

# 28 HARLEY ROAD, NW3. SUBTERRANEAN AND SURFACE WATER BASEMENT IMPACT ASSESSMENT - SCREENING AND SCOPING REPORT

**CONSTRUCT 360** 

January 2016

#### **REVISION Record**

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#### 1 Introduction

#### 1.1 Introduction

This report presents the outcome of a subterranean and surface water basement impact assessment for the proposed development at 28 Harley Road, Swiss Cottage, London NW3 3BN (Figure 1). The site is located at NGR TQ 2701 8399. The local planning authority is Camden.

The structure of this report follows that of a subterranean and surface water basement impact assessment compliant with Camden Borough CPG4 dated 2015<sup>1</sup>.

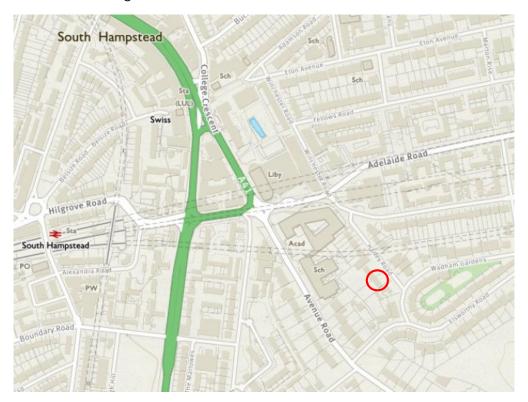


Figure 1 Site Location.

#### 1.2 Proposed basement works

The site is located on the southwest side of Harley Road, London NW3, just to the north of the junction with Wadham Gardens. The existing building is 3 storeys high including rooms in the loft, with a small single storey extension to the rear. Planning permission is being sought for a basement under the footprint of main house with a lightwell along the rear wall. Please note that this assessment covers the basement only and that no consideration is given to drainage issues in relation to above ground extension works to the rear of the property except for the installation of a lightwell.

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<sup>&</sup>lt;sup>1</sup> London Borough of Camden, July 2015. Camden Planning Guidance (CPG), Basements and lightwells CPG4.

Whilst the base of the existing lower ground floor reaches about 1.0 m below street level, the proposed development involves excavating beneath the existing building to a depth of approximately 3.5 m below the existing property level. In addition to the excavation of the basement below the existing property a new extension will be constructed to the rear (south) of the property that adds a reception room and roof terrace. Externally to this will be a small lightwell. This will be situated immediately adjacent to the rear of the building. It is proposed that this will be 0.85m x 12m.

Appendix 1 show the existing and planned designs for the property and the basement outline.

#### 1.3 Report Authors

JH Groundwater Ltd was instructed in January 2015 to complete this report. It does not include a stability assessment which has been produced by others.

The report has been prepared by Julian Hatherall BSc(Hons), MSc, CGeol, EurGeol, FGS and Paul Timmins BEng(Hons) CEng MICE.

Julian Hatherall is a Chartered Geologist with 19 years of experience providing advice on groundwater and hydrogeological issues and has significant knowledge of the assessment and management of groundwater and water resources. His experience encompasses both contaminant and water resource hydrogeology and includes baseline groundwater studies, groundwater risk assessment, groundwater advice in relation to the development of infrastructure and buildings including drainage, groundwater in the extractive industry, waste management and the development and management of groundwater abstractions. He has regularly contributed to Environmental Impact Assessments, has previously provided specialist hydrogeological support to regulators and has experience in the field of groundwater flooding and SuDS.



Paul Timmins is a Chartered Civil Engineer with eighteen years of experience in the design and management of civil engineering projects in Britain and Ireland. His professional background encompasses infrastructure engineering disciplines, such as; flood risk assessment, drainage design, SuDS design and hydraulic network modelling. He also manages technical advice for environmental baseline studies to support planning applications for residential, commercial and educational developments.

#### 2 Basement Impact Assessment Screening - Groundwater

The following subterranean (groundwater) screening follows the procedure outlined in CPG4 (2015).

