BASEMENT IMPACT ASSESSMENT

FOR

PROPOSED BASEMENT

AT

3 GREENAWAY GARDENS
LONDON
NW3 7DJ

Project No. P3142

ISSUE 2.0 – ISSUED FOR PLANNING
following BIA Audit by Campbell Reith

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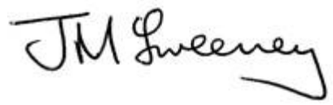
DOCUMENT CONTROL SHEET

	3 Greenaway Gardens London NW3 7DJ	**Project No.**	**P3142**
Prepared By:	John McSweeney BSc(Hons) CEng MICE MIStructE Director		
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1.0	Issued for Planning	03 June 2015	
2.0	Issued for Planning following BIA Audit by Campbell Reith Amended Clauses: Non-Technical Summary added 3.04.5 and 3.04.6 added 4.04.9, 4.04.10 and 4.04.11 added 5.04.4 added 7.12 added	07 December 2015	

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NON-TECHNICAL SUMMARY

Michael Alexander Consulting Engineers has been appointed to prepare a Basement Impact Assessment (BIA) to support the Planning Application for the extensions and modification to the existing house at 3 Greenaway Gardens, London NW3 7DJ.

This document addresses the specific issues relating to the basement construction, as required by Camden Planning Guidance CPG4.

The BIA shall be read in conjunction with the following documents:

- Charlton Brown Architects drawings.
- Desk Study and Ground Investigation, which was carried out by Geotechnical and Environmental Associates (GEA) and provided in their Report No. J11069 dated June 2011.
- GEA Ground Movement Assessment Report (Ref J15158). dated 03 August 2015
- Design Studio^2 document “Movement and Vibration Monitoring” dated 27 October 2015.
- Design Studio^2 document “Preliminary Construction Method Statement” Rev. P2 dated 25 November 2015.

A BIA was prepared and approved by Camden for a basement under the property in 2011and the proposed basement is not significantly different. This BIA is prepared with the benefit of the 2011 findings.

The proposed basement will be approximately 7.6 metres at the deepest section. The ground conditions at the level of the basement are Claygate Member.

A number of considerations have been highlighted in the Screening Stages of the assessment and these have been addressed through the investigations and detailed studies to ensure that any potential impacts of the proposed basement construction are mitigated.

The BIA and supporting documentation demonstrates that the existing surface water drainage will not be significantly affected by the proposals.

The BIA and supporting documentation demonstrates that hydrology in the vicinity will not be affected by the proposed basement.

The BIA and supporting documentation demonstrates that hydrogeology in the vicinity of the basement will not be affected by the proposals.

The BIA and supporting documentation demonstrates that the predicted ground movement around the proposed basement will be within acceptable limits.

1.00 INTRODUCTION

1.01 Michael Alexander Consulting Engineers has been appointed to prepare a Basement Impact Assessment Report to support the Planning Application for the extensions and modification to the existing house at 3 Greenaway Gardens, London NW3 7DJ. The Architect for the project is Charlton Brown.

1.02 This document has been prepared by John McSweeney BSc(Hons) CEng MICE MIStructE who is a chartered Civil and Structural Engineer.

1.03 3 Greenaway Gardens is a large detached residential property, constructed circa 1925. The property is in the Redington/Frognal conservation area, but is not formally Listed. The house is of traditional construction and provides accommodation at ground and first floors with bedroom accommodation at second floor level under the pitched roof; there is a small basement under part of the house. Internal load bearing walls are a combination of brickwork and timber stud and the floors and roof are of timber construction.

1.04 The proposed remodelling of the property and construction of the basement is shown on the Charlton Brown drawings, which are included with the Planning Application. The proposals include the construction of a new basement. The basement is to be constructed under the entire footprint of the house (incorporating the existing basement) and extends beyond the front and rear walls of the property.

1.05 This document addresses the specific issues relating to the basement construction, as required by Camden Planning Guidance CPG4 (2013 Revision).

Aerial Photograph 1 – Front of Existing Property

Aerial Photograph 2 – Rear of Existing Property

2.00 BACKGROUND AND NEIGHBOURING PROPERTIES

2.01 A measured survey of the existing property has been carried by On-Centre Surveys and details are provided on the Charlton Brown drawings, which are included with the Planning Application. These drawings also show the proximity of the neighbouring properties of No.2 Greenaway Gardens to the south and No.4 Greenway Gardens to the north.

2.02 Planning Permission was granted by Camden in 2011 (Application No. 2011/3798/P) for alterations to No. 3 Greenaway Gardens, including the construction of basement under the footprint of the existing house. A Basement Impact Assessment was submitted and approved by Camden as part of the Planning Application. The BIA included the findings of the site specific Desk Study and Ground Investigation, which was carried out by Geotechnical and Environmental Associates (GEA) and provided in their Report No. J11069 dated June 2011.

2.03 Planning Permission (Application No. 2012/5148/P) was also granted by Camden in 2012 for minor alterations to the basement layout.

2.04 The adjoining properties are substantial detached houses of similar age and construction. No.2 Greenaway Gardens does not appear to have a basement, other than for a small inspection pit under the garage.

2.05 No.4 Greenaway Gardens does not have a basement, but has a partial void under the ground floor of the main house; however a Planning Application has been submitted to Camden (Application No. 2015/2008/P) for alterations to the property and for the construction of a basement. The site specific ground investigation for No.4 was also carried out by Geotechnical and Environmental Associates.

2.06 As a BIA has already been prepared for a substantial basement under the property and the proposed basement is not significantly different, this BIA is prepared on the basis of the 2011 GEA Report and the 2011 BIA (which were submitted with the 2011 Planning Application). The questions raised in the Screening sections can therefore be answered with the benefit of the 2011 findings.

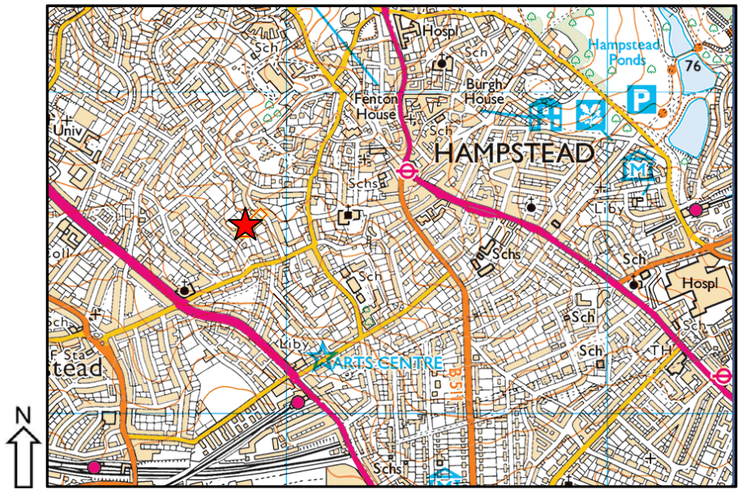


Figure (a)
Topography Map
(Extract from Ordnance Survey 1:25 000 mapping)

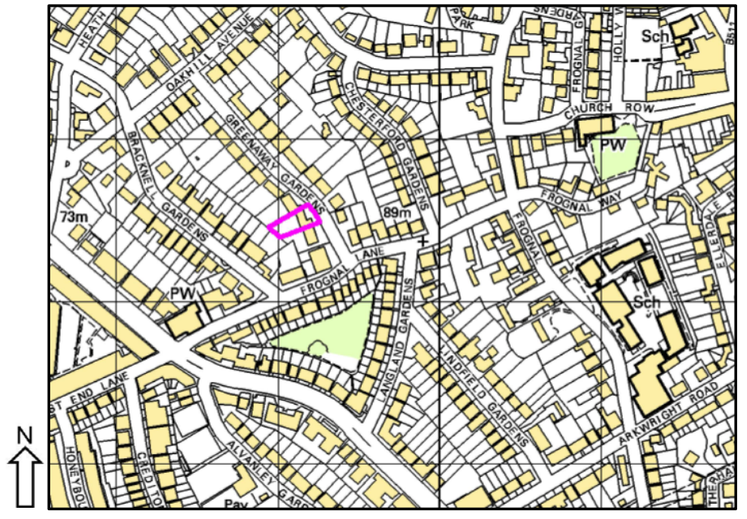


Figure (b)
2011 Map

3.00 SUBTERRANEAN (GROUND WATER) FLOW

3.01 Stage 1: Screening Assessment

3.01.1 GW Q1a *Is the site located directly above an aquifer?*

Yes. With reference to the Camden Geological, Hydrogeological and Hydrological Study the site is located above a Secondary "A" Aquifer, as designated by the Environment Agency. Refer to Figure (c).

