halstead ASSOCIATES

7 GREVILLE PLACE

LONDON

NW6 5JP

STRUCTURAL FEASIBILITY REPORT

PREPARED FOR

MR N RAVEENDRAN

Ref: 16497/DO/mf

Date: March 2016

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1.00 BRIEF

1.01 The Structural Engineering design brief was to produce a feasibility study into the construction of a new basement extension to an existing three storey semi-detached house at 7 Greville Place, London NW6. The existing house has a full footprint basement and the proposed works will extend the basement to the front and side of the existing layout.

1.02 This Report is to be read in conjunction with Halstead Associates Drawing Nos. 16497/PL01, PL02 and PL03.

1.03 This report is also to be read in conjunction with Jomas Geotechnical Study Ground Investigation and Basement Impact Assessment, reference P939372J779, dated 11 February 2016.

2.00 SCREENING

2.01 Structural Stability Screening Assessment

1.	Does the proposed basement involve underpinning of the existing building?	Yes
2.	Does the proposed basement extend lower than the party fence structure to the right?	Yes
3.	Does the proposed basement extend lower than the building structure to the right?	Yes
4.	Does the proposed basement extend lower than the party fence structure to the left?	Yes
5.	Does the proposed basement extend lower than the building structure to the left?	Yes
6.	Does the proposed basement undermine the public highway?	Yes

3.00 SITE INVESTIGATIONS

3.01 A desk study and associated site based geotechnical investigation was carried out in January 2016 by Jomas Associates Ltd which incorporated two boreholes (4m and 9m deep) and a ground water monitoring point within one of the boreholes.

3.02 The boreholes revealed a narrow band of made ground of up to 0.5m in thickness at shallow level. Below this level firm to stiff brown slightly gravely clay was recorded in both boreholes to their full depth.

3.03 Ground water levels were found to be approximately 1.8m below ground level within borehole WS1 during a return visit to the property. However, it is expected that the water is that which has accumulated within the monitoring installation via run off from the clay surface, or alternatively has been trapped within pockets within the clay. The water is expected to be limited in volume and to be very slow to recharge.

4.00 BASEMENT FORMATION

4.01 Given the proximity to adjacent properties and to the back of the public footpath to the front of the property, it is expected that the walls of the new basement extension will be formed in an underpinning type sequence. This will involve carrying out local excavations of around 1m in width and down to the formation level of the new basement, followed by the fixing of reinforcement within the excavations and the casting of concrete to form an individual retaining wall section complete with base.

The sequencing of this work would be such that no more than 20% of a single wall elevation would be excavated at any given time. At the required excavation depth, suitable shoring would be required to provide a safe working area for site operatives. Typical sequencing for the excavation of a wall section is shown on Drawing No. 16497/PL03.

4.02 At the expected depth required for the excavation, it is likely that temporary shoring to the retaining wall sections will be required in the short term in order to prevent overturning and/or sliding, until the basement slab has been installed. The slab will then act to brace the perimeter walls against the existing building.

4.03 Whilst it has not been established at this stage, it is possible that underpinning of the existing walls to the house directly adjacent to the new basement will be required in order to achieve the new slab levels. Again, this will be carried out in a sequence whereby the extent of the excavation on a single wall line will be limited to 20% of the length of the wall at any one time.

4.00 BASEMENT FORMATION (Cont'd)

Ideally, this underpinning will be carried out with access gained from the existing basement, therefore limiting the depth of the excavation. However, it is likely that preference will be not to disturb the existing slab and tanking to the basement and as a result the works may need to be carried out externally. This would require a much deeper excavation but can be achieved on the basis that suitable shoring is provided in line with good practice.

4.04 Once the basement slab and perimeter walls are fully in place, along with intermediate supporting columns and walls, then the ground floor slab can be cast. This will take support off the existing wall of the building with the use of recessed reinforced concrete pockets into the masonry.

4.05 At 3-3.5m depth down to formation level, it is not expected that the recovery of the load consolidating clays would be significant. Notwithstanding, an allowance is to be made within the design of the basement slab for theoretical heave pressures.

4.06 The Contractor will provide a method statement prior to commencement of work on site in which full details of hours, site set up and method for the formation of reinforced and under reinforced underpinning sections will be detailed. Drawing No. 16497/PL03 shows as indicative sequence for the construction of RC retaining wall "underpin" sections.