1) (a) Is the site located directly above an aquifer?

NO. The geological map and the nearest off-site boreholes<sup>2</sup> indicate that significantly permeable superficial deposits are not likely to be present beneath the site.

The geological map and the nearest off-site boreholes and site investigation Trial Pits for structural purposes<sup>3</sup> recorded no Made Ground overlying London Clay (classified by the EA as Unproductive Strata). Boreholes records consulted from within 500m of the proposed development show little or no evidence of groundwater strikes. Although some localised groundwater strikes are possible this formation does not constitute an aquifer. Confirmation of this will be provided during the proposed site investigation.

Some of the boreholes in the wider area show a thin layer of grey-brown clay and stones, possibly Head, above the London Clay although NERC (2006)<sup>4</sup> does not show an area of Head to be present at the site.

A considerable thickness of London Clay (possibly in excess of 60m) is present which isolates the deeper aquifer units of the London Basin aquifer from the surface.

None of these deposits can be considered an aquifer.

1) (b) Will the proposed basement extend beneath the water table surface?

NO. There is no aquifer directly beneath the site. The London Clay is not an aquifer and therefore does not support a water table.

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

NO. There are no current surface water bodies within 100m of the site. There are no known water wells within 100 m of the site. Geological conditions indicate no potential for development of a spring line.

Nicholas Barton (1993)<sup>5</sup> indicates two upper tributaries of the Tyburn both running generally north/south, one approximately 100m to 125m to the east of the site and one approximately 100m to 125m to the west. No mapped superficial deposits are shown to be associated with these tributaries although the site investigation will assist in proving conditions below the site.

3) Is the site within the catchment of the pond chains on Hampstead Heath?

NO. The site is not within the catchment of the pond chains on Hampstead Heath.

<sup>&</sup>lt;sup>2</sup> British Geological Survey Geoindex <a href="http://www.bgs.ac.uk/geoindex/">http://www.bgs.ac.uk/geoindex/</a> accessed 17/1/16.

<sup>&</sup>lt;sup>3</sup> Michael Chester and Partners (2015). Structural Report to Accompany Planning application.

<sup>&</sup>lt;sup>4</sup> NERC, 2006. British Geological Survey 1:50 000 map for North London (Sheet 256).

<sup>&</sup>lt;sup>5</sup> Barton, N.J., 1993. The Lost Rivers of London 3<sup>rd</sup> edition.

4) Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?

NO. The installation of a lightwell is proposed. This will be situated at ground level immediately adjacent to the rear of the building. It is proposed that this will be 0.85m x 12m. The lightwell will not change the area of hardstanding on the site.

- 5) As part of the site drainage, will more surface water (e.g. rainfall and runoff) than at present be discharged to the ground (e.g. via soakaways and/or SuDS)?
- NO. The use of SuDS is not proposed as part of this development and no additional rainfall runoff will be discharged to ground.
- 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. The nearest mapped water body at 1:25 000 scale is the Grand Union Canal about 800m to the south east. Ponds in Regents Park are located at a distance of more than 800m and are topographically below the lowest level of the basement. This is too far from the site to be a concern, especially given that there are considered to be no significant permeable superficial deposits beneath the site.

#### 3 Basement Impact Assessment Screening - Surface Water

The development is in Flood Zone 1 (see Flood Map for Planning in Appendix 2). The Technical guidance accompanying the National Planning Policy Framework states that a Flood Risk Assessment would be required for sites over a hectare in area or for those developments that have the potential to increase the risk of flooding elsewhere.

The surface flow and flooding screening below follows the procedure outlined in CPG4 (2015). Please note that this assessment relates to the basement only and that no consideration is given to drainage issues in relation to above ground extension works to the rear of the property except for the installation of the lightwell.