3.01.2 GW Q1b *Will the proposed basement extend beneath the water table surface?*

Yes. The proposed basement excavation level is at a level of approximately 83.50mOD. The GEA investigation indicates that the local groundwater level was found to be approximately 2.5metres below existing ground level (91.0mOD) (i.e. ground water at a level 87.0mOD). The investigation was carried out in the dry Spring of 2011, and therefore to reflect possible seasonal variations, it would be reasonable to assume a maximum ground water level of 0.5metres above those recorded. With an allowance of a further 1m rise in ground water level, due to climate change, a conservative water table level 1m below ground level will be assumed in the design.

3.01.3 GW Q2 *Is the site within 100m of a watercourse, well (used or disused) or potential spring line?*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study the nearest subsurface water courses run approximately along Redington Gardens to the north and Langland Gardens to the south, both of which are greater than 100metres from site. The nearest surface water is the Hampstead Heath ponds, which are greater than 100metres from the site. The local geology does not suggest the presence of a spring line. From the British Geological Society 'Geoindex' the nearest water well is adjacent to Hampstead High Street approximately 500m from the site. Refer to Figures (d) and (e),

3.01.4 GW Q3 *Is the site within the catchment of the pond chains of Hampstead Heath?*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study the site is not within the catchment of the pond chains on Hampstead, nor the Golder's Hill Chain. Refer to Figure (e),

3.01.5 GW Q4 *Will the proposed basement development result in a change in the proportion of hard surface/paved areas?*

Yes. There will be a small increase in the area of paved areas.

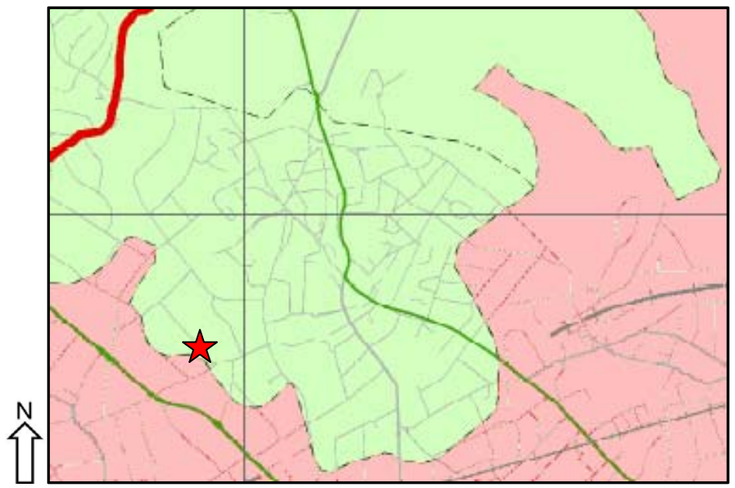


Figure (c)
Aquifer Designation Map
(Extract from Fig 8 of Camden Geological, Hydrogeological and Hydrological Study)

Figure (d)
Watercourses
(Extract from Fig 11 of Camden Geological, Hydrogeological and Hydrological Study -Lost Rivers of London by Barton)

3.01.6 GW Q5 *As part of the site drainage, will more surface water (e.g. rainfall and-run-off) than at present be discharged to the ground (e.g. via soakaways and /or SUDS)?*

No. Soakaways are not considered appropriate to the site, due to the sub-soil conditions, and therefore no additional surface water will be discharged to ground as part of the site drainage.

3.01.7 GW Q6 *Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?*

No. There are no local ponds or other surface water features in close vicinity to the site.

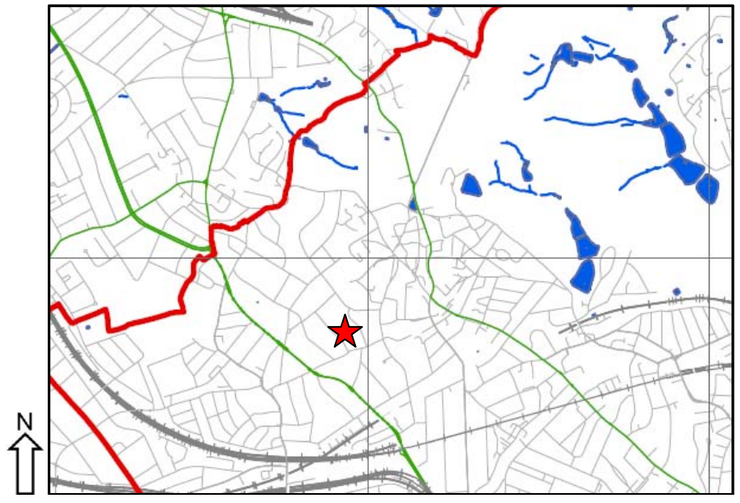


Figure (e)
Surface Water Features
(Extract from Fig 12 of Camden Geological, Hydrogeological and Hydrological Study)

3.02 Stage 2: Scoping

3.02.1 The aspects to be carried forward to the Scoping Stage in respect of ground water flow are as follows:

GW Q1a The site is located above a Secondary “A” Aquifer.

GW Q1b The proposed basement may extend beneath the water table surface.

GW Q4 There is a small increase in the paved areas.

3.02.2 In response to these issues raised in the scoping stage, a conceptual ground model was developed by GEA and is included in their report ‘Desk Study and Ground Investigation Report’ dated June 2011 (ref. J11069).

3.03 Stage 3: Site Investigation and Study

3.03.1 As part of the ground investigation, the level of water strikes were recorded, where they were encountered in window sampler boreholes and in the cable percussion boreholes. Two standpipes were installed to depths of 5.0 and 6.0m, and a return visit was made to check stabilised levels.

3.04 Stage 4: Impact Assessment

3.04.1 The hydrogeological impact was assessed by GEA by a chartered geologist and their conclusions are included in section 7.6 of their report.

3.04.2 The groundwater which was encountered in the Claygate Member was discrete pockets of water, rather than as a continuous layer. Whereas the Claygate is classified as a Secondary Aquifer, the investigation indicated that the ground beneath the site is a predominantly silty clay and not capable of behaving as a Secondary Aquifer.

3.04.3 The GEA report concludes that basement will only act as a partial barrier to ground water flows and that there will not be any significant increase in the groundwater level on the upstream side and hence there will be no influence on the local hydrogeology.

3.04.4 The small increase in paved areas will be counteracted by the reconfigured external hard landscaping areas being constructed using a SUDS permeable paving system. Where the proposed basement extends outside the footprint of the ground floor it will be partially capped with soft landscaping.

3.04.5 The methodology for controlling ground water seepage into open excavations will be with the use of secant piles around the perimeter of the basement excavation.

3.04.6 There will be no residual impacts relating to Subterranean (Ground Water) Flow.

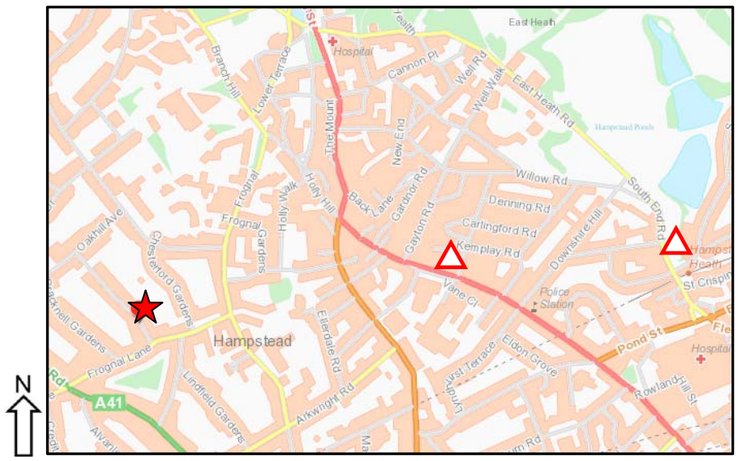


Figure (f)
Watercourses and Water Well Locations
(Extract from British Geological Survey, Geoindex)

4.00 GROUND STABILITY

4.01 Stage 1: Screening Assessment

4.01.1 GS Q1 *Does the existing site include slopes, natural or manmade, greater than 7˚? (approximately 1 in 8)*

No. The site rises, adjacent to road, by about 1metre across the width of the property, but is generally flat within the rear garden. All slopes are at less than 7 degrees.

4.01.2 GS Q2 *Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7˚? (approximately 1 in 8)*

No. The land will generally remain at existing slopes in the proposed condition and the slope will not be significantly.

