



elliottwood

**Braemar Avenue Baptist
Church**

Flood Risk Assessment

engineering a better **society**

		Remarks:	Issued for planning				
Revision:	P2	Prepared by:	Laura Kirk MEng (Hons) CEng MICE	Checked by:	Keri Trimmer MEng (Hons) CEng MICE	Approved by:	Keri Trimmer MEng (Hons) CEng MICE
Date:	16/12/2022	Signature:		Signature:		Signature:	

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One

Executive Summary

This Flood Risk Assessment (FRA) investigates all sources of flood risk for the proposed redevelopment at Braemar Avenue Baptist Church, Braemar Avenue, Wood Green, London, N22 7BY. Potential flood risks have been identified for sewer flooding. Mitigation measures have been suggested to reduce the flood risk from this source.

The site lies entirely within Flood Zone 1 and a Critical Drainage Area. The proposed development is considered suitable in line with the Sequential Test.

This report concludes that provided the necessary mitigation measures are incorporated, the proposed development is at low risk of flooding and will not increase the flood risk to neighbouring land. The development is considered to be in accordance with all flood risk policy at a local and national level.

Two

Introduction

Elliott Wood Partnership Ltd has been commissioned to undertake a site-specific flood risk assessment (FRA) for the proposed redevelopment at Braemar Avenue Baptist Church, Braemar Avenue, Wood Green, London, N22 7BY.

This report is intended to review all potential sources of flooding to the proposed development, evaluate the sensitivity of the site to flooding and consider any impact to the surrounding area that the development may cause.

Three

Site Context

3.1 Site Location

The site is located in Wood Green, London. It is bounded by the A109 Bounds Green Road to the north, Braemar Avenue to the west and New River Path/Nightingale Gardens to the east. A residential property bounds the site to the south. Refer to **Figure 1** for the site location.

The site is approximately centred at OS grid reference 530479 E, 190772 N.



Figure 1: Site location

3.2 Existing Development

The red line boundary for the site covers an area of 1,940m² (0.19 hectares).

The existing site (see **Figure 2**) consists of the Baptist Church building in the centre of the site, with a 2-storey tin tabernacle to the south of the church. There is an area of soft landscaping and pedestrian walkways to the north of the church. Only the southern portion of the site is to be redeveloped; for the purposes of this report this portion of the site is denoted the “developable site boundary”, denoted by the purple dashed line in **Figure 2**.

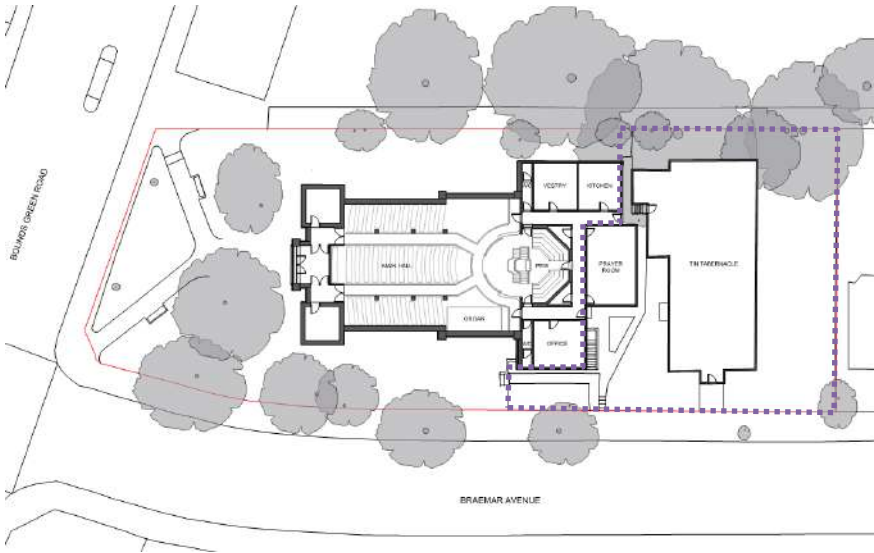


Figure 2: Existing site layout

3.3 Topography

A topographic survey was undertaken by Terrain Surveys Ltd in April 2018. A copy of this survey is included in **Appendix A**.

Levels on the site are relatively flat; they vary from +36.13mAOD in the north-east corner to +36.74mAOD in the south-west corner. The entrance of the existing tabernacle building is raised at +36.97mAOD. There is a small landscaped slope to the north-east corner of the church.

3.4 Underlying Geology and Hydrogeology

According to the British Geological Survey data, the site's underlying bedrock geology is London Clay. There are no superficial deposits recorded on the site.

There are no publicly available borehole records for the site itself nor its immediate surrounds. The nearest boreholes are along Cumberland Road, Winslow Place and Wood Common Green, and give the following information:

- Weathered London Clay is encountered as shallow as 0.55m below ground level
- Thanet Sand and Upper Chalk is encountered approx. 52m below ground level
- A water level was encountered in borehole TQ39SW651 near Winslow Place, at 7.0m below ground level.

The nearest watercourse to the site is New River, located approximately 0.33km to the south of the site and also 0.69km to the north of the site. The Haringey SFRA maps show that New River is culverted between these two points and runs along the eastern side of the site, beneath Nightingale Gardens. The Haringey Surface Water Management Plan states that New River is classified as a canal and is owned and managed by Thames Water.

The site lies above a Source Protection Zone designated as Zone I – Inner Protection Zone. The site is not shown to lie above a designated aquifer for either bedrock or superficial drifts.

Four

Proposed Development

The development proposals consist of the following:

- Demolition of the tin tabernacle and the existing church prayer room
- Construction of a new building alongside the church which will incorporate new residential units and amenity space for the church. The residential units will be split across 5 floors including at lower ground floor level
- Upgrades to the surrounding soft and hard landscaping.

Architectural layouts for the proposed development are incorporated in **Appendix B**.

Five

Planning and Flood Risk Management Policy

It is important to assess the flood risk posed to the development of this site from all sources of flooding, in accordance with National Planning Policy Framework (NPPF) requirements.

The flood risk sources being considered as part of this FRA are as follows:

- Rivers and Sea
- Surface Water and Overland Flow
- Flooding from Artificial Waterbodies
- Groundwater
- Infrastructure Failure and Sewer Flooding

The following documents have been reviewed during preparation of this FRA:

- National Planning Policy Framework (NPPF) (2021)
- Planning Practice Guidance (PPG)
- The Haringey Development Management DPD, July 2017
- Haringey Strategic Flood Risk Assessment (SFRA), February 2015
- Haringey Surface Water Management Plan (SWMP), August 2011
- Haringey Preliminary Flood Risk Assessment (PFRA), May 2011
- North London Strategic Flood Risk Assessment (SFRA), August 2008

The site is shown to lie in a Critical Drainage Area, Group4_010. Policy DM26 of the Haringey Development Management DPD states the following:

“All proposals for new development within a Critical Drainage Area (CDA) will be required to incorporate measures to reduce the overall level of flood risk in the CDA.”

