

**29 St Albans Road
London, NW5 1RG**

Basement Impact Assessment




June 2018



FAIRHURST

CONTROL SHEET

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1.0 NON TECHNICAL SUMMARY

Site Location	The site is located on St Albans Road in Highgate, North London at approximately postcode NW5 1RG. The site covers an approximate area of 0.03 Hectares and is under the general authority of Camden Council.
Current Site Arrangement	The site comprises a semi-detached 20th century three storey residential property (29 St Albans Road) including front and rear garden areas.
Proposed Development	Proposals for the site include lowering the floor at the rear of the property by approximately 0.50m and construction of a ratio patio area.
Project Structure	<p>The following assessments are presented:</p> <ul style="list-style-type: none"> • Desk Study • Screening • Scoping <p>On the basis of these findings, a full Basement Impact Assessment (including ground investigation and ground movement assessment) is not recommended as being necessary for the site.</p>
Authors	<p>Jacqueline Clayton BSc (Hons) MSc FGS</p> <p>Andrew Smith BSc(Hons) FGS CGeol MCIWEM</p> <p>Mr Andrew Penrose BSc (Hons) CEng MICE</p>
Geology/ Hydrogeology	<p>The British Geological Survey map of the area (North London, Sheet 256) indicates that the site is underlain by the London Clay Formation. The site is also in an area likely to be covered by Superficial Head Deposits.</p> <p>According to Environment Agency Flood maps the site lies within Flood Zone 1, which is defined as areas where flooding from rivers and the sea is very unlikely, with less than a 0.1 per cent (1 in 1000) chance of such flooding occurring each year.</p>
Conclusions and Recommendations	<p>It is concluded that the proposed development is unlikely to result in any specific land or slope stability issues, groundwater or surface water issues.</p> <p>It is however recommended that the chosen contractor should have a contingency plan in place to deal with any unexpected geological or hydrological conditions as a precautionary measure.</p>

2.0 INTRODUCTION

The purpose of this assessment is to consider the effects of a proposed lowered ground floor level on the local hydrology, geology and hydrogeology and potential impacts to neighbours and the wider environment at 29 St Albans Road, London, NW5 1RG. The site location is presented as Figure 1.

The BIA approach follows current planning procedure for basements and lightwells adopted by London Borough of Camden (Camden Planning Guidance, CPG: Basements, March 2018) and comprises the following elements:

- Desk Study;
- Screening;
- Scoping;
- Site Investigation, monitoring, interpretation and ground movement assessment;
- Impact Assessment.

On the basis of the findings from the screening and scoping phases it has been deemed unnecessary to carry out the full site investigation and impact assessment stages in this study.

The structure of this report follows the Camden BIA Pro Forma Document available online (<https://www.camden.gov.uk>).

2.1 Authors

The qualifications required by LBC are fulfilled as documented in Table 1 below. All assessors meet the qualification requirements of the Council guidance.

Table 1 – Qualification Summary

Subject	Qualifications Required by CPG4	Relevant person(s) in Fairhurst
Surface flow and flooding	<p>A hydrologist or a Civil Engineer specialising in flood risk management and surface water drainage, with either:</p> <p>The 'CEng' (Chartered Engineer) qualification from the Engineering Council; or a Member of the Institution of Civil Engineers ('MICE')</p> <p>The CWEM (Chartered Water and Environmental Manager) qualification from the Chartered Institution of Water and Environmental Management</p>	<p>Mr Andrew Smith BSc(Hons) FGS CGeol MCIWEM</p> <p>Mr Andrew Penrose BSc (Hons) CEng MICE</p>
Subterranean (groundwater flow)	A hydrogeologist with the 'CGeol' (Chartered Geologist) qualification from the Geological Society of London	Mr Andrew Smith BSc(Hons) FGS CGeol MCIWEM
Land Stability	A Civil Engineer with the 'CEng (Chartered Engineer) qualification from the Engineering Council	Mr Andrew Penrose BSc (Hons) CEng MICE

2.2 Sources of Information

This section provides the baseline data used to complete the BIA in relation to the proposed development. Reference information used for this purpose is outlined below:

Published Data

- Barton N (1992) The Lost Rivers of London. Historical Publications Ltd, London;
- British Geological Survey – 1:50,000 Geological Sheet 256, North London (Solid & Drift), 1990;
- Camden Local Plan 2017 (Policy A5 Basements and Policy CC3 Water and flooding);
- Camden Planning Guidance (CPG): Basements (March 2018);
- CIRIA C760 Guidance on embedded retaining wall design, London (2017);
- LB Camden, Local Plan Policy A5 Basements (2017);
- LB Camden's Audit Process Terms of Reference;
- London Borough of Camden (June 2003). Floods in Camden. Report of the Floods Scrutiny Panel;
- London Borough of Camden (Nov 2010). Camden geological, hydrogeological and hydrological study (GHHS) Guidance for subterranean development (produced by Arup Consulting);
- London Borough of Camden. Strategic Flood Risk Assessment. July 2014. URS;
- M.J. Tomlinson 7th Ed, Foundation Design and Construction (2001);
- River Basin Management Plan (RBMP). Thames River Basin District (2009);

Drawings and Site Specific Reports (Appendix A)

- Murphy Surveys (2017). 29 St Albans Road. Drawing No. MSL23201-FPG;
- Preliminary structural drawings (provided by Client).

Websites

- Environment Agency Internet database (www.environment-agency.gov.uk);
- LBC online planning portal (<http://planningrecords.camden.gov.uk>);
- Stanford's 1868 Map available online <http://london1864.com/stanford>.

Site Walkover

- Site reconnaissance survey completed by Fairhurst (15th June 2018).

2.3 Existing and Proposed Development

The site was visited on 15th June 2018 for the purposes of carrying out a site walkover. Photographs from this visit are included in Appendix B of this document.

The site is located at 29 St Albans Road, North London at postcode NW5 1RG as shown on Figure 1. The site covers an approximate area of 0.03 Hectares and is under the general authority of Camden Council. The site comprises a semi-detached 20th century three storey residential property, as well as front and rear garden areas.

The property is currently a building site, with enabling works related to the proposed development having commenced. Access to the property is gained at ground floor level, at the front of the house which, based on available topographical information, is at a level of approximately 53.70m AOD. The site then reduces steeply in level by 0.50m at the rear of the site, reflecting the excavation works carried out to a level of 53.20m which is anticipated to be

the Finished Floor Level (FFL) of the proposed development. The back of the rear garden is at a level of 52.57m AOD.

The local area slopes in topographic gradient to the south east from approximately 55m AOD at the junction between Highgate Road and Swains Lane, 230m north west of the site, to approximately 52m AOD at the junction between Brookfield Park and Croftdown Road, 175m south east of the site. This equates to a slope angle of less than 3° and is shown to be in a 0° to 7° slope area on the slope angle map of the Camden geological, hydrogeological and hydrological study (GHHS, 2010), as shown on Figure 2. The wider general area also slopes towards the south east, towards the River Thames.

The property is bound by St. Albans Road to the north, a side passage and 27 St. Albans Road to the east, a school to the south, and 25 St. Albans Road to the west. The site buildings and neighbouring properties are not listed and appear to be of good condition.

There are several trees and shrubs surrounding the property. Camden's planning records show that there are no tree preservation orders at the property. However, the site does fall in the Dartmouth Park Conservation Area and so any trees with a stem diameter of 75mm when measured at a height of 1.5m are protected. It is understood from the client that the council will be notified of any works to the trees if they are carried out.

Reference to the Transport for London (TfL) mapped 'runners' held internally by Fairhurst shows that there are no TfL or Network Rail owned tunnels below the site or within 100m of the site.

Proposals for the site, including preliminary structural drawings, a section and a design and access statement, are included in Appendix A. They include lowering the floor at the rear of the property by 0.50m and construction of a ratio patio area. This excavation has been completed as part of enabling works and equates approximately to the existing garden level in this area.

3.0 DESK STUDY

3.1 Site History

A brief summary of the site history using publically available historical map information is described below. It should be noted that this report does not purport to be a Phase One Preliminary Risk Assessment and should not be treated as such.

The earliest maps studied dated 1864 shows the site as being undeveloped and comprising gardens. The surrounding area is developed with numerous residential properties and St Albans Road present to the north of the site. A stream is noted approximately 50m east of the site and is noted to run adjacent to the southern boundary of the site. This is noted to be the River Fleet which is now culverted (See Section 3.4 for further information). Additionally, Dartmouth Park is approximately 150m east of the site.