4.01.3 GS Q3 *Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7˚? (approximately 1 in 8)*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study and an inspection of the site surveys, the neighbouring areas also have slopes less than 7 degrees. Refer to Figure (h).

4.01.4 GS Q4 *Is the site within a wider hillside setting in which the general slope is greater than 7˚? (approximately 1 in 8)*

No. Greenaway Gardens falls approximately 9 metres in 150 metres as it passes the site, with an overall slope of approximately 3.5 degrees.

4.01.5 GS Q5 *Is the London Clay the shallowest strata at the site?*

No. With reference to Camden Geological, Hydrogeological and Hydrological Study, the underlying soil stratum is indicated as being the Claygate Member. Refer to Figure (g).

4.01.6 GS Q6 *Will any trees be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained?*

No. The trees and vegetation cover of the site will not be significantly affected by the proposed works. Refer to Tretec Report, which is submitted with the Planning Application.

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

Yes. Whereas there is no evidence of subsidence having previously affected the property or the neighbouring properties, the shrinkable London Clay is susceptible to shrinkage and swelling, particularly in the vicinity of mature trees.

Figure (g)
Geological Map
(Extract from Fig 4 of Camden Geological, Hydrogeological and Hydrological Study)

Figure (h)
Slope Angle Map
(Extract from Fig 16 of Camden Geological, Hydrogeological and Hydrological Study)

4.01.8 GS Q8 *Is the site within 100m of a water course or a potential spring line?*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study the closest subsurface water courses run along Redington Gardens to the north and Langland Gardens to the south, both of which are greater than 100metres from site. Refer to Figures (d) and (e).

4.01.9 GS Q9 *Is the site within an area of previously worked ground?*

No. The site is not in the vicinity of any recorded areas of worked ground. With reference to the Camden Geological, Hydrogeological and Hydrological Study the nearest areas of worked ground are close to Finchley Road. This is consistent with the findings of the trial pits and borehole. Refer to Figures (g).

4.01.10 GS Q10a *Is the site within an aquifer?*

Yes. With reference to the Camden Geological, Hydrogeological and Hydrological Study the site is located above a Secondary "A" Aquifer. Refer to Figure (c).

4.01.11 GS Q10b *Will the proposed basement extend beneath the water table such that dewatering may be required during construction?*

Yes. The basement will extend beneath the water table level and water ingress during construction will need to be considered.

4.01.12 GS Q11 *Is the site within 50m of the Hampstead Heath ponds?*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study, the Hampstead pond chains are located more than 100metres from the site.

4.01.13 GS Q12 *Is the site within 5m of a highway or pedestrian right of way?*

Yes. The site abuts Greenaway Gardens (which is a public highway) to the east.

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

Yes. The works will make the foundations to No. 3 Greenaway Gardens deeper than those of the neighbouring properties.

4.01.15 GS Q14 *Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?*

No. With reference to Open Street Map the site is not in the vicinity of any near surface tunnels owned by LUL, TFL or National Rail. Refer to Figure (i).

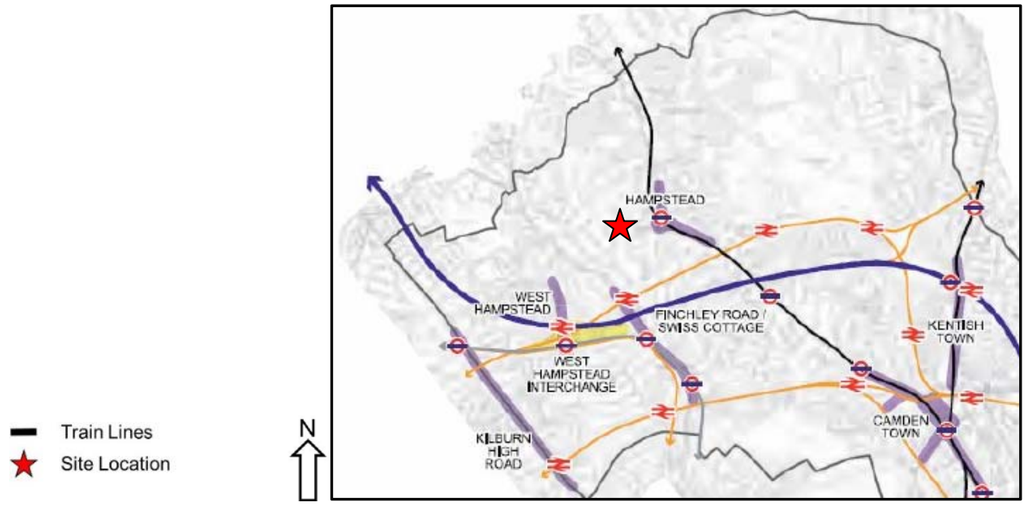


Figure (i)
Map of Underground Infrastructure
(Extract from Open Street Map)

4.02 Stage 2: Scoping

4.02.1 The aspects that should be carried forward to a scoping stage in respect of land stability are:

GS Q7 There is a history of seasonal shrink-swell

GS Q10a The site is located above a Secondary “A” Aquifer

GS Q10b The proposed basement extends beneath the water table

GS Q12 The basement is within 5metres of a highway

GS Q13 The works increase the differential foundation depth with adjoining buildings

4.02.2 In response to these issues, raised in the scoping stage, a conceptual ground model was developed by GEA and is included in their report ‘Desk Study and Ground Investigation Report’ dated June 2011 (ref. J11069).

4.02.3 The desk study and conceptual ground model was used to inform both the scope of the site soil investigation and the scope of interpretive report.

4.03 Stage 3: Site Investigation and Study

4.03.1 A site investigation has been carried out by Geotechnical and Environmental Associates Limited (GEA), which comprised a borehole and trial pits and included monitoring of ground water levels.

4.03.2 The ground in the vicinity of the site comprises a thin layer of made ground over stiff sandy clays, typical of the Claygate member, which become very stiff with depth.

4.03.3 Groundwater was encountered in standpipes at between 2.6m and 3.0m below ground level.

4.03.4 Existing foundations were found to be approximately 1metre below ground level, founded on the Claygate Member strata.

4.03.5 GEA have prepared an interpretative report following the results of the site investigation. The report makes recommendations regarding basement excavation and foundation design and includes a site specific risk assessment in respect of soil contamination.

4.04 Stage 4: Impact Assessment

4.04.1 The GEA report 'Desk Study and Ground Investigation Report' dated June 2011 and the interpretative report, comprises part of this assessment.

4.04.2 The construction will be within Claygate Member and there is a potential for uplift forces acting on the basement, due to heave recovery of the soil; there is also the possibility of hydrostatic pressures due to the level of the water table. The uplift forces will be resisted by a combination of the self-weight of the structure and tension piles under the raft slab.

4.04.3 The approach for maintaining ground stability during the works is demonstrated on the MA drawings in Appendix B and outlined in method statement in Section 7.0 of this document.

4.04.4 The design of the new structure and, in particular the substructure, will take into account the close proximity of neighbouring buildings. Those parts of these properties, which are close to the proposed basement construction, will be continually monitored during the substructure works. The measurement monitoring will be carried out using high accuracy measuring devices.

4.04.5 A piled wall will be constructed around the perimeter of the excavation and the use of underpinning will be adopted to support the south flank wall. With reference to Table 2.4 of CIRIA C580, predicted ground movements based on high support stiffness are anticipated to be small. A ground movement and building damage assessment will be commissioned so that the likely ground movements can be quantified. Mitigation measures will be employed to limit ground movements as much as is practically possible, but in all cases building damage will be no greater than Category 2 'Slight' as defined by Burland.

4.04.6 A key consideration in limiting total movements will be the early installation of effective props to the structure close to ground level ('high level' as described in CIRIA C580). This will generally be achieved by the use of steel props spanning across the excavation or across its corners. Capping beams will be installed to the top of the piled retaining walls and the top sections of the underpinning will be similarly reinforced to span laterally between prop locations. The props and capping beam will be installed prior to significant excavations being undertaken. A limit of excavation prior to propping of 1 metre depth is usually found to limit pre-propping deflections to acceptable levels, whilst permitting practical working room to construct the capping beams.

4.04.7 Overburden loads applied at ground level adjacent to excavations can increase pile deflections. The construction method will ensure this is avoided within the site boundaries. Beyond the boundaries the areas there are unlikely to be significant 'live' overburdens, occurring during the excavation works.

4.04.8 As described in section 7.1 of the GEA ground investigation report it is likely that any water within the Claygate member will take the form of discrete pockets, rather than continuous layers. Prior to commencement of the basement works, trial excavations will be carried to assess the level of water ingress through the soils.