5.00 WATERPROOFING

5.01 As this form of construction will not allow external damp proofing systems to be employed, it is envisaged that the Architect will opt for a proprietary drained cavity system to line the external face of the retaining wall and slab. Any inflow of ground water which may result would then be directed to an internal sump and then pumped as necessary into the surface water system.

6.00 PARTY WALLS

6.01 Given the proximity of adjacent buildings, Party Wall Agreements may be required with neighbouring home owners.

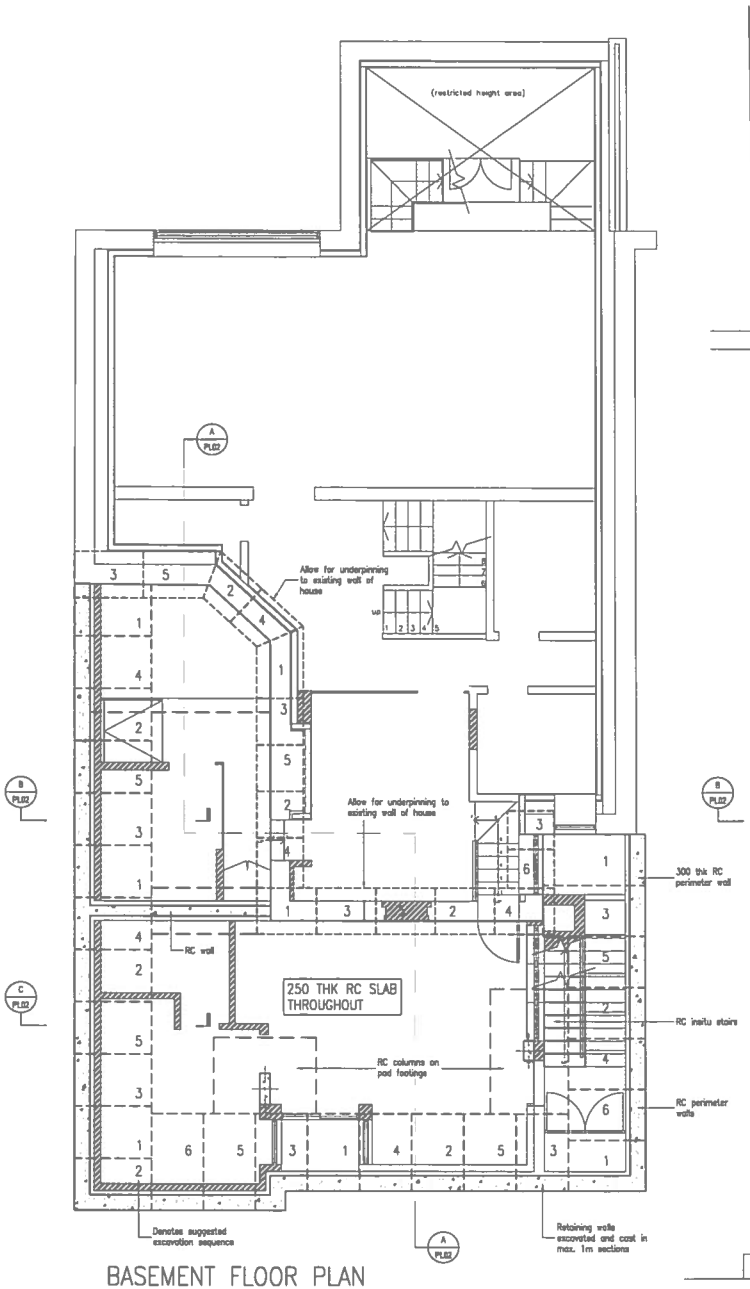
7.00 TEMPORARY WORKS

7.01 A competent Contractor, experienced in this form of residential basement construction must be used, and a Temporary Works Coordinator should be employed to ensure that the stability of the ground and adjoining buildings is maintained though out the construction process.

