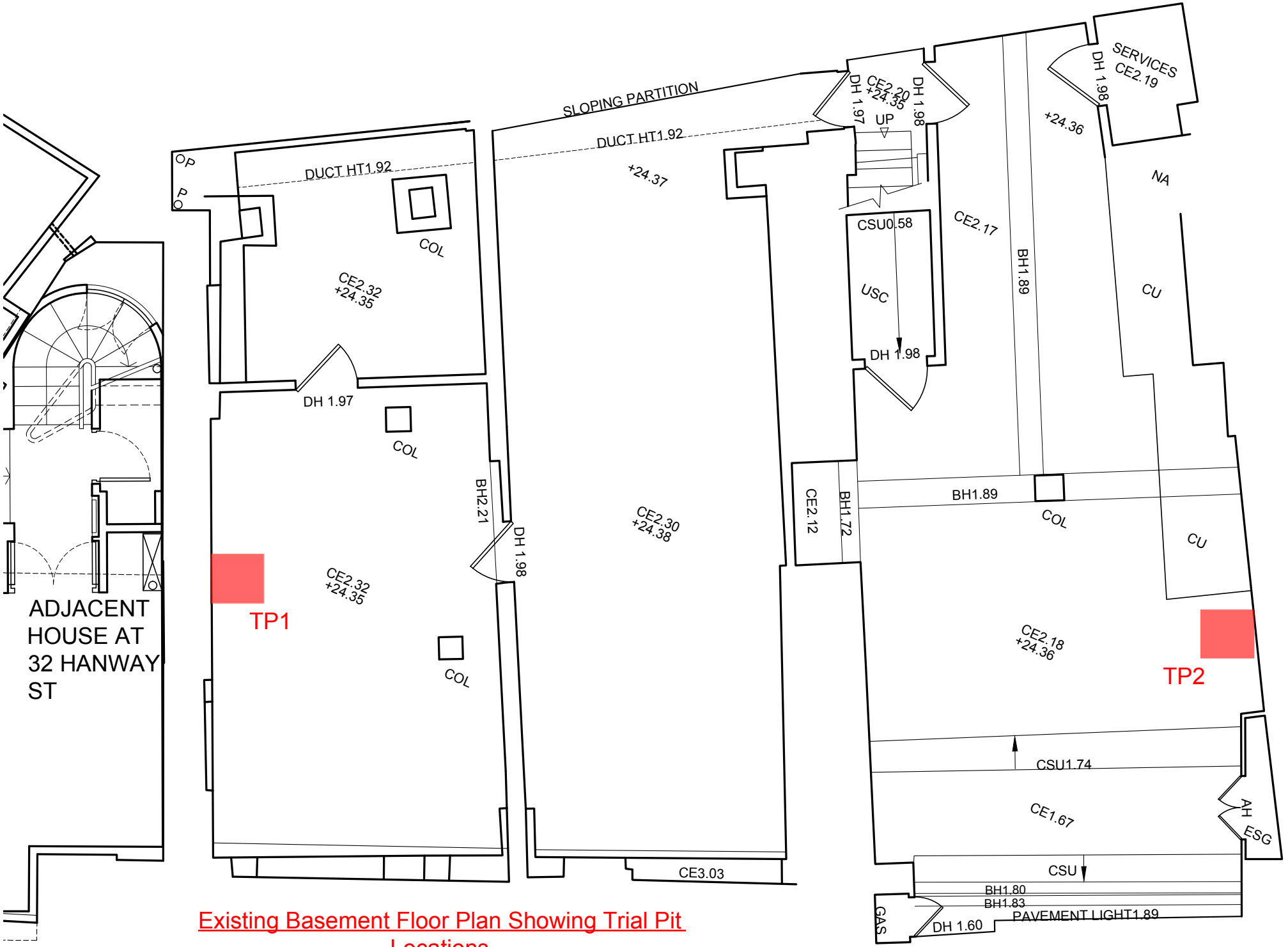
Borehole No: WS 1

[Scale = 1:25]

