Providing Ground Solutions

Broxwood View Limited

Barrie House, 29 St Edmund's Terrace, London

Thames Water Emergency Preparedness Plan

October, 2022

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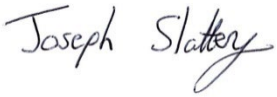
Checked	Joseph Slattery, Associate Director *MEng (Hons) BEng CEng MICE MIEI FGS RoGEP*		
Approved	Mark Creighton, Director *CEng FICE*		
Reference	CG/28408B	Revision 0	Issue Date October 2022

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1. INTRODUCTION

Card Geotechnics Limited (CGL) has been instructed by Broxwood View Limited (the Client) to undertake an Emergency Preparedness Plan (EPP) for the proposed construction works at Barrie House, 29 St Edmund's Terrace in the London Borough of Camden. This EPP sets out the procedures to manage incidents that are unlikely to, but may, occur during construction works specifically in relation to the Thames Water main that runs ~4.1m north of the proposed basement.

This document has been prepared to enable serious emergency events, should be encountered during the construction process, to be dealt with responsibly.

Whilst it is not expected that any such occurrence will take place, it cannot be assumed that serious emergencies may not be met during the construction works. In order to respond effectively to such occurrences, careful advanced planning must be implemented as the level of preparedness will directly influence the magnitude of hazard or damage in an emergency situation.

Safety planning is composed of two basic phases: a preventative phase and a reactive phase. The preventative phase is concerned with preventing the occurrence of the incident or accident. The reactive phase is concerned with the response once the incident or accident has occurred. This document addresses the prevention, preparedness, and response phases to an occurrence in a timely and effective manner.

2. SITE CONTEXT

2.1 Site Location

The site, Barrie House, is located at 29 St Edmund's Terrace, London, NW8 7QH. The site is located within the London Borough of Camden. The approximate National Grid Reference for the site is 527495E, 183575N.

The site is bound to the south by St Edmund's Terrace and to the west by Broxwood Way. Two rows of terraced houses and apartment blocks are present to the north of the site, referred to as 32 to 72 Kingsland and 1 to 16 Kingsland. To the east of the site, buildings named Regent Heights and 30 to 36 St Edmund's Terrace are positioned. Adjacent to the north-east of the site lies Barrow Hill water treatment plant.

A site location plan is included as Figure 1.

2.2 Site Description

The site comprises a roughly square plot approximately 0.18 hectares in area and is currently occupied by Barrie House, an eight-storey detached 'T-shaped' residential block as well as an abandoned two-storey masonry lodge. The existing residential block is located approximately centrally within the site and includes a basement beneath the centre of the building footprint.

Landscaped gardens are located around the building with several deciduous trees, which are predominantly clustered in an area to the east of the building. Several large stumps are also present along the south and west of the site. Vehicular access to the site is off Broxwood Way and leads to a surfaced car parking area in the west of the site.

The site generally slopes down from north to south with the highest point located in the north-east corner of the site at approximately 48.6mOD. The lowest point is in the south-west corner of the site with a level of approximately 42.0mOD. The distance on site between these points is approximately 65m, resulting in a slope of about 1 in 10. With reference to the topographical map of Camden within Camden's Strategic Flood Risk Assessment[1] (SFRA) the local area around the site appears to slope down from Primrose Hill (approximately 200m north-east of the site) towards the south-west. There is also a small slope down to the south towards *Regents Park* (approximately 200m south of the site).

A site layout plan is included as Figure 2.

[1] URS. (July 2014). *London Borough of Camden – Strategic Flood Risk Assessment.* 47070547.

A Thames Water main runs north to south within the west boundary of the site and west to east outside the north boundary of the site. At the closest point, the water main is 4.1m from the proposed basement. The pipe is understood to be 24" (610mm) in diameter constructed from cast iron. The impact of the proposed development on the water main has been assessed in detail in CGL's Thames Water Impact Assessment[2] and should be referred to for full details.

2.3 Purpose

This EPP provides a framework for the preparation of the emergency arrangements required by law, in particular Regulation 30 of the Construction Design and Management (CDM) Regulations 2015:

(1) Where necessary in the interests of the health or safety of a person on a construction site, suitable and sufficient arrangements for dealing with any foreseeable emergency must be made and, where necessary, implemented, and those arrangements must include procedures for any necessary evacuation of the site or any part of it.

