

The Phene Arms,  
9 Phene Street, London SW3 5NY

Supporting Documentation for  
Trevor Lahiff Architects  
Planning Application

Structural Engineering Notes

June 2007

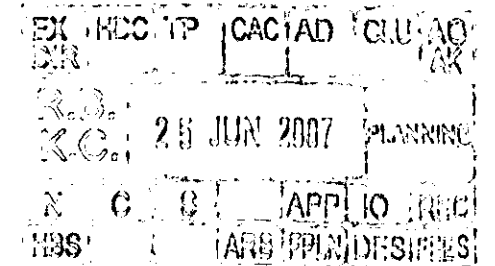
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Site Investigation

- 1.0 Introduction
- 1.1 Elliott Wood Partnership LLP were appointed in May 2007 by Mr Flanagan to advise on the structural implications of the proposed refurbishment and new single storey basement.
- 1.2 Access has generally been gained to all parts of the site and building. A preliminary desk study has been completed to establish the condition of the existing structure and the ground conditions. The ground conditions and ground water levels have also been confirmed with site investigations. No opening up works have been undertaken to confirm the building's structure.
- 1.3 A detailed survey drawing of the existing site and building has been provided by TLA, project Architects.
- 1.4 We understand that a detailed report on the condition of the existing trees is being provided by Barrell Tree Care, project Arboriculturalists.
- 2.0 Description of Existing Building and Site Conditions
- 2.1 9 Phene Street, or "The Phene Arms", is a typical Victorian purpose-built corner Public House located at the junction of Margareta Terrace and Phene Street, close to Oakley Gardens in Chelsea, southwest London.
- 2.2 The building was constructed c.1860 along with the other Victorian buildings along Margareta Terrace and the surrounding area. The building comprises the main Public House structure with a series of connected extensions to the north, and an open area, or beer garden, fronting onto Margareta Terrace. The main building is connected to a second, smaller, house of similar style at 8 Phene Street.
- 2.3 9 Phene Street is a three storey building, rectangular in plan, with a full storey height basement across the main building's footprint and part of the extensions. The extensions are typically single storey with one of the extensions also having a small roof terrace at first floor level.
- 2.4 The building is traditionally constructed with London stock brickwork external walls. The elevations are decorated with render corncicing and elaborate rendered mouldings around windows. The side extensions are also rendered with an ashlar effect render similar to adjoining buildings. Internally the walls are a combination of loadbearing masonry and timber studwork. The floors are typically timber spanning between the internal/external walls. The roof appears to be a traditional London type constructed from timber, with a central valley gutter.
- 2.5 At ground floor level there are no internal walls within the main building. The internal structure above this is supported on steel/timber beams and steel/iron columns. Additional steelwork or timber framing sits on the brickwork piers forming the four large window openings around the elevation.
- 2.6 Internally the upper levels have been sub-divided into smaller rooms. It is likely that the original layout comprised a central spine wall along the line of the steelwork at ground floor level with further compartmentation created by the staircase walls.
- 2.7 The ground conditions have been confirmed by a preliminary site investigation comprising six trial pits and a borehole. The trial pits show that the main building is founded on shallow strip footings bearing on silty gravelly sand with some of the extension buildings and adjoining walls founded on the fill material above the silty gravelly sand. The borehole has confirmed the general soil strata to 8.0m below ground level. This shows made ground over silty gravelly sand. These strata are consistent with the geological map and our understanding of ground conditions in the area. The borehole showed no evidence of water at the time of drilling. A further borehole will need to confirm the overall thickness of the river terrace deposits.
- 2.8 The overall stability of the building is provided by cellular arrangement of floors and walls and the combined action with 8 Phene Street. Whilst the stability of the building has to a degree been verified over time the open plan arrangement at ground floor results in a much less robust structure.
- 2.9 There are trees located around the periphery of the building. Notably there are two medium sized trees in the front paved area; an Ash tree and a Sycamore tree. In the garden to No. 8 Phene Street is a further medium sized Ash tree.
- 3.0 Observations
- 3.1 The structure of the main building is in fair condition for its age and type. The building appears to have been reasonably well maintained but is probably in need of overall refurbishment. The extension buildings are generally of poorer quality construction and are in similar condition.
- 3.2 Externally the building shows signs of movement with distorted facades and bulging brickwork. There does not appear to be cracking visible and this movement may be historic. There are also patress plates on each

elevation indicating previous repair works. It is likely that the distortion is linked to the open plan arrangement at ground floor level and the lack of horizontal restraint.

3.3 Internally the timber floors are generally uneven and springy underfoot. This is probably due to distortions within the primary structure at ground/first floor level. The floors are also probably not tied to existing walls which will be contributing to the bulging/bowing of external walls.

3.4 The existing basement/cellar areas are slightly damp but there is no evidence of significant water ingress. There is also no obvious evidence of any water proofing system.

3.5 The underlying ground conditions are very typical of this area, with fill over First River Terrace deposits, silty gravelly sand, over London Clay. The terrace deposits extend to approximately 9.0m below ground level with the water table sitting on top of the Clay. The water table in this location has not been confirmed by the borehole but is at least 8.0m below ground level. The current basement extends to approximately 2.8m below ground level.

3.6 The garden wall to the front of the building forming the beer garden is generally in fair condition. Some of the piers are leaning and the render finishes are cracking and falling away.

#### 4.0 Proposed Alterations

4.1 The current proposals comprise three distinct elements of work:

- (a). Repair and refurbishment of the original Public House building.
- (b). Reconstruction of the side extensions to form a single coherent building complete with cellar level to match the Public House building.
- (c). Construction of a new basement area with swimming pool below the front garden / beer garden.

4.2 The existing building's basic form will remain largely unaltered. A new staircase structure is constructed in the same position as the existing. The walls containing this could be used to help improve the overall robustness of the building which is currently lacking at lower levels. Other internal works are generally low key and involve the construction of new partition walls.

4.3 The main building would also benefit from a general repair work programme to help improve overall robustness. This should include an assessment of the current repairs and their appropriateness. Works will probably include installation of concrete elbow ties and steel straps to tie the floors to the walls.

4.4 The new side extensions will comprise a two storey building with roof terrace and basement. The basement is locally pulled back in the rear corner in the vicinity of the adjoining property's tree. The proposed basement level is approximately 600mm lower than the existing and will necessitate some mass concrete underpinning to the existing walls.

4.5 The new basement extension comprises a single storey structure with a swimming pool. The structure will be constructed from reinforced concrete (RC), with an RC Raft, RC retaining walls and RC ground floor slabs. The structure will be constructed within the existing site boundary. The surrounding ground and buildings will be supported in the temporary condition with a cast insitu contiguous piled wall. Other solutions could be used, eg king post method, but our experience is that contiguous piles provide a more robust solution.

4.6 The basement will be designed as a Grade 3 basement as defined in BS8102. It is anticipated that a construction Type C will be used that includes a primary barrier to minimise the ingress of water, the reinforced concrete, combined with a separate internal drained cavity system to give maximum assurance against water ingress. The new basement will typically extend approximately 4.0m below ground level with a further 1.2m depth in the area of the swimming pool. This depth of excavation is not likely to have any impact on the existing ground water regime.

4.7 The new ground floor structure above the basement has been positioned approximately 1.0m below the existing ground level to allow the reinstatement of proper planting zone. The planting is further enhanced with the proposed zone between the new contiguous piled wall and new RC basement walls

4.8 The current garden boundary wall will be reconstructed to match the existing or as agreed with RBKC. The wall will be built off the contiguous piled wall which will be utilized as foundations for the rebuilt wall.

#### 5.0 Party Wall Matters

5.1 The proposed development falls within the scope of the Party Wall etc Act 1996. Procedures under the Act will be dealt with in full by The Employer's Party Wall Surveyor, Mark Behan BSc (Hons) MRICS. The Party Wall Surveyor will prepare and serve necessary Notices under the provisions of the Act and agree Party Wall Awards in the event of disputes. The Contractor will be required to provide Mr Behan with appropriate

drawings, Method Statements and other relevant information covering the works that are notifiable under the Act. The resolution of matters under the Act and provision of the Party Wall Awards will protect the interests of all owners.

5.2 The designs for No. 9 Phene Street will be developed so as not to preclude or inhibit similar, or indeed any works, on the adjoining properties in Margareta Terrace and Phene Street. This will be verified by the Surveyors as part of the process under the Act.

6.0 Conclusion

6.1 9 Phene Street is a three storey building rectangular in plan with a full storey height basement across the main buildings footprint and part of the extensions. The extensions are typically single storey with the earliest extension also having a small roof terrace at first floor level. The building is traditionally constructed with brickwork walls, timber floors and a timber roof. The building is in fair condition for its age and type.

6.2 The proposed works will involve the repair and refurbishment of the original Public House building, reconstruction of the side extensions and construction of a new basement area with swimming pool below the front garden / beer garden. The works will also include the rebuilding of the boundary wall fronting Margareta Terrace.

6.3 The building is located on a reasonably open site with good access from both Margareta Street and Phene Street. This allows contiguous bored piles to be constructed to support and protect the adjoining buildings, pavements and roads. This type of robust temporary works together with a relatively shallow single storey basement is unlikely to have a significant impact on the stability of the adjoining buildings.

6.4 The adjoining building at 8 Phene Street has an existing basement. The proposed underpinning works to the Party Wall are very straightforward and if properly undertaken pose no significant threat to the stability of the adjoining building.

6.5 The works to the existing building are generally low key and will also include repairs and strengthening works to address the lack of robustness and bowing/bulging to external walls.

6.6 The impact of the new basement construction on the existing ground water regime has been assessed and discussed with specialist geotechnical advisors. In this particular instance there is unlikely to be any noticeable effects on the hydro-geotechnical environment in the immediate vicinity of the site.

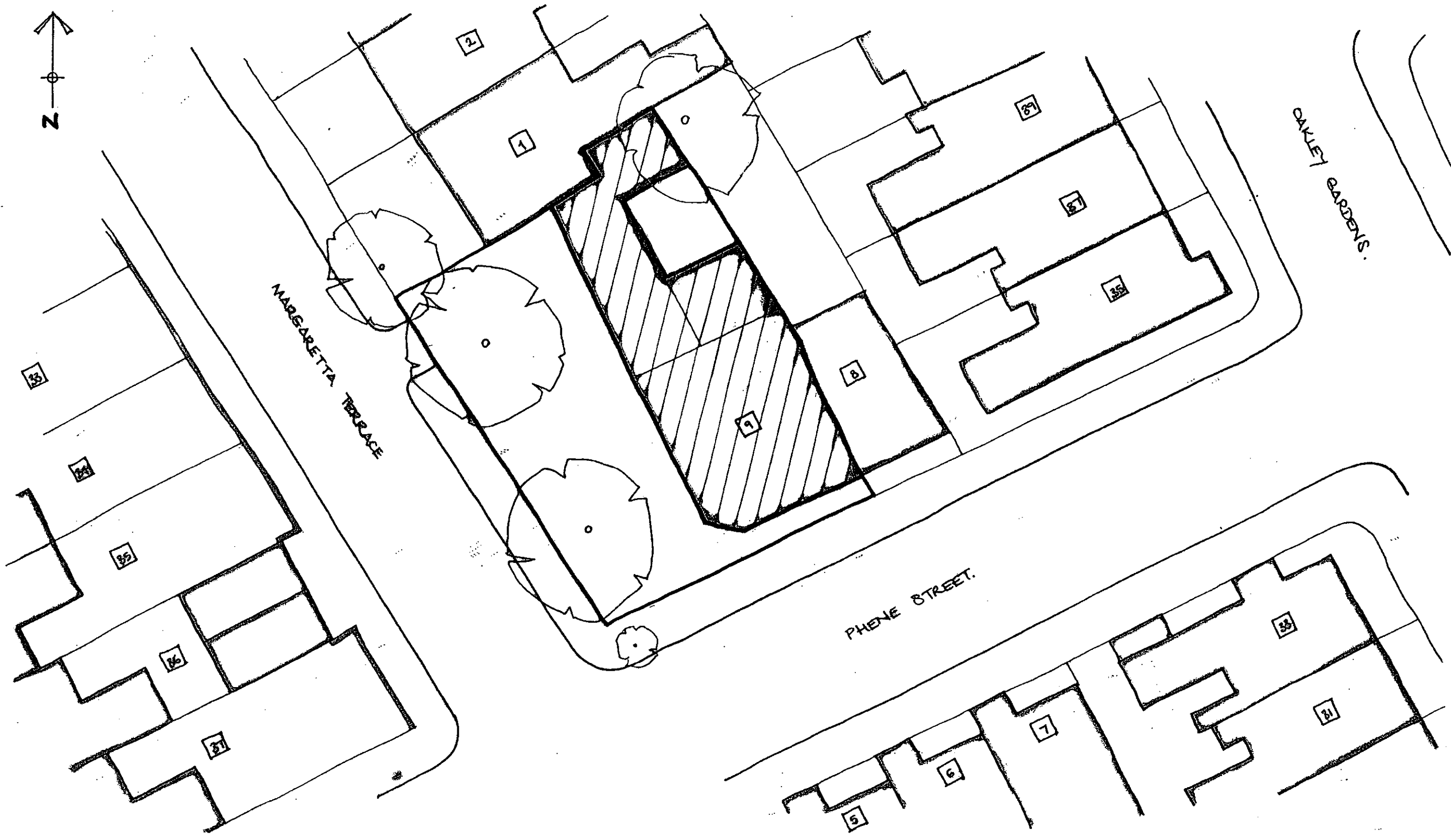
The Phene Arms, 9 Phene Street, London SW3 5NY

207193

Structural Engineering Notes

June 2007

Existing Drawings



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.  
Do not scale from this drawing.