By 1895, buildings are shown to be present on site associated with an equestrian centre located immediately to the north. This was demolished by 1915, at which point, the existing semi-detached building at 29 St Albans Road is present at site. Further residential properties are also detailed along St Albans Road by this point with green spaces noted in the surrounding area.

No further change to the site is evident which remains essentially unchanged to the present day.

3.2 Geology

British Geological Survey (BGS) Data

The British Geology Survey (BGS) map of the area (North London, Sheet 256) indicates that the site is underlain by the London Clay Formation. The site is also detailed by the BGS to be in an area likely to be covered by Superficial Head Deposits (Head Propensity). These deposits have not been formally mapped by the BGS and have been interpreted from slope analyses and borehole data only.

Superficial Head Deposits generally comprise clays, silts, sands and gravels and were formed up to 3 million years ago in the Quaternary Period in a local environment previously dominated by subaerial slopes.

The underlying London Clay Formation comprises blue clay which becomes brown when weathered with occasional bands of fine silty sand and nodular lumps of pyrite and selenite. These soils were formed approximately 34 to 56 million years ago in the Palaeogene Period in a local environment previously dominated by deep seas.

The BGS's online records indicate there are no historical boreholes located within 100m of the site.

On Site Investigation

Exposed soil evident in cutting exposed during the enabling works for the development (See Appendix B) was analysed by Fairhurst during the walkover survey and revealed ground conditions that were generally consistent with the geological records and known history of the area.

They comprised Made Ground (sandy gravelly clay with brick and concrete fragments) up to 0.40m in thickness followed by soils typical of Superficial Head (orange brown sandy gravelly clay) to 0.50m below ground floor level which equates to the proposed FFL (approximately 53.20m AOD). No groundwater seepages were observed in the cutting at the time of the walkover and according to the groundworks contractor the soils remaining essentially dry throughout the excavation works. No underground services were encountered during the works.

Adjacent Ground Investigation Data

Review of the London Borough of Camden online planning portal indicates that there is recent ground investigation data at 43 Croftdown Road, located approximately 120m south of the site. A summary of the ground investigation is provided below.

The ground investigation was undertaken by Geotechnical & Environmental Associates (GEA) in December 2017 in connection with a proposed basement extension. The scheme is listed as having been granted on the LBC website in April 2018.

The works included the following:

- One cable percussive borehole to a depth of 18.00m bgl with in-situ Standard Penetration Testing (SPT's);
- Two window sampler boreholes to depths of 3.3m and 3.6m bgl;
- Three hand excavated foundation inspection trial pits to maximum depths of 1.56m below lower ground floor level and 1.25m below ground level;
- Installation of 3 No. groundwater monitoring wells to depths of between 6.00m to 10.00m bgl;
- Monitoring of groundwater levels on one occasion.

The boreholes and trial pits indicated ground conditions that were generally consistent with the geological records and known history of the area and are summarised in Table 2. No levels were provided in the LMB Investigation (2015) and have been estimated (by Fairhurst) based on available topographic data for the area.

Table 2. Summary of LMB Investigation (2015)

Lithology	Description	Depth to Base		Thickness (m)
		m	m AOD	
Made Ground	Brown silty sandy clay or clayey sand, with variable amounts of gravel, brick, ash, and concrete fragments.	1.2m to 3.4m	50.8 to 48.6	0.50 to 0.90
London Clay Formation	Stiff fissured brown, becoming grey with depth, slightly silty clay with bluish grey veins, occasional selenite crystals, and occasional claystone nodules.	3.3m to 18.0m	48.7 to 34.0	9.50 to 14.1 (unproven)

Groundwater was encountered in 1 no. hand excavated trial pit (TP01) at 0.3m bgl (51.7m bgl), within the Made Ground, during the investigation, which was considered to be indicative of perched groundwater.

Observations made in standpipe piezometers installed in BH1 to BH3 indicate groundwater levels of between 1.56m and 1.88m (50.44m and 50.12m AOD), within the London Clay Formation. This is below the level of the proposed FFL at No. 29 St Albans Road (53.2m AOD).

Laboratory tests (geotechnical and environmental) were carried out on samples recovered from the boreholes and comprised classification tests, including moisture content and plasticity tests and strength testing including single stage triaxial tests. A summary of the relevant testing is included in the text below.

Classification Testing

Natural Moisture Content tests were completed on 1 No. sample of Made Ground (2.0m bgl) and 11 No. samples of London Clay Formation (2.0m to 15.5m bgl), of which, 4 No. Plasticity Index tests were carried out (between 2.0m and 10.5m bgl).

The natural moisture content in the Made Ground at 2.0m bgl was calculated to be 15.7%.

Natural moisture contents in the London Clay Formation were calculated to range between 25% and 32% (Ave. 30%), whilst Plasticity Index values of between 46% and 53% were recorded (Ave. 48%). This material classifies as 'very high plasticity'.

Modified plasticity indices of between 46 and 53% have been calculated internally by Fairhurst in accordance with NHBC Standards 2018 and as such, the material would be considered to have a high volume change potential.

Strength Testing (In Situ and Laboratory)

SPT 'N' values in the Made Ground (2 No.) were found to range between 10 and 23, and SPT 'N' values in the London Clay Formation (5 No.) were found to range between 25 and 40 (Ave. 33), with a general increase in depth apparent.

Values of undrained shear strength (C_u) have been correlated by Fairhurst from the results of SPT test results using the following relationship:

- $C_u = f_1 \times N$ (Stroud and Butler, 1975)

Based on the Plasticity Index results from the Atterberg Limit testing of this material (Ave. PI 48%), an f_1 value of 4.5 has been used for the correlation.

Once correlated, the undrained shear strength values for this material range from 45kPa to 104kPa, which represents a medium strength to high strength cohesive soil, in accordance with BS 5930 (2015).

Undrained triaxial compression tests were carried out on 1 No. sample of Made Ground (2.0m bgl) and 5 No. samples of London Clay Formation (between 4.0m and 15.5m bgl). The results show the samples to be of a medium strength, with the exception of one sample (15.5m bgl) which was found to be of high strength, in accordance with BS 5930 (2015).

3.3 Hydrogeology

The Environment Agency Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) and also their role in supporting surface water flows and wetland ecosystems.

The London Clay Formation below the site has been classified as Unproductive Strata; rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The Superficial Head as indicated to be located within proximity of the site by the BGS is not classified in this area by the EA.

According to the GHHS (Nov 2010) the site is not within a source protection zone.

3.4 Hydrology, Drainage and Flood Risk

3.4.1 Watercourse & Surface Water Features

Based on available OS maps, the closest surface water feature present is a small pond that is present within the grounds of the school, 50m south of the site. The feature is man-made, very shallow (0.25m) and surrounded by concrete and therefore not considered a potential spring line.

With reference to Barton (1992) and Stanford's 1864 map of London the site is within 50m of the Highgate Branch of the River Fleet (See Figures 3a to b) which flowed along St Albans Road approximately 5m north west of the site, and then flowed to the west of Brookfield Park, approximately 5m south east of the site. The Fleet then flowed in a generally south-easterly direction before issuing into the River Thames near Blackfriars Bridge approximately 5 km to the southeast of the site. The direction of groundwater flow beneath the site is likely to be in a south-easterly direction, downslope towards the River Thames.

A Thames Water Property Search (Ref. 16523454) was undertaken at the site (See Figure 3c) and confirms that the stream has been culverted and is located 5m north west and 5m southeast of the subject site (Figure 3c).

The site is not within the catchment area of the Hampstead Heath Pond Chain which is located approximately 500m north west of the site.

The area located immediately around the site is highly developed with the majority of the surface covered with hardstanding. Most of the rainfall in the area will run-off hard surface areas and be collected by the local sewer network.

3.4.2 Flood Risk

River or Tidal flooding

According to the Environment Agency (EA) Flood maps, the site lies within Flood Zone 1, which is defined as areas where flooding from rivers and the sea is unlikely, with less than a 0.1 per cent (1 in 1000) chance of such flooding occurring each year.

Surface Water Flooding and Critical Drainage Areas

According to LBC Report of the Floods Scrutiny Panel (June 2003) St Albans Road did not flood during either the 1975 or the 2002 flood events. Modelling of surface water flooding has been undertaken by the Environment Agency and the majority of the site is shown as having a 'Low' risk of flooding, whilst the rear garden and eastern boundary have a 'Medium Risk'.