(2) In making arrangements under paragraph (1), account must be taken of –

(a) the type of work for which the construction site is being used;
(b) the characteristics and size of the construction site and the number and location of places of work on that site;
(c) the work equipment being used;
(d) the number of persons likely to be present on the site at any one time; and
(e) the physical and chemical properties of any substances or materials on, or likely to be on, the site.

(3) Where arrangements are made under paragraph (1), suitable and sufficient steps must be taken to ensure that:

(a) each person to whom the arrangements extend is familiar with those arrangements; and
(b) the arrangements are tested by being put into effect at suitable intervals.

2.4 Objectives

- This Emergency Preparedness Plan sets out the strategic approach for the emergency arrangements for the Barrie House construction project;
- To identify the potential for emergency situations at the Barrie House site;
- To develop & set in place preventative measures to mitigate risk;
- To develop & outline a preparedness plan which should be accomplished in advance to ensure that all aspects of the emergency plan are executed with minimal delays or problems; and,
- To develop arrangements to respond to such emergencies.

[2] CGL (October 2022) Barrie House, 29 St Edmunds Terrace, London. Thames Water Impact Assessment – Revision 1. Ref. CG/28408B

2.5 Roles and Responsibilities

The roles and responsibilities are set out in Table 1 below.

Table 1: Roles and responsibilities.

Role	*Company*
Client	Broxwood View Limited
Main Contractor	G&S Construction Engineering Ltd
Structural Engineer	Richard Tant Associates
Piling Contractor	Arma Piling Ltd
Temporary Works Engineer	To be appointed
Groundworker	To be appointed

2.6 Definitions

A glossary of terms used in this report is set out in Table 2 below.

Table 2: EPP definitions glossary.

Terminology	*Definition*
Incident	An occurrence or event that interrupts normal process or precipitates a crisis.
Emergency	A situation that poses an immediate risk to life, health, property or the environment and that, in most cases, require urgent intervention to prevent a worsening of the situation.
Hazard	A situation that, if left un-addressed, may result in an injury, loss or damage of some kind.
Risk	The combination of the likelihood and the consequences of a specified hazardous event (incident). A risk then always has two elements, 1) the likelihood that a hazard may occur and, 2) the consequences (severity) of the hazardous event
Structural instability	Any change in a structure resulting in it becoming unsafe.

3. REFERENCE DOCUMENTS

The following documents and drawings have been referred to as part of this assessment.

Table 3: Documents and information referred to in this assessment.

Category	*Title*	*Reference*
CGL Reports	Thames Water Impact Assessment – Revision 1	CG/28408B
	Ground Movement & Sewer Impact Assessment	CG/28408B
	Monitoring Movement and Contingency Plan	CG/28408B
Third party Reports	GDP - Basement Construction Plan - Ugly Brown Building – Plot A	V 3 - Basement Construction Plan - GDP 230221
Structural Drawings	Notes	5295-TS01
	Proposed Partly Basement Floor	5295-TS02
	Proposed Partly Ground Floor	5295-TS03
	Section 1-1	5295-TS10
	Section 2-2	5295-TS11
	Suggested Method of Works 1 Basement Plan	5295-SM01
	Suggested Method of Works 2 Basement Plan	5295-SM02
	Suggested Method of Works 3 Ground Floor	5295-SM03
	Suggested Method of Works 4 Ground Floor	5295-SM04
	Suggested Method of Works 5 Section A-A Stages	5295-SM05
	Suggested Method of Works 6 Section B-B Stages	5295-SM06
	Suggested Method of Works 6 Section C-C Stages	5295-SM07
	Suggested Method of Works 6 Section D-D Stages	5295-SM08
Thames Water Standard	Thames Water, Guidance - Working Near our Assets	-
Codes & Specs	Construction (Design and management) Regulations 2015	CDM 2015
	Management of Health and Safety at Work Regulations 1999	H&S Work Regs 1999

4. PROJECT CONTEXT

4.1 Proposed Development

The site comprises of Barrie House and an abandoned 'porter's lodge'. Barrie House is an eight storey detached residential block with a basement, founded on pads. The 'porter's lodge' is understood to be a two storey masonry structure.

