

58c King Henrys Road, London

Proposed Basement Impact Assessment (Structures)



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October 2014  
22271

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## 1.0 Introduction

The proposed development of 58c King Henry's Road, London (refer to Appendix 1 for plans and sections) comprises of the excavation of a single storey height basement beneath the existing building footprint.

The purpose of this report is to assess the potential impact of this basement proposal and establish the effects on neighbouring properties, a number of which have recently had basement developments.

This report expands on the previous report submitted by David Dexter Associates which was approved under planning permission reference 2012/6456/P. Specifically this report covers both the previously approved basement and the current proposal which extends the basement area at the front of the property.

## 2.0 Basement Impact Screening

### 2.1 The Site

The site is located along King Henry's Road which runs perpendicular to Primrose Hill Road. The existing property is part of a 1970's development of 3-storey terrace houses that back onto an existing Network Rail retaining wall. The terrace as built in the 1970's comprised 11 houses with two types: 56-56e were originally 4 bed houses with a slightly bigger proportion and 58-58d were originally constructed as 3 bedroom houses occupying a slightly smaller site area. Over their history the houses have been adapted by their owners with a variety of alterations to their accommodation, elevations, extensions and basements.

No. 58c is part of the smaller group of 3 bed houses within the terrace (5 houses numbered 58-58d).

The three following properties to the east (Nos: 58, 58a and 56e) have all constructed basement additions.

No. 58e which lies at the end of the original 1970s terrace and is a brand new end of terrace house constructed as an independent structure comprising basement level and 3-stories of super structure, the basement at this site sets precedent for this application.

### 2.2 Basement Impact Screening Requirements

Based on the London Borough of Camden, Guidance documents for subterranean development (Issue 01, Nov2010), a screening process and review has been undertaken utilising the Appendix E flowchart guidelines. The results are documented below;

#### Subterranean (groundwater) flowchart questions.

Q1a: Is the site located directly above an aquifer?

A. No.

Q1b: Will the proposed basement extend beneath the water table surface?

A. *No. The water table is more than 10m below the lowest point of the proposed foundation. The compacted material beneath the proposed development is a free-draining granular material.*

Q2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?  
A. No.

Q3: Is the site within the catchment of the pond chains on Hampstead Heath?  
A. No.

Q4: Will the proposed basement development result in a change in the proportion of hard landscaped areas?  
A. *No. The proposed basement is directly beneath an existing building and extends beyond, but beneath the existing hard landscaped footprint area.*

Q5: As part of the site drainage, will there be more surface run-off discharged to the ground?  
A. *No. The proposed basement is wholly within the existing footprint of the building and hard landscaping. The proposed rear extension will replace an existing area of hard landscaping (concrete slab). Therefore by inspection, there will be no effect/change to the existing conditions of surface water drainage/infiltration into ground below.*

Q6: Is the lowest point of the proposed excavation close to or lower than, the mean water table of any local pond or spring line?  
A. No.

## 2.2.2 Summary Statement of Subterranean (groundwater) flow

Based on the above flowchart answers, there is no change to existing conditions on the site with regards to subterranean groundwater flow.

## 2.3 Surface flow and flooding screening flowchart questions

Following the flowchart for surface flow and flooding, the questions have been evaluated with the resulting answers below;

Q1: Is the site within the catchment area of the catchment ponds on Hampstead Heath?  
A. No.

Q2: As part of the proposed site drainage, will surface water flows be affected from the existing route?  
A. *Yes. The existing sewer built in front of the 1970's row of terraced houses will need to be altered as it currently runs through the proposed basement projection of the front of the house. This alteration will mean that the sewer run will serve each individual property and connect directly to the existing sewer in King Henry's Road. We have applied to Thames Water for a new sewer connection and diversion.*

Q3: Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?  
A. *No. The proposed basement is wholly within the existing footprint of the property. The proposed rear extension will replace an existing area of hard landscaping (concrete slab). Similarly, the basement projection at the front of the house will replace an existing area of hard landscaping. Therefore by inspection, there will be no effect/change to the existing conditions of surface water drainage/infiltration into ground below.*

Q4: Will the proposed basement result in changes in profile of the inflows of surface water being received by the adjacent properties or downstream watercourses?  
A. *No. There will be no significant change to the existing inflow of surface water, consequently there will be no change in downstream effects as there is no discernible water table.*

Q5: Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?