- 1) Is the site within the catchment of the pond chains on Hampstead Heath?
- NO. The site is not within the catchment of the pond chains on Hampstead Heath.
- 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, the volume of rainfall runoff and the peak run-off rate will not change due to the development proposals.
- 3) Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?
- NO. The installation of a lightwell immediately adjacent to the rear of the building is proposed but this is currently within an area of hard paving. It is proposed that this will be 0.85m x 12m and that this will be excavated below ground level. It is proposed that all site drainage will be directed to the existing drainage system.
- 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. The proposed basement will have no effect on the quality of surface water being received by adjacent properties or downstream watercourses.
- 5) Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?
- NO. The proposed basement will have no effect on surface water being received by adjacent properties or downstream watercourses.
- 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?

NO. The site is not within an area identified as having surface water flood risk according to the Camden Flood Risk Management Strategy, or the Strategic Flood Risk Assessment<sup>6</sup> (SFRA) dated 2014.

Although Figure 3v of the SFRA (see Appendix 2) identifies Harley Road as being flooded in 1975 (as shown in Orange), the development site is shown to be remote from the current mapped areas at risk of surface water flooding (as shown in shades of Blue). The site may therefore be described as being at a Very Low risk of surface water flooding. It is possible that the flooding of Harley Road in 1975 could have been located at the northern end of the road, which would coincide with the location of surface water flooding predicted by the Environment Agency's latest modelling data.

The SFRA includes data from Thames Water Utilities Ltd DG5 Internal Sewer Flood Register for the study area. This data comprises the number of properties within 4 digit postcode areas that have experienced flooding either internally or externally within the last 10 years. The data shows that the Site is located within an area affected by internal sewer flooding in the past 10 years. The map shows that eight properties were affected. However, a site specific report regarding the incidents of sewer flooding at the development site was ordered from Thames Water (Appendix 3), which confirms that no flooding from sewer sources has occurred at the site.

The Environment Agency website also confirms that the site is not at risk from Reservoir flooding.

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<sup>&</sup>lt;sup>6</sup> URS, 2014. London Borough of Camden SFRA Strategic Flood Risk Assessment.

#### 4 Conceptual Site Model

#### 4.1 Drainage and topography

Based on Ordnance Survey 1:50 000 mapping the ground surface around the site slopes gently southwards. Elevation of the site is estimated to be approximately 48m above Ordnance Datum (AOD).

There are no surface water features near the site. Nicholas Barton (1993) indicates two upper tributaries of the Tyburn both running generally north/south, one approximately 100m to 125m to the east of the site and one approximately 100m to 125m to the west. According to Michael Chester and Partners (2015) a 1920 geological map generally considered to be more accurate shows the tributary to the west at about 100m distant and the tributary to the east about 250m from the site.

No surface water flooding has been identified as affecting adjacent properties although the SFRA (URS, 2014) does state that Harley Road was subject to flooding in 1975. The location of the property itself is not highlighted at risk of surface water flooding in any of the reports consulted.

#### 4.2 Geology and hydrogeology

Bedrock at the site comprises London Clay (classified by the EA as Unproductive Strata). According to NERC (2006), this is interpreted to be at least 60m thick and isolates the main aquifer of the London Basin from the surface. Nearby borehole records available from the British Geological Survey also show minimal superficial deposits, with some areas of thin Made Ground and/or Head over London Clay.

Many boreholes in the surrounding are with records viewed in the BGS GeoIndex were recorded as containing little or no water. This is typical of the London Clay. However, small discrete pockets of groundwater can be present in fractures as well as within top soils and around existing foundations.

It is concluded that, subject to confirmation by site investigation, there is not an aquifer directly beneath the site, and there is no water table in the low permeability near-surface formations.

### 5 Scoping

The purpose of scoping is to assess in further detail the factors to be investigated in the impact assessment. Potential consequences are assessed for each of the identified potential impact factors. Land stability is being assessed under separate cover.

Potential Impact	Possible Consequence and Actions	
Available geological information strongly indicates that there is no aquifer directly beneath the site. This means that there is insignificant risk of changing groundwater flow patterns beneath 28 Harley Road.		
However, the groundwater conditions requires confirmation using the proposed site investigation.	Confirm geological and groundwater conditions using site investigation.	