Soil Consultants Ltd

Appendix B

Trial Pit Logs for 28-30 Hanway Street



Existing Basement Floor Plan Showing Trial Pit Locations

PRICE & MYERS
Consulting Engineers

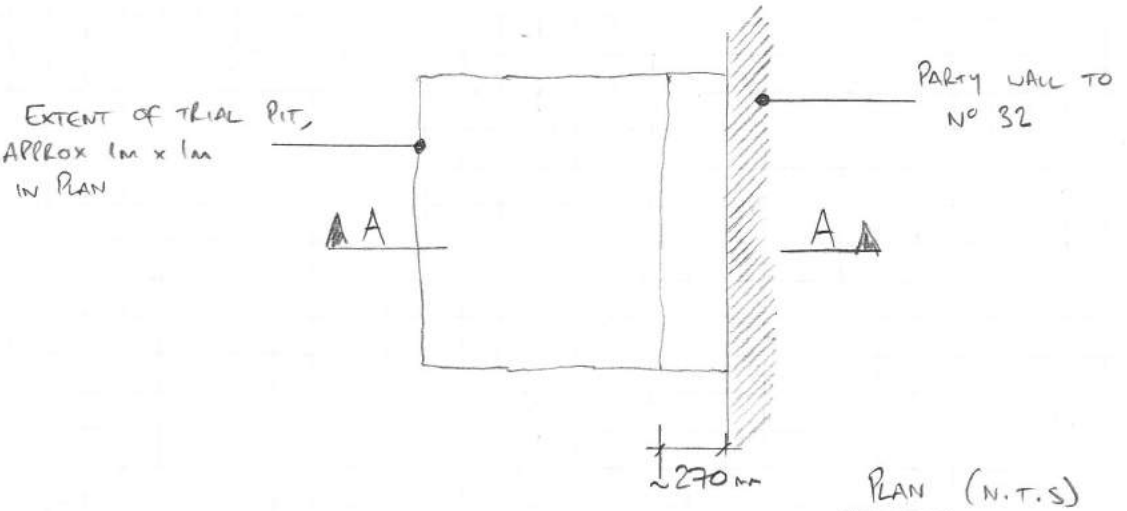
Job No 23268 Page TP1 Rev –

Date 18/5/15 Eng RB Chd –

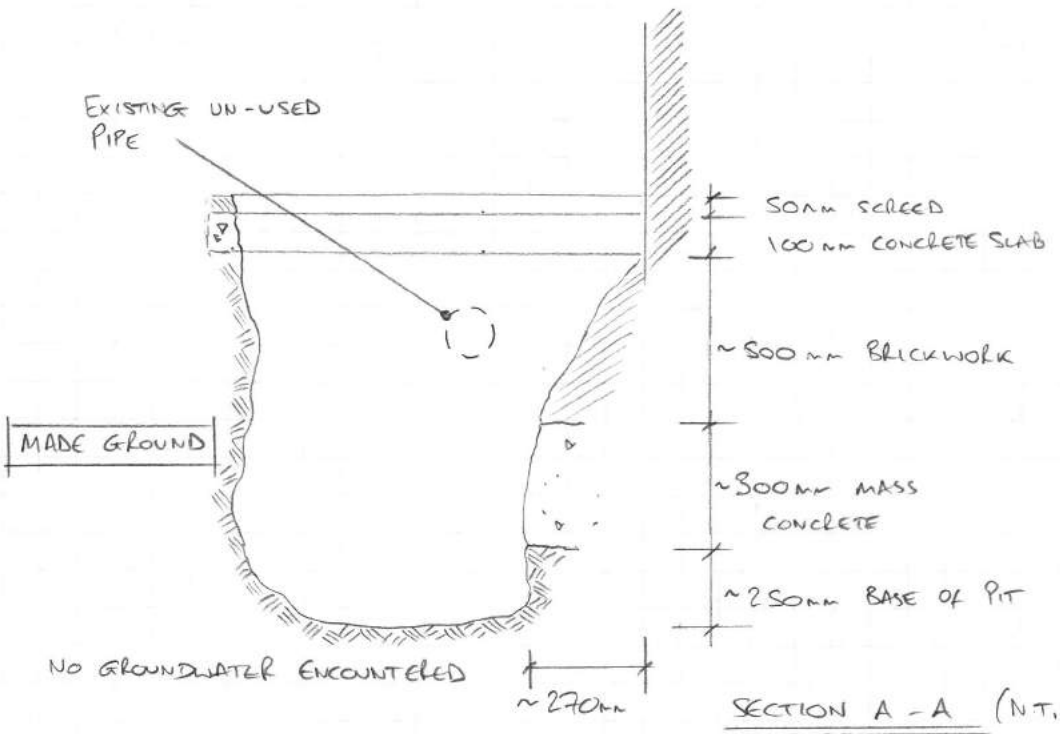
Job 28-30 HANWAY ST

TRIAL PIT LOG – TP1

- ADJACENT TO N° 32 HANWAY STREET.



PLAN (N.T.S)



SECTION A-A (N.T.S)