A. *No. All materials to be used are inert in their nature and will not affect surface water quality.*

### 2.3.1 Summary Statement of Surface flow and flooding screening flowchart questions

Based on the above flowchart answers, there is no adverse effect or change to the existing surface flow or flooding conditions.

## 2.4 Slope Stability screening flowchart

Following the flowchart for slope stability, the questions have been evaluated and responses are as follows;

Q1: Does the existing site include slopes, natural or manmade greater than 7°?

A. *No. The slope of the road and including the private driveway before the basement are less than 7°.*

Q2: Will the proposed re-profiling of the landscaping at the site change slopes at the property boundary to more than 7°?

A. *No. There is no re-profiling of the landscape. Basement excavation is within the existing footprint of the building and the extension at the rear of the property replaces the current hard-landscaping.*

Q3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?

A. *Yes, there is a 10m high Masonry retaining wall behind the immediate property owned by Network Rail, as described in Section 3.3. Although the physical slope arriving at and onto the retaining wall does not exceed 7°.*

Q4: Is the site within a wider hillside setting in which the general slope is greater than 7°?

A. *Yes. The site is located at the top of a railway cutting and directly adjacent to a Network Rail owned masonry retaining wall.*

Q5: Is the London Clay the shallowest strata at the site?

A. *No. There is approximately 10m of well drained fill material including clinker and brick fragments before the London Clay, refer to the soil investigation borehole logs contained within the Appendix for further information.*

Q6: Will any trees be felled as part of the proposed development works or within a zone of tree protection?

A. *No. There are no trees within the property boundary.*

Q7: Is there a seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?

A. *No. There is no evidence of the soil beneath the property exhibiting any movement. Refer to the soil investigation boreholes (within the appendices) if further information on the soil make-up is required.*

Q8: Is the site within 100m of a watercourse or a potential spring?

A. *No. There is no known water course or spring within 100m of the site.*



Q9: Is the site within an area of previously worked ground?

A. *Yes, the site has been remodelled approximately 90 years ago by Network Rail for the Railway cutting.*

Q10: Is the site within an aquifer?

A. *No. There is no aquifer on/below the site.*

Q11: Is the site within 50m of the Hampstead Heath Ponds?

A. *No. The site is not within 50m of the Hampstead Heath Ponds.*

Q12: Is the site within 5m of a highway or pedestrian right of way?

A. *Yes. The wall of the proposed front basement will be designed accordingly as a permanent retaining wall to the pedestrian footway. Loading will be used as per the recommendations from the Camden Highways Authority. Approval in Principle (AIP) will be submitted to ensure the design and loads used are suitable for the design.*

Q13: Will the proposed basement significantly increase the differential depth of the foundations relative to the neighbouring properties?

A. *No. it is worth noting that a number of houses along the terrace have basement extensions, including a recently constructed basement within the same terrace group.*

Q14: Is the site over or within an exclusion zone of any tunnels?

A. *No. There are no known exclusion zones that affect this property.*

#### **2.4.1 Summary Statement of Slope stability screening flowchart**

Based on the above review of the slope stability flowchart questions, there is no adverse effect or changes to the existing ground/slope conditions.

#### **2.5 Overall summary of the Screening flowcharts**

Within the slope stability flowchart, several questions yielded answers that require further assessment, these will be addressed within the next section, Stage 2 – Scoping.

### **3.0 Stage 2 – Scoping**

The screening stage (section 2) identified the following issues that need to be assessed;

#### **3.1 Subterranean (groundwater) flowchart**

No items were identified that require further assessment.

#### **3.2 Surface flow and flooding screening flowchart**

No items were identified that require further assessment.

#### **3.3 Slope Stability screening flowchart**

Q3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?