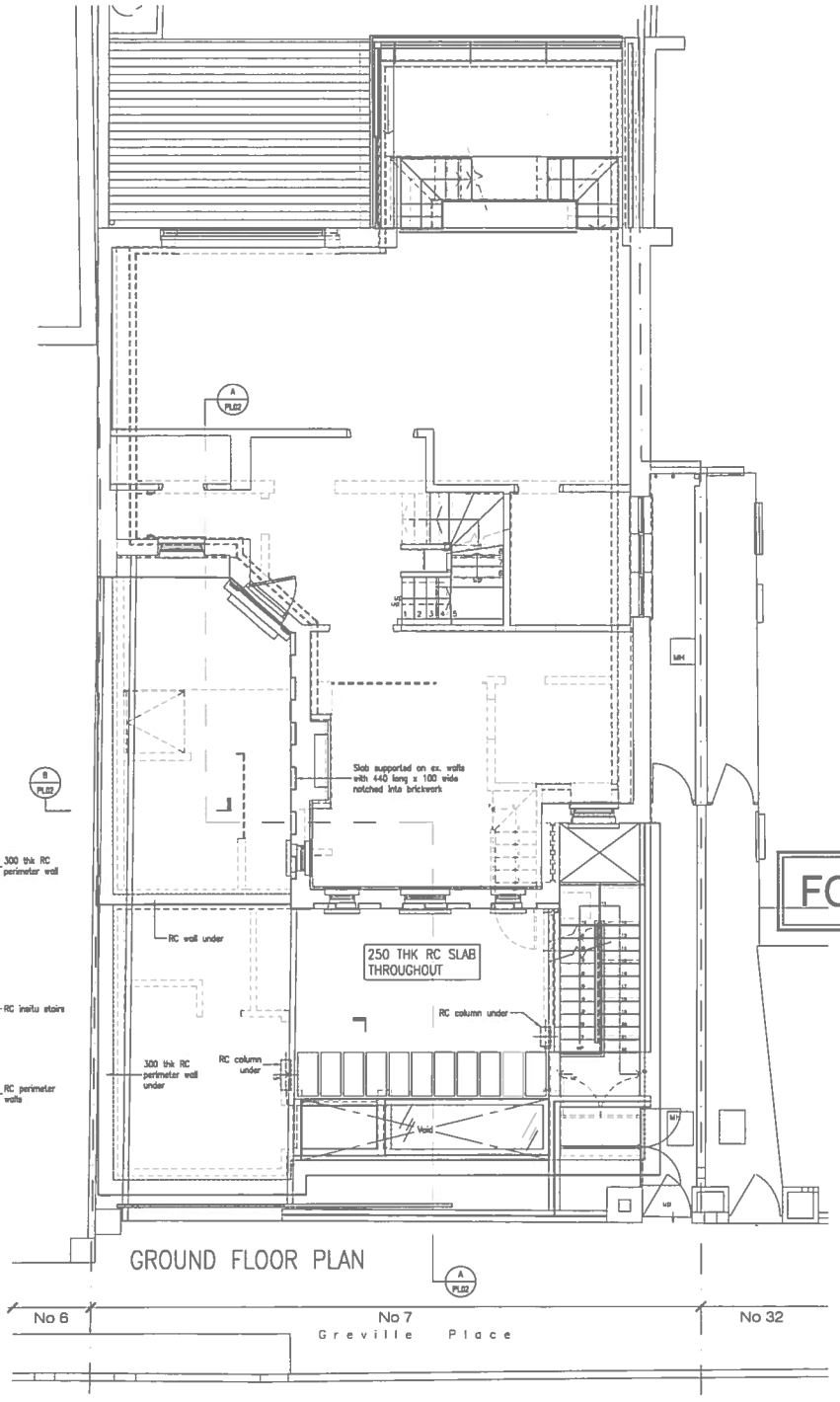
David Oates CEng BEng (Hons) MIStructE

APPENDIX A

Halstead Associates Drawing Nos. 16497/PL01, PL02 and PL03



BASEMENT FLOOR PLAN



GROUND FLOOR PLAN

FOR INFORMATION ONLY

Notes:
1. The drawing is to be read in conjunction with all relevant Consultant's drawings and specifications.

Rev.	Date	Revisions	By	Engineer

Project: 7 GREVILLE PLACE, NW6 5JP	Drawn by: JK
Title: GA BASEMENT AND GROUND FLOOR PLANS	Checked by: DO
Client: Mr N Ravsendran Architect: Schneider Designers	Date: 26th February 2016
	Scale: 1:50 @ A1
	Drawing No: 16497/PL01