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London SW3 5NY

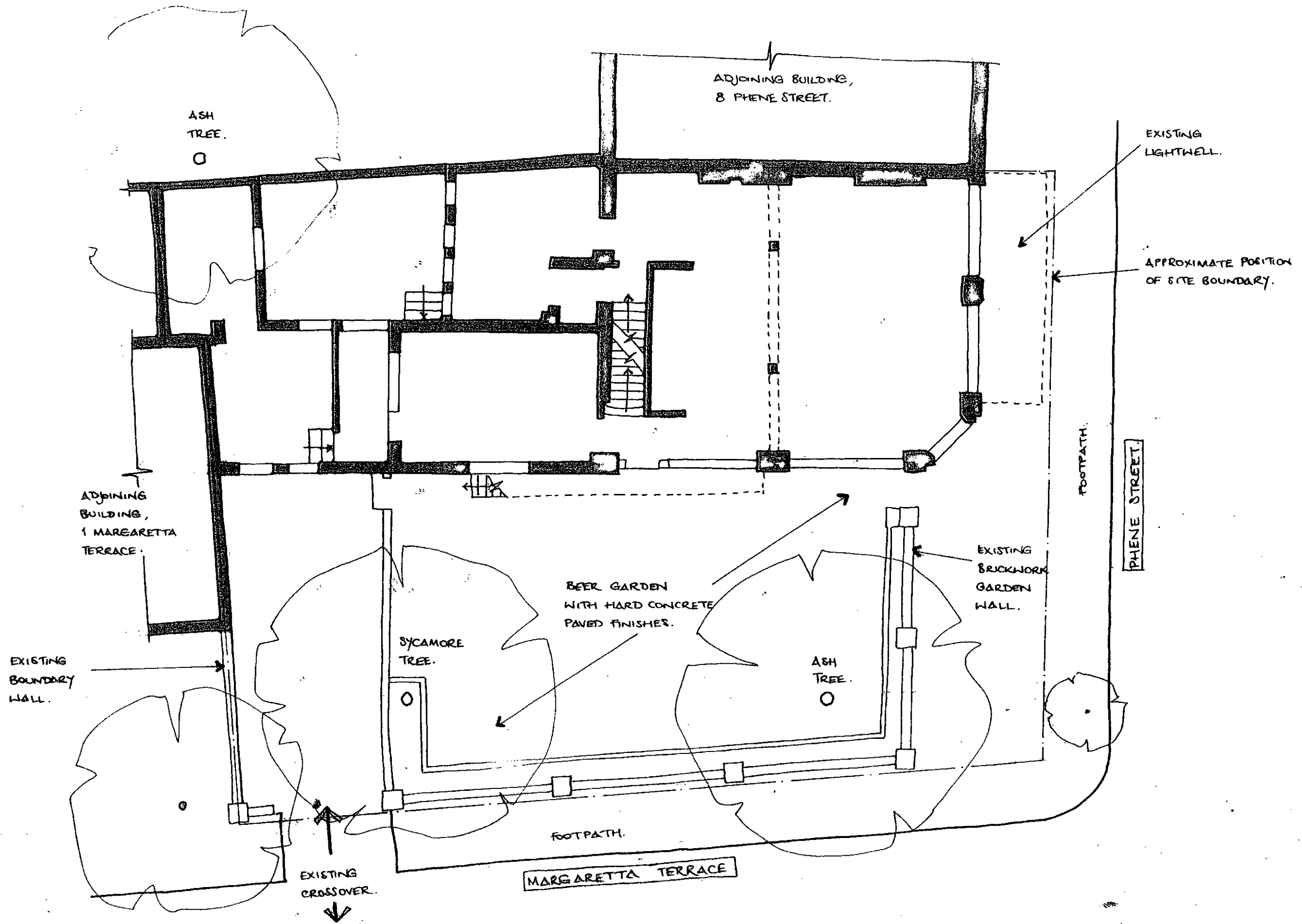
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drawing status  
Planning

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drawing title Location Plan		
job no 207193	drawing no 00	revision P1



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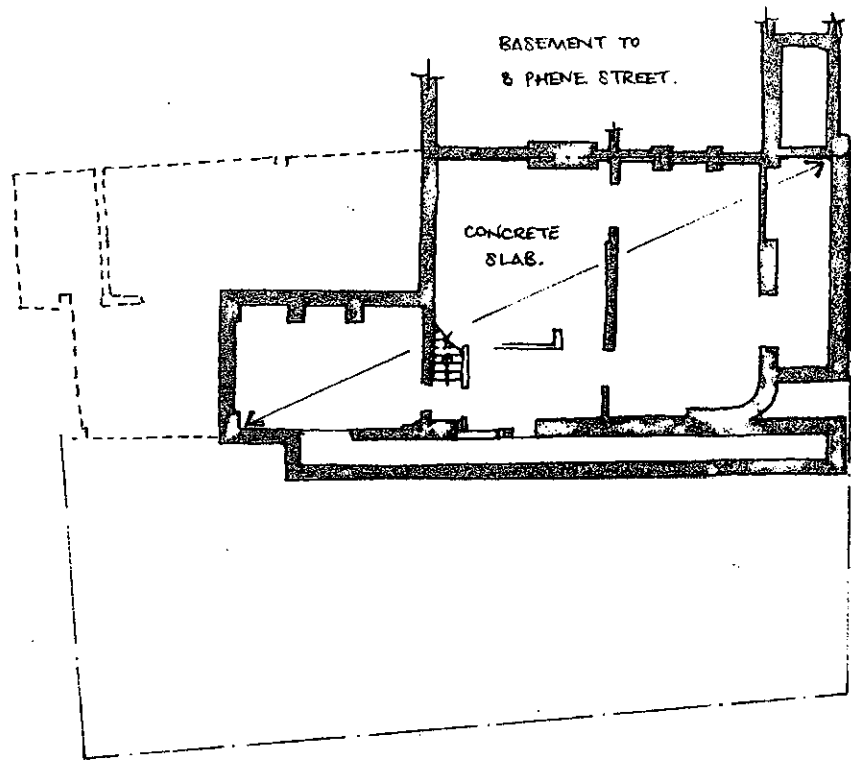
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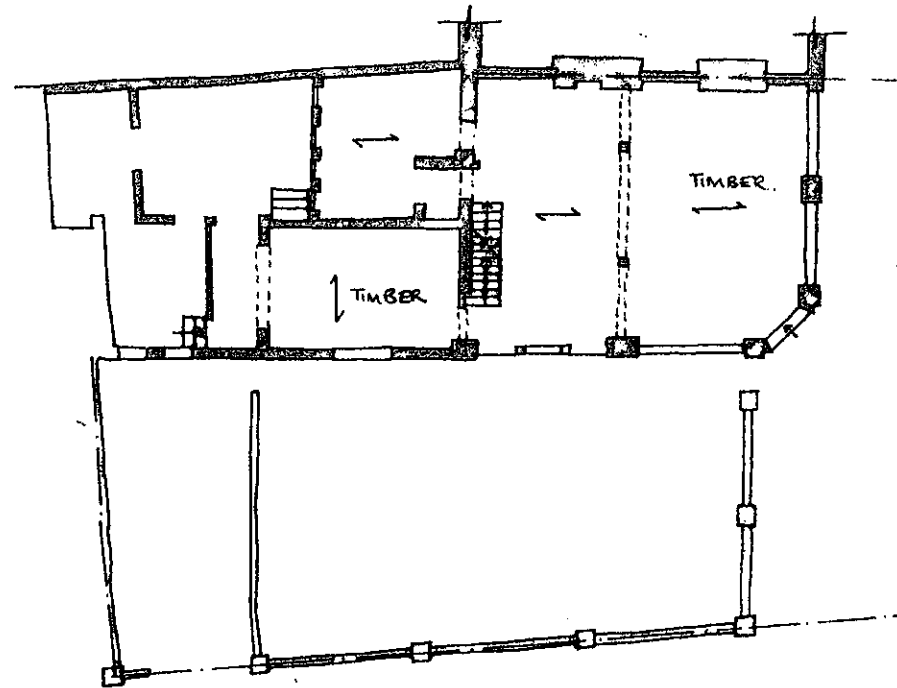
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drawing title Existing Site Plan		
job no 207193	drawing no 10	revision P1

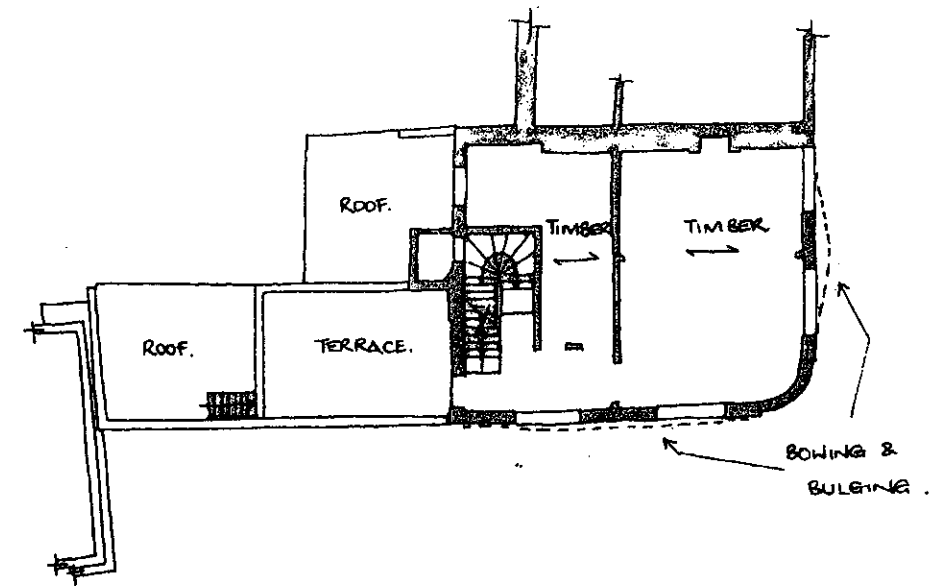




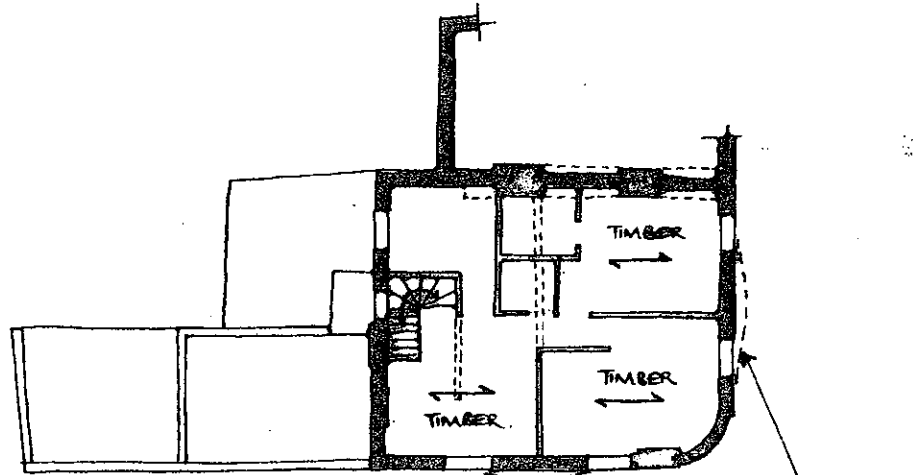
BASEMENT PLAN.