#### **6 Basement Impact Assessment and Conclusions**

Potential environmental impacts of the proposed basement development at 28 Harley Road have been considered. The following summary conclusions are made:

- There will be no increase in man-made impermeable area associated with the basement development plans so the amount, timing and quality of surface water runoff will not be materially changed by the development.
- Surface water flooding has historically affected properties on the street but the exact location of this has not been established. However there is no evidence of high future flood risk at number 28 based on available data.
- Available geological information strongly indicates that there is no aquifer directly beneath the site. This indicates that the basement will pose an insignificant risk of changing groundwater flow patterns beneath the property. This finding is subject to the results of an intrusive site investigation.

With the exception of confirmation of ground conditions through the use of the proposed site investigation, no further assessment is recommended.

## **Appendices**

Appendix 1 – Development Proposals



Existing Plans



EXISTING FRONT ELEVATION
SCALE 1:100





EXISTING SIDE ELEVATION SCALE 1:00

Legend

Walls Removed
New Walls

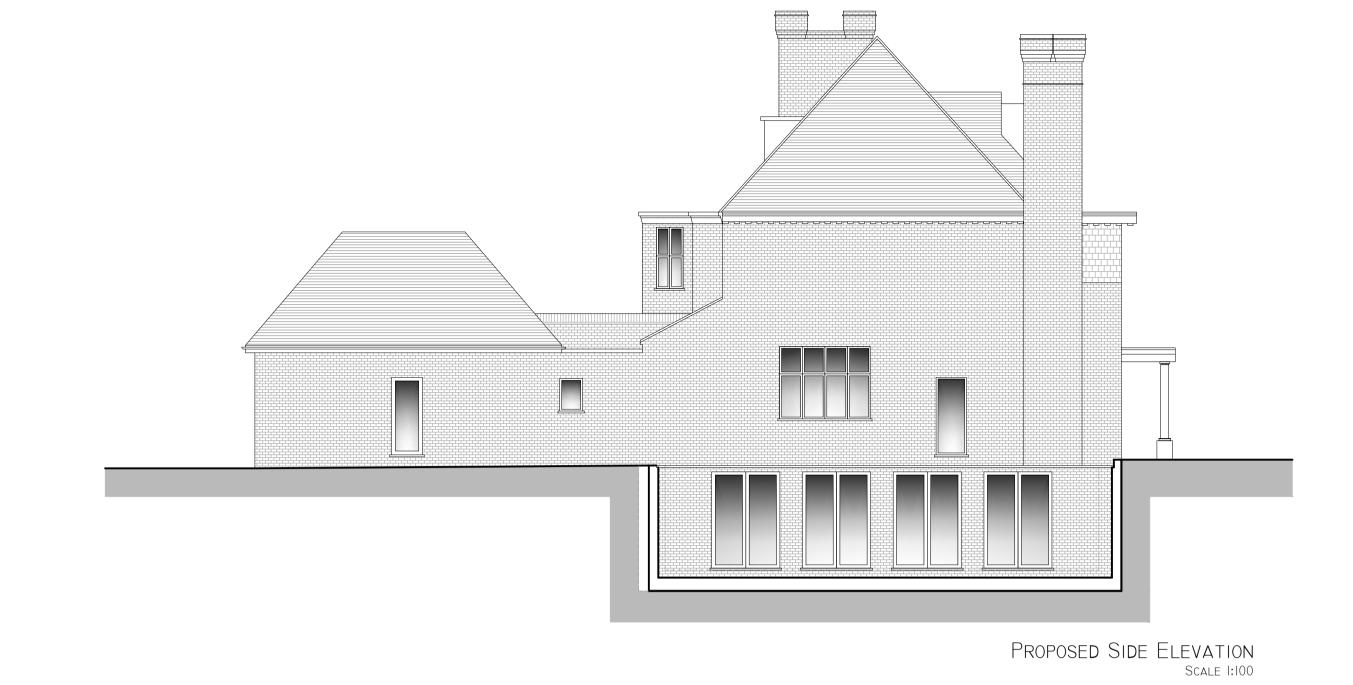
Meters 1:100

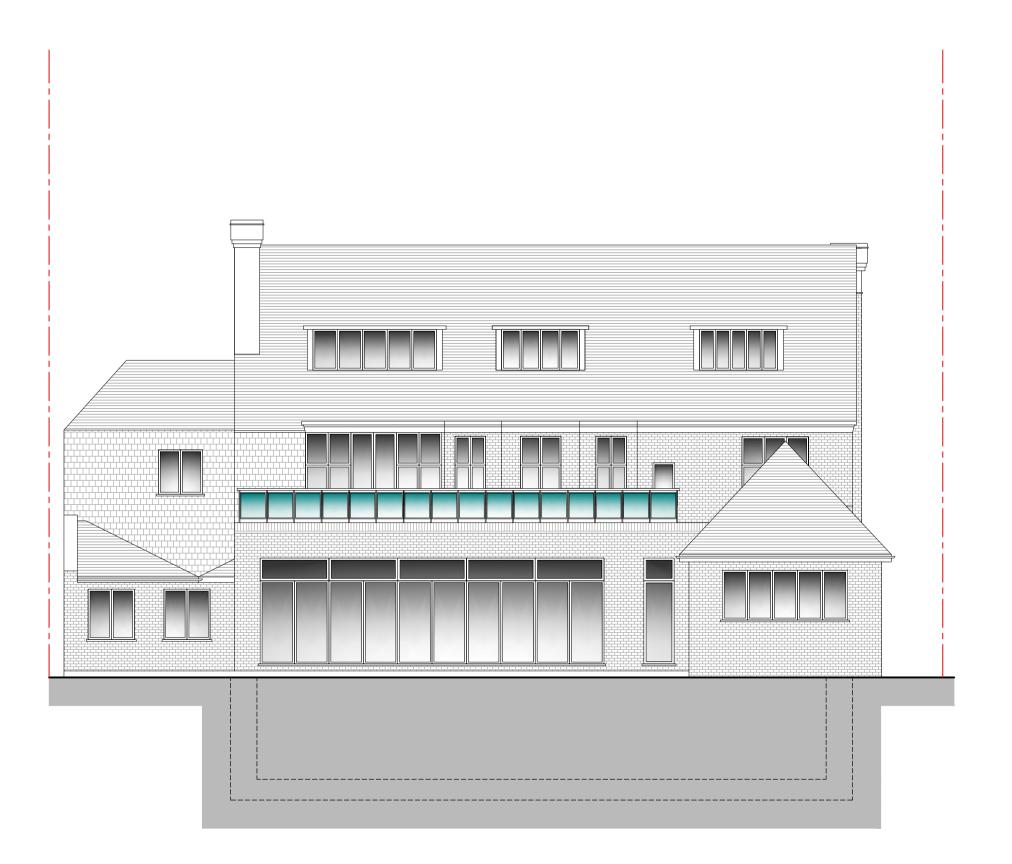
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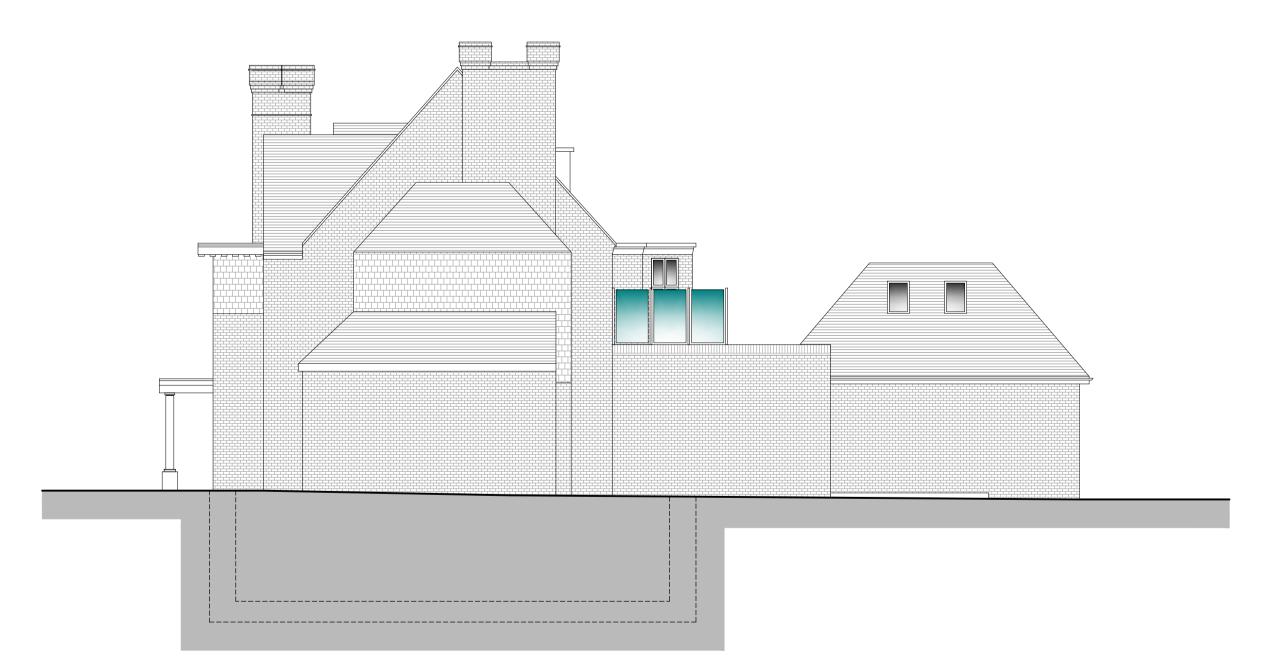