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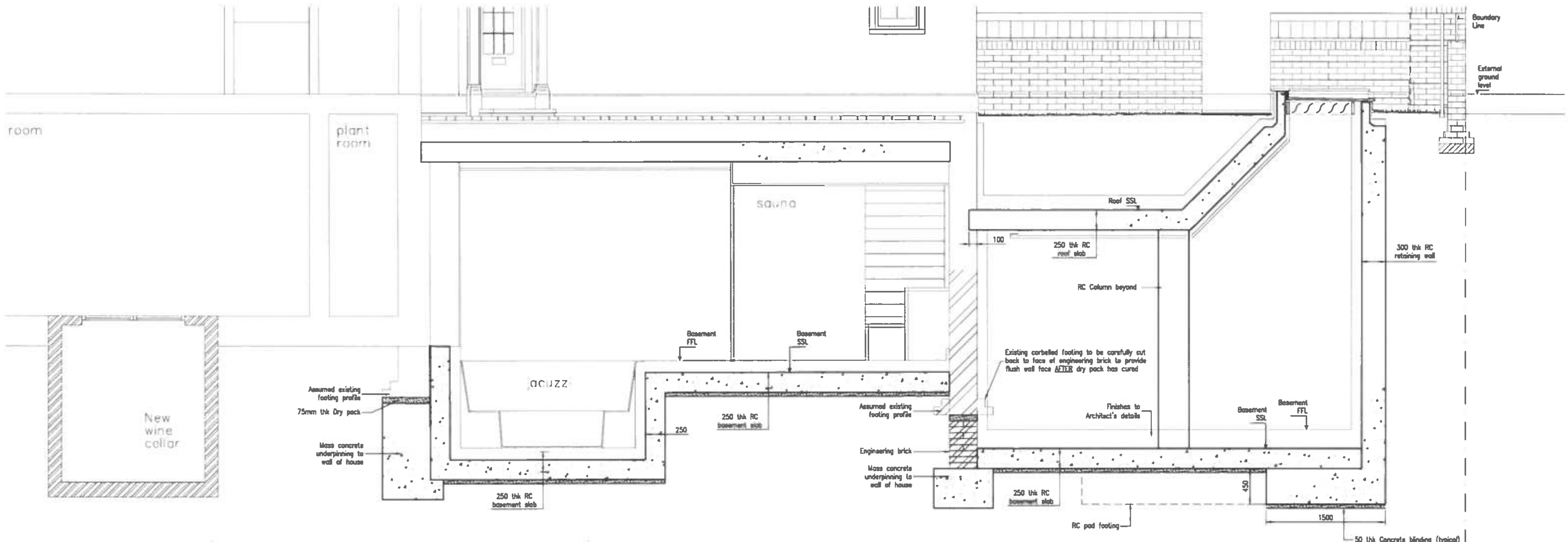
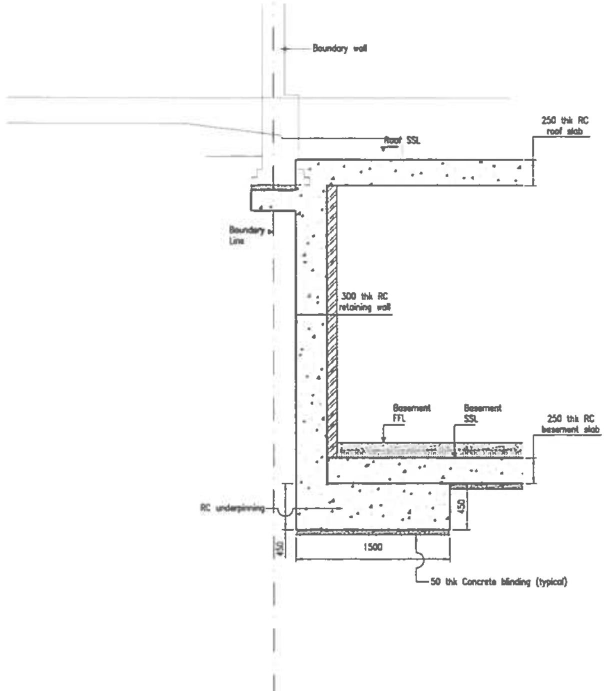