4.04.9 A detailed Ground Movement Analysis and Building Damage Assessment has been carried out by GEA and details are provided in their Ground Movement Assessment Report dated 03 August 2015 (Ref J15158). The Report concludes that the predicted damage to neighbouring properties will be no worse than "Slight" and will be within acceptable limits.

4.04.10 The Adjoining Properties will be monitored during construction. Proposals for the movement monitoring are provided by Design Studio[2] in their document "Movement and Vibration Monitoring" dated 27 October 2015.

4.04.11 There will be no residual impacts relating to Ground Stability.

5.00 SURFACE FLOW AND FLOODING

5.01 Stage 1: Screening Assessment

5.01.1 SF Q1 *Is the site within the catchment of the pond chains on Hampstead Heath?*

No. With reference to the Camden Geological, Hydrogeological and Hydrological Study, the site is not within the catchment of the pond chains on Hampstead, nor the Golder's Hill Chain.

5.01.2 SF Q2 *As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?*

No. On completion of the development, the surface water flows will be routed in the same way as the existing condition, with rainwater run-off collected in a surface water drainage system and ultimately discharged to the combined sewer. SUDS measures that will be considered are as follows:

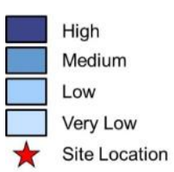
- the use of a lined permeable paving system to external hard landscaped areas to reduce the rate of surface water run-off (or alternative methods of attenuation)
- where the basement extends beyond the ground floor footprint, the use of soft landscaping over to reduce surface water run-off

5.01.3 SF Q3 *Will the proposed basement development result in a change in the proportion of hard surface/paved external areas?*

Yes. There will be an increase of approximately 8% in the area of hard surface/paved areas. Where the proposed basement extends beyond the ground floor footprint it will be capped with soft landscaping and permeable paving, such that run-off water will distribute to the surrounding ground.

5.01.4 SF Q4 *Will the proposed basement result in changes to the profile of inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?*

No. All surface water for the site will be contained within the site boundaries and collected as described in 5.01.2 above; hence there will be no change from the development on the quantity or quality of surface water being received by adjoining sites.



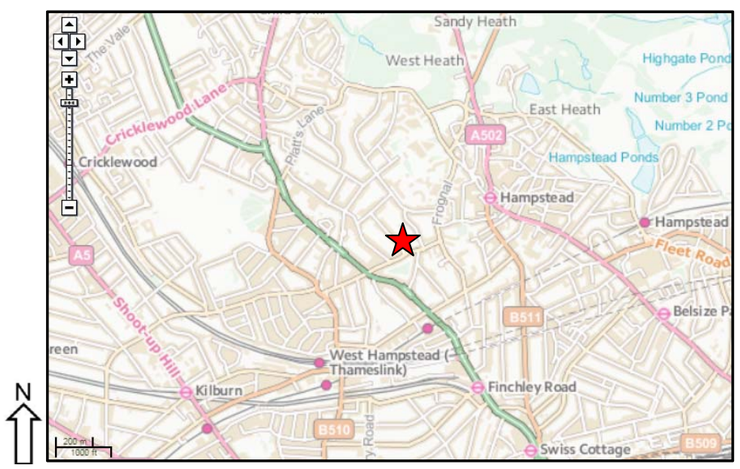
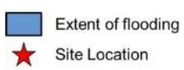


Figure (j)
Areas at Risk of Flooding from Rivers or Sea
(Extract from Environment Agency flood map)



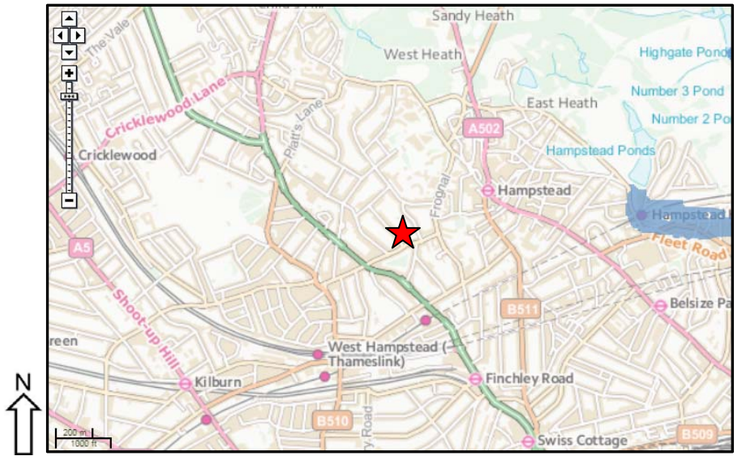


Figure (k)
Areas at Risk of Flooding from Reservoirs
(Extract from Environment Agency flood map)

5.01.5 SF Q5 *Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream water courses?*

No. The surface water quality will not be affected by the proposed development; surface water will be generally be collected from roofs, or external hard landscaping. Areas accessed by vehicles will have appropriate traps or interceptors to the gulleys to avoid contamination from petrol.

5.01.6 SF Q6 *Is the site in an area known to be at risk from surface water flooding, such as South Hampstead, West Hampstead, Gospel Oak and King's Cross, or is it at risk from flooding, for example because the proposed basement is below the static water level of a nearby surface water feature?*

No. The site is not on one of the streets noted within the Camden Planning Guidance CPG 4 (September 2013) as a street "at risk of surface water flooding" Refer to figure (l). The site is not at risk of static flooding.

From reference to the EA Rivers and Sea Flood Maps (Refer to figure (j)), the site is located in Flood Zone 1, which is a low risk zone. Flood Zone 1 refers to "land where the indicative annual probability of flooding is 1 in 1000 years or less from river/sea sources" (i.e. it has a 0.1% or less chance of flooding in any given year). The EA Reservoir flood map shows that the site is also low risk in respect of flooding from reservoirs. Refer to figure (k).

Thames Water records do not show any history of flooding from the local sewers. Refer to documents included in Appendix A.

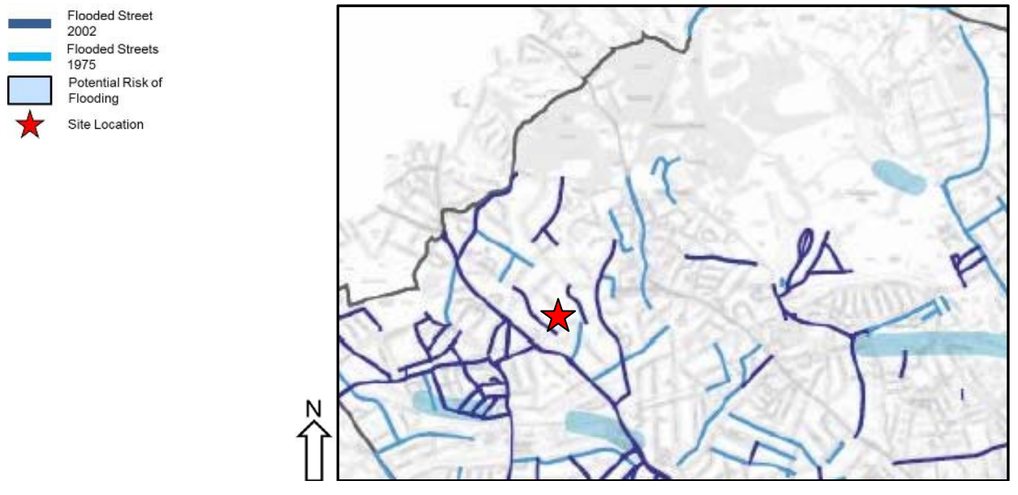


Figure (l)
Flood Map
(Extract from Fig 15 of Camden Geological, Hydrogeological and Hydrological Study)

5.02 Stage 2: Scoping

5.02.1 On the basis of the responses to SF Q1 to SF Q5 above, and in accordance with the Figure 3 in Camden Planning Guidance CPG 4 (September 2013), it is considered appropriate to carry forward the potential impact of the increase in impermeable area to the Scoping Stage.