The proposed development is understood to comprise demolition of the 'porters lodge', extension of the existing building on site to the north in the area of the current car park, and excavation of a single storey basement beneath the extension.

For full details of the proposed development, the relevant CGL reports detailed above should be reviewed.

4.2 Buried Critical Assets

The location of the Thames Water asset is shown on the Midland Survey Ltd utility plan[3] (drawing no. U07932 0) included in Appendix A.

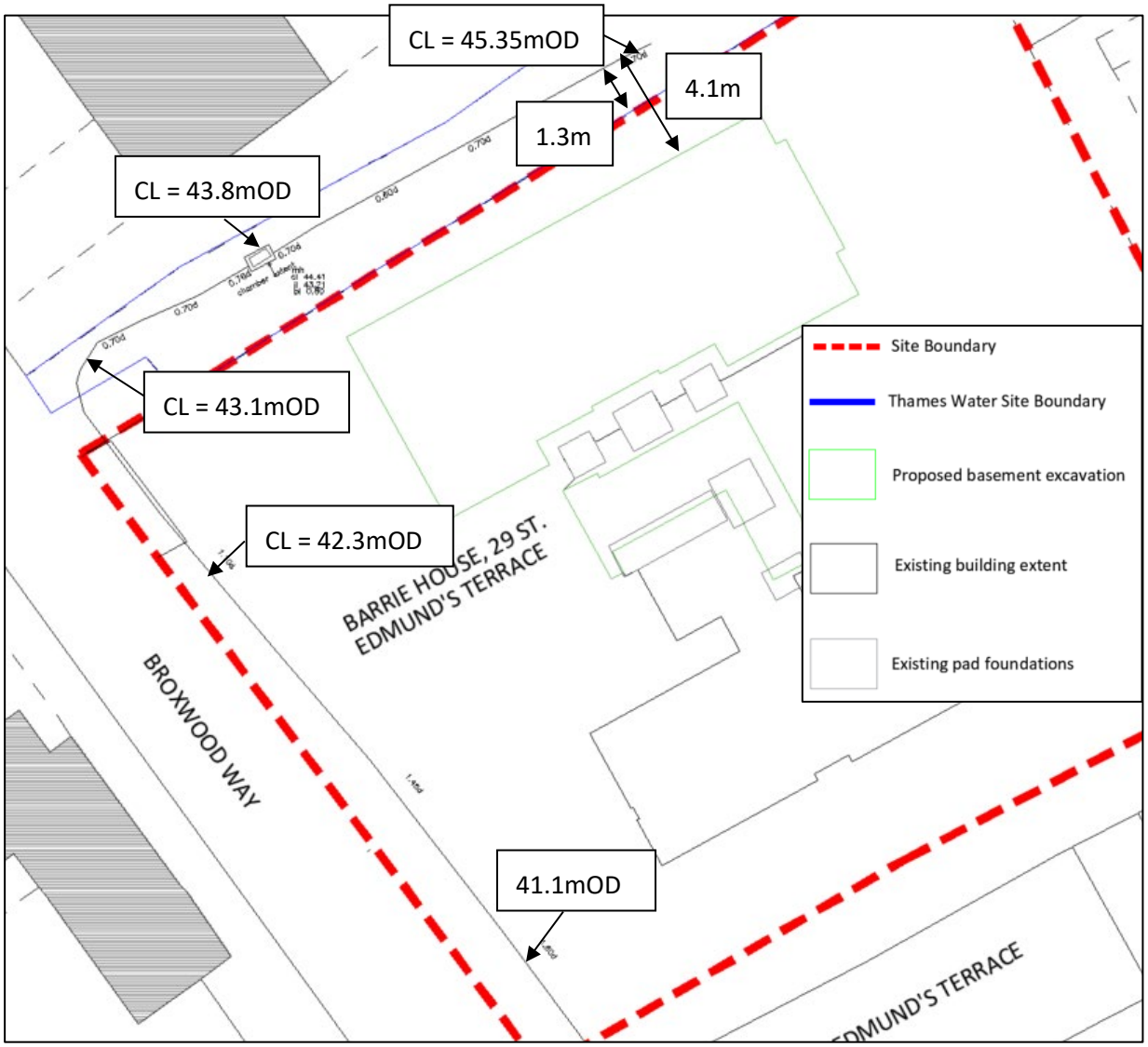
A chamber associated with this TW asset is located approximately 3m north-west of the site, as illustrated in Plate 1, below, and the utility plan included within Appendix A. In this chamber, the pipe invert level was recorded at 43.21mOD. Due to the chamber location off-site, no excavations or loads are anticipated to be removed or applied over this manhole and the sewer alignment.