Six

Flood Risk Assessment

6.1 Historic Flooding

The Environment Agency’s historic flood map does not show that the site has been subject to historic flooding.

The North London SFRA does not list the site area as having been subject to historical fluvial or tidal flooding.

6.2 Tidal and Fluvial Flooding

In accordance with the Environment Agency’s flood risk map for planning, the site is shown to lie entirely within Flood Zone 1. An extract of the flood risk map for planning is shown in **Figure 3**.

The site is considered to be at **low** risk of flooding from tidal and fluvial sources.

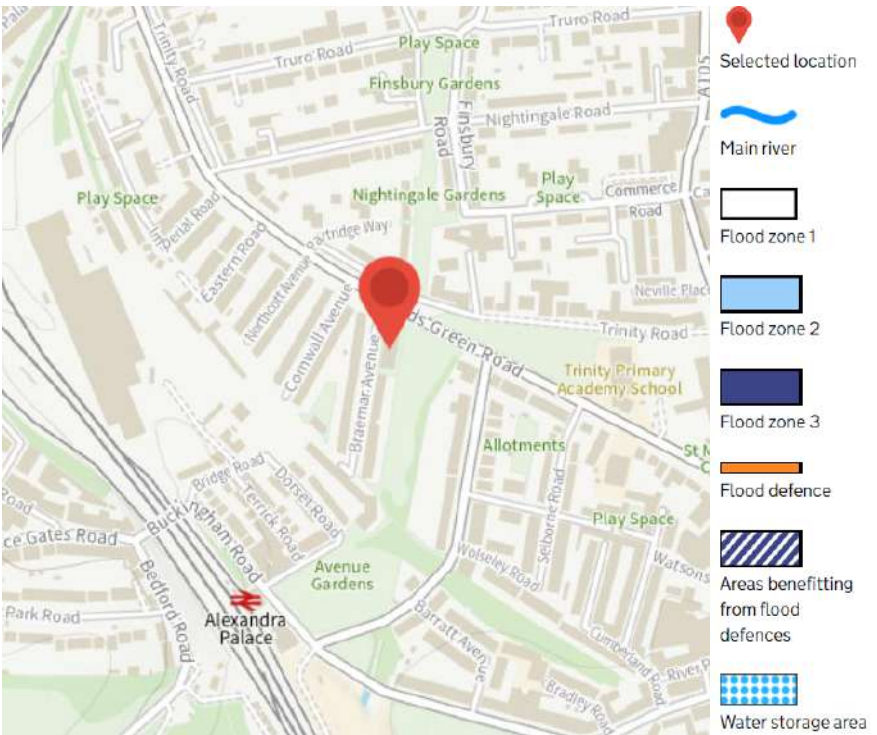


Figure 3: Extract of EA flood risk map for planning

6.3 Surface Water Flooding and Overland Flow

Surface water flooding may occur during intense or prolonged rainfall events where there is insufficient capacity within the existing drainage infrastructure which leads to overland flows.

The Environment Agency has undertaken hydraulic modelling of topography to map areas which could be subject to flooding from surface water and overland flows. An extract from the Environment Agency’s surface water

flood risk mapping for the low risk flood event is shown in **Figure 4** and **Figure 5** for depth and velocity of flooding respectively. The site is not shown to be affected in the 3.3% or 1% AEP flood events; a patch of surface water flooding is shown north of the site for the medium risk (1% AEP) event however this is shown to be retained within the kerblines of the A109 Bounds Green Lane and Braemar Avenue.