5.02.2 On the basis of the response to SF Q6 above a flood risk assessment is not considered to be necessary.

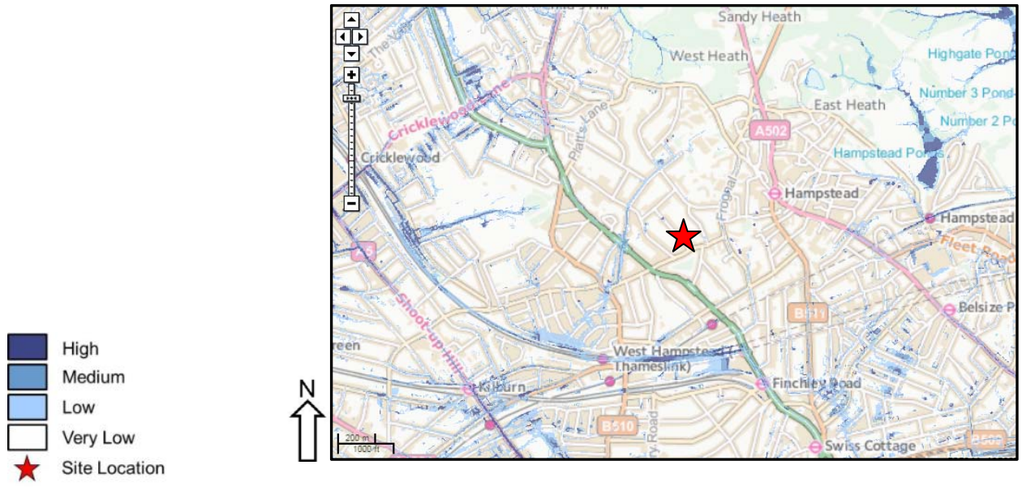


Figure (m)
Flooding from Surface Water
(Extract from Environment Agency flood map)

5.03 **Stage 3: Site Investigation and Study**

5.03.1 The site is approximately 0.12 hectares. The drained area of the existing house is approximately 280m^2 (0.028 Ha.). Hard landscaping surrounding the building amounts to approximately 240m^2 (0.024 Ha.), giving a total of 520m^2 (0.052 Ha.) of non-permeable area; this represents approximately 43% of the total site area.

5.03.2 The drained area of the proposed house will be approximately 350m^2 (0.035 Ha.). Hard landscaping surrounding the building will amount to approximately 270m^2 (0.027 Ha.), giving a total drained area of 620m^2 (0.062 Ha.); this represents approximately 51% of the total site area.

5.04 **Stage 4: Impact Assessment**

5.04.1 As demonstrated by the calculations in 5.03, the increase in impermeable area will be small as a proportion of the site area and will not have an impact on groundwater levels.

5.04.2 A permeable paving system will used for the external hard landscaping or an alternative attenuation method (subject to detailed design) and run off rates will be maintained. During storm conditions rainwater will be stored in the drainage layers beneath the hard landscaping before discharging into the ground and sewers.

5.04.3 The discharge to the public Thames Water sewer will not be increased with the use of rainwater harvesting and attenuation measures for run-off from part of the hard landscaping. There will not be any impact to the local surface water collection systems.

5.04.4 There will be no residual impacts relating to Surface Flow and Flooding.

Figure (n)
Existing impermeable area plan

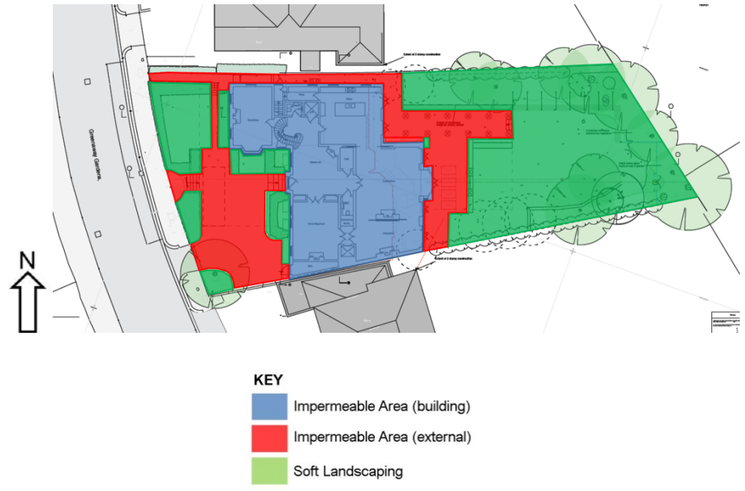


Figure (o)
Proposed impermeable area plan

6.00 PROPOSED CONSTRUCTION

6.01 Outline structural proposals for the basement are shown on the Michael Alexander drawings, as follows (included in Appendix B):

- P3142 BIA01 P2 Proposed Piling Layout General Arrangement
- P3142 BIA02 P2 Proposed Basement General Arrangement
- P3142 BIA03 P2 Proposed Section A-A
- P3142 BIA04 P2 Proposed Section B-B
- P3142 BIA05 P2 Proposed Section C-C

6.02 The details of the existing structure will be determined by further detailed exploratory work and prior to commencement of construction.

6.03 The superstructure of the building will be subject to detailed design, but will include the addition of steel elements (beams/columns) to support the existing roof and timber floors at upper levels. Areas of concrete floors will be introduced to provide enhanced acoustic separation between ground floor reception rooms and bedrooms over.

6.04 The new basement will be constructed by partially underpinning of the existing masonry flank walls and the use of contiguous or secant bored pile walls, where the basement extends beyond the line of the existing building. The retaining construction will be lined with reinforced concrete (RC) walls, which will be supported on a RC raft slab. The ground floor slab will also be RC construction. The basement will be constructed to achieve a Grade 3 Level of Waterproofing, in accordance with the recommendations of BS8102:2009.

6.05 The design and construction of the building structure shall be in accordance with current Building Regulations, British Standards, Codes of Practice, Health and Safety requirements and good building practice.

7.00 OUTLINE CONSTRUCTION METHOD STATEMENT

7.01 The following outline Method Statement for the construction of the basement will be developed by the appointed specialist Contractor, after the detailed design is complete.

7.02 The existing suspended ground floor will be removed, to facilitate access for a piling rig, to construct the proposed tension piles from existing ground level. Stability of the existing basement structures will be maintained either by maintaining sections of the ground floor or with the use of temporary props.

7.03 The tension piles will be utilised to support the temporary works for the superstructure. The installation of the permanent steel structure and temporary works will be utilised to support the existing roof and upper floor structures and enable the demolition of walls below.

7.04 Prior to bulk excavation, trial excavations will be carried out to confirm the degree of water ingress through exposed faces and to ensure that the underpinning will be carried out in dry conditions.

7.05 There are several viable methods of temporary support to the surrounding ground, during the excavation of the basement and these will be agreed with the specialist Contractor. The proposals include the installation of underpins under the external walls and internal load bearing walls. The underpinning will be constructed in two stages. Augured contiguous/secant piled walls will be installed around the perimeter of the excavation outside the footprint of the existing building.

7.06 The piles will be constructed using non-percussive techniques to avoid disturbance of the surrounding ground and ensure that there is no impact on the adjoining structures. The piles shall be designed as propped cantilevers with temporary supports inside the area of excavation, which shall be installed close to the proposed ground floor level.

7.07 On completion of the piling, RC capping beams shall be constructed to link the head of the piles and the underpinning. The existing basement structures will be demolished and bulk excavation will proceed. As the excavation progresses, the lateral props will be installed.

7.08 When bulk excavation is complete to basement level, the excavation shall be immediately blinded with concrete to prevent water ingress. The internal piles will then be exposed and cut down to the level of the basement.

7.09 The basement raft will then be constructed, followed by the RC walls and columns to ground floor level.

7.10 After the ground floor slab and beams have been constructed, and the concrete has reached target strength, then the lateral propping will be removed.

7.11 A top-down method of construction and the advance construction of the ground floor slab on temporary piles, will also be considered with the specialist Contractor; this technique limits the requirement for temporary propping at ground level.

7.12 Detailed construction methodology and temporary works proposals have been provided by Design Studio[2] in their document “Preliminary Construction Method Statement Rev.P2 dated 25 November 2015.