PRICE&MYERS
Consulting Engineers

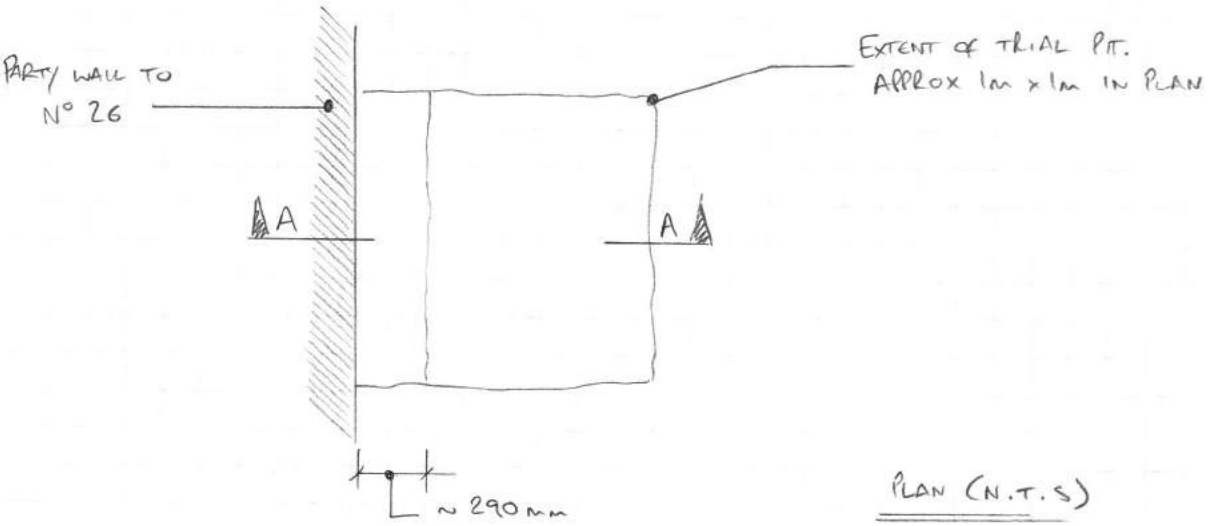
Job No 23268 Page TP2 Rev –

Date 18/5/15 Eng RB Chd –

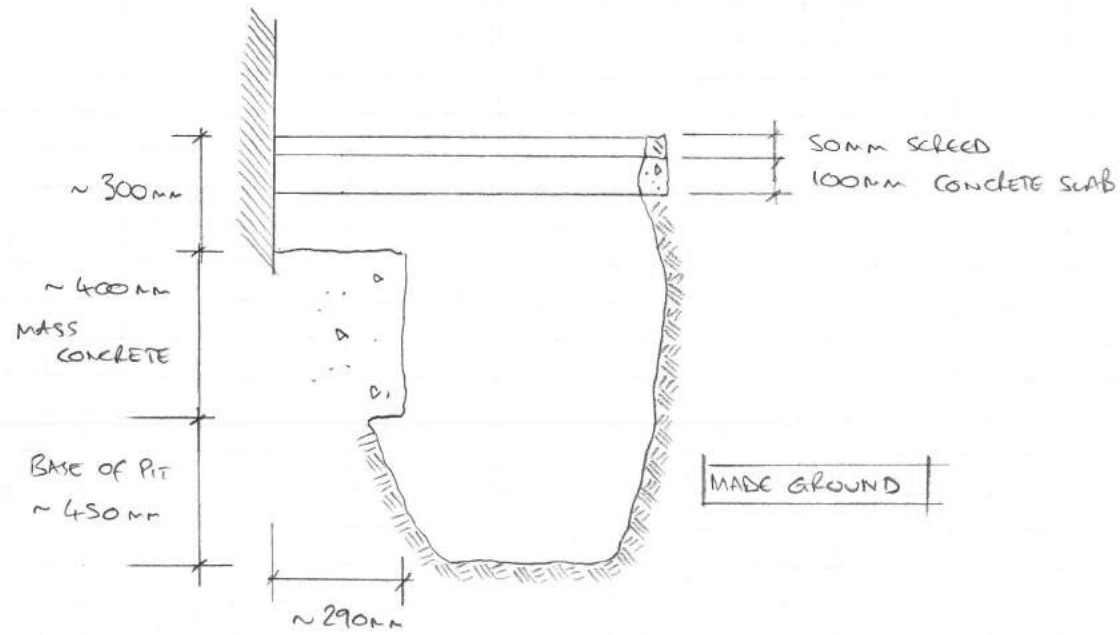
Job 28-30 HANWAY ST.

TRIAL PIT LOG - TP2

- ADJACENT TO N° 26 HANWAY ST.



PLAN (N.T.S)



SECTION A - A (N.T.S)