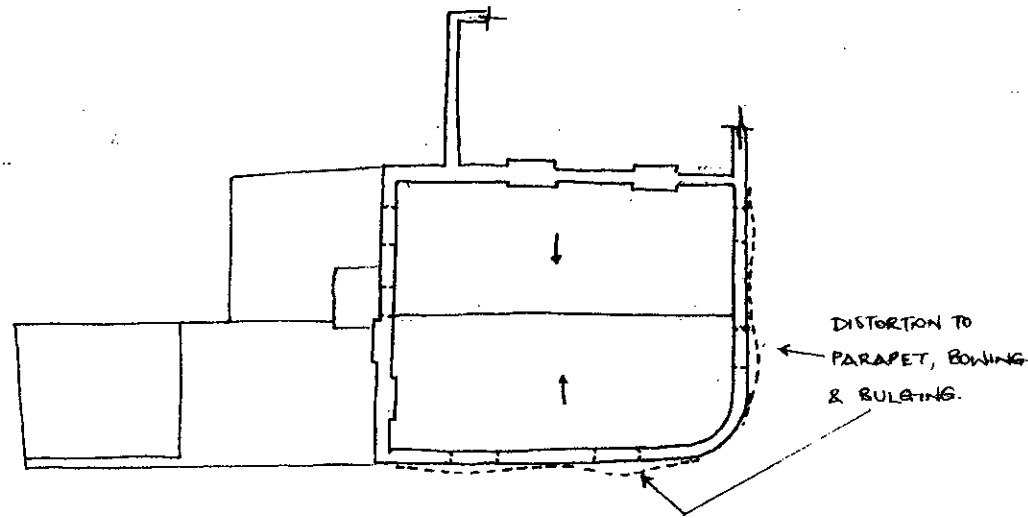
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN.



ROOF PLAN.

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project  
Phene Arms  
London SW3 5NY  
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Existing  
Floor Plans

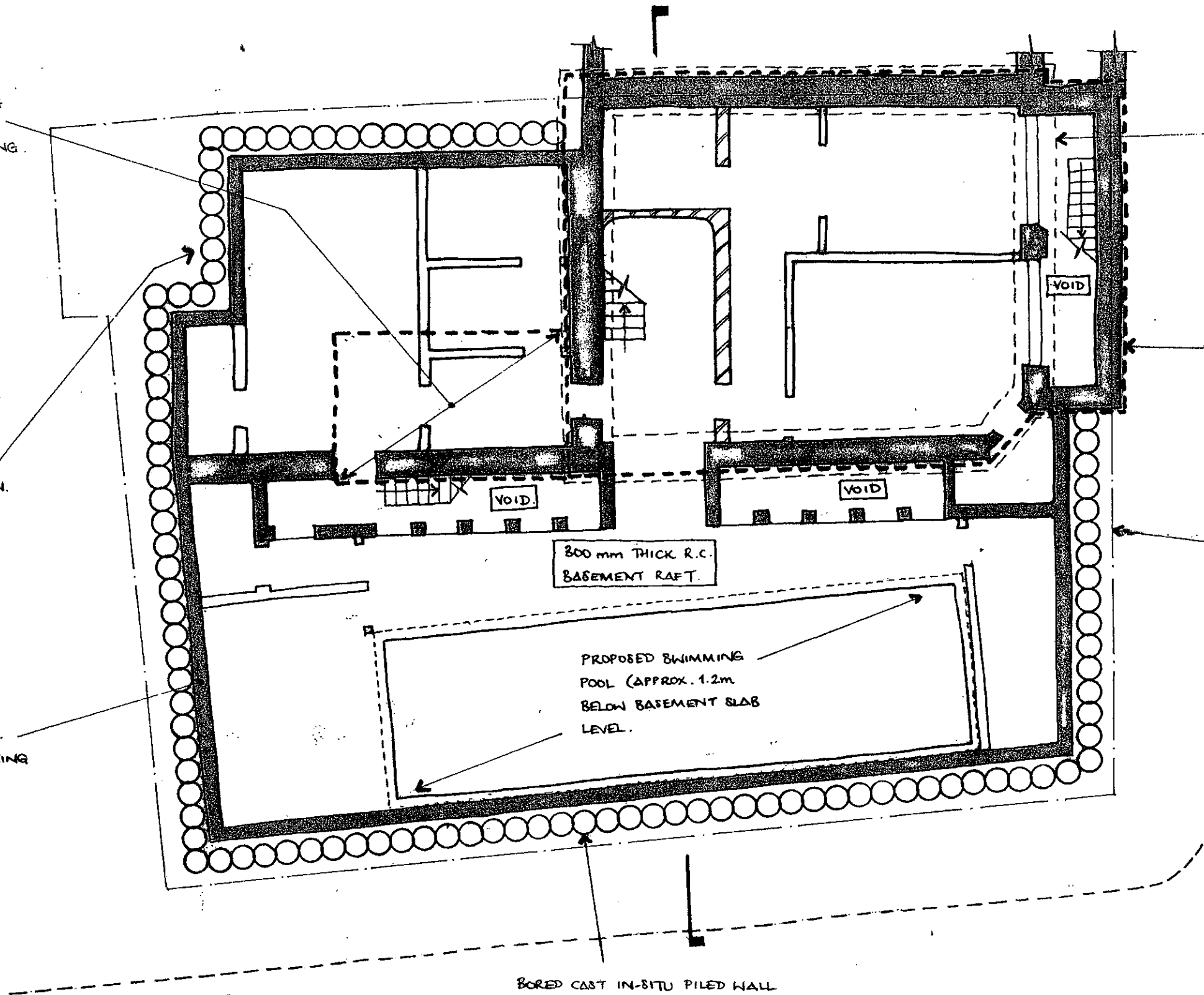
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Proposed Drawings

ZONE OF EXISTING  
BASEMENT IN  
EXTENSION BUILDING.

BASEMENT STEPS IN  
LOCALLY TO AVOID  
TREE ROOTS FROM  
ASH TREE IN  
ADJOINING GARDEN.

300 mm THICK R.C.  
BASEMENT RETAINING  
WALLS.



LINE OF MASS  
CONCRETE UNDERPINNING  
BELOW EXISTING  
MASONRY WALLS.

APPROXIMATE EXTENT OF  
EXISTING BUILDING AND  
BASEMENT TO BE RETAINED.

APPROXIMATE POSITION OF  
SITE BOUNDARY.

BORED CAST IN-SITU PILED WALL  
ACTS AS TEMPORARY WORKS TO ALLOW  
EXCAVATION AND PERMANENT WORKS  
TO SUPPORT RECONSTRUCTED SITE  
BOUNDARY WALL.

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project  
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London SW3 5NY

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date June 2007  
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drawing title  
Proposed  
Basement Floor Plan

job no 207193	drawing no 30	revision P1
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TEMPORARY WORKS  
PILES EXTEND AROUND  
SIDE OF 1 MARGARETTA  
TERRACE AND GARDEN  
WALL TO 8 PHENE STREET.

NEW LOAD BEARING STAIRCASE  
WALL ALSO PROVIDES  
HORIZONTAL RESTRAINT.

EXISTING LIGHTWELL  
'OPENED-UP' TO MATCH  
8 PHENE STREET.

200 mm THICK  
R.C. SLAB.

EXISTING  
FLOOR.

EDGE OF NEW  
BASEMENT AREA.

VOID

VOID

PLANTING ZONE BETWEEN  
TEMPORARY WORKS PILES  
AND NEW BASEMENT WALL.

LOAD BEARING  
WALLS BELOW.

300 mm THICK R.C.  
FLAT SLAB.

EXISTING GARDEN WALL  
TO ADJOINING BUILDING  
RETAINED - TEMPORARY  
WORKS PILES POSITIONED  
INSIDE LINE OF WALL.

PLANTER.

PLANTER.

BOUNDARY WALL RECONSTRUCTED  
USING TEMPORARY WORKS BORED  
PILES AS FOUNDATIONS.

CONTROL JOINT AT JUNCTION OF  
WALLS FOUNDED ON DIFFERING  
FOUNDATIONS.

ROOFLIGHT

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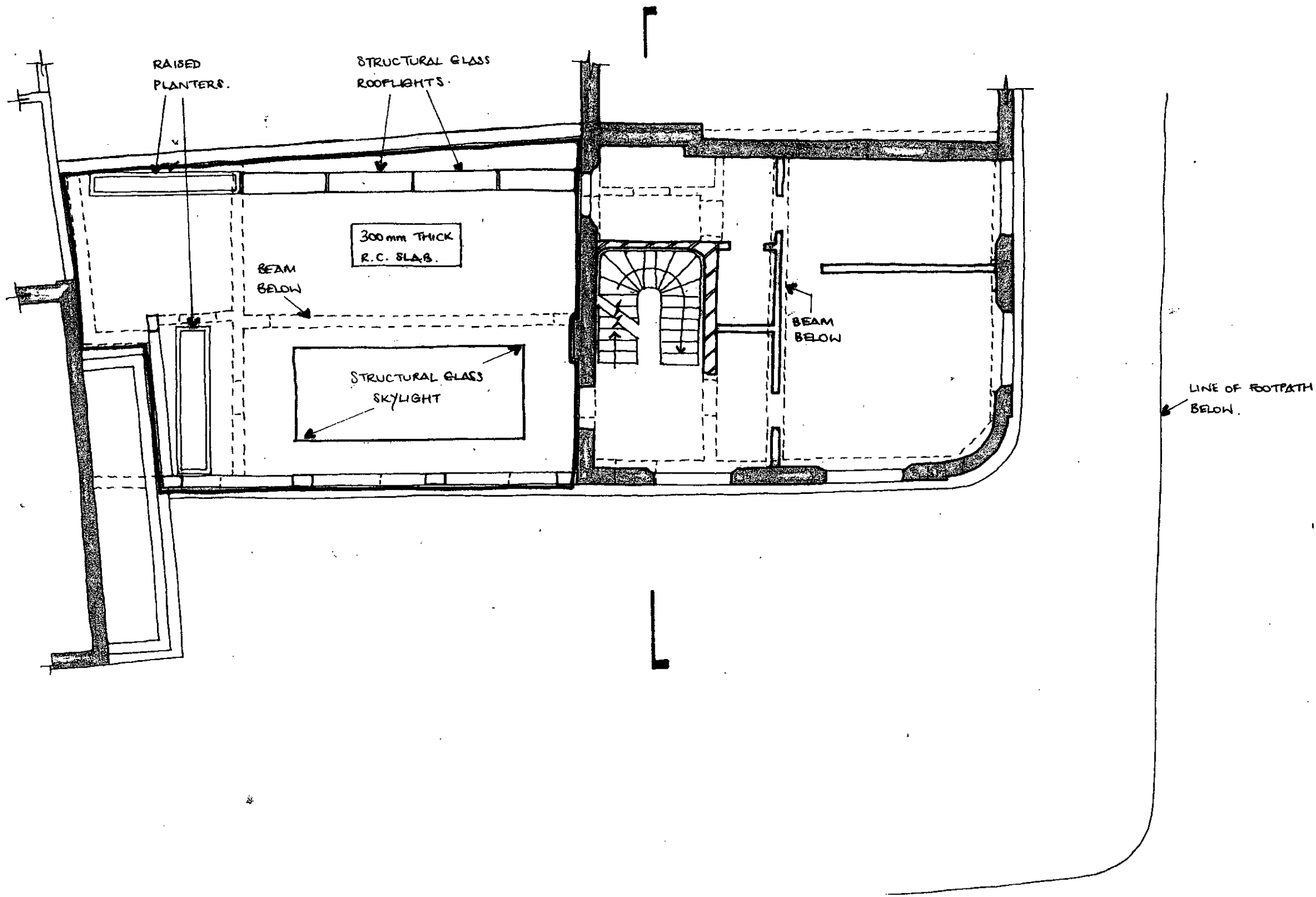
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drawing title Proposed Ground Floor Plan		
job no 207193	drawing no 31	revision P1