APPENDIX A

THAMES WATER RECORDS

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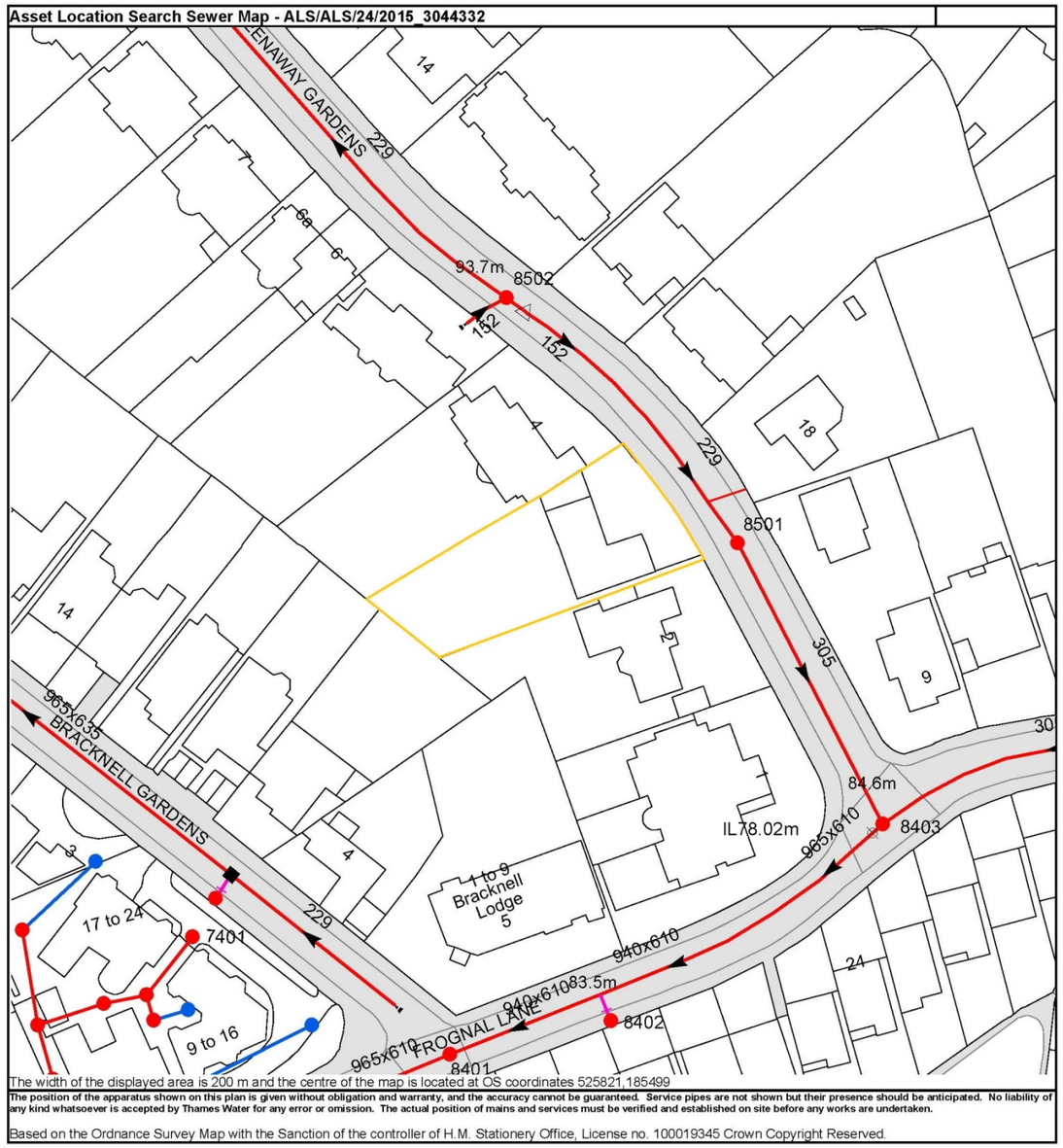

Figure A1 - Extract from Thames Water Asset Search showing a combined sewer

Figure A2 - Key to Thames Water Asset Search

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
74BG	n/a	n/a
8402	n/a	n/a
74BF	n/a	n/a
74AH	n/a	n/a
74BC	n/a	n/a
74BB	n/a	n/a
74BI	n/a	n/a
7401	n/a	n/a
74BE	n/a	n/a
8403	84.4	n/a
8501	88.65	83.83
8502	93.54	89.45
74BH	n/a	n/a
74BD	n/a	n/a
8401	83.05	76.4

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Figure A3 - Manhole Invert and Cover Levels

Sewer Flooding
History Enquiry

Thames Water Property Insight
12
Vastern Road
Reading
RG1 8DB

Search address supplied	3 Greenaway Gardens London NW3 7DJ
Your reference	3 Greenaway Gardens
Our reference	SFH_SFH Standard_2011_2004731
Search date	**18 May 2011**

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding
History Enquiry

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

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Clearwater Court, Vastern Road
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APPENDIX B

MICHAEL ALEXANDER DRAWINGS

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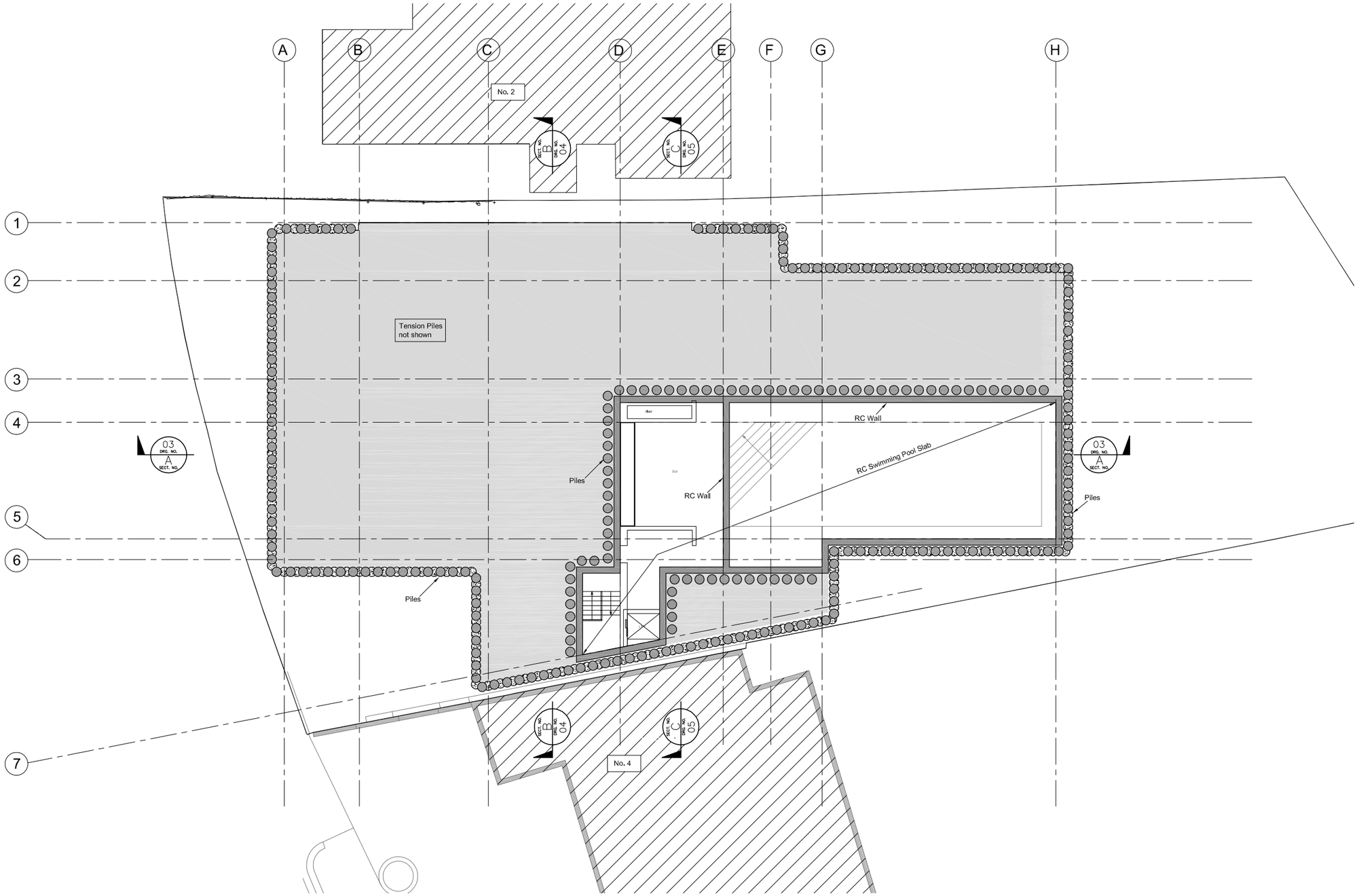

NOTES

1. This drawing shall be read in conjunction with all relevant Architects & Engineers drawings and specifications.
2. Do not scale any dimensions. All dimensions to be checked on site.