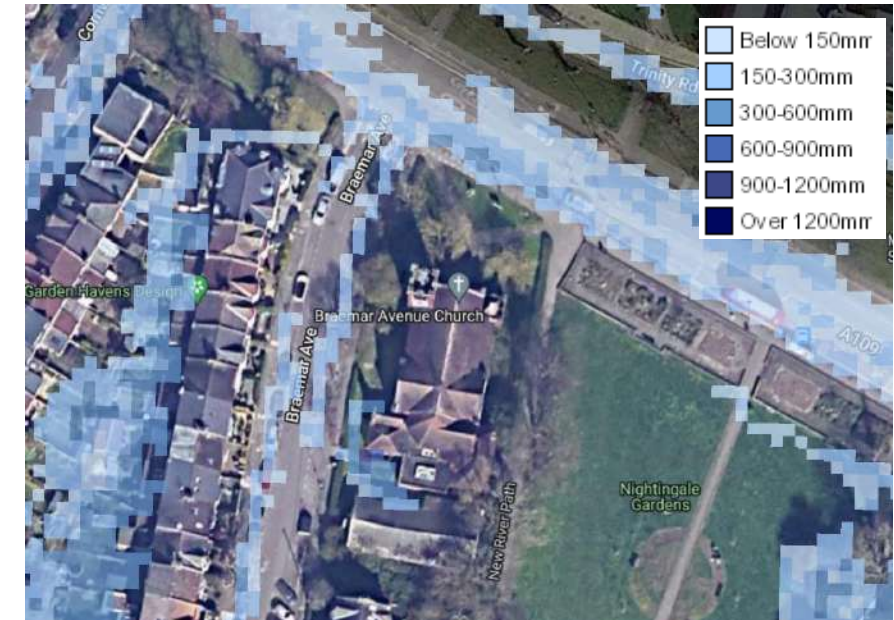


Figure 4: Depth of surface water flooding for low risk (0.1% AEP) flood event

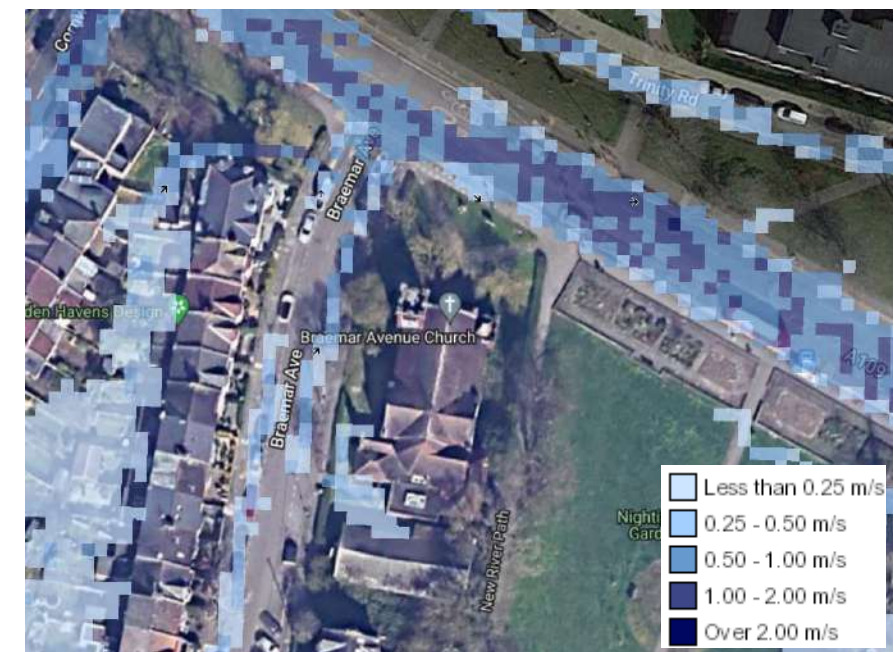


Figure 5: Speed and direction of surface water flooding for low risk (0.1% AEP) flood event

The extent of surface water flooding occurring within the site is between the church and the tin tabernacle, up to a depth of 900-1200mm. An analysis of the levels on the site show a low point at the south-western edge of the church at 35.89mAOD, lower than Braemar Road, where the surface water

would pond. The maps indicate that this flood extent is created by existing hardstanding on site rather than an overland flow from Braemar Road, as the flow along Braemar Road is kept within the road kerblines and travels north towards the A109 Bounds Green Lane.

The site lies at the edge of Critical Drainage Area Group4_010 as defined in the Haringey SWMP. An extract of the surface water flows within this area is shown in **Figure 6** below.

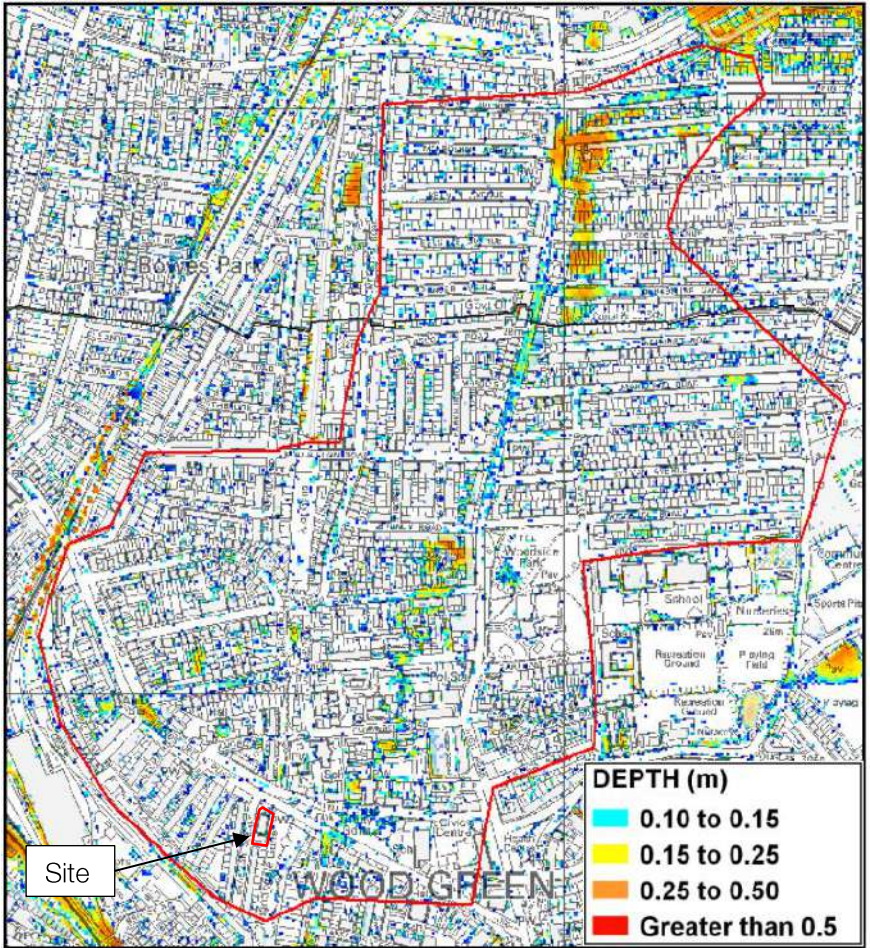


Figure 6: Depth of flooding within Critical Drainage Area Group4_010, from Haringey SWMP

The site lies at the edge of the Critical Drainage Area and does not lie along the primary surface water flow route.

The current risk of flooding from surface water is considered to be **low**. This area will be redeveloped as part of the proposed scheme; with the inclusion of sustainable drainage systems it is anticipated that the extent of surface water flooding shown to affect the site in the low risk scenario will be eliminated.

6.4 Flooding from Artificial Waterbodies

6.4.1 Reservoir flooding

Reservoirs are artificially created lakes that are usually formed by building a dam across a river. If one of the dams failed then water could escape from the reservoir, resulting in land or property being flooded.

The Environment Agency has mapped areas which could be subject to flooding in the event of reservoir failure. The flood map shown in **Figure 7** shows that the site is not at risk of flooding from reservoirs. The risk of flooding from reservoirs is considered to be **low**.



Figure 7: Extract from EA reservoir flood risk map

6.4.2 Canal failure

The Haringey SWMP states that New River is classified as a canal. The Haringey SFRA states that the risk of breach from this channel is considered to be low, and any overtopping as a result of blockage or poor operation would likely affect a large length of the canal to a low depth. With the floodwater extent mimicking the areas identified in the surface water assessment.

Based on the above information, the risk of flooding from a canal failure is considered to be **low**.

6.5 Groundwater Flooding

Groundwater flooding occurs when water levels in the ground rise above surface levels. It is most likely to occur in areas underlain by permeable ground, called aquifers.

The Haringey PFRA shows that the site does not lie in an area of increased potential for elevated groundwater. It is noted that there was one instance of groundwater flooding recorded along Park Avenue, on the opposite side of Nightingale Gardens.

Pending ground investigations, mitigation measures may be required for the new basement.

6.6 Infrastructure Failure and Sewer Flooding

6.6.1 Water Main Failure

Thames Water is the principal water supply provider for the area.