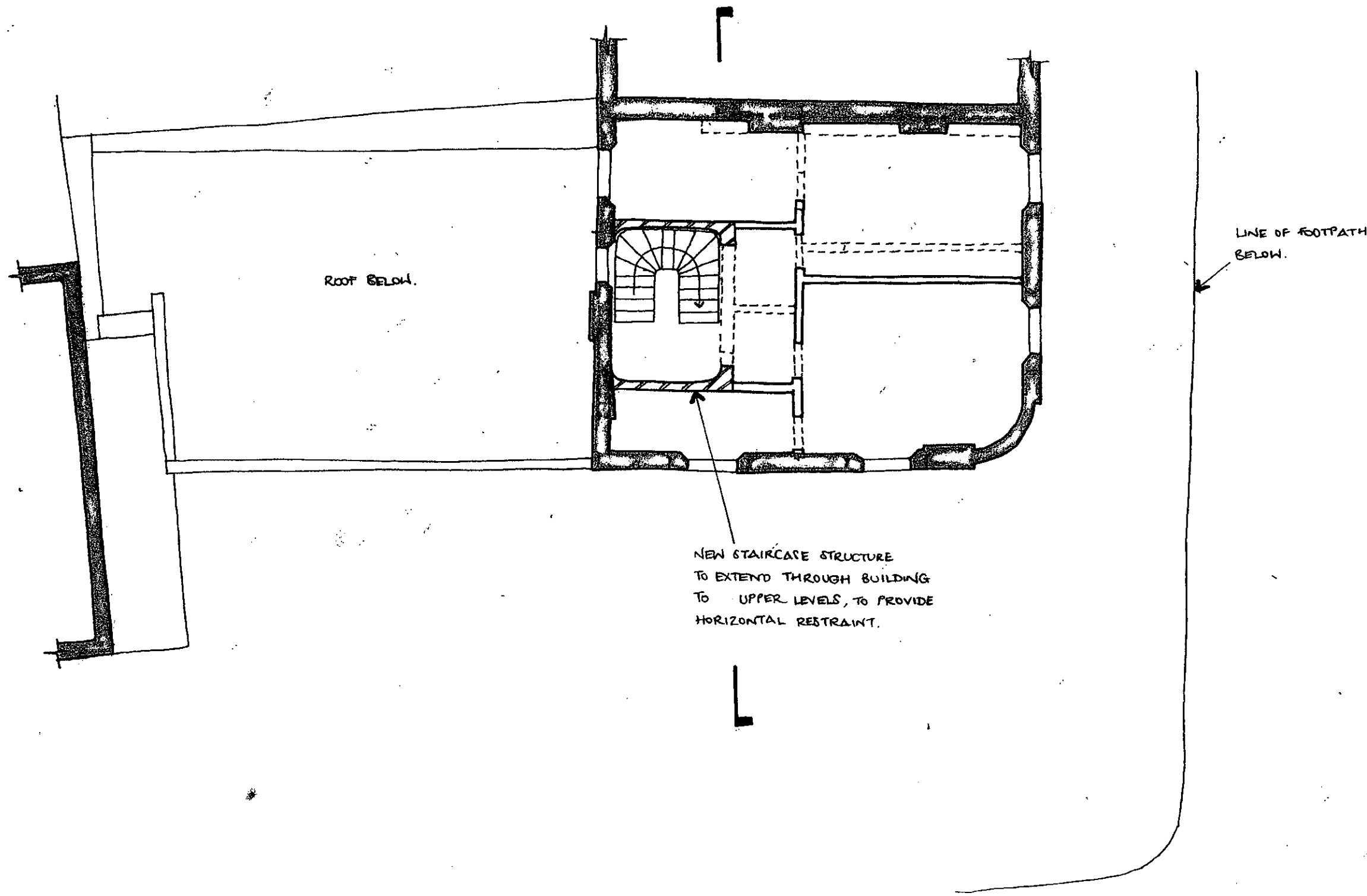
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drawing title Proposed First Floor Plan		
job no 207193	drawing no 32	revision P1



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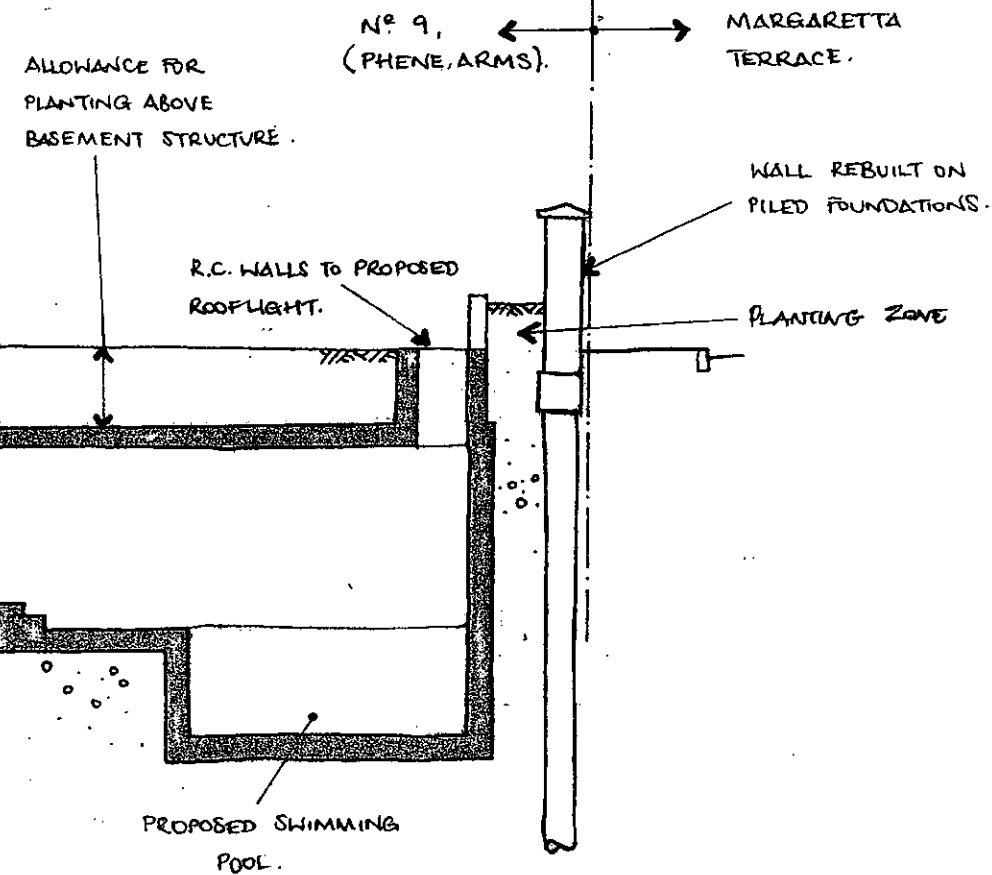
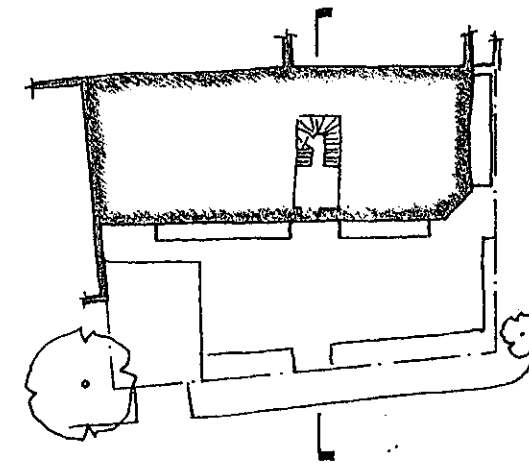
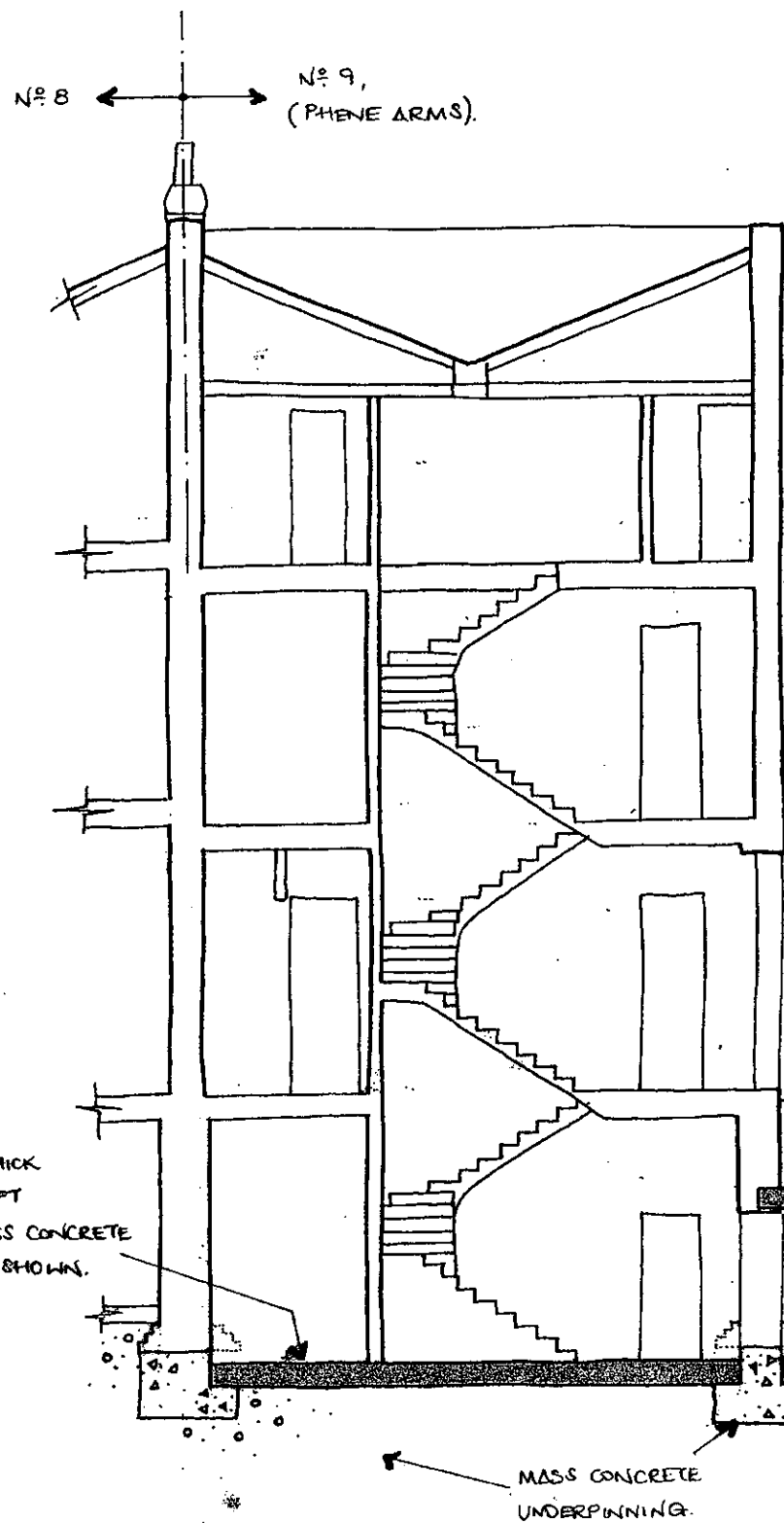
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date June 2007  
drawing status Planning

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drawing title  
Proposed  
Second Floor Plan  
job no 207193  
drawing no 33  
revision P1

**GROUND CONDITIONS:**  
 1.7m MEDIUM COMPACT TO  
 COMPACT MADE GROUND,  
 OVER MEDIUM DENSE TO  
 DENSE GRAVELLY COARSE  
 SAND.



ASSUMED GROUND WATER LEVEL  
 (WATER NOT ENCOUNTERED IN BOREHOLE  
 INVESTIGATION TO 8.0m DEPTH).