Following liaison with the TW engineer, the pipe is understood to be 24 inches (~610mm) in diameter and constructed of cast iron (rather than the 500mm diameter as indicated on the utility plans included in Appendix A). The pipe crown level is therefore at approximately 43.8mOD at the chamber.

The crown level of the pipe drops from 45.35mOD in the north to 43.8mOD at the chamber, to 43.1mOD in the western corner. Along the south-western boundary the pipe crown level drops further to 42.3mOD around the site entrance off Broxwood Way and to 41.1mOD in the southern corner of the site. The pipe extent is illustrated in Plate 1, below, in relation to the proposed basement excavation.

[3] Midland Survey Ltd (June 2022) *Barrie House, London, NW8 7QH. Utility Survey.* Ref. U07932 0

Plate 1: Thames Water 24" water main location. CL = crown level.



The properties of the water main are presented in Table 4 below.

Table 4: Asset details.

Asset Name	*Drawing Ref.*	*Construction material*	*Pipe diameter (m)*	*Crown level (mOD)*	*Axis level (mOD)*
TW 24" water main	U07932 0	Cast iron	0.61	+45.35 in the north-east of the site +41.10 in the south-west (see Plate 1)	+45.05 in the north-east +40.80 in the south-west (see Plate 1)

5. PREVENTION

5.1 Potential Types of Emergency Scenarios

The following is a list of potential emergency scenarios identified:

- Structural instability to the Thames Water sewer;
- Severe weather; and
- Flood / inundation.

5.2 Assessment and Prevention

This section considers actions which are designed to eliminate or minimise risks.

1. Risk Assessments & Method Statements. Planning is risk assessment based. Foreseeable risks will be documented throughout project RAMS. Where the risk has been identified the main contractor, G&S Construction Engineering Ltd, will endeavour to mitigate against it with control measures. These will include initial protection against encountering the hazard and reactive controls should our initial controls fail.
2. Housekeeping & Logistics Plan. This topic deals with the maintenance of clearly accessible access/egress routes to facilitate the safe and speedy movement of any attending emergency service. General Housekeeping must be maintained to a high standard to mitigate the risk of general slips, trips and falls.
3. Always ensuring the safe access to site for emergency response teams.
4. Weekly Audit Checks. Weekly Health and Safety Sheets.
5. Competent Design Team design approvals and verification of Good Robust Sub-Contractors.
6. Evacuation plan. The site-specific fire plan will detail the assembly muster point and the roll call procedure will be followed.

5.3 Assessments, Reports & Surveys Undertaken & In Place

- **Utility survey** – completed by Midland Survey Ltd in June 2022. This shows that the depth to the water main varies from 0.70mbgl in the north-east corner, to 1.0mbgl in the north-west corner, to 1.60mbgl in the south-west corner.

- **Thames Water Impact Assessment** – completed by CGL in October 2022[2] detailing the impact of the proposed development on the TW 24" water main. The ground movements associated with the installation and deflection of the piled wall and net loading and unloading of the soil were assessed against Thames Water criteria. The impact was shown to be well within the assessment criteria.

5.4 Live Movement Monitoring System

Monitoring Movement and Contingency Plan – completed by CGL in October 2022[4] detailing the proposed monitoring of the water main. The following colour code system for the trigger values is proposed:

- **Green**: All behaviour is as expected, continue monitoring;
- **Amber I**: Minor deflection occurring but no clear trends developing;
- **Amber II**: Increased deflections and movement trends developing outside the allowable limits; and
- **Red**: Movements causing clear hazard to groundwaters and neighbouring constraints.