A copy of the Thames Water asset maps is included in **Appendix C**. The asset maps show that there is a 125mm distribution main located beneath Braemar Avenue and two 180mm distribution mains beneath the A109 Bounds Green Road. Due to their size, the risk of a distribution main bursting is considered low. There are no trunk water mains within the vicinity of the site.

The risk of flooding from water main failure is considered to be **low**.

6.6.2 Public Sewers

Thames Water is the principal sewerage provider for the area. Thames Water sewer asset records (see **Appendix C**) show that there are foul and surface water sewers within the vicinity of the site. These range from 229mmø to 534mmø; none of the sewers are designated as trunk sewers.

The Haringey SWMP recorded one instance of external sewer flooding for the postcode N22 7 up to June 2010. Thames Water do not hold any records of sewer flooding at the property.

The new basement in the proposed scheme will need to be reviewed against the sewer levels, with mitigation measures taken to prevent sewer surcharge if necessary. The risk of flooding from public sewers to the new development is currently considered to be **medium**.

6.6.3 Private Drainage Network

A CCTV survey of the existing site drainage was undertaken by G.O. Drainage in November 2022. Several blockages and settled deposits were noted in the existing drainage system as well as cracks, fractures and possible collapsed pipes.

The CCTV survey also noted two existing drain lengths (one foul and one surface water) which will need to be redirected to accommodate the new development.

Given the poor state of the existing drainage network the risk of flooding from the existing private drainage network is currently considered to be **medium**.

Seven

Mitigation Measures

7.1 Groundwater

Site investigations in the form of groundwater monitoring should be undertaken to confirm groundwater levels across the site. If the site is confirmed to have high groundwater levels then walls and floor slabs located below external ground level should be of a waterproof construction. All penetrations through the basement walls and floors should be suitably sealed to prevent groundwater ingress. Should groundwater levels be proven to lie above the basement slab level then drainage beneath the slab should be in a waterproof concrete surround, to prevent flotation of the drainage system and ingress of groundwater to the drainage pipework. The new basement will benefit from a cavity drainage system which will provide additional protection against any potential groundwater ingress.

If the above mitigation measures are incorporated, the risk of flooding from groundwater is reduced to **low**.

7.2 Infrastructure Failure and Sewer Flooding

The proposed lower ground floor level will require pumped drainage solutions for both foul and surface water; the pumped foul network will also accommodate flows from the existing foul drain from the church which cannot be retained at its existing level due to potential clashes with new high-level services in the new development. Non-return valves will be incorporated in both pumped foul and surface water drainage networks upstream of the public sewer connections to protect against potential sewer surcharge. Pumping stations will include the associated alarms and telemetry to notify the building maintenance team of any issues with the pumps. 24-hour storage will be provided for the pumped foul network and attenuation provided for the surface water network.

Surface water flows will discharge from the site at a restricted rate through the use of flow controls. Reducing the rate of surface water runoff from the site to the sewer network will reduce sewer flood risk, as required by Policy DM26 of the Haringey Development Management DPD for sites located within Critical Drainage Areas. Refer to report 2220367-EWP-ZZ-XX-RP-C-0002 **Sustainable Drainage Strategy** for further details.

Sewer capacities for the acceptance of proposed foul and surface water flows will be checked with Thames Water via a pre-planning enquiry.

Much of the existing private drainage network will be abandoned, re-laid and/or diverted as a result of the proposed development. For the private drainage which is to be retained (e.g. runs serving the existing church), it is recommended that remedial measures be undertaken to improve the condition of the drainage network and reduce the risk of flooding from blocked or damaged pipework. Refer to report 2220367-EWP-ZZ-XX-RP-C-0002 **Sustainable Drainage Strategy** for further details.

With the incorporation of the above mitigation measures the flood risk from infrastructure failure and sewer flooding is reduced to **low**.

Eight

Sequential and Exception Tests

8.1 Flood Risk Vulnerability Classification and ‘Compatibility’

When considering the flood risk vulnerability, the proposed development consists of several vulnerability uses. In accordance with the NPPF Annex 3, residential accommodation is considered more vulnerable with basement dwellings considered highly vulnerable. Office and assembly space is considered less vulnerable.

In the proposed site layout, all development is to be located within Flood Zone 1. In line with the guidance on the Gov.uk website (see **Figure 8**), the proposed development is considered acceptable.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *
Key:					
✓ Exception test is not required					
X Development should not be permitted					

Figure 8: Flood risk vulnerability and flood zone ‘incompatibility’, taken from Gov.uk website

8.2 Sequential and Exception Tests

The site lies within Flood Zone 1, therefore the Sequential Test is passed and the development is acceptable in this location. The Exception Test is not required.

Nine

Conclusions

The proposed development lies entirely within Flood Zone 1. The proposed uses are considered ‘more vulnerable’ for residential use at ground floor and above, with basement residential dwellings considered ‘highly vulnerable’. Office and assembly space is considered ‘less vulnerable’. The proposed development has been evaluated against the Sequential Test and is considered viable.

All forms of flood risk have been assessed. Mitigation measures are proposed to reduce the risk of flooding from sewer sources.



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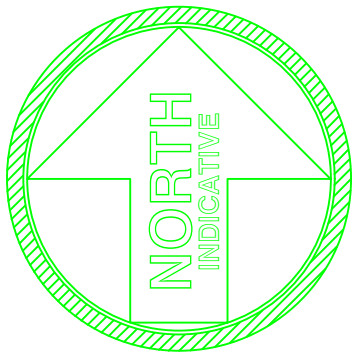
Appendices

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A Existing Site Survey



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GPS Note:
This survey is related to OSGB36(15) coordinate system by GPS 'rapid static' methods. No scale factor has been applied to the survey information. All horizontal distances taken from this drawing are ground distances.

Every effort has been made to confirm tree species on site, yet it is advised to confirm these details with an arborist before proceeding with any design.

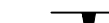
Every effort has been made to confirm drainage run, type and size on site, yet it is advised to check these details against statutory authority records before proceeding with any design.