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drawing title Proposed Section		
job no 207193	drawing no 34	revision P1

Assumed Sequence of Construction



### Preliminary Assumed Sequence of Construction

Some of the issues that affect the sequence of works on this project are:

- The stability of the existing building
- The stability of adjoining structures
- The stability of adjoining footpaths and roads

Of these it is the stability of the adjoining structures and highways that will have the greatest impact upon the scheme and the method of working. The arrangement of the existing/adjoining building is generally beneficial for undertaking the proposed work; the retained corner building, 9 Phene Street and adjoining property, 8 Phene Street, both have basements, there is good access on and off the site and this can be positioned away from adjoining residential properties. In addition, the generous size of the site allows more robust temporary works to be used; contiguous piled walls that are generally regarded as safer when undertaking such work.

For the demolition of existing and construction of the new basement, the attached drawing (206240/40) highlights construction issues associated with the proposed development.

#### Stage 1: Site Set-Up

Erect a fully enclosed site hoarding (painted plywood). This will need to extend onto the footpaths of Margareta Terrace and Phene Street. The existing paving slabs, to both the front and side should be carefully lifted and stored on site for relaying. The footpath can be temporarily diverted to the opposite side of the street if required.

The services within the site and footpath should be identified and isolated if required.

Site to be cleared of all existing vegetation apart from those trees to be retained. All below ground obstructions, such as existing foundations, should be removed prior to commencement of piling works.

A new temporary site cross over should be established to minimise the risk to the retained tree, probably located closer to the Phene Street Junction.

Tree Protection methods to be agreed and installed in accordance with Barrell Tree Care Report to all retained trees.

#### Stage 2: Enabling Works

The existing boundary wall and side extension wall should be accurately recorded prior to demolition, with the material being retained for reuse, where possible.

Complete internal site investigations to confirm depth and type of existing foundations to Party Walls.

Agree principles for removal of spoil from site e.g. conveyor from inside building with a large skip positioned in the street.

#### Stage 3: Demolitions and Internal Soft Strip

Carefully demolish existing side extensions taking special care with walls abutting boundary walls.

Complete soft strip of internal finishes within retained building, including the installation of any temporary shoring to improve the robustness of the building during the works and prior to reconstructing the staircase walls.

Following demolition of extensions, undertake trial pits to confirm the exact depth of all adjoining building foundations.

#### Stage 4: Install Temporary Works Piles

Contiguous bored pile retaining wall to be constructed from existing ground level around the site. These piles will extend around the full perimeter of the site, up to the retained corner building.

Excavate and cast capping beam for piled wall.

If deemed necessary as a result of Party Wall Agreements, set up monitoring regime for piled wall and adjoining building at No. 1 Margareta Terrace.

#### Stage 5: Underpinning to Building

Dig trial underpins for inspection by Engineer to check how well the existing soil is cemented, in particular its ability to "stand up" whilst the individual underpin is completed. (Experience on nearby projects suggests that the ground is "well cemented" and suited to traditional underpin methods without the need for special measures)

In the unlikely event of poor ground being encountered then special measures will be required: either localised trench sheeting and props will need installing within the underpin, or localised grout injection can be used.

Following confirmation of the above, complete reinforced concrete underpins, conforming to Engineer's detailed sequence drawing for the new basement walls.

Stage 6: Excavate Proposed Basement

Excavate material within contiguous piled wall to basement slab formation level, installing temporary propping as required as the excavation progresses.

Stage 7: Cast Reinforced Concrete Raft Foundation & Basement Walls

Once the excavation is completed the reinforced concrete raft and walls can be cast in large sections.

Stage 8: Cast Reinforced Concrete Basement Lid

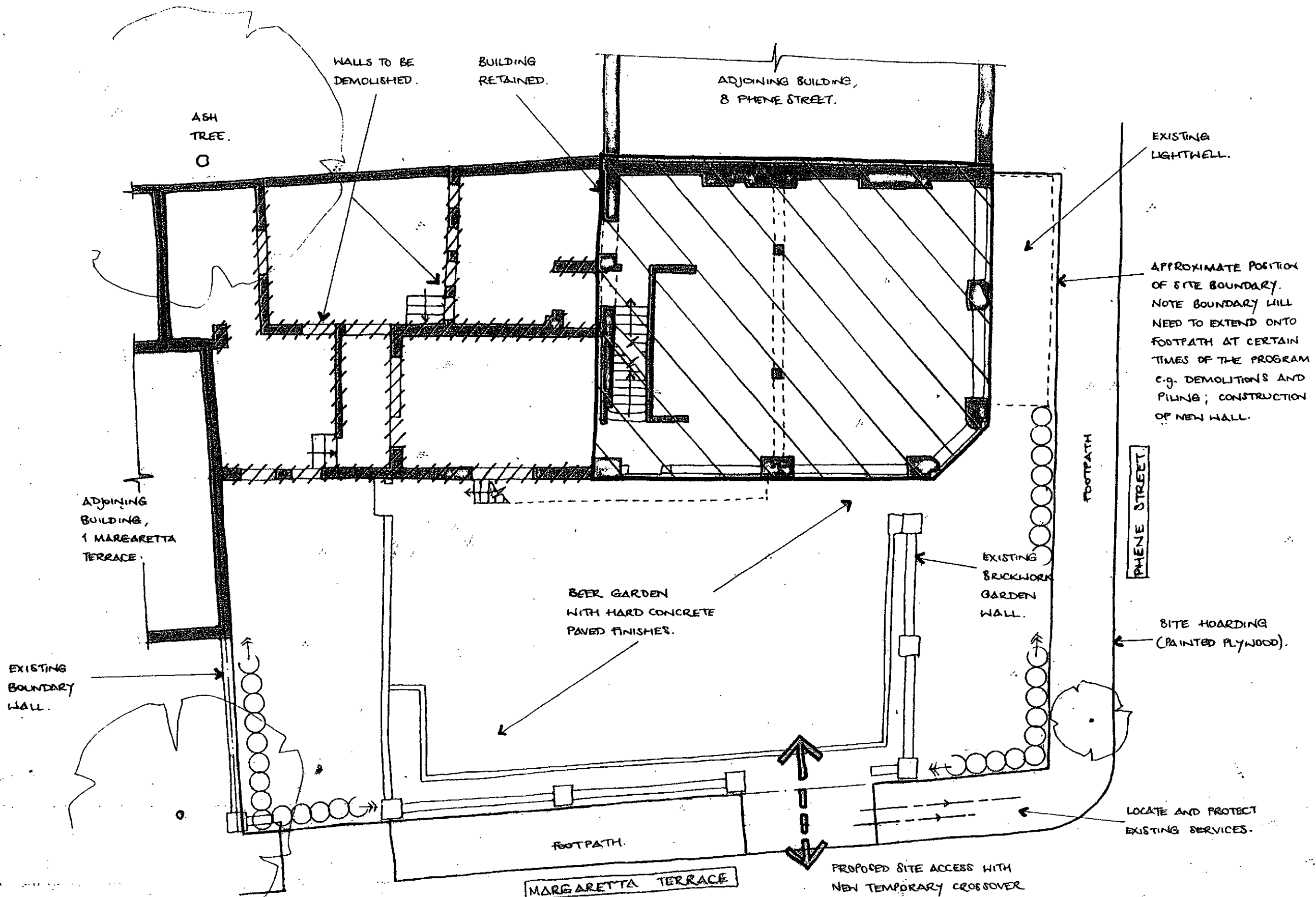
Following completion of the raft and wall the reinforced concrete basement lid can be cast.

Stage 9: Remove Lateral Propping

The temporary propping to the contiguous piled wall can be removed following completion of the permanent substructure works.

Stage 10: Commence Superstructure Works

The superstructure works to the rear of the house can be commenced following the completion of the reinforced concrete raft and walls. These works are generally low key and typical of a residential scale building project.



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Project  
Phene Arms  
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Date  
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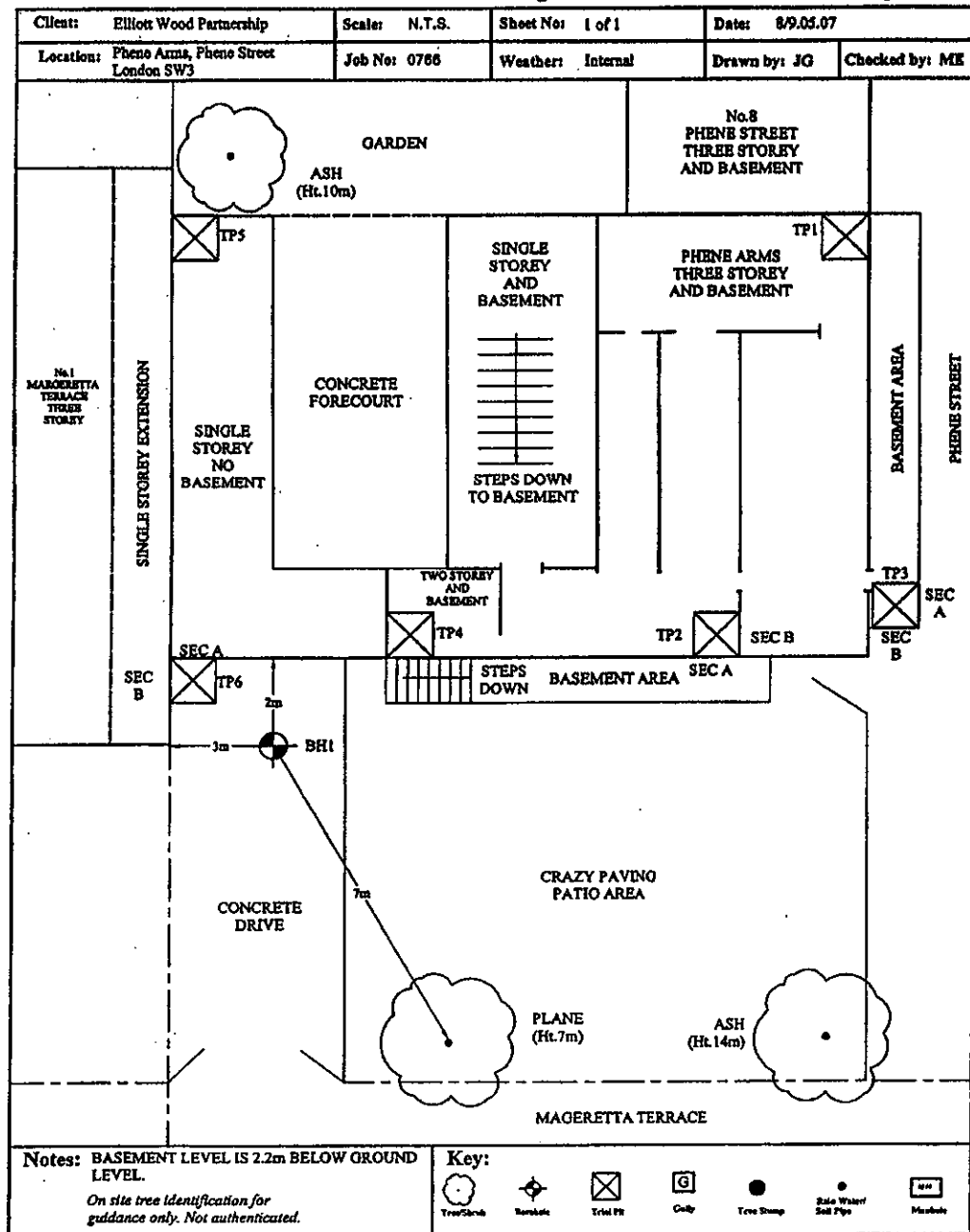
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Appendix