According to LBC's Strategic Flood Risk Assessment (July 2014), the site is within a critical drainage area. However given the small scale of the excavation, which is taking place below the footprint of the existing building, there will be no change in the amount of impermeable areas below the site and therefore the drainage risk remains unchanged.

Sewer and Reservoir Flooding

As detailed on Figure 4 and with reference to LBC's Strategic Flood Risk Assessment (July 2014) the property lies outside an area which is at risk of external or internal sewer flooding.

The Environment Agency's website shows that this area does not fall within an area at risk of flooding from reservoirs.

3.5 Other Information

Other hydrogeological information obtained from the data sources detailed in Section 2.2 confirms that the nearest water well is located approximately 300m southwest of the site on Highgate Road.

3.6 Non-Technical Summary

According to available historical maps the existing building was constructed by 1915.

The geological map of the area (North London, Sheet 256) indicates that the site is underlain by the London Clay Formation although deposits of Superficial Head are indicated locally on site.

Exposed soil evident in cutting exposed during the enabling works for the development was analysed by Fairhurst during the walkover survey and revealed ground conditions that were generally consistent with the geological records and known history of the area.

Review of the LBC online planning portal indicates that there is recent ground investigation data at 43 Croftdown Road, located approximately 120m south of the site. A summary of the findings of the ground investigations is presented in this chapter.

Based on available OS maps, the closest surface water feature present is a small pond that appears to be present within the grounds of the school, 50m south of the site. The feature is not considered a potential spring line.

With reference to Barton (1992) and, Stanford's 1864 map of London the site is within 50m of the Highgate Branch of the River Fleet. Using information from Thames Water the it is apparent that the river is now culverted.

According to Environment Agency (EA) Flood maps and information from LBC the site is not deemed to be at risk from flooding from rivers, reservoirs or sewers. Modelling of surface water flooding has been undertaken by the Environment Agency and the site is shown as having a 'Medium Risk' of flooding.

According to LBC's Strategic Flood Risk Assessment (July 2014), the site is within a critical drainage area but given the small scale of the extension, there will be no change in the amount of impermeable areas below the site and therefore the drainage risk remains unchanged.

4.0 SCREENING

A screening process has been undertaken in accordance with the most recent guidance from Camden Council (2018) and the findings are described below.

4.1 Subterranean (Groundwater) Flow

Question	Response	Details
1a. Is the site located directly above an aquifer.	No	The Bedrock geology underlying the site (London Clay Formation) has been classified as Unproductive Strata. The Superficial Head as indicated to be below the site during the site walkover is not classified in this area by the EA.
1b. Will the proposed basement extend beneath the water table surface.	No	Using the results of ground investigation at No. 43 Croftdown Road (120m S of the site), the local groundwater appears to be at a depth of between 1.56m and 1.88m (50.44m and 50.12m AOD). This is below the FFL at No. 29 St Albans Road (53.20m AOD). In addition no groundwater seepages were encountered during the enabling (excavation) works at the site.
2. Is the site within 100m of a watercourse, well (used / disused) or potential spring line.	Yes	With reference to Barton (1992) and Stanford's 1864 map of London, the site is within 100m of the Highgate Branch of the River Fleet. Using information from Thames Water the river is now culverted. Based on available OS maps, the closest existing surface water feature present is a small pond that is present within the grounds of the school, 50m south of the site. The feature is man-made, very shallow (0.25m) and surrounded by concrete and therefore not considered a potential spring line.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No	The site is over 500m south east from these features.
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas.	No	The scheme will not result in a net decrease of impermeable areas on the site.
5. As part of 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	No surface water will be discharged to ground as part of these proposals
6. 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 or spring line.	No	Using the results of nearby ground investigation the local groundwater appears to be at a depth of approximately 1.56m to 1.88m bgl (50.44m to 50.12m AOD) and therefore below the level of the FFL at No. 29 St Albans Road (53.20m AOD). In addition no groundwater seepages were encountered during the enabling (excavation) works at the site.

4.2 Slope Stability

Question	Response	Details
1. Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8).	No	The site slopes gently to the southeast with levels of 53.7m AOD in the front of the property to 53.2m AOD measured in the back garden area, however, this is less than 7 degrees.
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7 degrees (approximately 1 in 8).	No	No re-profiling of landscaping is proposed.
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8).	No	Based on the site walkover and Figure 16 of Camden's geological, hydrogeological and hydrological study (extract presented as Figure 2 to this report) the site lies outside these areas.
4. Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8).	No	Based on the site walkover and Figure 16 of Camden's geological, hydrogeological and hydrological study (extract presented as Figure 2 to this report) the site is not located in an area where the general slope is greater than 7 degrees.

5. Is the London Clay the shallowest strata at the site.	No	Based on the site walkover, exposed soil confirmed Made Ground to approximately 0.4m bgl, followed by soils typical of Superficial Head to 0.5m bgl, which equates to the proposed FFL.
6. Will any trees be felled as part of the development and/or are any works proposed within any tree protection zones where trees are to be retained.	No	No existing trees will be removed as part of these works.
7. Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site.	Yes	The Superficial Head and London Clay Formation below the site are both prone to shrinking and swelling.
8. Is the site within 100m of a watercourse or a potential spring line.	Yes	With reference to Barton (1992) and, Stanford's 1864 map of London the site is within 100m of the Highgate Branch of the River Fleet. Using information from Thames Water the river is now culverted.
9. Is the site within an area of previously worked ground.	No	According to information from the BGS there are no recorded areas of worked ground within 250m of the site.
10. Is the site within an aquifer. If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction.	No	The Bedrock geology underlying the site (London Clay Formation) has been classified as Unproductive Strata. The Superficial Head as indicated to be below the site during the site walkover is not classified in this area by the EA.
11. Is the site within 50m of the Hampstead Heath Ponds	No	The site is approximately 500m from these features.
12. Is the site within 5m of a highway or pedestrian right of way.	No	The area of the proposed excavation is over 5m south of St Albans Road.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties.	Yes	The excavation will result in the new ground floor level at No. 29 being approximately 0.50m below the existing ground floor level at No.25 and 27 St Albans Road. The is not considered to be a significant excavation however given the property shares a party wall with No. 27, this issue has been taken forward to the scoping phase.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines.	No	Reference to the TfL mapped 'runners' held internally by Fairhurst shows that there are no TfL or Network Rail owned tunnels below the site or surrounding area

4.3 Surface Water and Flooding

Question	Response	Details
1. Is the site within the catchment of the ponds 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
2. 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 exactly the same to the existing condition, with rainwater run-off collected in a surface water drainage system and discharged to a combined sewer. Any groundwater flows will not be impeded by the extension.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas.	No	The scheme will not result in a net decrease of impermeable areas on the site.
4. Will the proposed basement result in changes to the profile of the 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 above; hence there will be no change from the development on the quantity or quality of surface water being received by adjoining sites.
5. Will the proposed basement result in changes to the quality 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 above; hence there will be no change from the development on the quantity or quality of surface water being received by adjoining sites.

Question	Response	Details
6. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	Yes	<p>With reference to the EA surface water flooding maps, the majority of the site is classified as having a 'Low' Risk of flooding from surface water, while the rear garden and eastern boundary appear to have a 'Medium Risk'.</p> <p>Furthermore according to LBC studies, St Albans Road did not flood during either the 1975 or 2002 flood events. According to LBC SRFA, no properties within the vicinity of the site have previously been affected by external or internal sewer flooding.</p> <p>According to LBC's Strategic Flood Risk Assessment (July 2014), the site is within a critical drainage area, but given that the excavation is within the current footprint, there will be no change in the amount of impermeable areas below the site and therefore the drainage risk remains unchanged.</p>

4.4 Non-Technical Summary of Screening Process

The screening process identifies the following issues to be carried forward to scoping for further assessment.

Subterranean (Groundwater) Flow

- Is the site within 100m of a watercourse, well (used / disused) or potential spring line;

Slope Stability

- Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site;
- Is the site within 100m of a watercourse or a potential spring line;
- Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties.