A. *Yes, there is a 10m high Masonry retaining wall behind the immediate property owned by Network Rail. Although the physical slope arriving at and onto the retaining wall does not exceed 7°.*

*The proposed development poses no risk to the existing stability of the slope and/or adjacent Network Rail retaining wall, this is due to the following reasons;*

- *The existing loading pattern on the existing retaining wall is not being changed.*
- *No additional load is being applied to the ground/soil strata from the proposed development.*
- *The existing house (including all of the houses along that particular block) are founded on piles which extend into the London Clay strata below.*

Q4: Is the site within a wider hillside setting in which the general slope is greater than 7°?

A. *Yes. The site is located at the top of a railway cutting and directly adjacent to a Network Rail owned masonry retaining wall.*

*The proposed basement development is independently stable of the existing Network Rail retaining wall and no additional load will be applied to it.*

*We have contacted Network Rail and have submitted a "Form for Low Risk Non-Contentious Design Submission" for their review.*

Q12: Is the site within 5m of a highway or pedestrian right of way?

A. *Yes. The existing house is located approximately 4.65m from the public highway (King Henry's Road) at the front of the property. The proposed basement at the front of the property will extend up to the boundary of the pedestrian footway. Therefore there is no impact on the public right of way.*

## 4.0 Site Context

### 4.1 Existing Sub-Structure and Foundations

The existing set of terraced houses are supported by a series of end bearing piled foundations, which transfer the loading from the structure down below the level of the existing track bed of the adjacent Network Rail main line, approximately 10m below the existing King Henry's Road (KHR) ground level.

The existing Network Rail retaining wall which effectively supports the higher level KHR is formed from engineering brickwork and comprises of an additional counterfort wall which runs beneath the terraced buildings. No additional load from the new proposed basement will be allowed to transfer onto the existing retaining wall or counterfort wall. The counterfort wall which was encountered during sub-structure works at 58e KHR was found to be formed from clinker concrete. The remaining material between the counterfort walls was found to be relatively free-draining material, which would have been used to prevent a build-up of water pressure behind the retaining wall.

The existing ground floor level is suspended and supported on a series of reinforced concrete beams which bear onto the adjacent piles.

### 4.2 The Proposed Development

Details of the proposed basement development can be seen within Appendix 1, plans and sections have been drawn by Francis Architects.

The development of the basement in terms of ground works would comprise the following;

- Excavation beneath the existing ground floor level.

- The reinforced concrete walls would also act as a retaining wall to the driveway of the property. The retaining wall will comprise of piling and shear key which effective zones do not affect the Network Rail structure.
- No additional loading would be transferred onto the existing Network Rail retaining wall.

### 4.3 Topography

The site is located on an ancient slope which was part of Primrose Hill. The design of the existing Network Rail counterfort wall takes this slope into account and the existing property sub-structure also take into account the existing topography and sub-strata.

The ground level outside of 58c KHR is approximately at +44.660m OD, with the approximate top of existing Network Retaining wall level located at 42.364m. Although these levels will need to be re-checked on site.

The proposed basement, due to its proposed location beneath an existing building will therefore not affect the surrounding topography.

### 4.4 Drainage

This proposed development will not significantly increase the existing drainage output from this property. As such, there is adequate capacity within the existing combined public sewer system running along KHR.

As the development is subterranean and largely within the existing footprint of the building or existing hard landscaping, there will be no increase in hard-standing and the catchment area for rainfall is unchanged and unaffected.

The proposed basement will therefore not have an adverse effect on the drainage of the land (in terms of rainfall) or on the capacity of the existing public sewer.

The existing sewer built in front of the 1970's row of terraced houses will need to be altered as it currently runs through the proposed basement projection of the front of the house. This alteration will mean that the sewer run will serve each individual property and connect directly to the existing sewer in King Henry's Road. We have applied to Thames Water for a new sewer connection and diversion.

### 4.5 Flooding

Based on appropriate checks with the Environment Agency, there is no perceived risk of flooding with the Primrose Hill area.

During excavation of the newly completed residential property, 58e KHR, no ground water was registered during excavation. The free-draining material behind the counterfort wall and effectively beneath the 58 KHR terraced row effectively prevents a build-up of water. As such localised flooding is also noted as not an issue.

### 4.6 Geology

The geology beneath the property is as follows, based on a 20m deep borehole undertaken at the 58e new build property.