Station	Easting	Northing	Level
1	530459.494	190749.351	36.697
	530449.943	190762.547	36.711
3	530473.474	190813.707	36.274
4	530498.585	190802.327	36.119
	530491.563	190746.448	35.925
6	530470.438	190745.832	36.695
20	530482.173	190759.994	36.191
30	530466.357	190786.003	36.695
50	530493.485	190758.520	35.899

Revision	Description	Date
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LEGEND

Survey control station  5

Ranking 

Gate (single) 

Gate (double) 

Tree Spread and Girth shown to scale 

Fence 

Contour 

Wall 

Ordnance Survey 

Value 15.37m

bkwl

Abbreviations

ellish Beacon	BB	Pipe	PE
allard	BD	Road Sign	RS
erhale	BB	Roading Engine	RE
hlish Telecom Box	BTB	Service Marker	RM
BT Insection Cover	BT	Sign Post	SP
concrete Paving Slabs	CPV	Sludge Valve	SV
able Television Cover	CPS	Stop Top	ST
lectricity Cable Pit	EC	Stop Cock	SC
lectricity Pole	EP	Telegraph Pole	TP
erth Road	ER	Telephone Call Box	TCL
re Hydrant	EH	Traffic Light	TL
og Staff	FS	Unsurfaced	US
og Valve	GV	Vent Pipe	VP
os Post	GP	Water Meter	WM
ully	GY	Edges Level	EL
ection Cover	IC	Raised Level	RL
erb Outlet	KO	Road Level	RL
mp Post	LP	Soffit Level	SFL
ankerhole	MH	Threshold Level	THL
arker Post	MP	Parapet Wall Level	PWL
arking Meter	PM	Finished Floor Level	FFL
arking	P		
aining Wall	RTW	Cover Level	CL
erating Wire Fence	BWF	Invert Level	IL
ose Boarded Fence	GBF	No Visible Connection	NVC
CLF	CLF	Under Lift	UL
nestrinal Paling Fence	CPF	Surface Water	FW
ost and Chain Fence	PCF	Foul Water	FW
ost and Rail Fence	PRF		
ost and Wire Fence	PWF	Flower Bed	FB
oden Panel Fence	WPF	Shrub Bed	SB



Client
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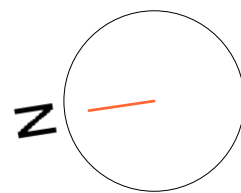
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BRAEMAR AVENUE
LONDON, N22 7BY

Title

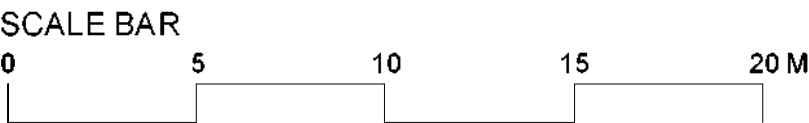
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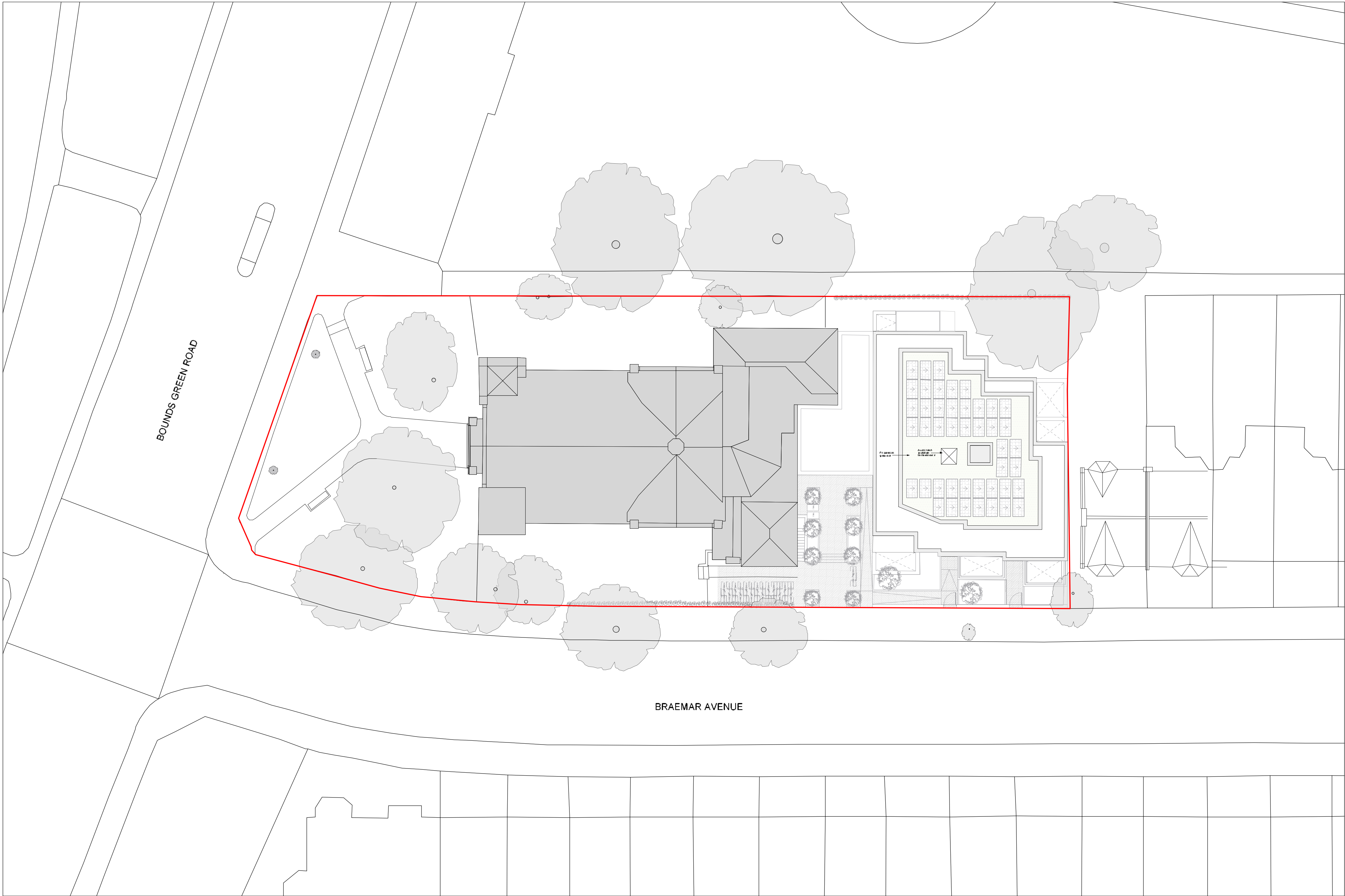
B Proposed Architectural Layouts



NOTE
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KEY
— Indicates site boundary



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PROJECT
Braemar Avenue, Wood Green