Surface Water and Flooding

- Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding;

5.0 SCOPING PHASE

The following issues have been brought forward from the screening process for further assessment:

5.1 Subterranean (Groundwater) Flow

Screening Question	Potential Impact	Response	Action(s)
2	Is the site within 100m of a watercourse, well (used / disused) or potential spring line.	Changes in groundwater flow could have an impact on slope stability. The Thames Water Property Search (Figure 3c) confirms that the River Fleet has been culverted to form a drain at least 5m from the site and is therefore unlikely to have any impact on or be influenced by the surrounding groundwater levels. The soil conditions identified during the walkover survey did not establish the presence of alluvial deposits beneath the site which may be in hydraulic continuity with saturated alluvial deposits associated with the Fleet. Also no culverts were encountered below the site during the enabling works. The proposed basement development is therefore not expected to impact the surrounding water environment.	No further assessment required at this stage

5.2 Slope Stability

Screening Question	Potential Impact	Response	Action(s)
7	Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site?	The London Clay Formation was recorded as having a high volume change potential in the historical ground investigation at No. 43 Croftdown Road located 120m south of the site. Superficial Head has also been recorded locally to be at risk from shrink/swell subsidence. Despite this, it is understood that the trees located close to the existing building will be retained as part these proposals and the adjacent land does not have a known history for land instability. Therefore subject to inspection of foundation excavations by a trained geotechnical engineer to ensure that there is not significant unexpected root growth, it is not considered that the occurrence of shrink/swell issues in the local area has any bearing on the proposed development.	No further assessment required at this stage
8	Is the site within 100m of a watercourse, well (used / disused) or potential spring line.	Changes in groundwater flow could have an impact on slope stability. Based on the information above the development is not considered to present a risk to slope stability at this site, where the risk of an impact on slope stability from changes in groundwater flow is considered to be low due to the lack of hydraulic continuity between the culverted River Fleet and the site and also the expected negligible permeability of the cohesive Superficial Head and London Clay Formation below the site.	No further assessment required at this stage
13	Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties	Potential ground movements during and post construction The excavation will result in the new ground floor level at No. 29 St. Albans Road being approximately 0.50m below the existing ground floor levels at No.25 and 27. This is not seen as being a significant excavation however it is important that a suitable retention system is enforced to ensure the stability of the excavation and neighbouring property's at all times (including under the temporary and permanent conditions). This is particularly important at the party wall with No. 27. In accordance with best practice, it is recommended that a specification for movement monitoring should be incorporated into the final construction scheme for the proposed development to monitor the adjacent properties and establish the extent of any future potential movement to the buildings. Post condition surveys are recommended of the existing and neighbouring properties and the temporary and permanent works should be designed to limit eventual movement. A party wall surveyor should also be employed to confirm stability of the development.	No further assessment required at this stage

5.3 Surface Water and Flooding

Screening Question	Potential Impact	Response	Action(s)	
6	Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	Reductions of permeable areas can result in greater surface water run-off and greater risk of flooding.	With reference to the EA, the rear garden area and eastern boundary of the site have a 'Medium Risk' of surface water flooding. Despite the above, the scheme is relatively small in scope, and will not result in an increase in impermeable areas and therefore is considered compliant with the surface water management and flood risk elements of National Planning Policy Framework (NPPF) and Camden policy. Taking this into account, no additional SUDS are considered necessary; however, the scheme could incorporate a French drain / swale area adjacent to the proposed development to increase surface water storage on site.	No further assessment required at this stage

5.2 Non-Technical Summary of Scoping Phase

Based on the scoping phase it is not considered that the proposed development would result in any detrimental changes to subterranean groundwater flow, slope stability or surface water and flooding in the areas below and surrounding the site. On the basis of these findings, a full Basement Impact Assessment (including ground investigation and ground movement assessment) is not recommended as being necessary for the site.

6.0 CONCLUSIONS

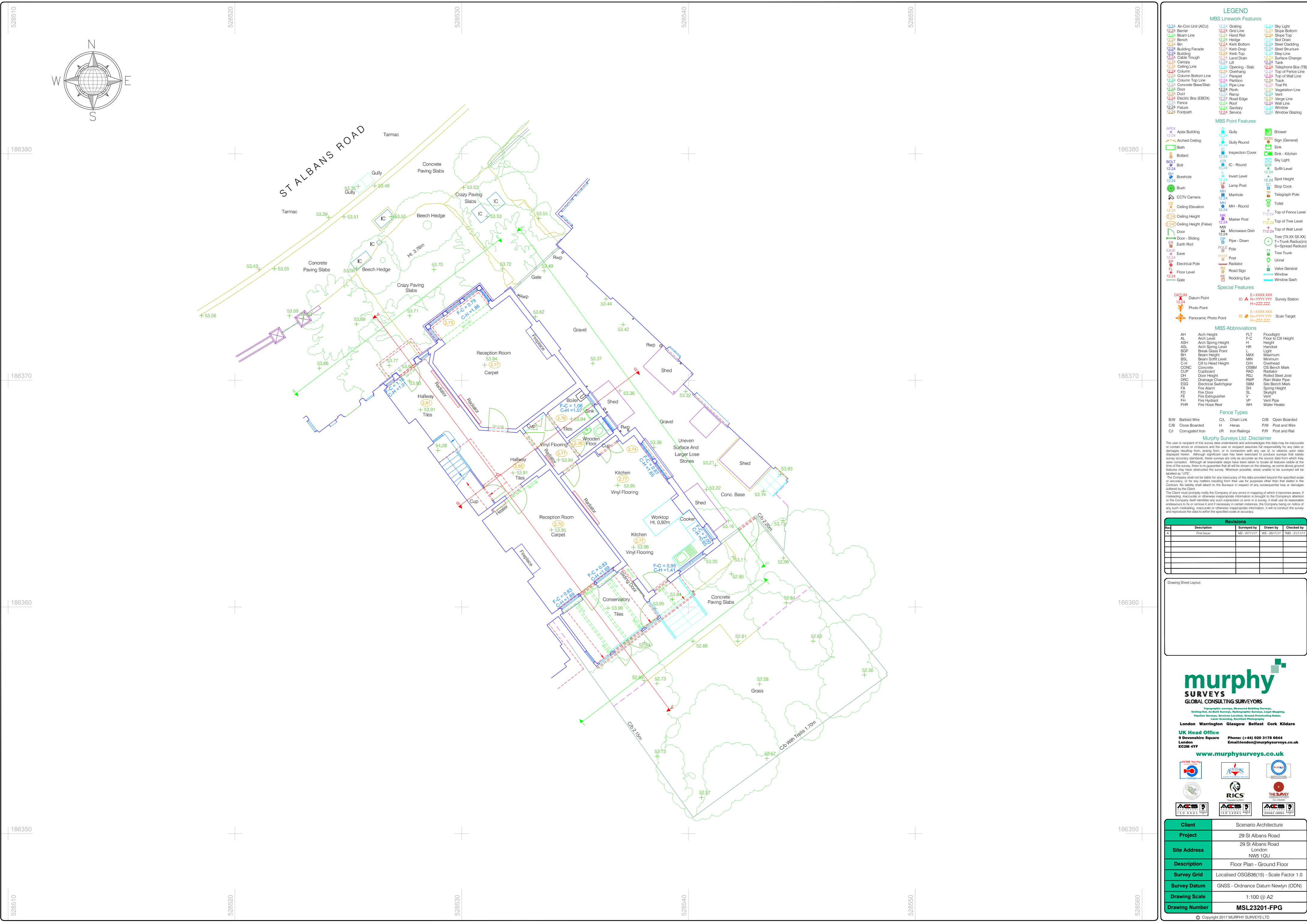
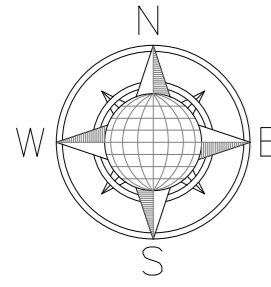
A screening process of a Basement Impact Assessment has been carried out following the information and guidance published by the London Borough of Camden. Information has been used to assess potential impacts identified by the screening process. It is concluded that the proposed development is unlikely to result in any specific land or slope stability issues, groundwater or surface water issues.

Despite the above it is recommended that the chosen contractor should have a contingency plan in place to deal with unexpected geological or hydrological conditions as a precautionary measure as the development is constructed on site.

Also, in accordance with best practice, it is recommended that a specification for movement monitoring should be incorporated into the final construction scheme for the proposed development to monitor the adjacent properties and establish the extent of any future potential movement to the buildings. Pre and post condition surveys are recommended of the existing and neighbouring properties and the temporary and permanent works should be designed to limit eventual movement. A party wall surveyor should also be employed to confirm stability of the development.