Site Investigation

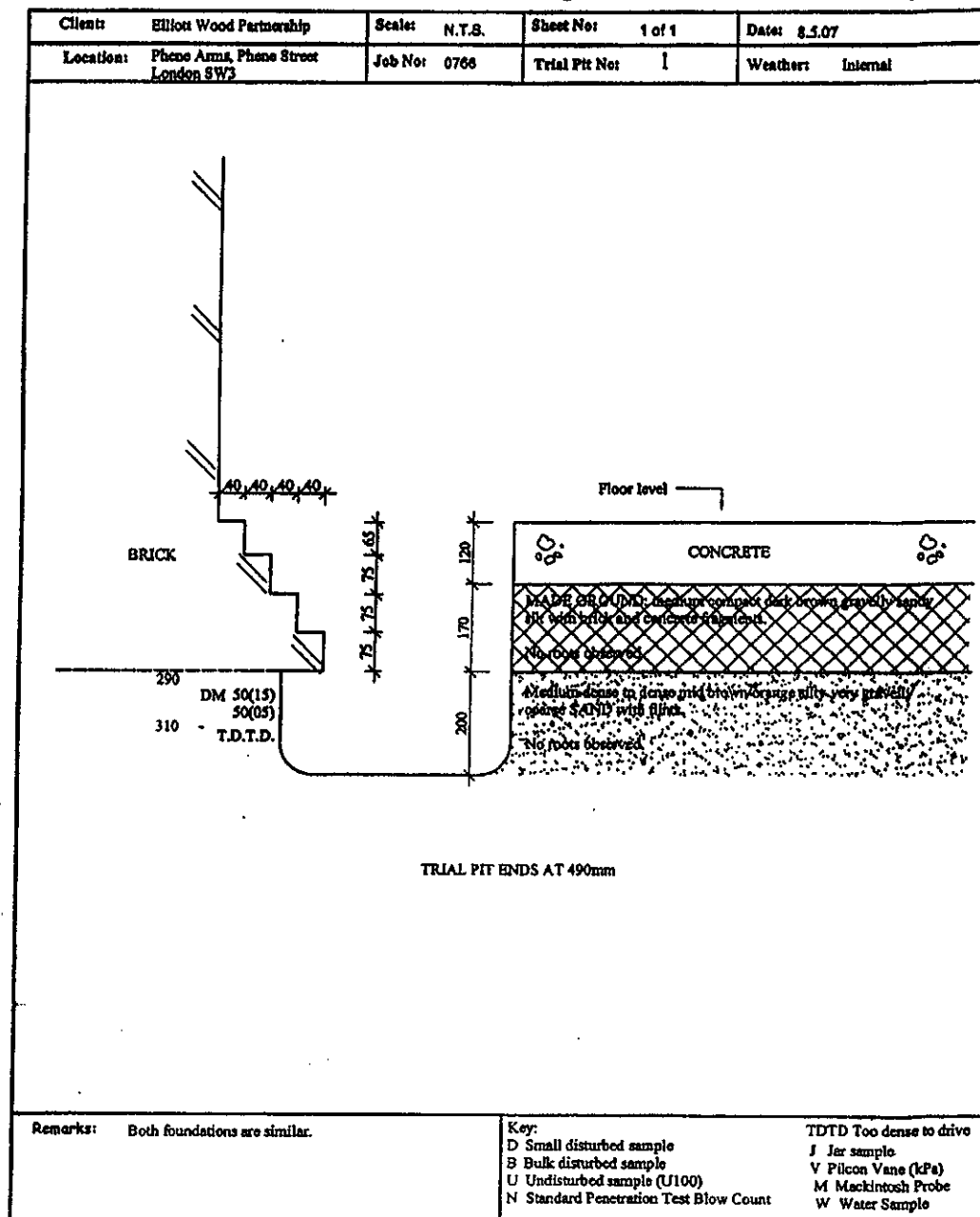
**Chelmer Site Investigations**

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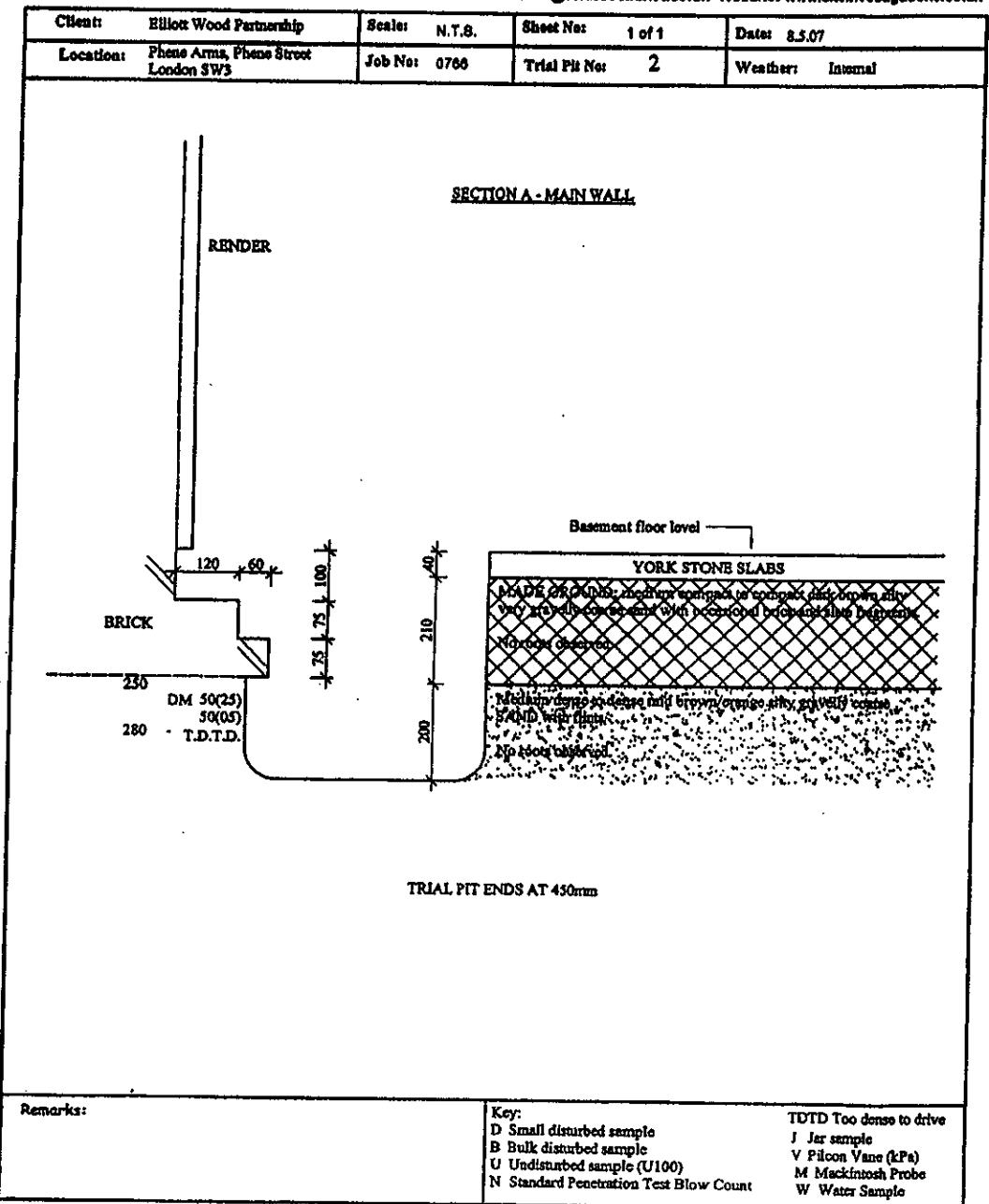




Client: Elliott Wood Partnership		Scale: N.T.S.	Sheet No: 1 of 1	Date: 9.5.07				
Site: Pheno Arms, Pheno Street, London SW3		Job No: 0766	Borehole No: 1	Boring Method: C.F.A.				
Depth Metres	Description of Strata	Thickness	Legend	Sample Type	Test Result	Root Information	Depth of Water	Depth Metres
O.L.	CONCRETE	0.08						
0.08	CRUSHED BRICK SUB BASE	0.12				Roots of live appearance to 2mm diameter to 1.5m		
1.90	MADE GROUND: medium compact to compact dark brown gravelly very sandy silt with brick and concrete fragments.	1.70		D	M 30 32 32 38			1.00
				D				1.50
				D	M 44 50 50(60) T.D.T.D.	Roots of live appearance to 1mm diameter to 1.9m Hair and fibrous roots to 2.2m No roots observed below 2.2m		2.00
	Medium dense to dense mid brown/orange silty fine and medium SAND with flints.	1.90		D				2.50
				D	M 50 50(40) T.D.T.D.			3.00
				D				3.50
3.80	Medium dense to dense mid brown/orange silty gravelly coarse SAND with flints.	4.20		D	M 50(50) 50(20) T.D.T.D.			4.00
				D				4.50
				D	M 50(40) 50(20) T.D.T.D.			5.00
				D	M 50(25) 50(10) T.D.T.D.			6.00
				D	M 50(25) 50(10) T.D.T.D.			7.00
8.00	Borehole ends at 8.0m			D	M 50(10) 50(05) T.D.T.D.			8.00

Remarks: Borehole collapsing at 5.6m  
Borehole collapsing at 5.6m on completion.

Key: T.D.T.D. Too Dense to Drive  
D Small Disturbed Sample J Jar Sample  
B Bulk Disturbed Sample V Pilon Van (kPa)  
U Undisturbed Sample(U100) M Mackintosh Probe  
W Water Sample N Standard Penetration Test Blow Count

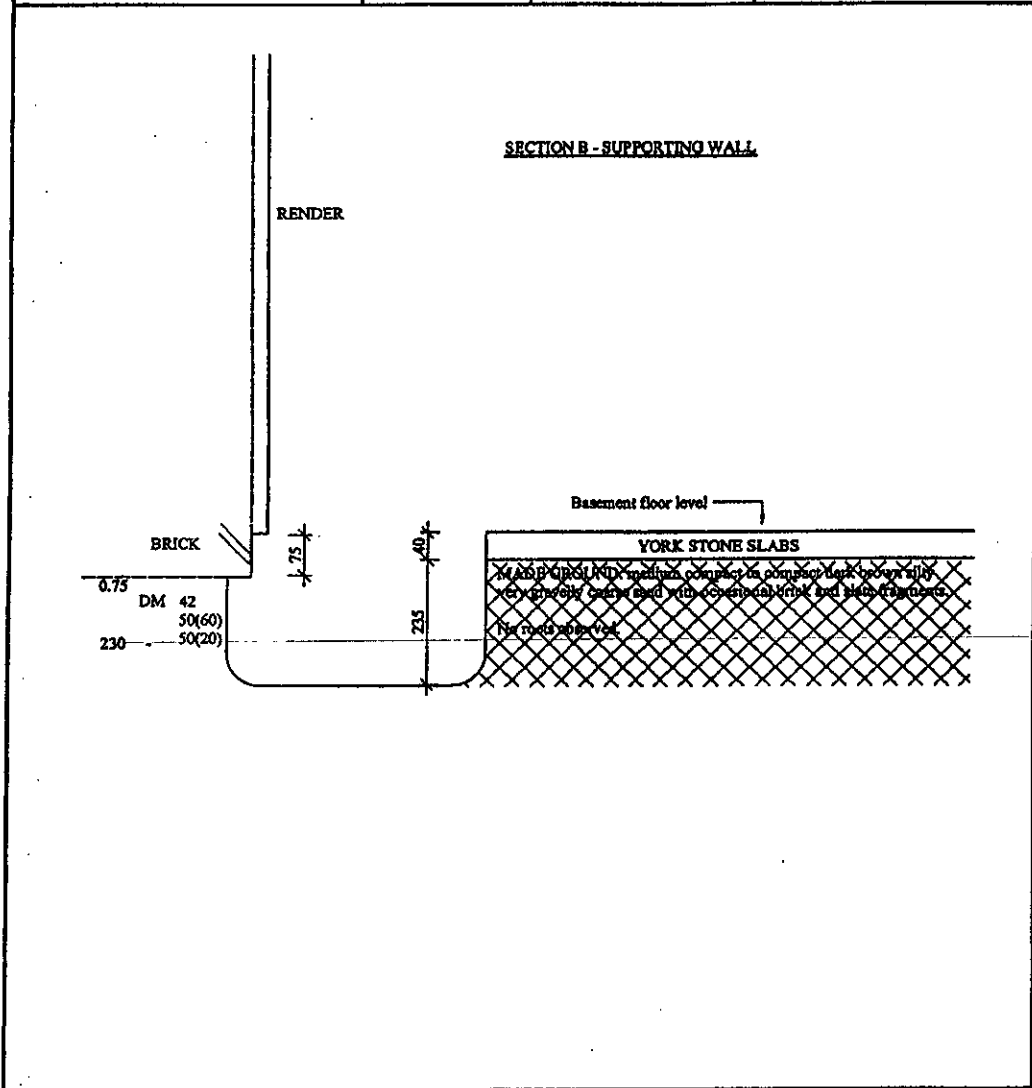


**Chelmer Site Investigations**

14 Willow Grove, South Woodham Ferris,  
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Email: mail@caissoc.fsnet.co.uk Website: www.siteinvestigations.co.uk