NO GROUNDWATER ENCOUNTERED

Photograph of TP1

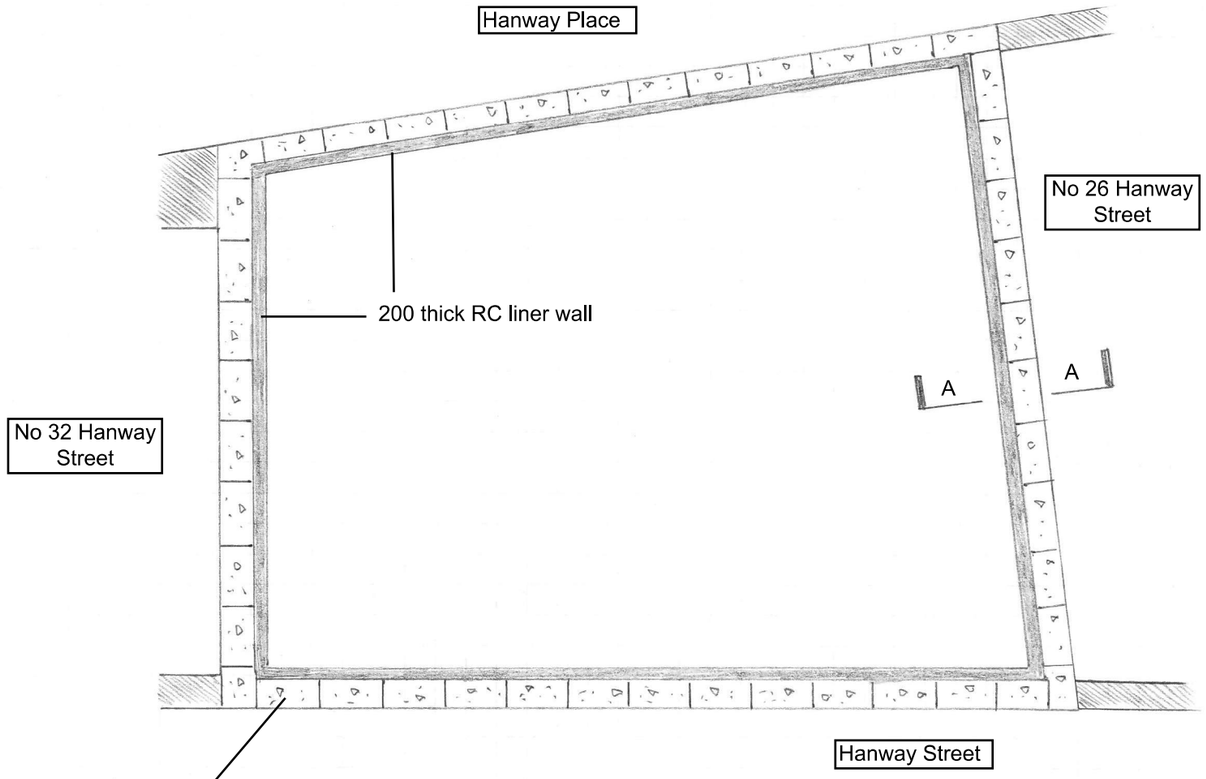
Photograph of TP2

Appendix C

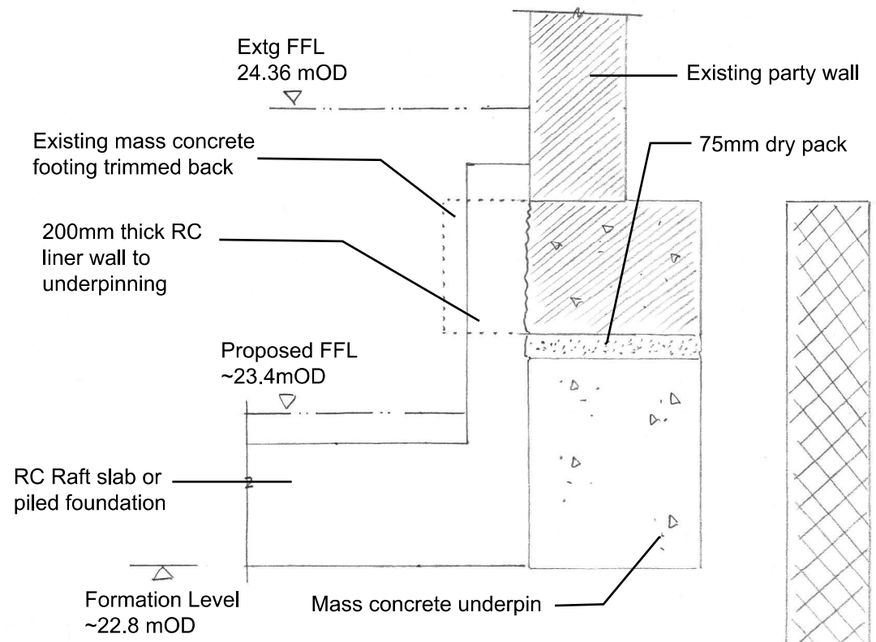