APPENDIX A

DEVELOPMENT PROPOSALS



LEGEND

MBS Linework Features

12.24 Air-Con Unit (ACU)	12.24 Grating	12.24 Sky Light
12.24 Barrier	12.24 Grid Line	12.24 Slope Bottom
12.24 Beam Line	12.24 Hand Rail	12.24 Slope Top
12.24 Bench	12.24 Hedge	12.24 Slot Drain
12.24 Bin	12.24 Kerb Bottom	12.24 Steel Cladding
12.24 Building Facade	12.24 Kerb Drop	12.24 Steel Structure
12.24 Cable Trough	12.24 Kerb Top	12.24 Step Line
12.24 Canopy	12.24 Land Drain	12.24 Surface Change
12.24 Ceiling Line	12.24 Lir	12.24 Tank
12.24 Column	12.24 Opening - Slab	12.24 Telephone Box (TB)
12.24 Column Bottom Line	12.24 Overhang	12.24 Top of Fence Line
12.24 Column Top Line	12.24 Parapet	12.24 Top of Wall Line
12.24 Concrete Base/Slab	12.24 Partition	12.24 Track
12.24 Door	12.24 Pipe Line	12.24 Trail Pit
12.24 Dust	12.24 Plinth	12.24 Vegetation Line
12.24 Electric Box (EBOX)	12.24 Ramp	12.24 Vent
12.24 Fence	12.24 Road Edge	12.24 Verge Line
12.24 Fixture	12.24 Roof	12.24 Wall Line
12.24 Footpath	12.24 Sanitary	12.24 Window
	12.24 Service	12.24 Window Glazing

MBS Point Features

APEX 12.24 Apex Building	G Gully	Shower
Arched Ceiling	Gully Round	Sign (General)
Bath	IC - Round	Sink - Kitchen
Bolt 12.24	IC - Round	Sky Light
Borehole	Invert Level	Skiff Level
Bush	Lamp Post	Spot Height
CCTV Camera	Manhole	Stop Cock
Ceiling Elevation	MH - Round	Telegraph Pole
Ceiling Height	MK	Toilet
Ceiling Height (False)	Marker Post	Top of Fence Level
Door	MW	Top of Tree Level
Door - Sliding	Microwave Dish	Top of Wall Level
Earth Rod	Pipe - Down	Tree (T.XX.SX.XX)
EAVE 12.24	Pole	Tree Trunk Radius(m)
Electrical Pole	Post	Tree Trunk
Floor Level	Radiator	Urinal
Gate	Road Sign	Valve General
	Rodding Eye	Window
	Service	Window Sash

Special Features

DATUM 12.24 Datum Point	E-XXXXXXX Survey Station
Photo Point	H-XXXXXXX Survey Station
Panoramic Photo Point	S-XXXXXXX Scan Target
	N-XXXXXXX Scan Target

MBS Abbreviations

AH Arch Height	FLT Floodlight
AL Arch Level	F-C Floor to Ceiling Height
ASH Arch Spring Height	H Height
ASL Arch Spring Level	HR Handrail
BGP Break Glass Point	L Light
BH Beam Height	MAX Maximum
BSL Beam Soffit Level	MIN Minimum
C-H Oil to Head Height	OH Overhead
CONC Concrete	CSBM CS Bench Mark
CUP Cupboard	RAD Radiator
DH Door Height	RSU Rolled Steel Joist
DRC Drainage Channel	RWP Rain Water Pipe
ESG Electrical Switchgear	SBM Site Bench Mark
FA Fire Alarm	SH Spring Height
FD Fire Door	SL Skylight
FE Fire Extinguisher	V Vent
FH Fire Hydrant	VP Vent Pipe
FHR Fire Hose Reel	WH Water Heater

Fence Types

B/W Barbed Wire	CL Chain Link	O/B Open Boarded
C/B Close Boarded	H Hedges	P/W Post and Wire
C/I Corrugated Iron	IR Iron Railings	P/R Post and Rail

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Revisions			
Rev	Description	Surveyed by	Checked by
1	First Issue	M2 - 2011/17	MS - 2011/17

Drawing Sheet Layout:

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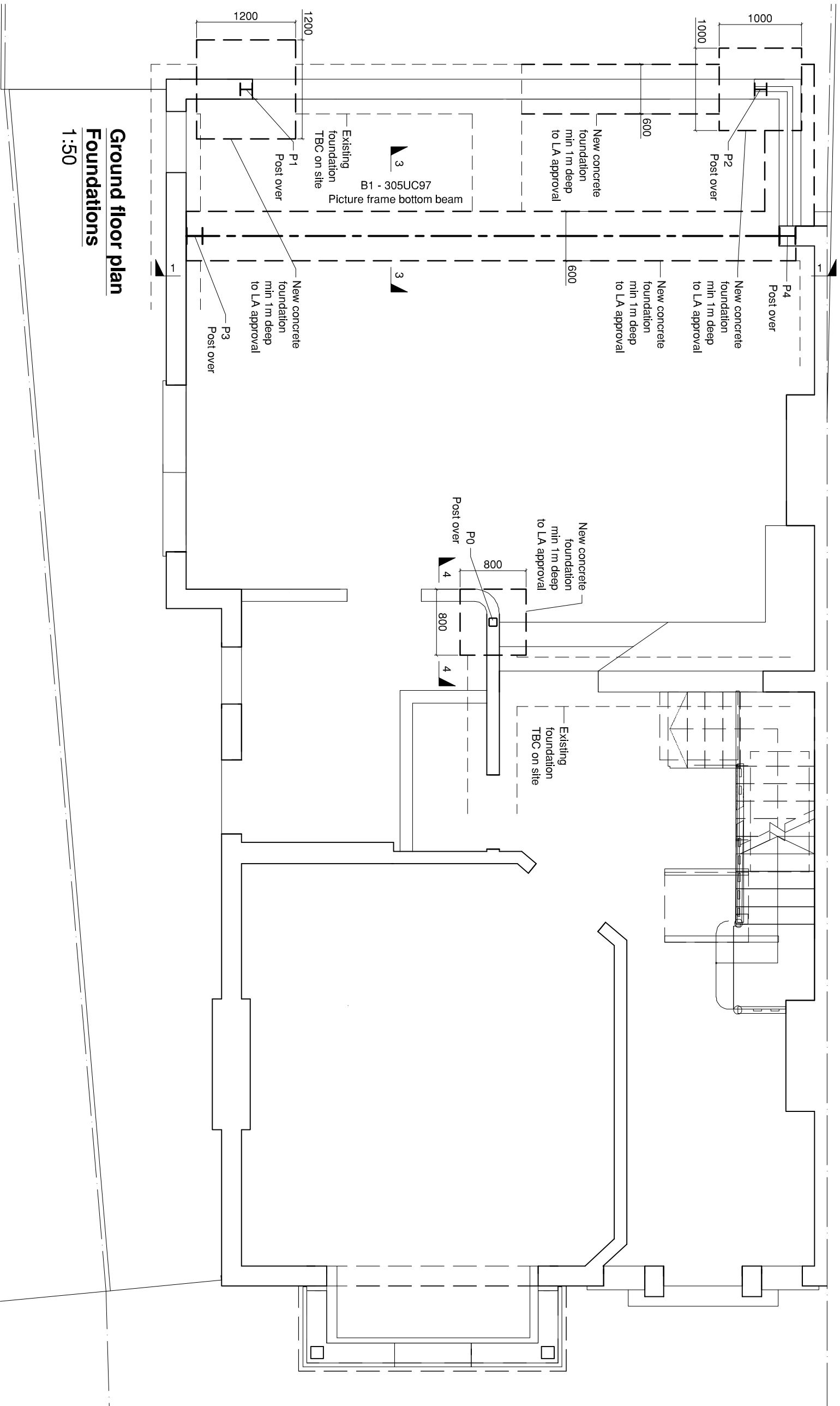
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9 Devonshire Square London EC2M 4YF
Phone: (+44) 020 3178 6644
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Client	Scenario Architecture
Project	29 St Albans Road
Site Address	29 St Albans Road London NW5 1QU
Description	Floor Plan - Ground Floor
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
Drawing Scale	1:100 @ A2
Drawing Number	MSL23201-FPG

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Ground floor plan
Foundations
1:50

Notes:
This drawing to be read in conjunction with all relevant Architect's, Engineer's and Specialist's drawings and specifications.