DRAWING TITLE
Proposed Site Plan

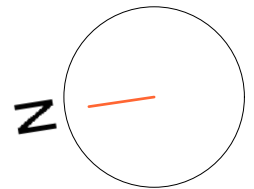
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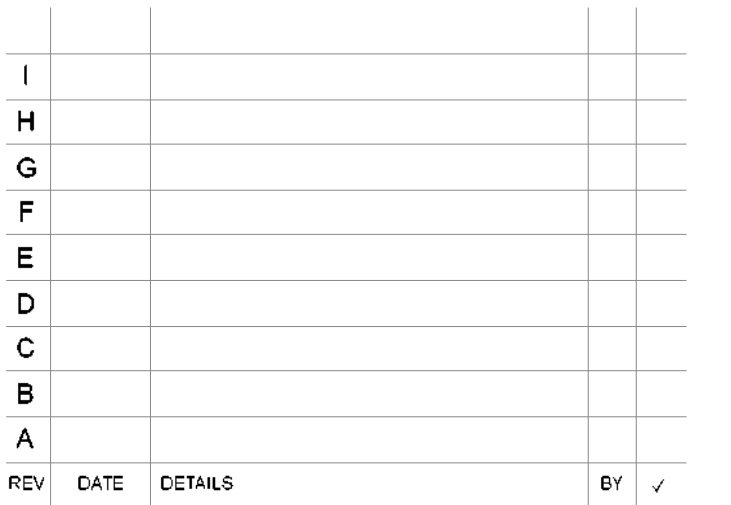
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----- Indicates new space to be provided to the church



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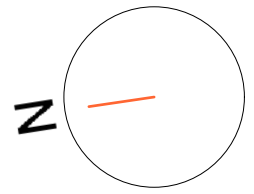
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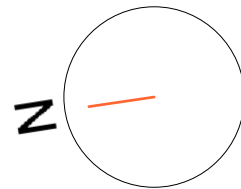


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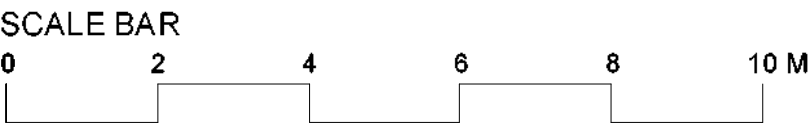
- Indicates site boundary
- - - Indicates new space to be provided to the church
-  Indicates new trees to be planted

JOB NO.	TYPE	DRAWING NO.	REVISION
1802	GA	032	-

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PROJECT

Braemar Avenue, Wood Green

DRAWING TITLE

Proposed Plans - First Floor Plan

STATUS

Planning Application

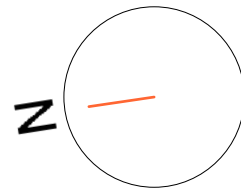
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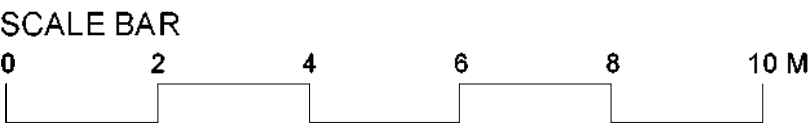
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PROJECT
Braemar Avenue, Wood Green

DRAWING TITLE
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STATUS
Planning Application

DATE
May 2022

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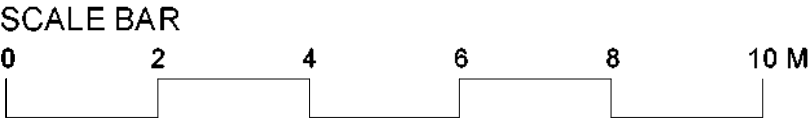
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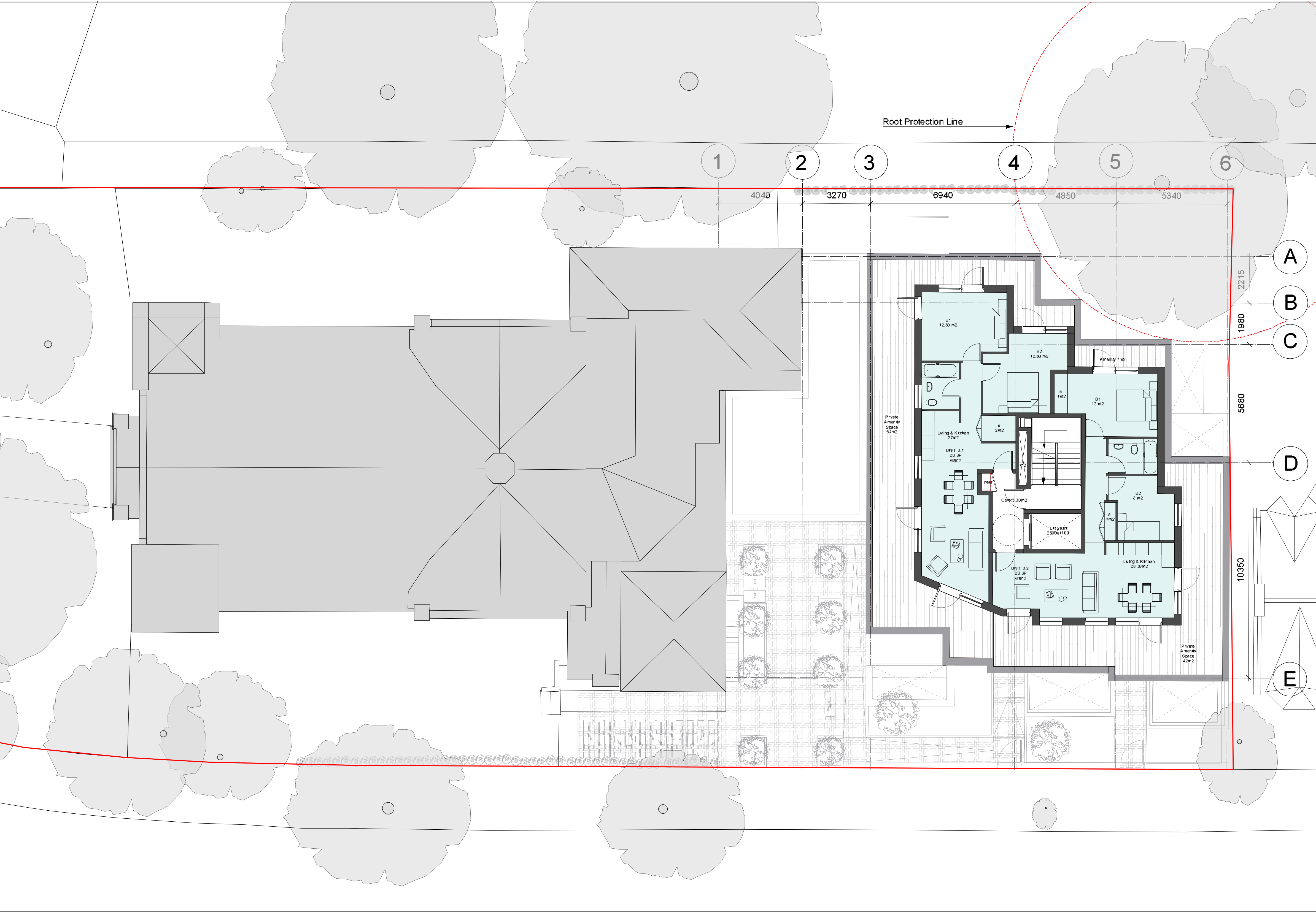
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PROJECT
Braemar Avenue, Wood Green