- 0-4.50m Made ground comprising a mixture of general fill material with fragments of brick and concrete.
- 4.30-4.50m A weak layer of concrete was noted.
- 4.50-10.0m (+35.0m OD) London Clay formation. The material consisted of stiff to very stiff closely fissured, laminated (0°) silty clay with occasional gypsum crystals and trace pyrite nodules.



- Below 13m a blocky structure was evident with the fissures generally tight and clean with the material being noted as very stiff to hard in consistency.

Ground Investigation undertaken by Core Geotechnics, report no. 11102 dated 22/08/2011.

## 5.0 Conclusions

### 5.1 Summary of proposals

Based on the existing site conditions and surrounding properties basement developments of this size do not adversely impact on the surrounding environment or properties.

The following items should be noted;

- No additional loading will be placed onto the existing Network Rail retaining wall.

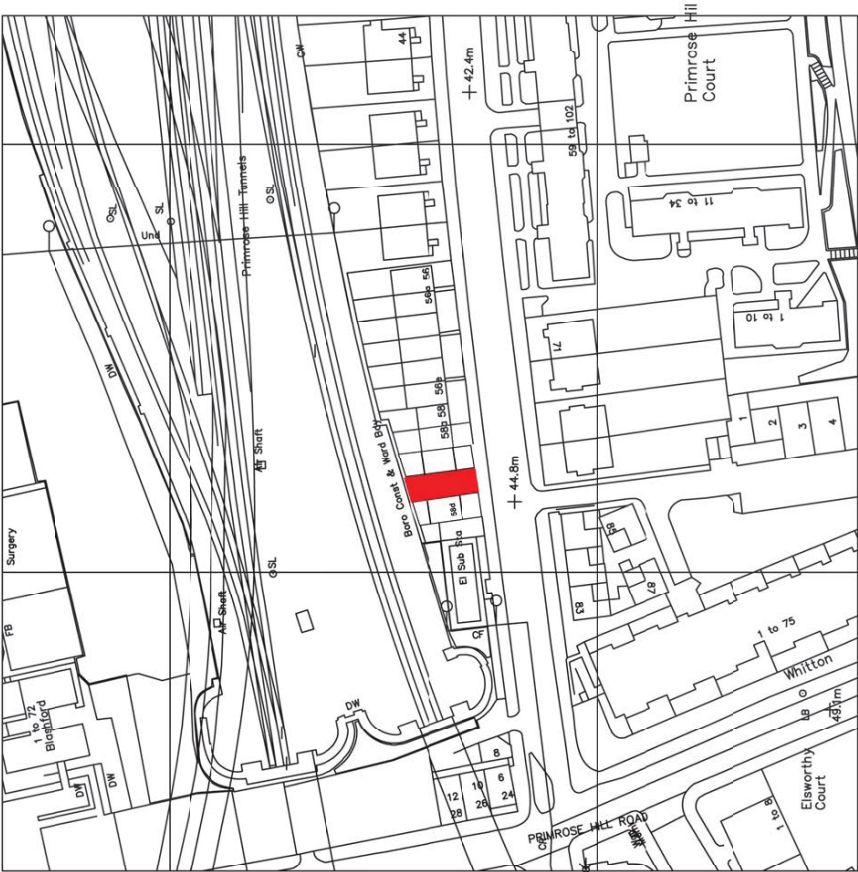
The key items assessed within this report are summarised as follows;

- Topography. No adverse effect on the basement or the basement on the topography of the site.
- Drainage. No adverse effect on the existing drainage in addition to no increase in hard-standing within the catchment area.
- Flooding. No perceived risk of either localised flooding or within the surrounding area.
- Geology. The proposed structural solution will need to take into account the existing Network Rail retaining wall. A precedent for this has been set in the recently completed development of the 58e property.

Overall the potential impact of the proposed basement on slope stability is considered negligible.