BEAMS NOT TO BE ORDERED FROM CALCULATIONS & NOR SCALED OFF DRAWINGS, ACTUAL SITE MEASUREMENT TO BE TAKEN.

Concrete to be grade C35.

Concrete for foundations to be grade C35, FND3

Timber to be grade C16

Steel to be grade S355 wire brushed clean and painted 2 coats red oxide. All bolts to be grade 8.8.

Min. foundation depth 1.0m

Final foundation depth subject to Local Authority

All temporary supports including adjoining properties boundaries and wall is the responsibility of the contractor.

All doubled up (etc) timbers/steel beams to be bolted together using M12@400 crs.

The contractor shall verify details of the existing structure and to inform the engineer of any discrepancies prior to the procurement of the new structure.

PRELIMINARY
BUILDING REGULATIONS, PARTY WALL ISSUE

REV	DESCRIPTION
...	...

A4 DESIGN
STRUCTURAL ENGINEERS LTD

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www.a4design.ltd
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SUTTON SM1 1RW
robert@a4design.ltd

PROJECT
29 SAINT ALBANS ROAD
LONDON NW5 1QU

DRAWING NO
SAR/1

SCALE
1/50 @ A3

DATE
MAR 2018

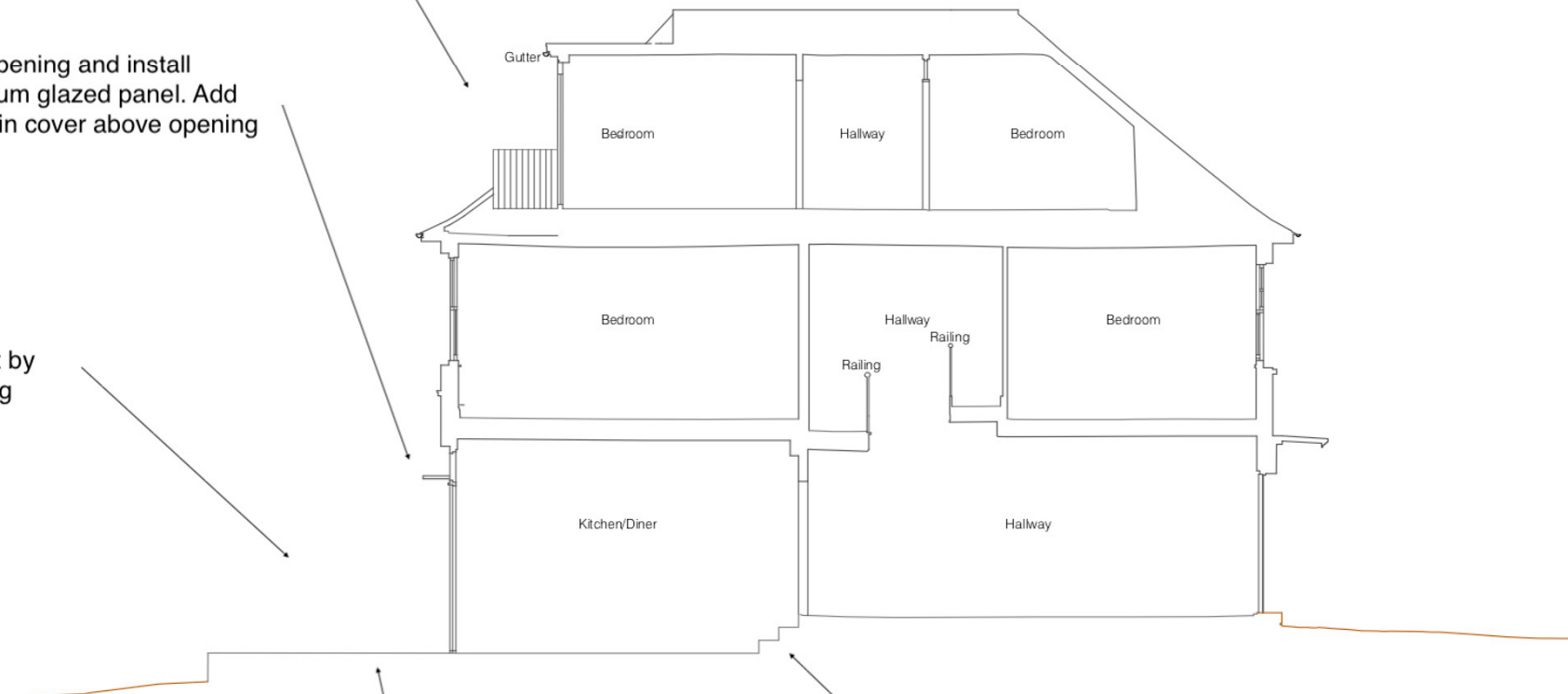
TITLE
GROUND FLOOR PLAN
FOUNDATIONS

BY
ROBERT

Increase opening of dormer window and add white timber glazed doors onto newly formed small balcony

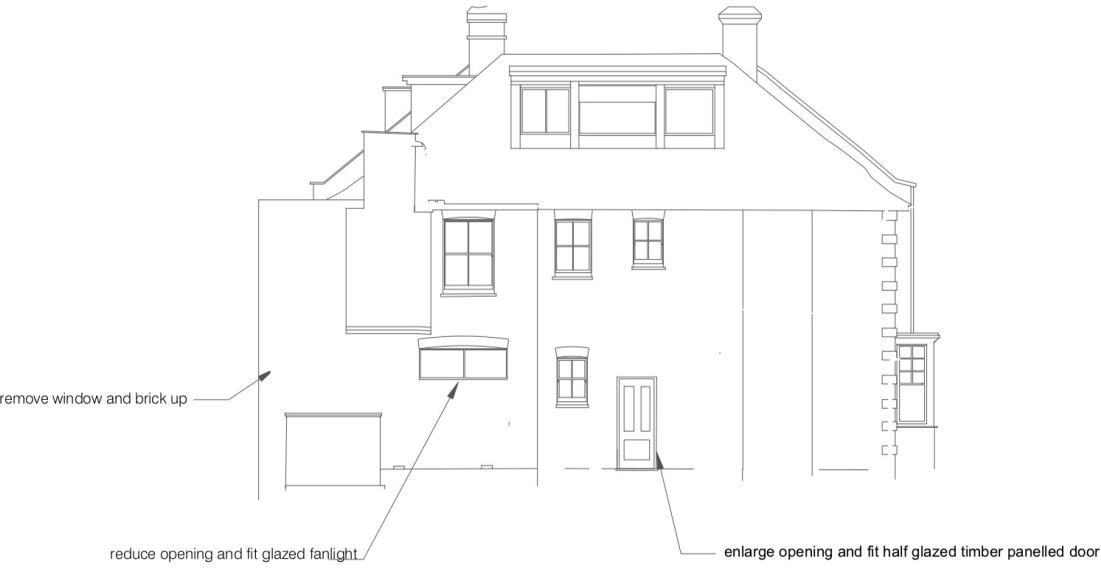
Form opening and install aluminium glazed panel. Add steel rain cover above opening