Proposed Structural Scheme

PRICE&MYERS
Consulting Engineers

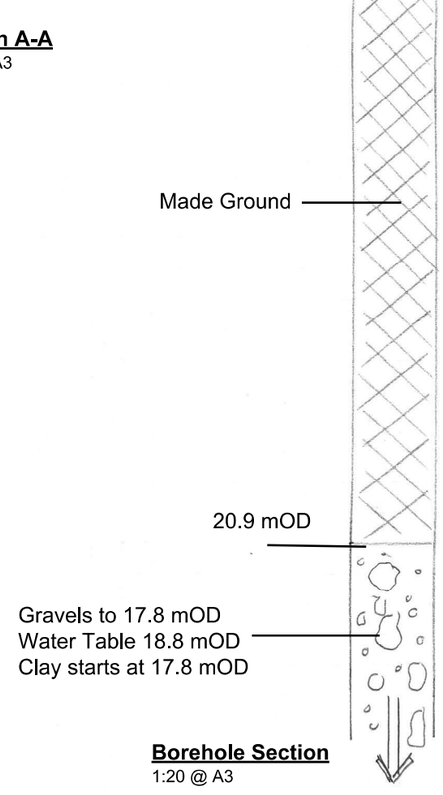
Job No	23268	Page	SK-02	Rev	
Date	May '15	Eng	RB	Chd	
Job	28-30 Hanway Street				