Trigger limits are selected in relation to expected/predicted movements and the effects the induced movements may have on third party structures. For this report, this means the Thames Water 24" water main. In all circumstances, immediate action shall be taken to limit further movement when the acceptable values are exceeded. Trigger limits are summarised in Table 5 below, based on the potential consequences of the predicted movements. For full details the report should be referred to[4].

Table 5: Proposed trigger limits.

Precise level targets above the Thames Water 24" water main alignment at ground level		
Alert Status	**Maximum vertical displacement (mm)**	**Actions in the event of a trigger limit being exceeded**
Green	<3	CP1 as Table 6
Amber I	3 to 7	CP2 as Table 6
Amber II	7 to 10	CP3 as Table 6
Red	>10	CP4 or CP5 as Table 6

No vibration monitoring is proposed as the water main is some 4.1m from the proposed piled wall at the closest point. Continuous Flight Auger (CFA) piling method, a method that keeps vibrations to a minimum, is proposed to be used. The proposed drawings indicate that the minimum distance between the pile centre and water main centreline is 4.1m, some 9x the diameter of the piles. As recognised by CIRIA C760 'the installation of one pile every few metres will result in little ground movement'. Whilst the comment is related to king post walls, it is also true of bearing piles. Therefore, potential ground movements during the installation are predicted to be localised with negligible effect on the water main assuming good workmanship.

[4] CGL (October 2022) *Barrie House, 29 St Edmund's Terrace, London Monitoring Movement and Contingency Plan* CG/284080B

- At the amber trigger level, Thames Water should be informed of the breach and the agreed mitigation action should be shared. At the red trigger level, the relevant emergency Thames Water contacts should be informed, and work should be stopped immediately in the effected zone. Emergency contacts are included in Section 8.

6. PREPAREDNESS

This section addresses activities which should be accomplished in advance to ensure that all aspects of the emergency plan are executed with minimal delays or problems. Having made an assessment and put in place preventive measures, the emergency plan can then be prepared to deal with the risks that cannot be avoided or controlled. The main elements of the plan are:

1. Emergency assignments of personnel – The Contract Manager and Site manager will be responsible for assigning the roles of internal emergency contacts, roles & responsibilities.

2. Consultation with emergency services:

    - Although the emergency services will carry out their own risk assessments on site before proceeding with any rescue/action, the Main Contractor will consult with the local emergency services as part of the emergency planning process for the purpose of:
        - Making the local emergency services aware of the scope of works, locations and risk profile and to establish a collaborative working relationship between key contacts;
        - Benefiting from the specialist knowledge of the local emergency services in peer-reviewing the Main Contractor emergency arrangements;
        - Where appropriate, involving the local emergency services when testing the Main Contractor emergency protocols.
    - Any emergency where the emergency services are involved on site, they will take the lead and the Main Contractor incident response team will provide support as directed by the emergency services.

3. Communication – The essence of this EPP is communicated to during:

    - Main Contractor project site inductions,
    - Toolbox talks,
    - Pre-start contractor briefings,
    - Task specific briefings.

    A copy of this EPP shall be made available to the Main Contractor supply chain and other necessary parties whose operations could either be:

    - Adversely affected by incidents occurring within the Main Contractor controlled work sites, and/or,
    - Incidents which occur within 3rd party work sites, which could potentially have an adverse effect on the Main Contractor operations.

- A copy of the EPP will be shared with the local emergency services and Thames Water and invited to review and comment on the suitability.

4. Main Contractor organizational chart and planning of suitable resources: where these are located or can be obtained – it may be necessary to pre-position these in readiness, particularly in remote or inaccessible locations.

5. Communication and call-out procedure for key personnel and subsequently all those affected by the emergency.

6. Alert/notification Lists – Details on appointments and assignments will be shared with all parties concerned.

7. Coordination of the reporting structures during the emergency period and ownership of the plan.

8. Review – Reviews of procedures and site plans will be undertaken as the site develops with the team members with the assistance of the site manager. The site manager will contact the H&S department. They will attend site and carryout a thorough incident report detailing and documenting all the available evidence. Protocol will be followed in an attempt to gain all available evidence prior to allowing works to recommence. Once site operations have restarted it is important that the information the Main Contractor collects is used positively to help plan for future events.