Reduce footprint by removing existing conservatory

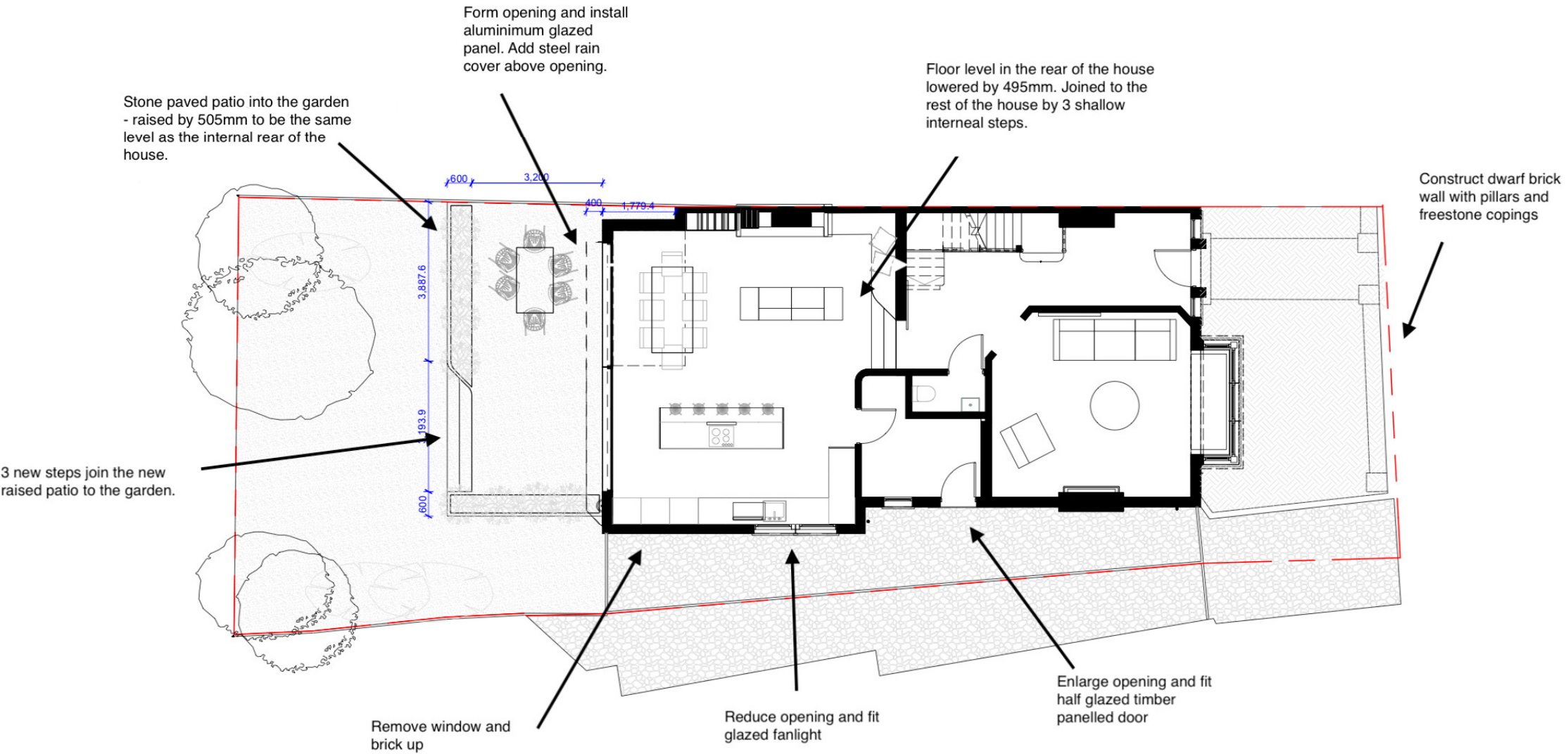


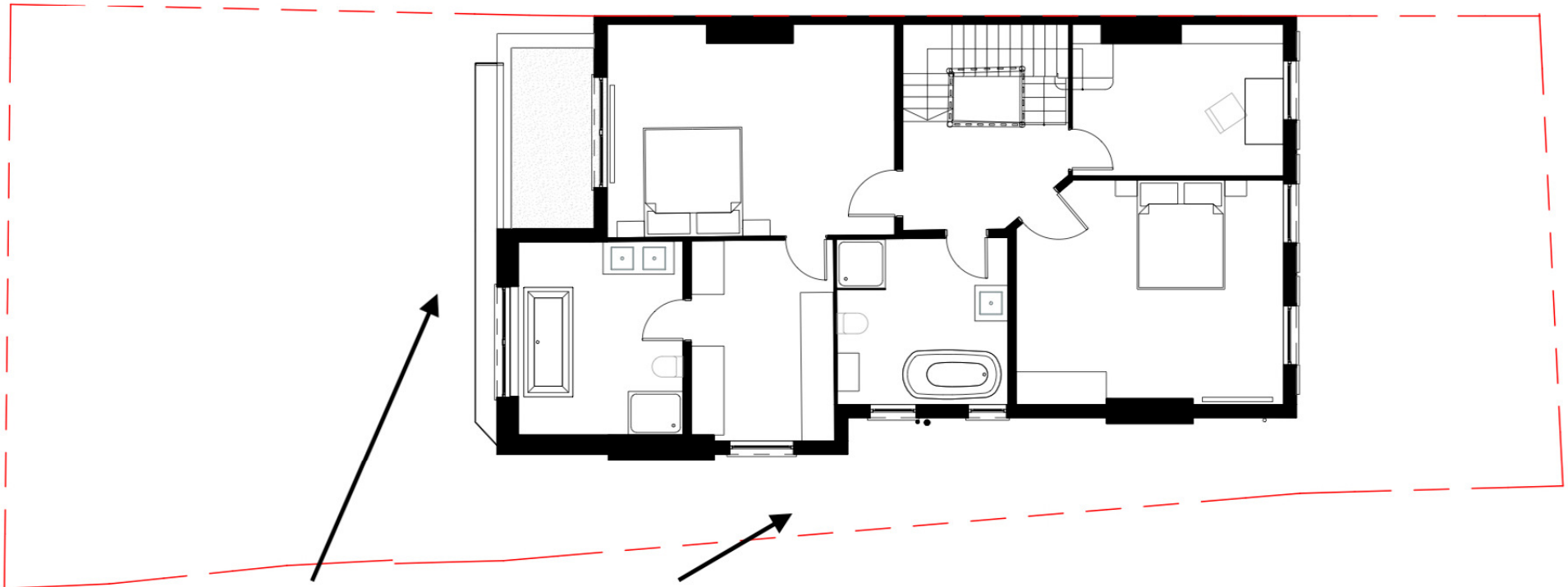
Create new patio in the garden - increase height by 505mm to be the same level as the internal rear floor, with 3 new steps into the garden

Lower floor level to the rear of the property reduced by 495mm, with 3 new shallow internal steps connecting to the rest of the house.



Construct dwarf brick wall with pillars and freestone copings

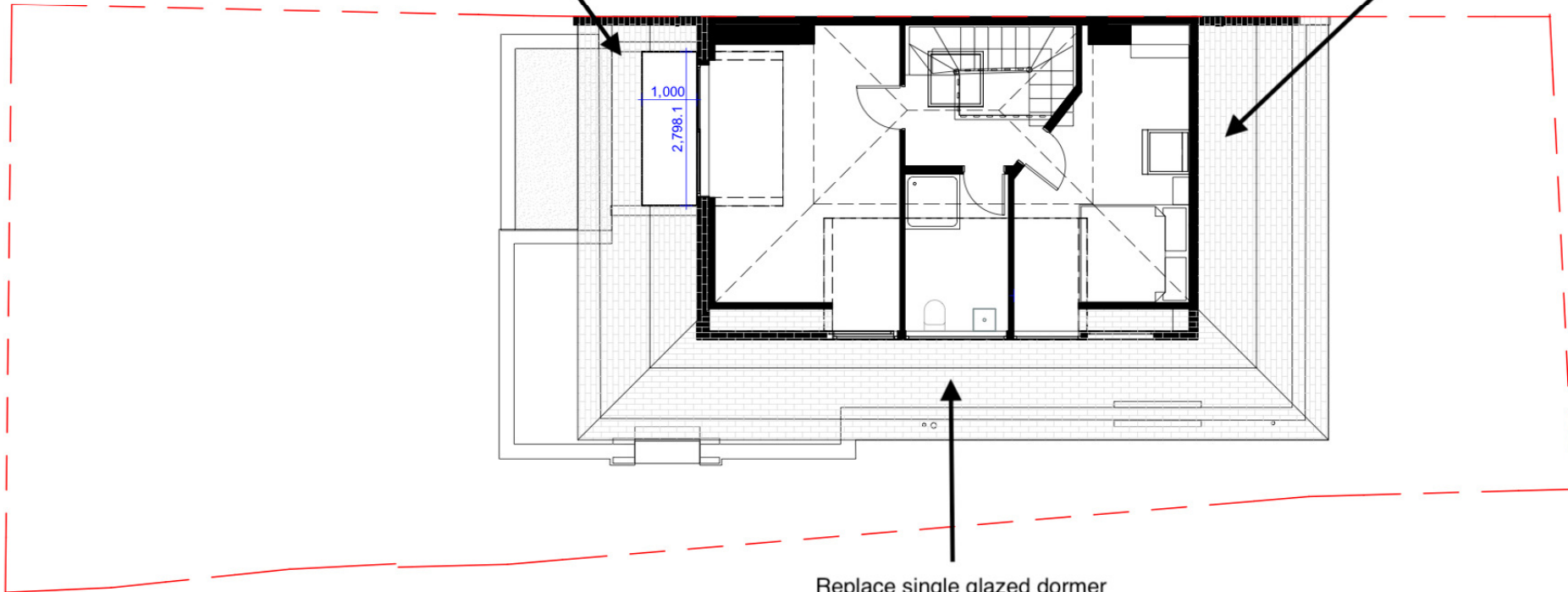




Replace all sash windows on the rear and side with like-for-like white timber sash with double glazing