## Appendix 1

### Francis Architects – Plans and sections of proposed development

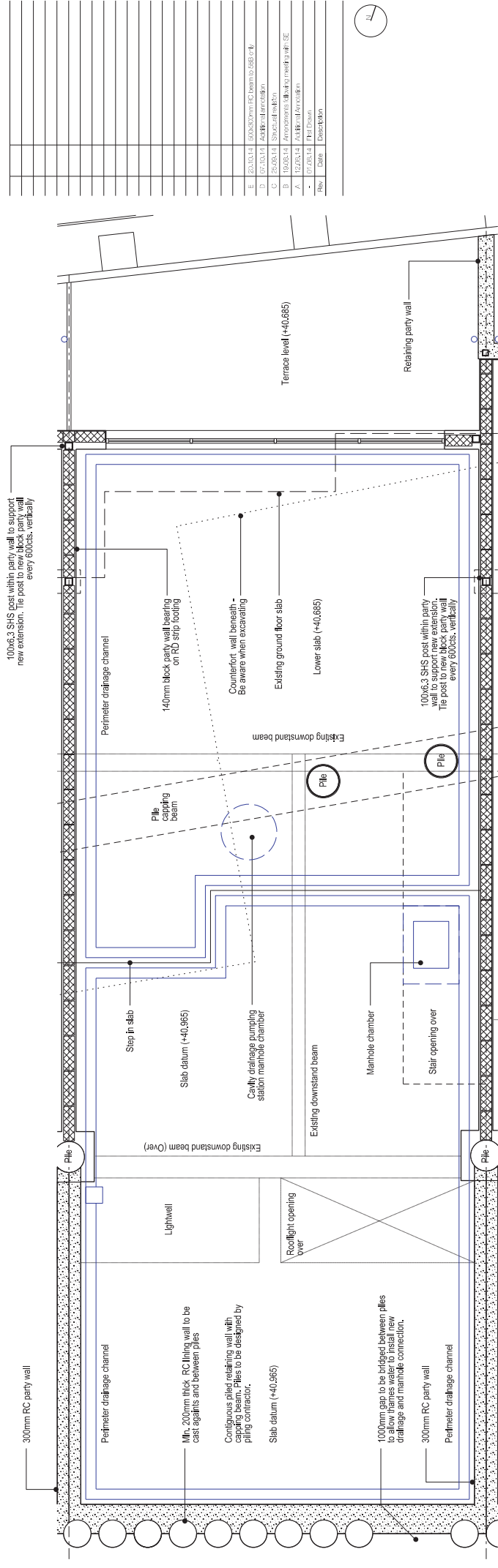


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5	20/05/14	Rev 5 Drawn
6	20/05/14	Rev 6 Drawn
7	20/05/14	Rev 7 Drawn
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100	20/05/14	Rev 100 Drawn



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Project	58B/C/D KING HENRYS ROAD
Client	Anth Green
Date	30.05.14
Scale	1:1000 at A3
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Drawn	MC
Checked	JH
Approved	XX
Status	EXISTING
Project	11207   A   P   001   0