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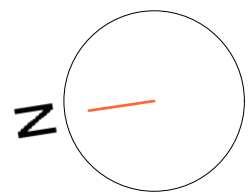
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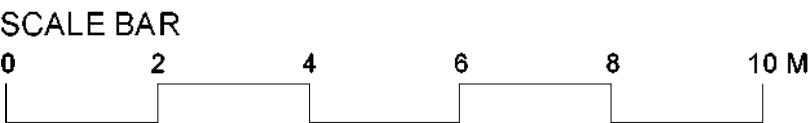
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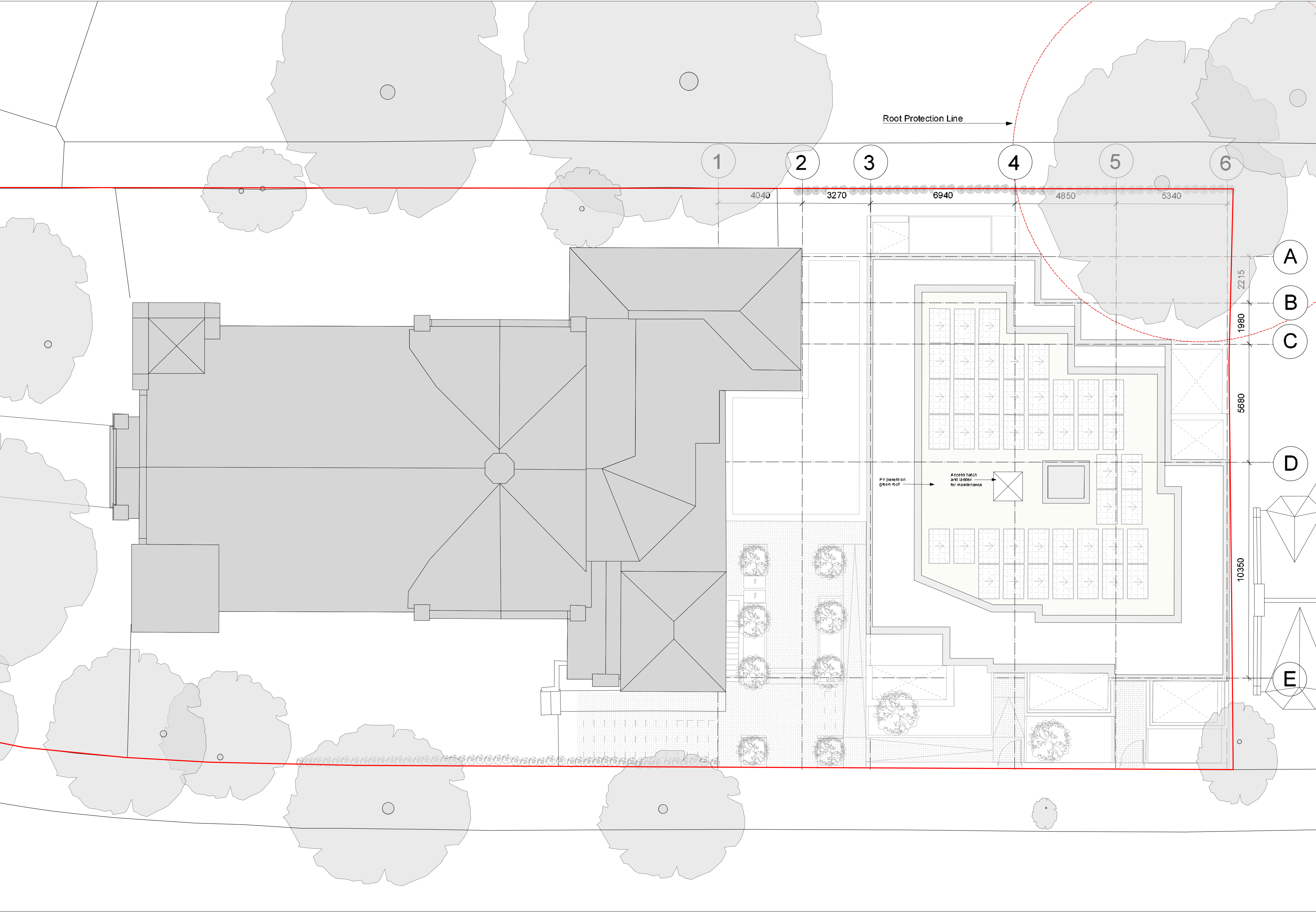
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- KEY
- Indicates site boundary
 - Indicates location of PV Panels



REV	DATE	DETAILS	BY	✓
I				
H				
G				
F				
E				
D				
C				
B				
A				

CLIENT SIGNATURE
CLIENT

PROJECT

Braemar Avenue, Wood Green

DRAWING TITLE

Proposed Plans - Roof Plan

STATUS

Planning Application

DATE
May 2022

SCALE
1:100@A1;1:200@A3

JOB NO.	TYPE	DRAWING NO.	REVISION
1802	GA	036	-

spacelab

18 Wenlock Road London N1 7TA
+44 (0)20 7033 3450 www.spacelab.co.uk

C Thames Water Asset Records

Asset location search



Property Searches

Elliott Wood Partnership
55 Whitfield Street
LONDON
W1T 4AH

Search address supplied Braemar Avenue Baptist Church
Braemar Avenue
London
N22 7BY

Your reference 2220367

Our reference ALS/ALS Standard/2022_4746236

Search date 7 November 2022

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Search address supplied: Braemar Avenue Baptist Church, Braemar Avenue, London, N22 7BY