SECTION A - A
SCALE 1:25



SECTION B - B
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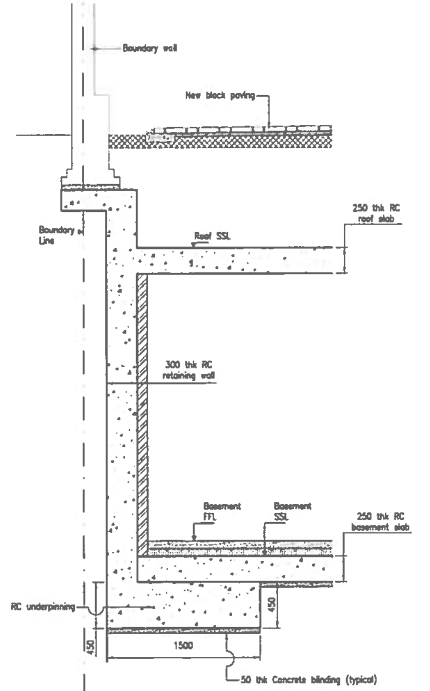


SECTION C - C
SCALE 1:25

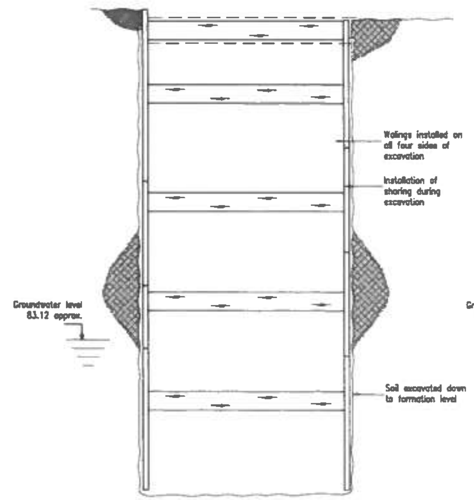
DPC, FINISHES AND WATERPROOFING TO ARCHITECT'S DETAILS

FOR INFORMATION ONLY

Notes:
1. The drawing is to be read in conjunction with all relevant Consultant's drawings and specifications.

Rev.	Date	Revisions	By	Engineer

Project: 7 GREVILLE PLACE, NW6 5JP	Drawn by: JK
Title: STRUCTURAL SECTIONS	Checked by: DO
Client: Mr N Raveendran Architect: Schneider Designers	Date: 26th February 2016
halstead ASSOCIATES CONSTRUCTION CONSULTANTS	Scale: AS NOTED @ A1
	Drawing No: 16497/PL02



STAGE 1
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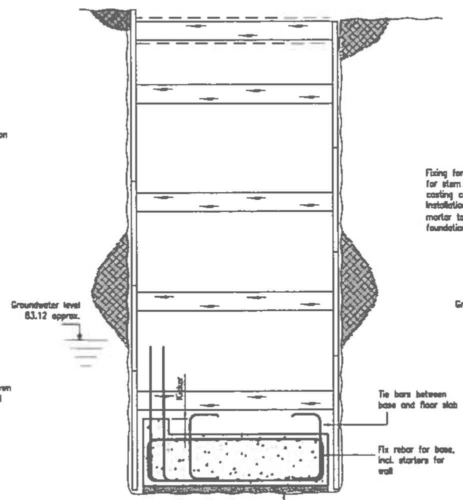

STAGE 2
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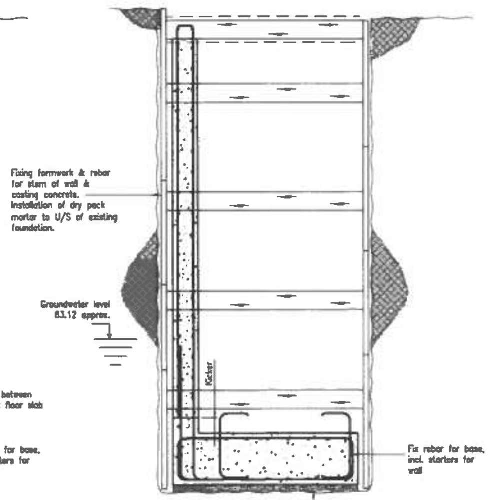

STAGE 3
SCALE 1:25

FOR INFORMATION ONLY

Rev.	Date	Revisions	By	Engineer

Notes:
1. The drawing is to be read in conjunction with all relevant Consultant's drawings and specifications.

Project:	7 GREVILLE PLACE, NW6 5JP
Title:	SUGGESTED CONSTRUCTION SEQUENCING FOR RETAINING WALL SECTIONS
Client:	Mr N Raveendran
Architect:	Schneider Designers
Drawn by:	JK
Checked by:	DO
Date:	26th February 2016
Scale:	AS NOTED @ A1
Drawing No:	16497/PL03

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