Client: Elliott Wood Partnership Scale: N.T.S. Sheet No: 1 of 1 Date: 5.5.07  
Location: Phens Arms, Phens Street London SW3 Job No: 0766 Trial Pit No: 2 Weather: Internal

Client:	Elliott Wood Partnership	Scale:	N.T.S.	Sheet No:	1 of 1	Date:	5.5.07
Location:	Phens Arms, Phens Street London SW3	Job No:	0766	Trial Pit No:	2	Weather:	Internal



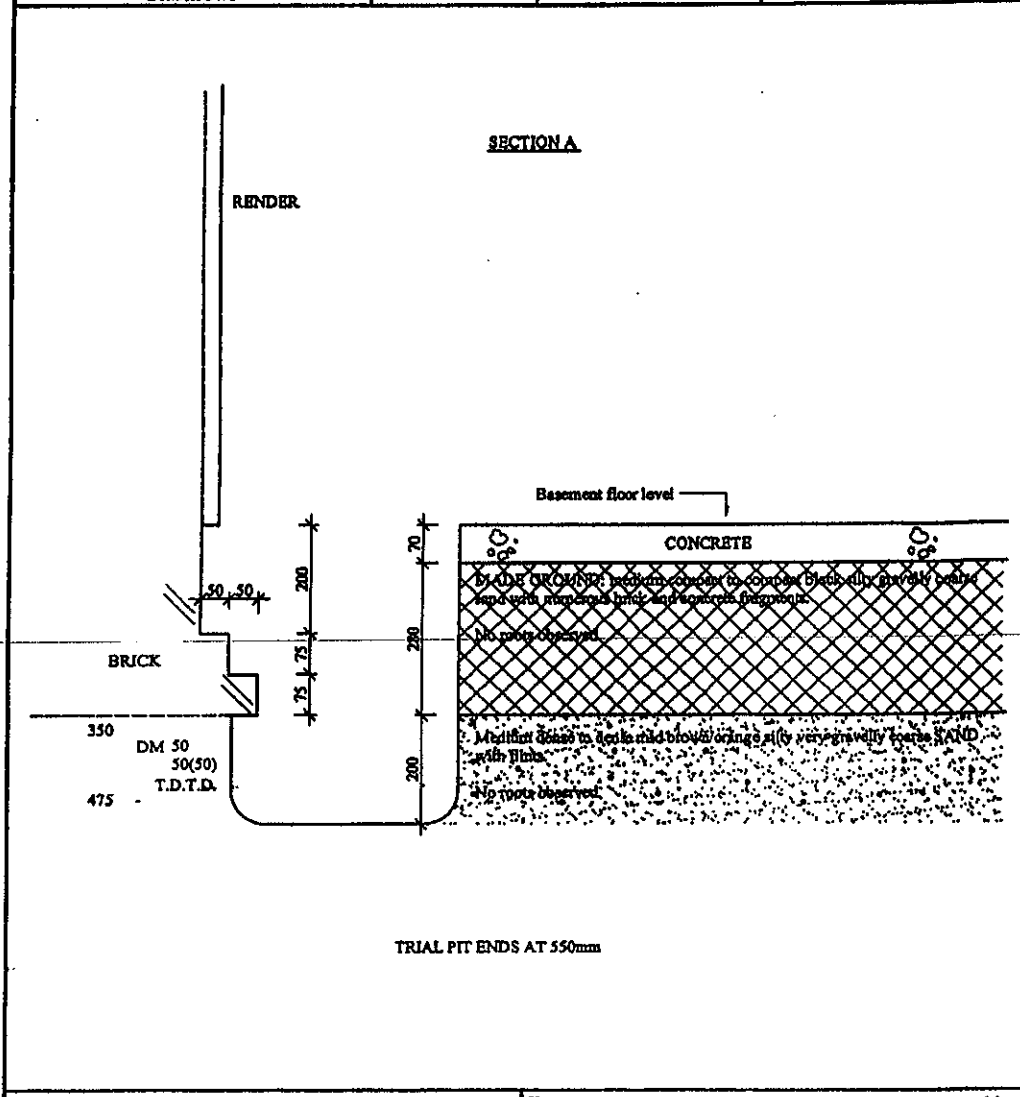
Remarks:	Key: D Small disturbed sample B Bulk disturbed sample U Undisturbed sample (U100) N Standard Penetration Test Blow Count	TDTD Too dense to drive J Jar sample V Pilon Vane (kPa) M Mackintosh Probe W Water Sample
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Client: Elliott Wood Partnership Scale: N.T.S. Sheet No: 1 of 1 Date: 5.5.07  
Location: Phens Arms, Phens Street London SW3 Job No: 0766 Trial Pit No: 3 Weather: Internal

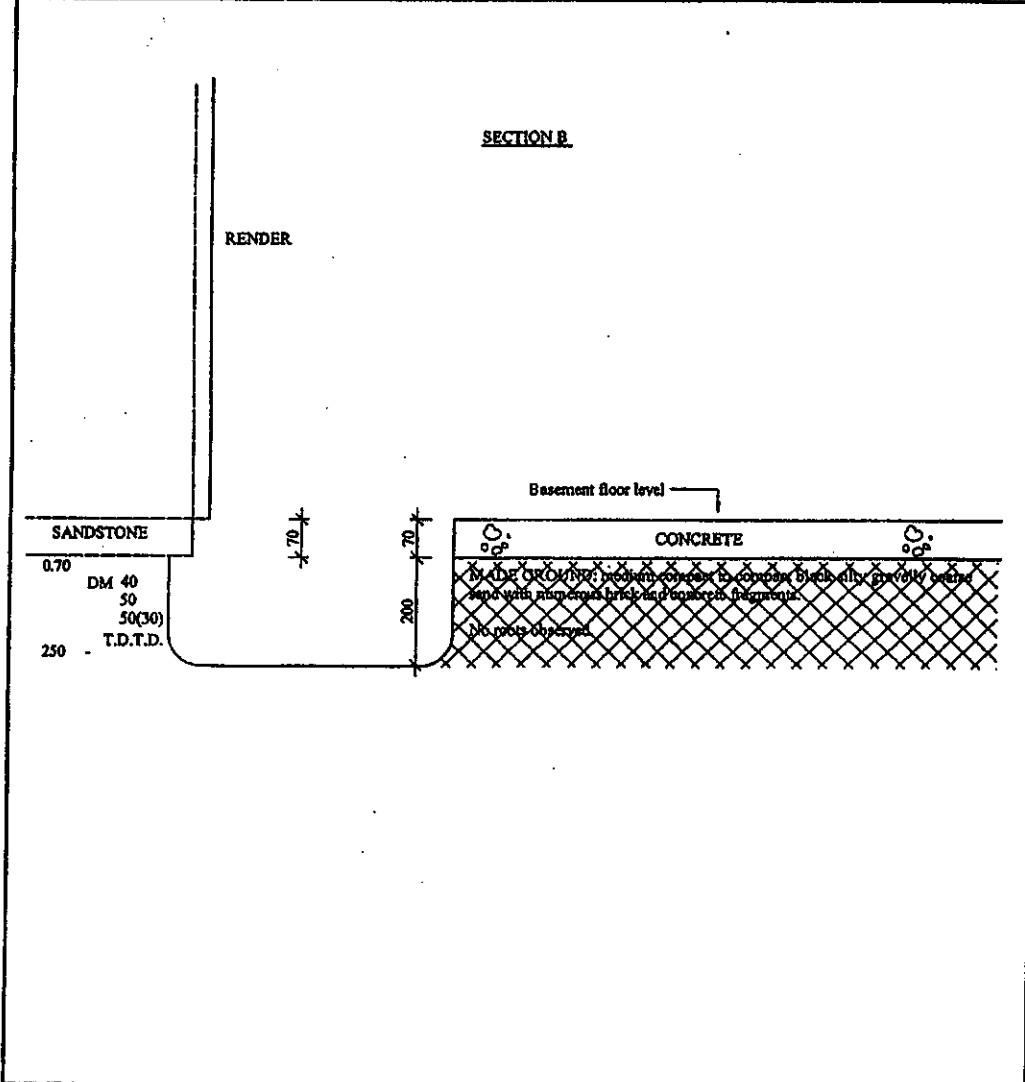
Client:	Elliott Wood Partnership	Scale:	N.T.S.	Sheet No:	1 of 1	Date:	5.5.07
Location:	Phens Arms, Phens Street London SW3	Job No:	0766	Trial Pit No:	3	Weather:	Internal



Remarks:	Key: D Small disturbed sample B Bulk disturbed sample U Undisturbed sample (U100) N Standard Penetration Test Blow Count	TDTD Too dense to drive J Jar sample V Pilon Vane (kPa) M Mackintosh Probe W Water Sample
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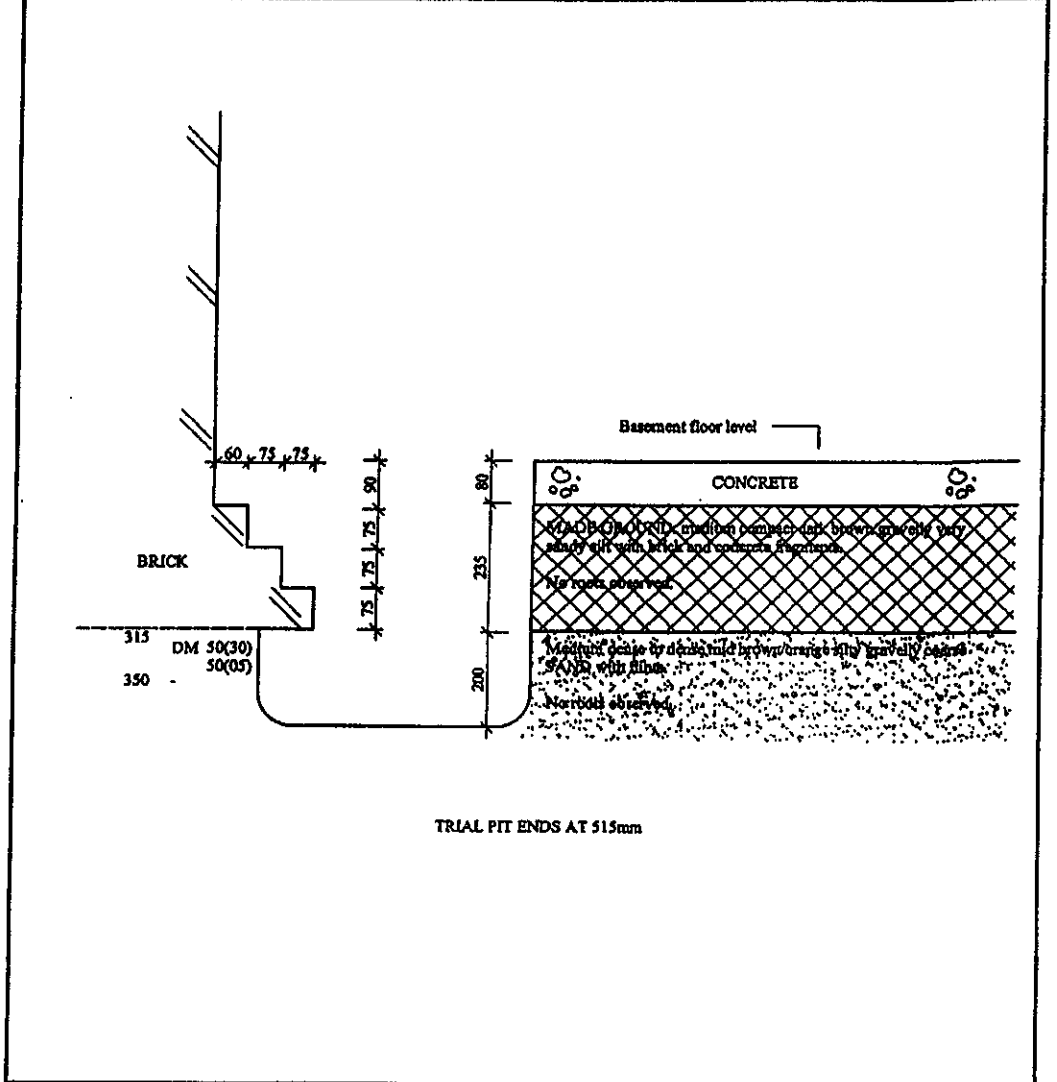
Client: Elliott Wood Partnership	Scaler: N.T.S.	Sheet No: 1 of 1	Date: 8.5.07
Location: Phone Arms, Phone Street London SW3	Job No: 0788	Trial Pit No: 3	Weather: Internal