9. Testing and maintenance: both the incident coordinator and those given key roles in emergency response. This can cover exercises, briefings, briefings, site office meetings and even simulation training / drills.

7. RESPONSE

This section delineates the tasks and responsibilities to be accomplished immediately prior to, during, and just after the emergency. This covers the arrangements for reacting to the emergency. A simple but effective model is the five-point plan, providing a logical sequence to follow:

- **Detection**: how the hazard will be detected at the earliest possible time in order to avoid or reduce the outcome;
- **Alarm:** how the emergency is communicated both within the organisation and without;
- **Evacuation:** this covers the routes and actions to be followed, assembly area, and means of ensuring that everyone is accounted for;
- **Containment:** the means to contain or extinguish the hazard; and
- **Restoration**: actions needed to return the organisation to normality.

Actions of the person in charge at the emergency scene – all personnel will be briefed on the EPP for dealing with any potential Thames Water emergency. The Site Manager will be responsible for liaising with the Emergency response teams & the third-party asset owner (Thames Water). The Site Manager will also have a deputy assigned / Assistant Site Manager. The important actions by the persons communicating details of any incident are:

The below ground basement excavation and construction contingency plan is outlined in Table 6 below.

Table 6: Basement excavation and construction contingency plan

Ref:	*Scenarios*	*Likely Probability*	*Contingency/Control Measure*	*Action by*	*Status*
CP 1	All recorded movements are within the Green limit	VH	• Continue Standard monitoring as planned. • Carry out routine inspections of works and review monitoring data weekly.	PC/SC	OPEN
CP 2	Recorded movements fall within the Amber 1 limit	H	As CP 1 but ensure: • Review monitoring data to establish that real movement and trend is occurring rather than outliers having developed. • Review construction methodology and sequencing. • Increase monitoring frequency in the region of recorded increased movement and also consider providing extra monitoring points at max movement positions if appropriate. • Inspect internal and external building walls, adjoining party walls/constraints and exposed ground for any visual signs of movement or distress.	PC/SC	OPEN
CP 3	Recorded movements fall within the Amber 2 limit	L	As CP 2 but must ensure: • Review monitoring data to establish real movement and trends have developed rather than outliers have developed. • Review construction methodology and sequencing and make refinements where appropriate and agreed with project team. • Install extra/check monitoring points at max movement positions and increase monitoring frequency. • Be prepared to cease works until movement cause(s) established. Alternatively, it may be prudent to speed up construction works. Seek advice of Engineers. • Additional contingency propping should also be considered where appropriate to limit further movement	PC/SC	OPEN
CP 4	Recorded movements fall above the Red limit and have ceased	VL	As CP 3 but must ensure: • Implement changes to working methodology such as backfill/cease works in effected region/increase speed, changes in works procedure, install additional propping etc. To be agreed with project team. • Continue to monitor and review data at increased intervals and establish a safe way forward, to be discussed, developed and agreed with the project team and stakeholders as required.	PC/SC	OPEN
CP 5	Recorded movements fall above the Red limit and continue to move	VVL	As CP 4 but must ensure that: • Seek advice from Engineers and implement additional emergency works (additional propping, backfilling, increased sped of construction/support etc) or ceasing work in area affected and evacuate. • Inform adjoining party wall occupiers and asset owners. • Continue to monitor and review data at increased intervals and establish a safe way forward, to be discussed, developed and agreed with the project team and stakeholders as required.	PC/SC	OPEN

Key: PC – Principal Contractor. SC – Specialist Sub-contractor. PD – Principal Designer. SD – Specialist Designer

8. EMERGENCY CONTACTS

Main Contractor:

- G&S Construction Engineering Ltd
  - Site contacts to be appointed.