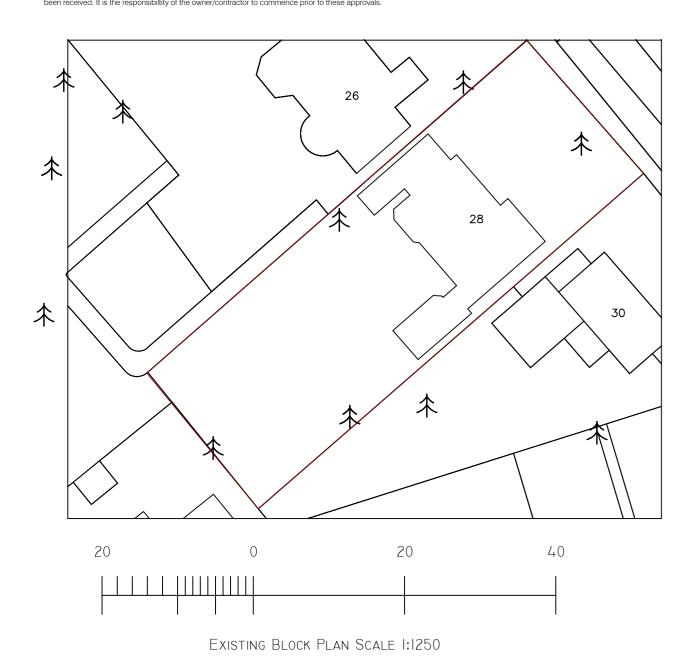


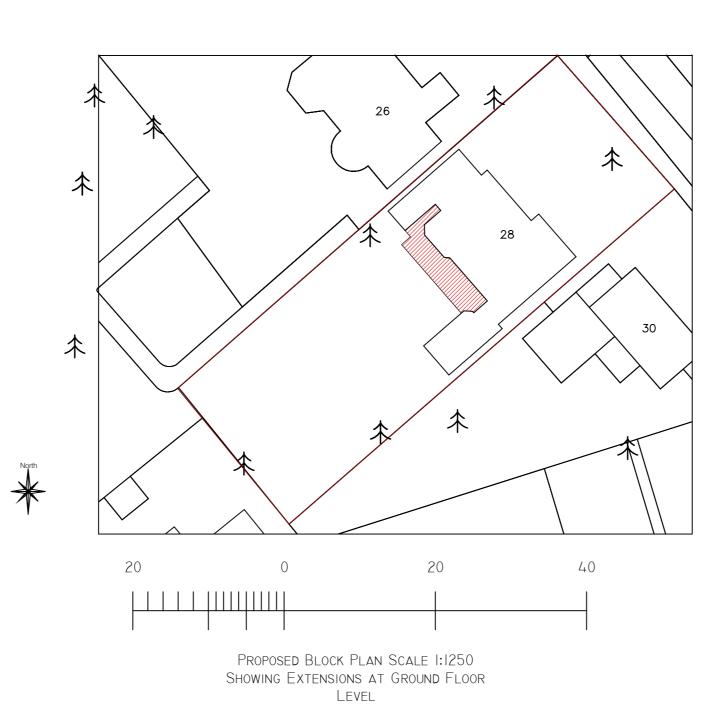
SCALE 1:100

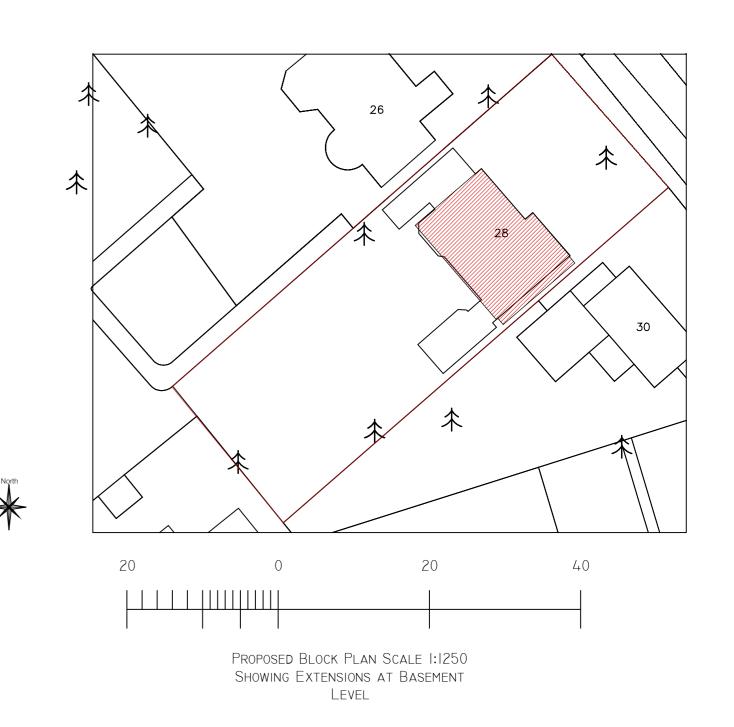


PROPOSED REAR ELEVATION
SCALE 1:100

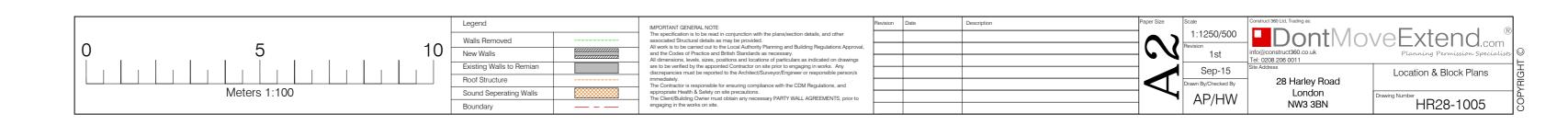
PROPOSED SIDE ELEVATION
SCALE 1:100



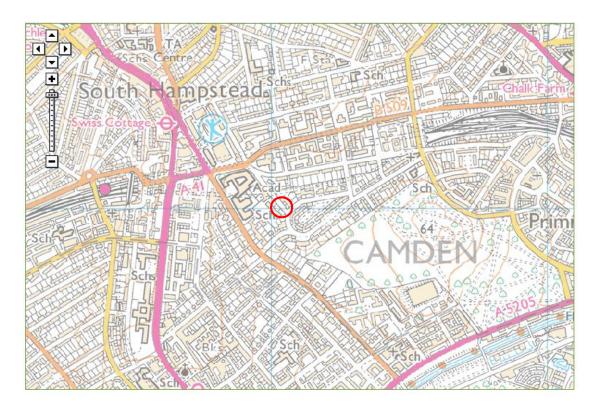




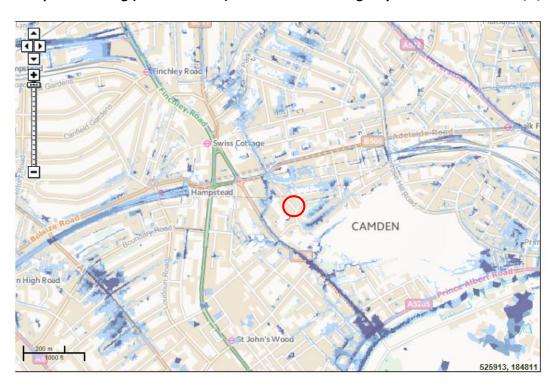




Appendix 2 – Extracts of Relevant Drawings



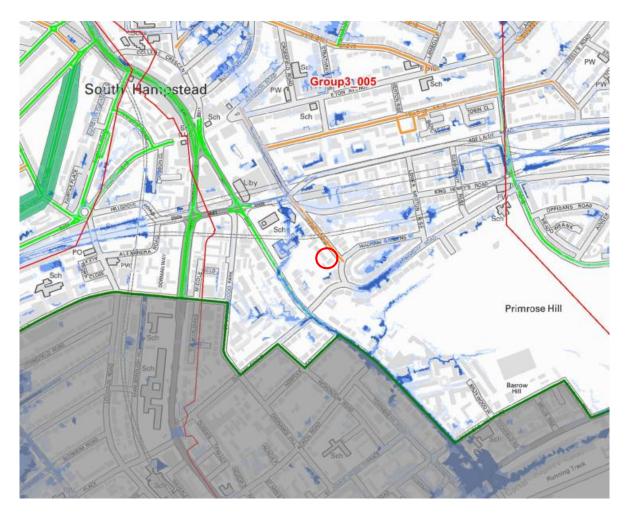
Flood Map for Planning (Rivers and Sea) from Environment Agency WIYBY<sup>7</sup> - accessed 16/1/16.



Surface Water Flood Risk mapping from Environment Agency WIYBY<sup>8</sup> - accessed 16/1/16.

<sup>&</sup>lt;sup>7</sup> http://apps.environment-agency.gov.uk/wiyby/default.aspx

<sup>&</sup>lt;sup>8</sup> http://apps.environment-agency.gov.uk/wiyby/default.aspx



Extract from Figure 3v of Camden's SFRA URS (2014)9

 $^{9}$  URS, 2014. London Borough of Camden Strategic Flood Risk assessment – July 2014

Appendix 3 – Sewer Flooding History Enquiry

# Sewer Flooding History Enquiry



**KPT Properties Ltd** 

Search address supplied 28

Harley Road Camden London

Your reference Harley Road Camden

Our reference SFH/SFH Standard/2016\_3234809

Received date 18 January 2016

Search date 19 January 2016

Thames Water Utilities Ltd

Property Searches PO Box 3189 Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504

E searches@thameswater.co.uk
www.thameswaterpropertysearches.co.uk

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

# Sewer Flooding History Enquiry



Search address supplied: 28, Harley Road, Camden, London

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments

Thames Water Utilities Ltd

Property Searches PO Box 3189 Slough SL1 4WW

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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.

#### 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: 0800 316 9800 or website www.thameswater.co.uk

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