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

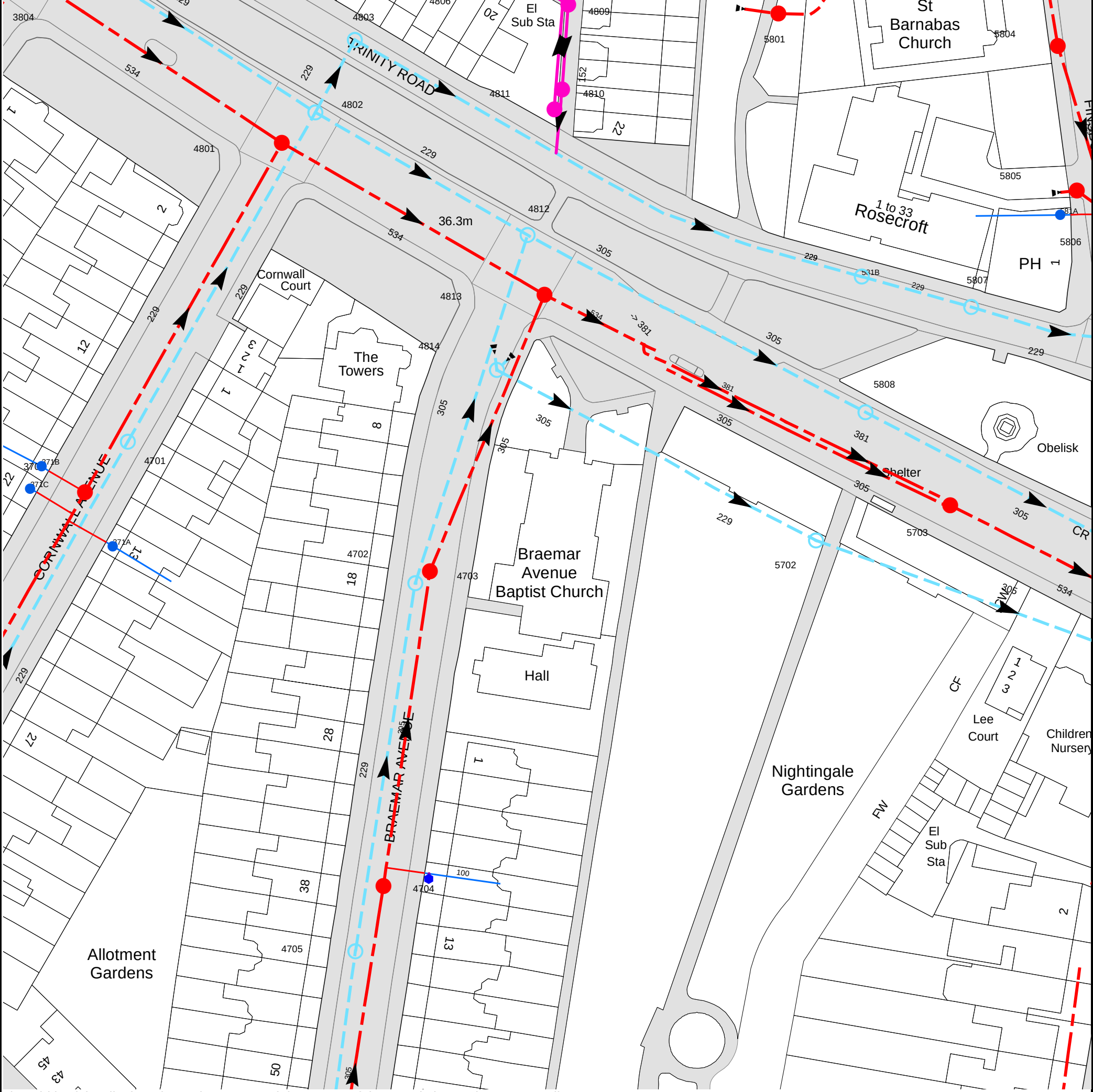
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2022 4746236



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 530479,190778
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.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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
371C	n/a	n/a
371B	n/a	n/a
3703	37.63	35.35
371A	n/a	n/a
4701	37.51	36.08
4801	37.06	30.42
4802	36.91	34.72
4803	36.77	34.51
4705	36.92	35.52
4704	36.89	34.91
4702	36.69	35.16
4703	36.7	34.39
5702	35.37	34.46
5703	35.29	29.19
5808	35.44	34.06
4814	36.29	35.21
5807	35.14	33.87
4813	36.16	30.19
581B	n/a	n/a
4812	36.21	33.11
581A	n/a	n/a
5805	n/a	n/a
4811	n/a	n/a
4810	n/a	n/a
5804	35.04	32.6
5801	35.35	34.61
4809	n/a	n/a
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.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

The map illustrates a residential area with a proposed water main installation. The main streets shown are Cornwall Avenue, Braemar Avenue, and Fifty Road. Key landmarks include St Barnabas Church, Rosecroft, The Towers, Braemar Avenue Baptist Church, Hall, Nightingale Gardens, Lee Court, Childrens Nursery, and Allotment Gardens. A blue line represents the proposed water main route, with red dots indicating specific locations. Text labels include '180mm HPPE', '125mm PIPE BURST', '180mm Shelter', 'El Sub Sta', 'PH', 'Obelisk', 'CW', 'CF', 'FW', and 'CR'. A scale bar indicates 36.3m.

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.

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Asset Location Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

-  **Distribution Main:** The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
-  **Trunk Main:** A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
-  **Supply Main:** A supply main indicates that the water main is used as a supply for a single property or group of properties.
-  **Fire Main:** Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
-  **Metered Pipe:** A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
-  **Transmission Tunnel:** A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
-  **Proposed Main:** A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

-  General Purpose Valve
-  Air Valve
-  Pressure Control Valve
-  Customer Valve

Hydrants

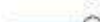
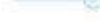
-  Single Hydrant

Meters

-  Meter

End Items

Symbol indicating what happens at the end of a water main.

-  Blank Flange
-  Capped End
-  Emptying Pit
-  Undefined End
-  Manifold
-  Customer Supply
-  Fire Supply

Operational Sites

-  Booster Station
-  Other
-  Other (Proposed)
-  Pumping Station
-  Service Reservoir
-  Shaft Inspection
-  Treatment Works
-  Unknown
-  Water Tower

Other Symbols

-  Data Logger
-  **Casement:** Ducts may contain high voltage cables. Please check with Thames Water.

Other Water Pipes (Not Operated or Maintained by Thames Water)

-  **Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
-  **Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call 0800 009 4540 quoting your invoice number starting CBA or ADS / OSS	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater.co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.



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