Increase opening of dormer window and add glazed white timber doors opening onto a newly formed small balcony

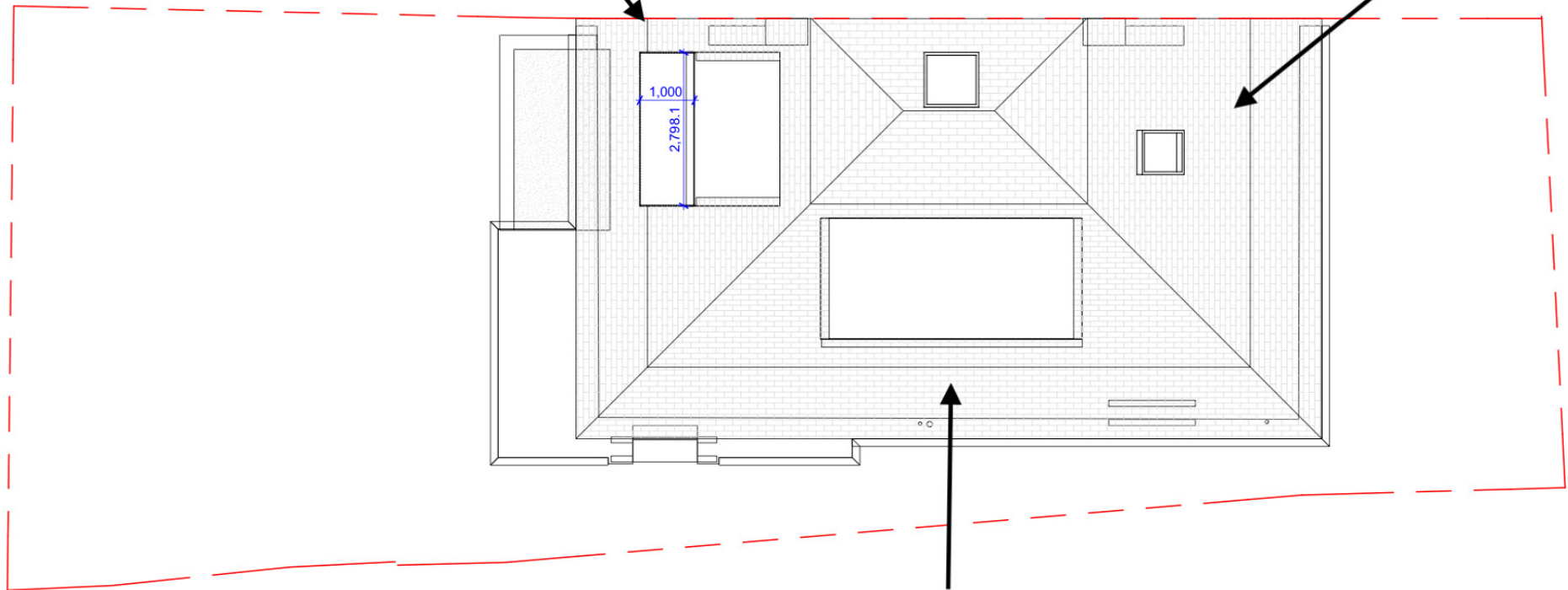
Replace Velux with like-for-like conservation-grade Velux



Replace single glazed dormer windows with white timber sash windows

Increase opening of dormer window and add white timber glazed doors leading to a newly formed small balcony

Replace Velux with like-for-like conservation-grade Velux skylight



Replace single glazed dormer windows with white timber double glazed sash windows

APPENDIX B

SITE PHOTOGRAPHS



View to the South west detailing the front of the property

FAIRHURST	Basement Impact Assessment		
	Site Photographs		
29 St Albans Road	Date: May 2018	Initials: JC	App: B



View to the Southwest detailing St Albans Road

FAIRHURST	Basement Impact Assessment		
	Site Photographs		
29 St Albans Road	Date: May 2018	Initials: JC	App: B



View to the South detailing back garden

FAIRHURST

Basement Impact Assessment

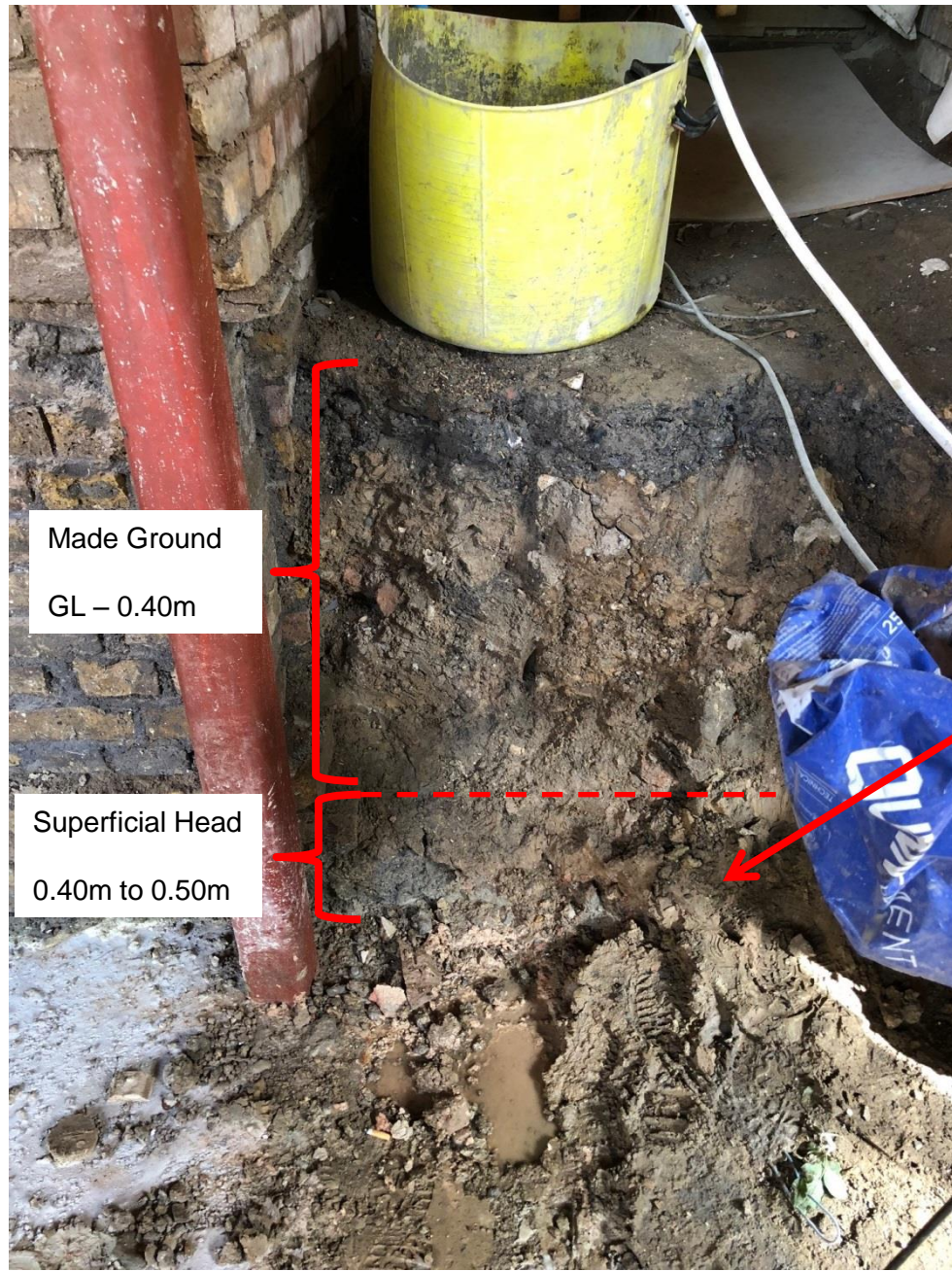
Site Photographs

29 St Albans Road

Date:
May 2018

Initials: JC

App: **B**



View of cutting and exposed soil (Superficial Head Deposits)

FAIRHURST	Basement Impact Assessment		
	Site Photographs		
29 St Albans Road	Date: May 2018	Initials: JC	App: B

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