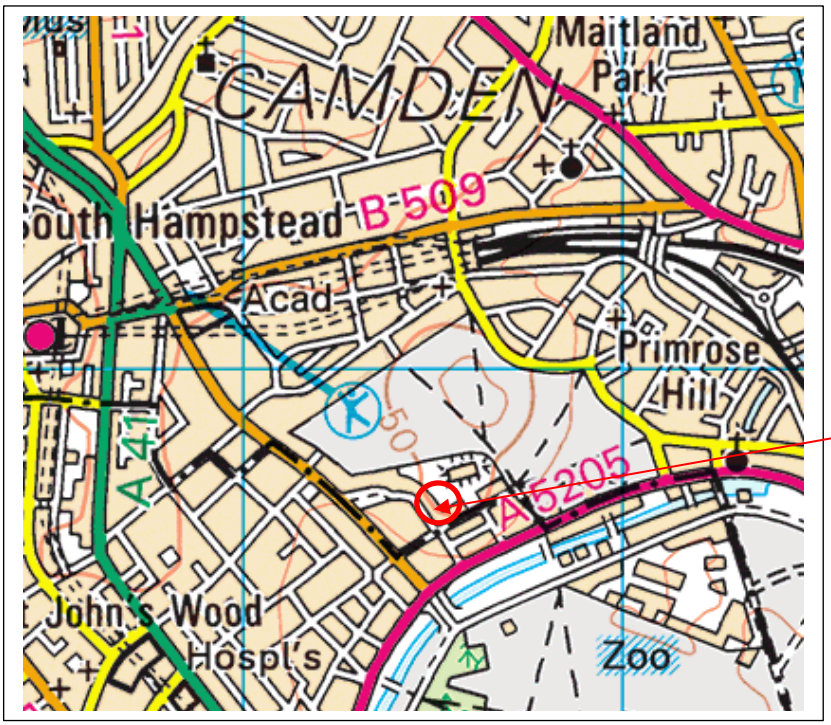
Thames Water:

- Thames Water 24-hour service number – 0800 316 9800
- Thames Water Waste Operational Control Centre – 0800 009 3908
- Thames Water Clean Water Network Management Centre – 0800 009 3909

External Contacts:

- Emergency Services (Fire, Police, Ambulance) – 999
- Local Police – 101
- Local Hospital / NHS Trust – 020 7794 0500
- Local Hospital – Royal Free Hospital, Pond Street, London, SN3 2QG. A route to the hospital is included in Appendix B.