Remarks:	Key:	TDTD Too dense to drive
	D Small disturbed sample	J Jar sample
	B Bulk disturbed sample	V Picon Vane (kPa)
	U Undisturbed sample (U100)	M Mackintosh Probe
	N Standard Penetration Test Blow Count	W Water Sample

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Client: Elliott Wood Partnership	Scaler: N.T.S.	Sheet No: 1 of 1	Date: 8.5.07
Location: Phone Arms, Phone Street London SW3	Job No: 0788	Trial Pit No: 4	Weather: Internal

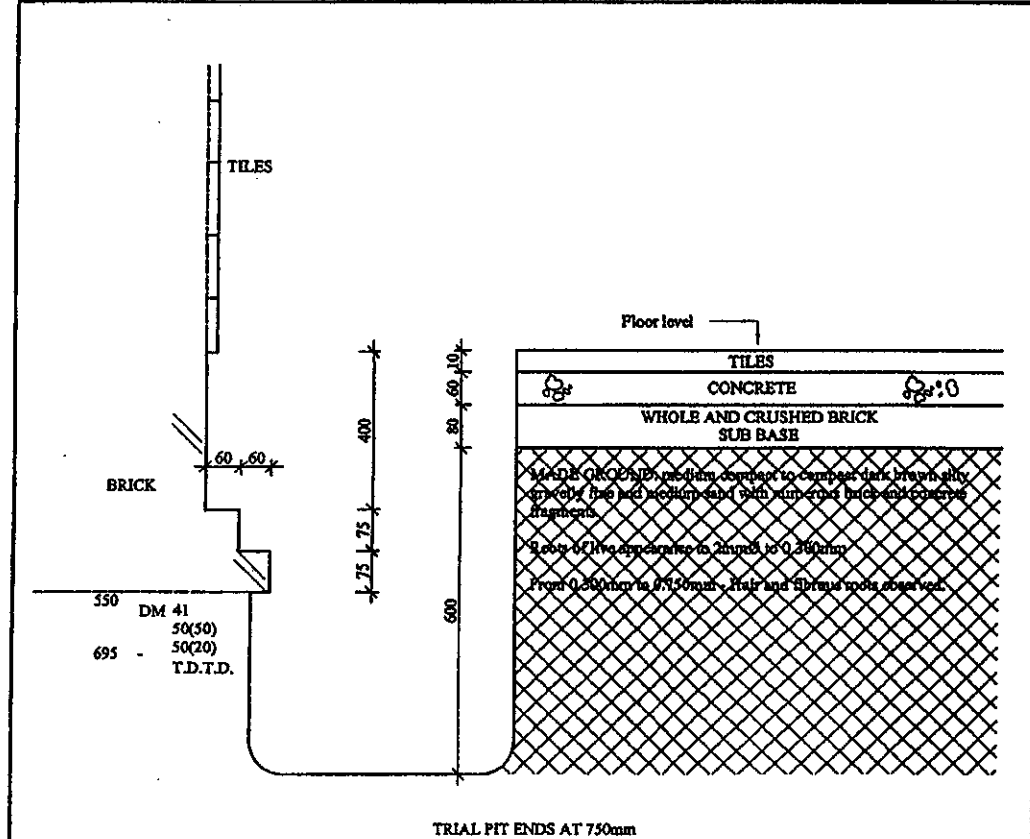


Remarks: Both foundations are similar.	Key:	TDTD Too dense to drive
	D Small disturbed sample	J Jar sample
	B Bulk disturbed sample	V Picon Vane (kPa)
	U Undisturbed sample (U100)	M Mackintosh Probe
	N Standard Penetration Test Blow Count	W Water Sample



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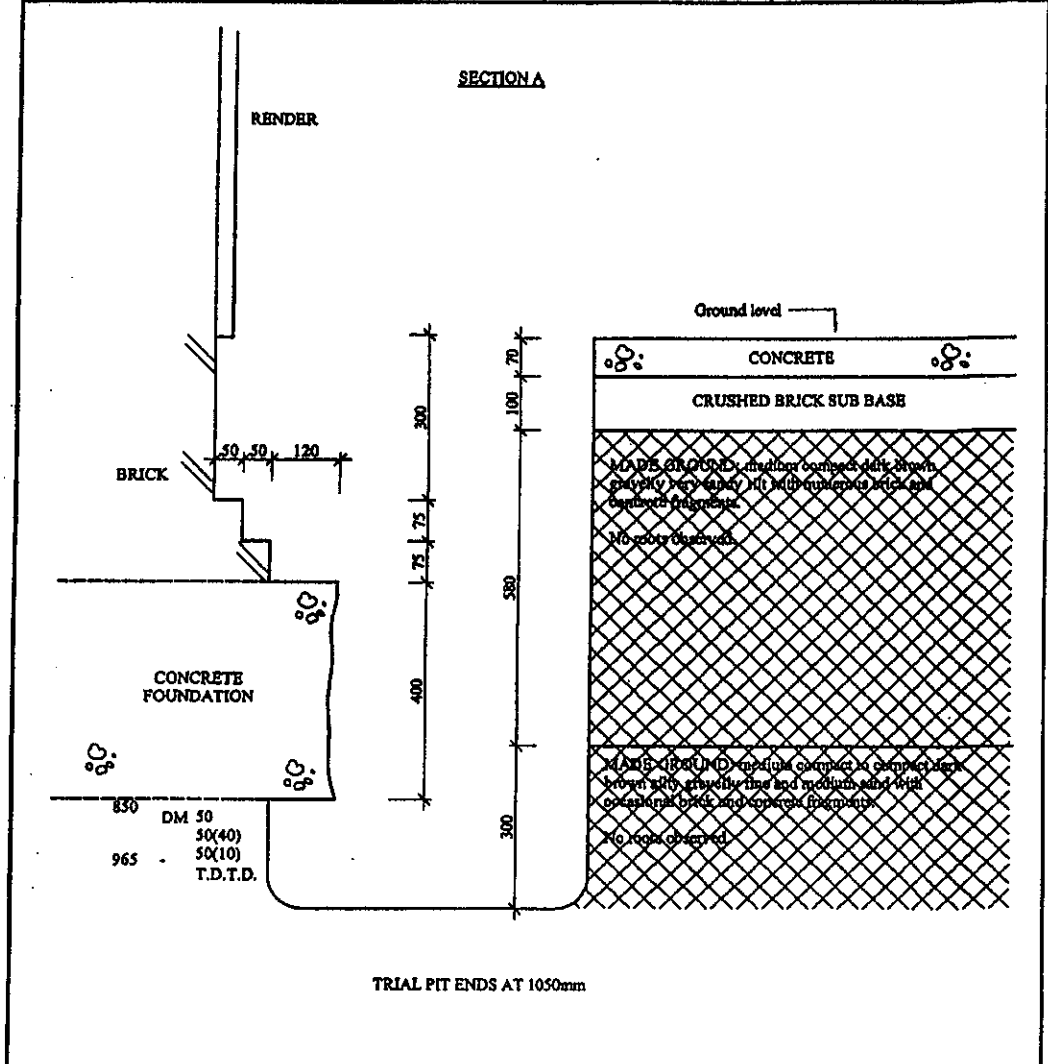
Client: Elliott Wood Partnership	Scale: N.T.S.	Sheet No: 1 of 1	Date: 8.5.07
Location: Phone Arms, Phone Street London SW3	Job No: 0788	Trial Pit No: 5	Weather: Internal



Remarks:	Key: D Small disturbed sample B Bulk disturbed sample U Undisturbed sample (U100) N Standard Penetration Test Blow Count	TDTD Too dense to drive J Jar sample V Pilcon Vane (kPa) M Mackintosh Probe W Water Sample
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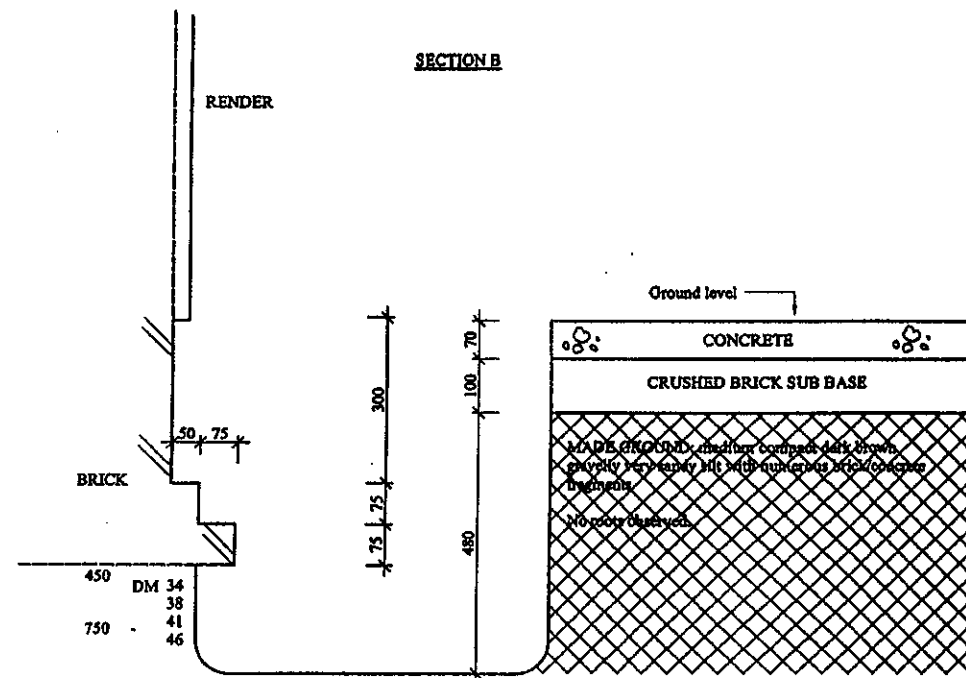
Client: Elliott Wood Partnership	Scale: N.T.S.	Sheet No: 1 of 1	Date: 8.5.07
Location: Phone Arms, Phone Street London SW3	Job No: 0788	Trial Pit No: 6	Weather: Overcast



Remarks:	Key: D Small disturbed sample B Bulk disturbed sample U Undisturbed sample (U100) N Standard Penetration Test Blow Count	TDTD Too dense to drive J Jar sample V Pilcon Vane (kPa) M Mackintosh Probe W Water Sample
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Client: Eliot Wood Partnership	Scale: N.T.S.	Sheet No: 1 of 1	Date: 8.5.07
Location: Phene Arms, Phene Street London SW3	Job No: 0706	Trial Pit No: 6	Weather: Overcast



Remarks:	Key: D Small disturbed sample B Bulk disturbed sample U Undisturbed sample (U100) N Standard Penetration Test Blow Count	TD/TD Too dense to drive J Jar sample V Pilcon Vane (kPa) M Mackintosh Probe W Water Sample
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## REPORT NOTES

### Equipment Used

Hand tools, Mechanical Concrete Breaker and Spade, Hand Augers, 100mm/150mm diameter Mechanical Flight Auger Rig, GEO205 Flight Auger Rig, Window Sampling Rig, and Large or Limited Access Shell & Auger Rig upon request and/or access permitting.

### On Site Tests

By Pilcon Shear-Vane Tester ( $\text{Kn/m}^2$ ) in clay soils, and/or Mackintosh Probe in granular soils or made ground and/or upon request Continuous Dynamic Probe Testing and Standard Penetration Testing.

### Note:

Details reported in trial-pits and boreholes relate to positions investigated only as instructed by the client or engineer on the date shown.

We are therefore unable to accept any responsibility for changes in soil conditions not investigated i.e. variations due to climate, season, vegetation and varying ground water levels.

Full terms and conditions are available upon request.