LEGEND

Rev.	Date	Description	By

Architect

CHARLTON BROWN

Project Title

3 GREENAWAY GARDENS
LONDON, NW3 7DJ

Drawing Title

PROPOSED PILING LAYOUT
GENERAL ARRANGEMENT

MichaelAlexander
Foundation House
4 Percy Road
London N12 8BU
tel +44 (0)20 8445 9115
email mail@maengineers.com
web www.maengineers.com

Drawn	SP May 2015
Checked	JMcS May 2015
Scale	1:100 1:200
Size	A1 A3
Project No.	P3142
Drawing No.	BIA01
Rev.	P2

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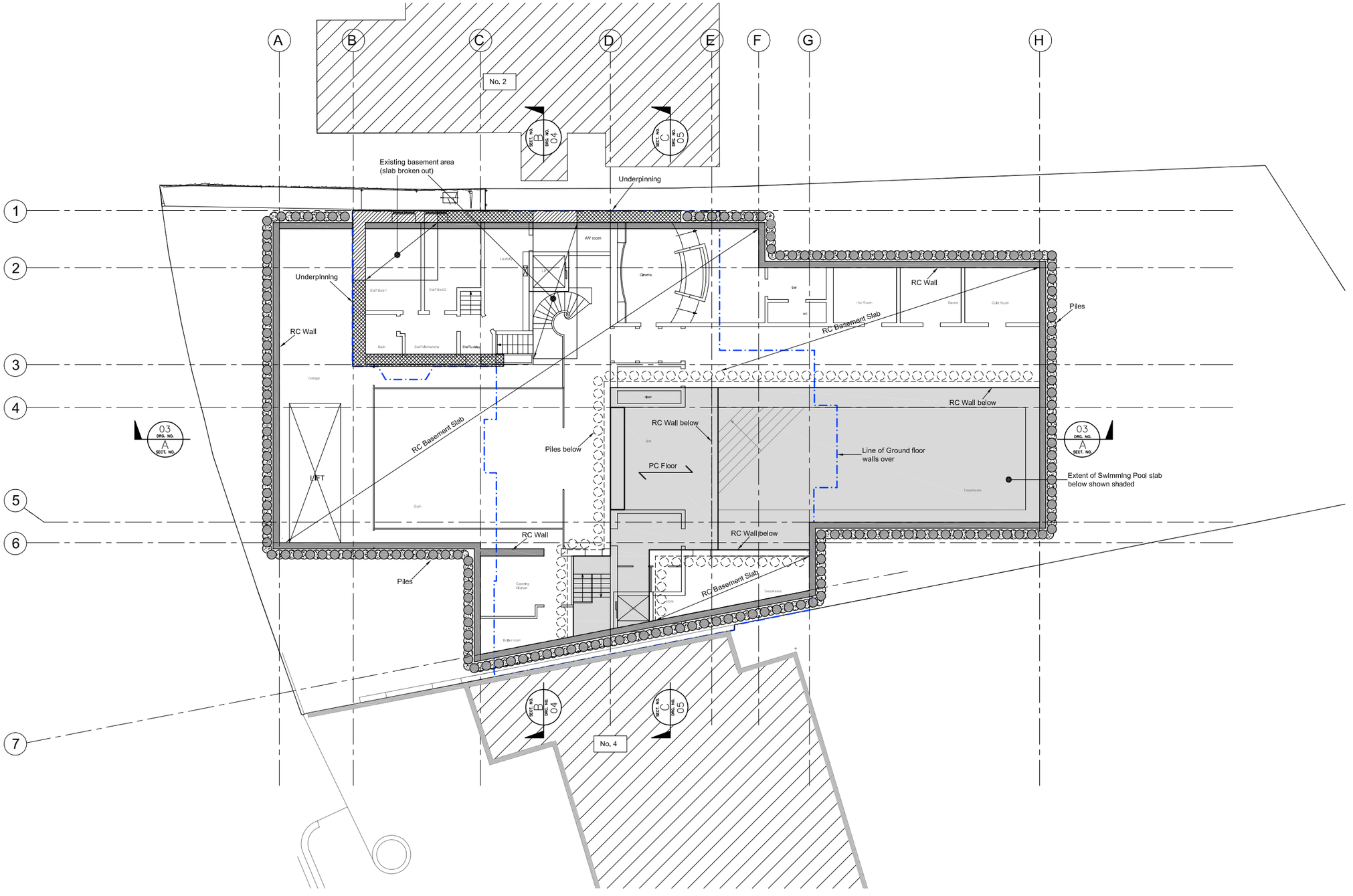

NOTES

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LEGEND

- Underpin existing basement walls by approximately 1.5m
- Underpin existing ground floor walls by approximately 3.0m

Rev.	Date	Description	By

Architect

CHARLTON BROWN

Project Title

3 GREENAWAY GARDENS
LONDON, NW3 7DJ

Drawing Title

PROPOSED BASEMENT
GENERAL ARRANGEMENT

MichaelAlexander
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web www.meengineers.com

Drawn	SP May 2015
Checked	JMcS May 2015
Scale	1:100 A1 1:200 A3
Project No.	P3142
Drawing No.	BIA02
Rev.	P2

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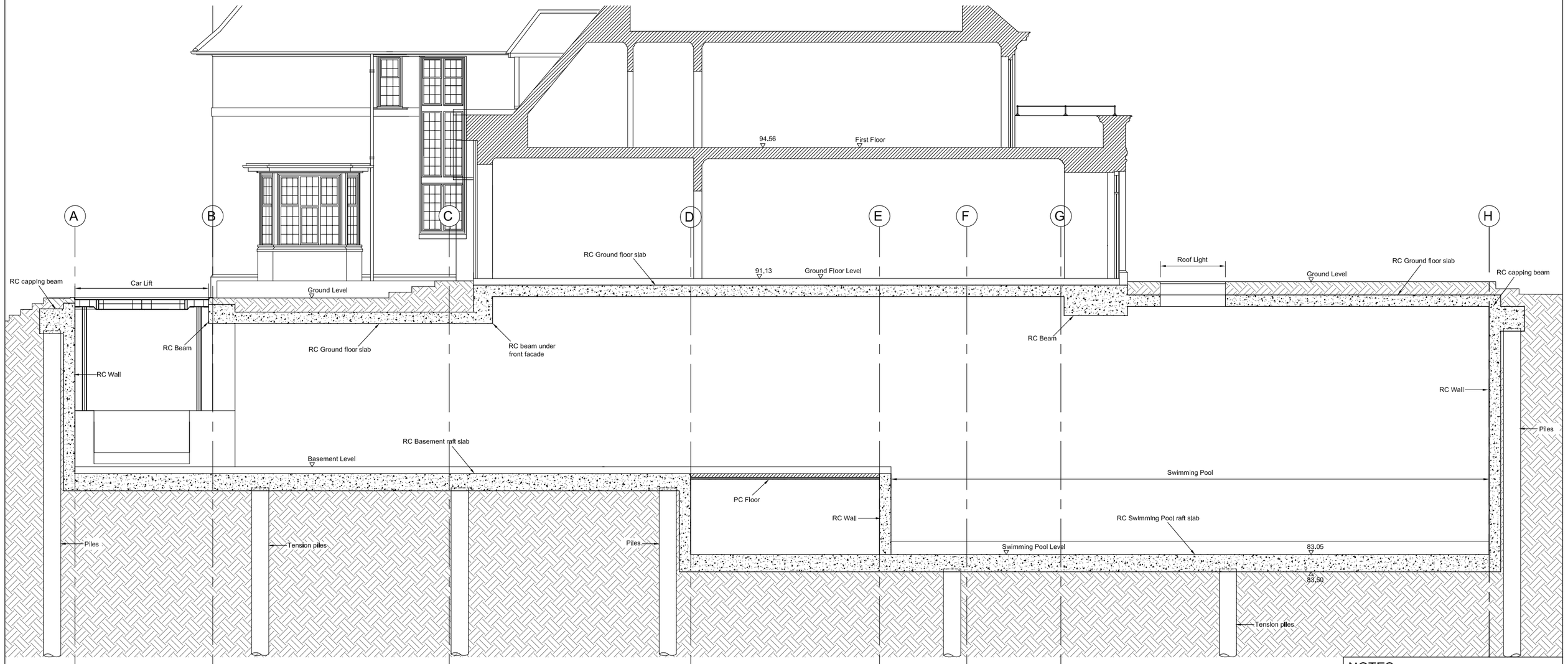

NOTES

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2. Do not scale any dimensions. All dimensions to be checked on site.