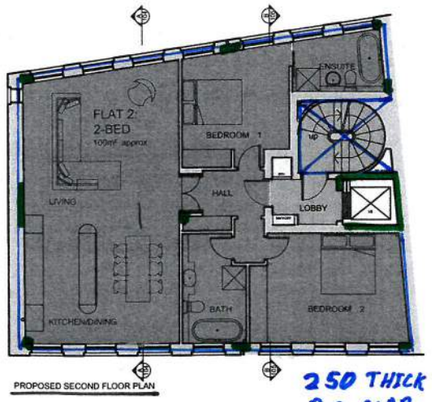
Proposed Basement Plan
1:100 @ A3



Section A-A
1:20 @ A3

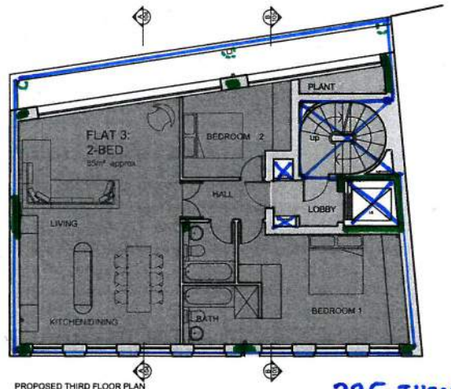


Borehole Section
1:20 @ A3



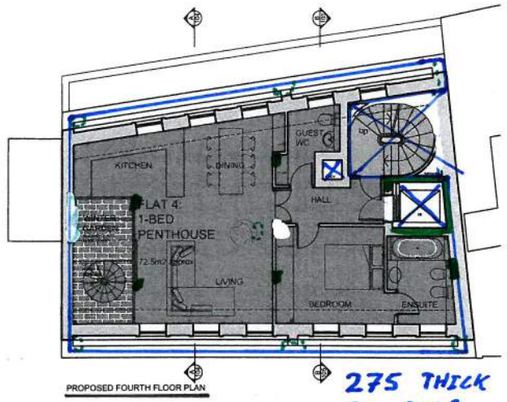
PROPOSED SECOND FLOOR PLAN

250 THICK R.C. SLAB



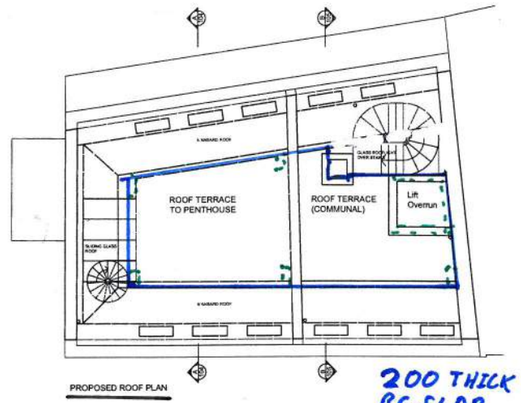
PROPOSED THIRD FLOOR PLAN

325 THICK R.C. SLAB



PROPOSED FOURTH FLOOR PLAN

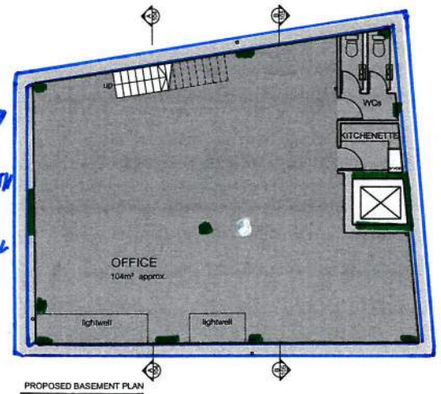
275 THICK R.C. SLAB



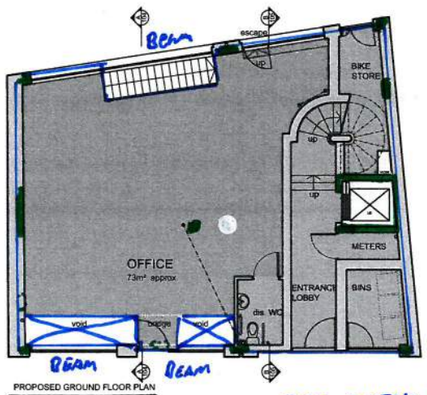
PROPOSED ROOF PLAN

200 THICK R.C. SLAB

MASS CONC. UNDER PIN WITH 200 THICK R.C. LINER WALL TO EXISTING FOOTING LEVEL

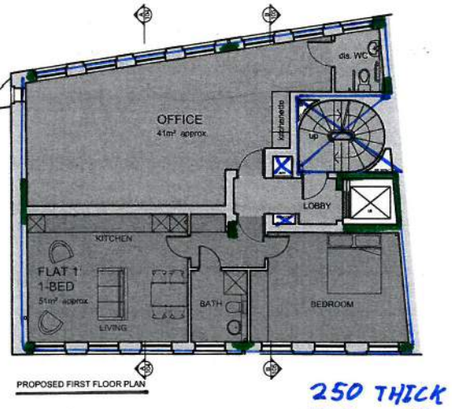


PROPOSED BASEMENT PLAN



PROPOSED GROUND FLOOR PLAN

300 THICK R.C. SLAB



PROPOSED FIRST FLOOR PLAN

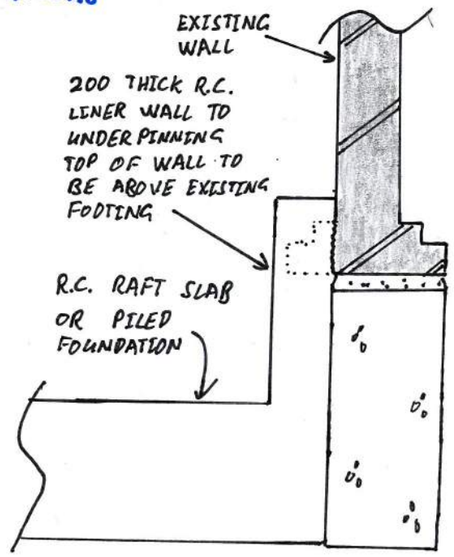
250 THICK R.C. SLAB