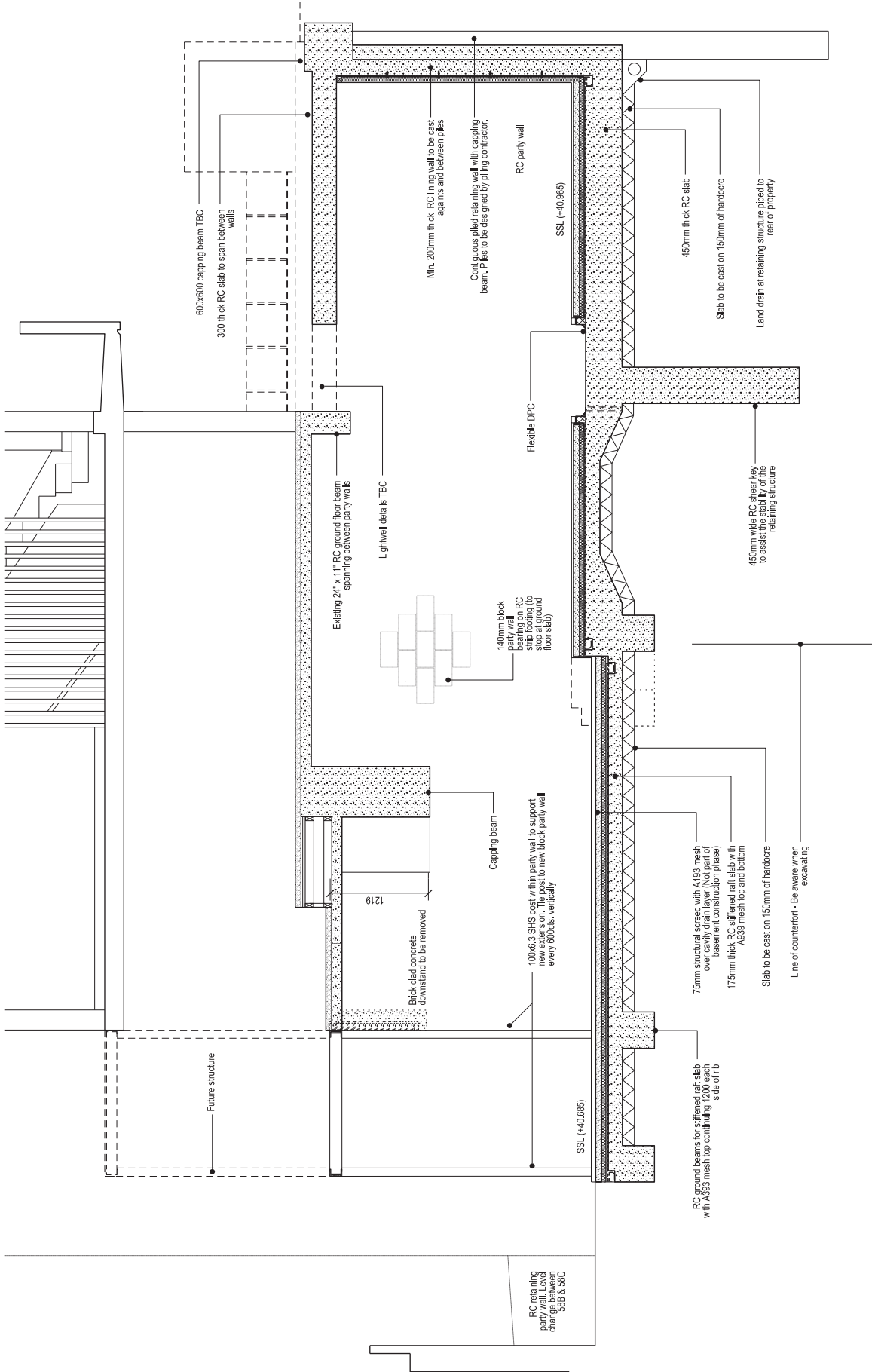


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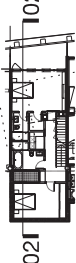
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Client	Adrian Goldthorpe			
Date	01.08.14	Scale	1:50 at A3	
Title	BASEMENT PLAN (58C)			
Drawn	MC	Checked	JH	Approved XX
Status	PROPOSED			
Project	11205	Drawings View	Drawing No.	Rev.
			11205	A P 501 E

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SSL : Structural Slab Level



Rev	Date	Description
C	05.03.14	Initial design details
B	26.06.14	Design of piles
A	12.09.14	Design of retaining wall
S	10.07.14	Final Design



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Project	58C KING HENRY'S ROAD
Client	Adrian Goldthorpe
Date	10.07.14 Scale 1:50 at A3
Title	SECTION 01 (68C)
Drawn	MC Checked JH Approved XX
Status	AS PROPOSED
Project	Quotations View Drawing No. Rev.

11205 | A | S | I | 520 | C



## Appendix 2

### Borehole records from new 58e development



## **CORE GEOTECHNICS LIMITED**

Geotechnical and Geoenvironmental Engineers

# **REPORT**

<b>SUBJECT</b>	<b>GROUND INVESTIGATION</b>
<b>SITE</b>	<b>58E KING HENRY'S ROAD, LONDON</b>
<b>PROJECT</b>	<b>PROPOSED RESIDENTIAL DEVELOPMENT</b>
<b>CLIENT</b>	<b>ROB STEUL</b>
<b>ENGINEER</b>	<b>DAVID DEXTER ASSOCIATES</b>
<b>REPORT No.</b>	<b>11102</b>
<b>DATE</b>	<b>23/06/2011</b>

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4. GROUND INVESTIGATION	2
5. GEOTECHNICAL APPRAISAL	3
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