Rev.	Date	Description	By

Architect

CHARLTON BROWN

Project Title

3 GREENAWAY GARDENS
LONDON, NW3 7DJ

Drawing Title

PROPOSED SECTION A-A

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Drawn	SP	May 2015
Checked	JMcS	May 2015
Scale	1:50 1:100	Size A1 A3
Project No.	Drawing No.	Rev.
P3142	BIA03	P2

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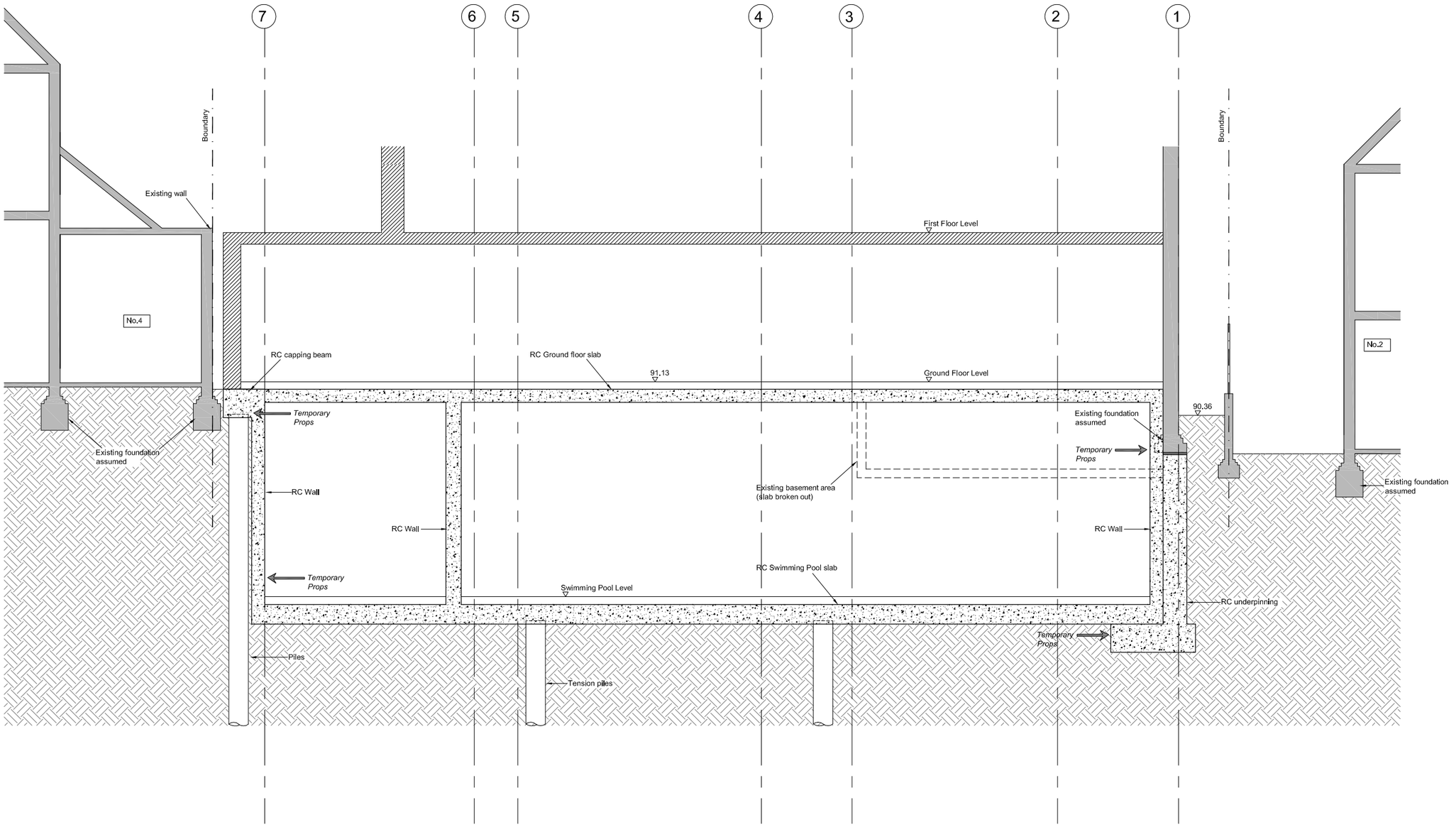

NOTES

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2. Do not scale any dimensions. All dimensions to be checked on site.

Rev.	Date	Description	By

Architect

CHARLTON BROWN

Project Title

3 GREENAWAY GARDENS
LONDON, NW3 7DJ

Drawing Title

PROPOSED SECTION B-B

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Drawn	SP May 2015
Checked	JMcS May 2015
Scale	1:50 1:100
Size	A1 A3
Project No.	P3142
Drawing No.	BIA04
Rev.	P2

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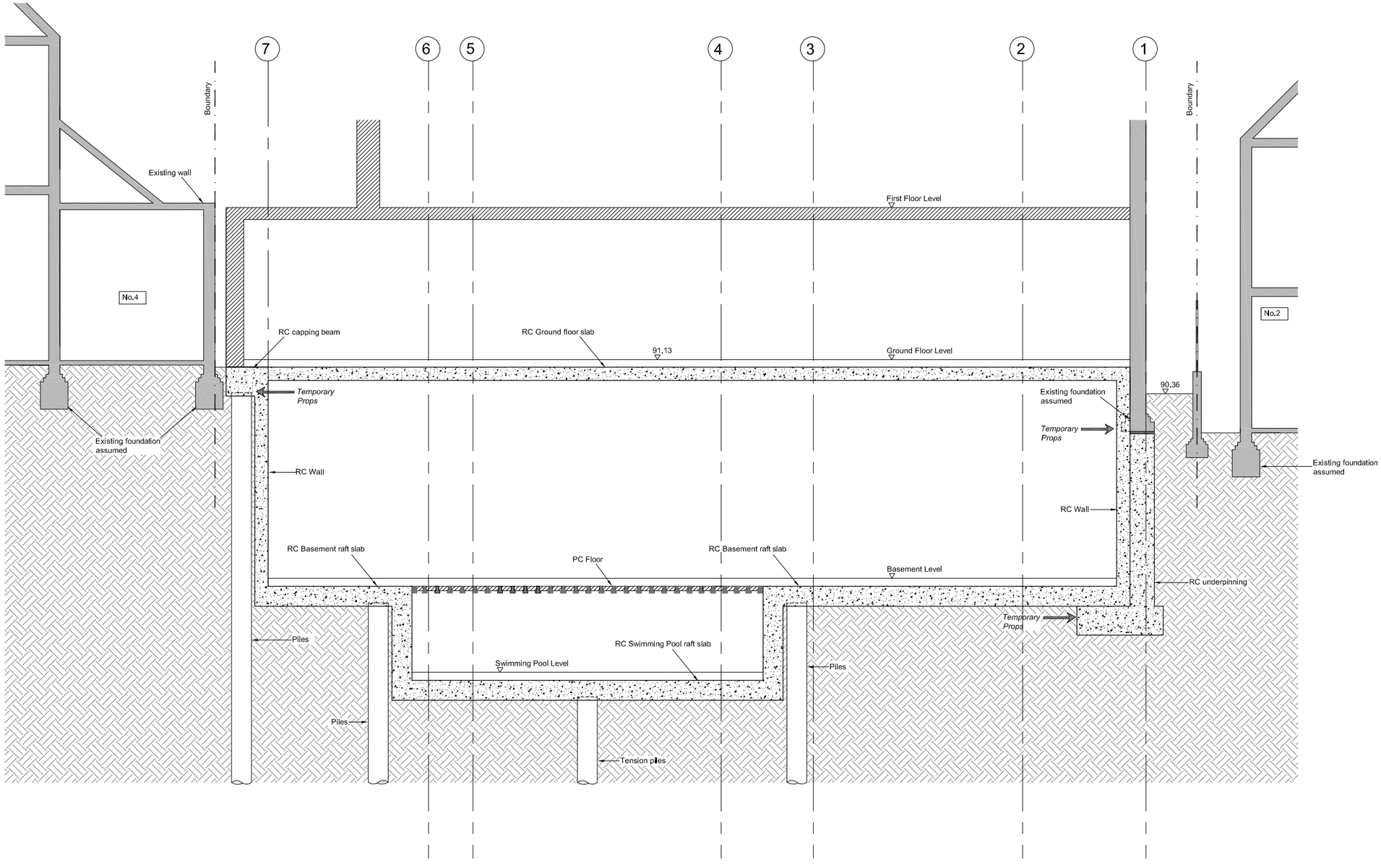

NOTES

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2. Do not scale any dimensions. All dimensions to be checked on site.

Rev.	Date	Description	By

Architect
CHARLTON BROWN

Project Title
3 GREENAWAY GARDENS
LONDON, NW3 7DJ

Drawing Title
PROPOSED SECTION C-C

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Drawn	SP May 2015
Checked	JMcS May 2015
Scale	1:50 1:100
Size	A1 A3
Project No.	P3142
Drawing No.	BIA05
Rev.	P2

100mm WHEN PLOTTED @ 1:1 FOR A1 — 50mm WHEN PLOTTED @ 1:2 FOR A3