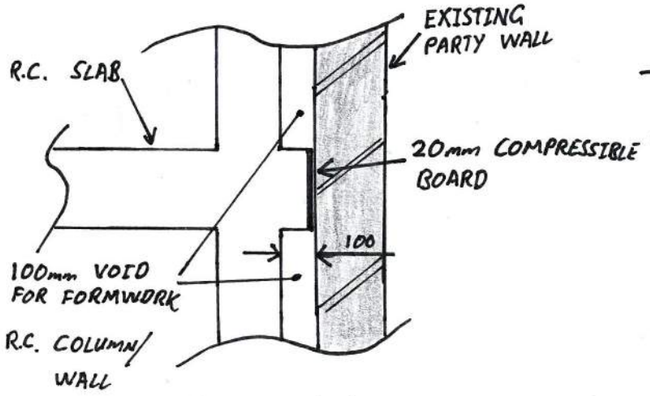
KEY

- USABLE FLOOR AREA FOR OFFICE USE
- NON-USABLE FLOOR AREA
- APARTMENT USE

TOTAL USABLE OFFICE AREA (BASEMENT, GROUND & 1ST FLOORS) 217.5m² approx.

AT THE NORMAL STANDARD OF 10m² PER PERSON FOR OFFICE SPACE THIS WOULD SUPPORT 21-22 PEOPLE





TYPICAL UNDERPIN DETAIL

TYPICAL PARTY WALL DETAIL

STRUCTURAL SCHEME

PRICE&MYERS
Consulting Engineers
30 Newman Street London W1T 1LT T 020 7631 5128

Job No 23268 Page SK1 Rev –
Date April 15 Eng T.M. Chd
Job 28 Hanway St

PRELIMINARY

FORM design architecture
1 Bermondsey Exchange
179-181 Bermondsey Street
London SE1 3UW
020 7407 3336
020 7407 3340 Fax

client Kevin Twittey, Hanway2 Ltd.
project 28-30 Hanway Street London W1T 1UL
drawing Proposed Floor Plans

drawn mn/mc check date 06.02.15 scale 1:100@A1 no. 864.102 rev. C