FIGURES



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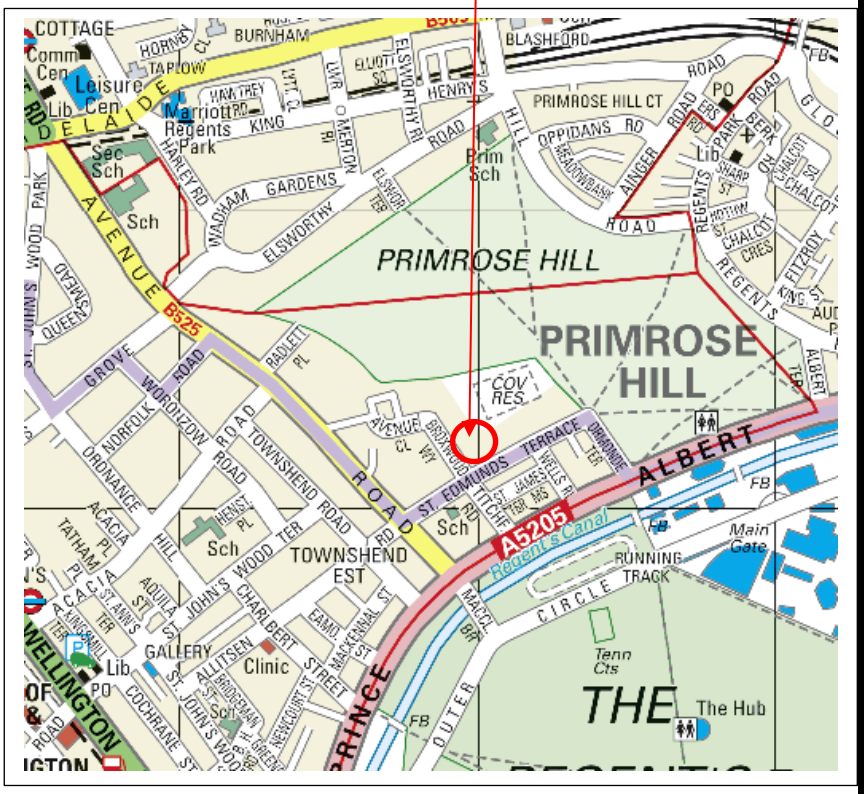
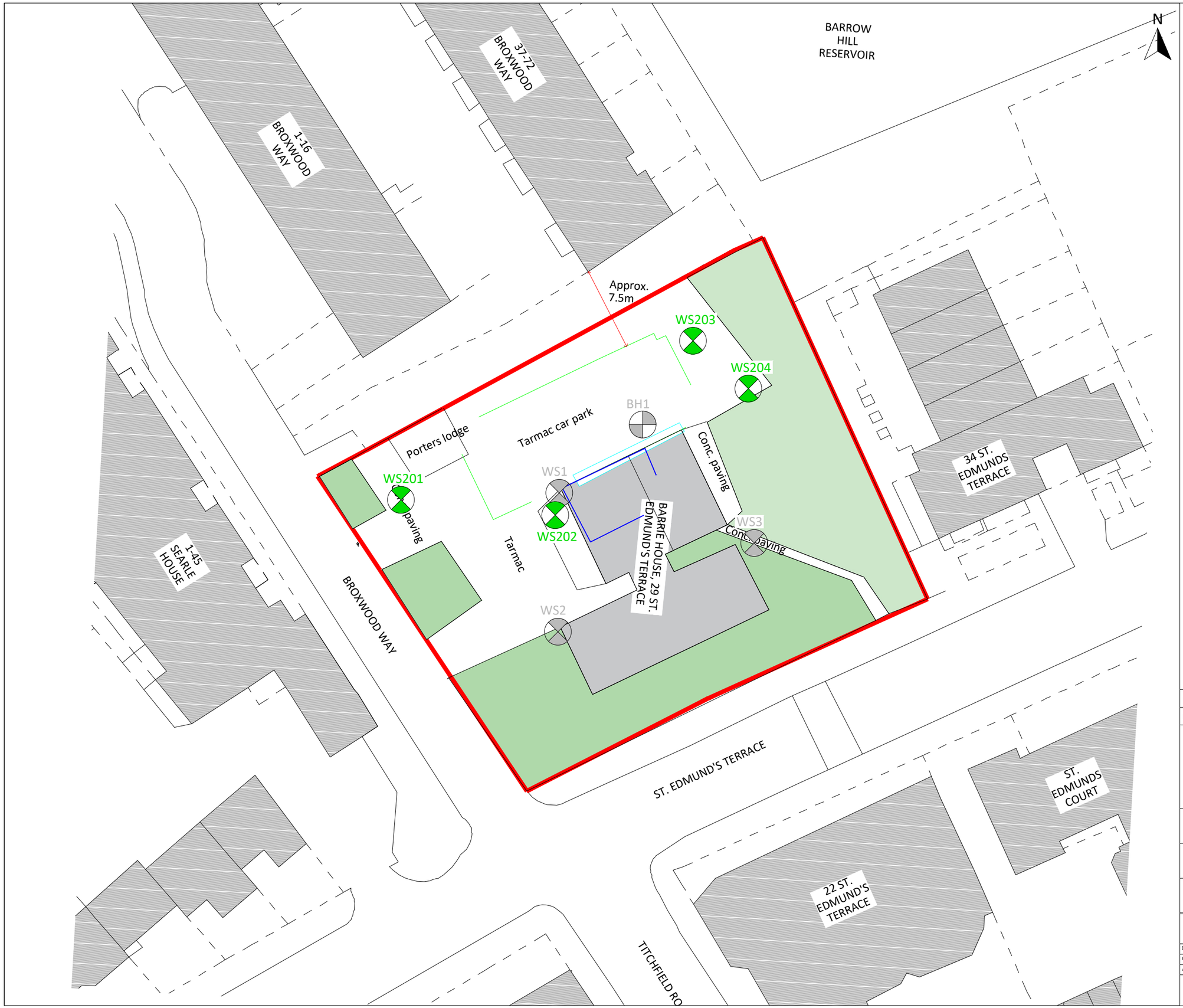
Site location: Barrie House, NW8 7QH



Client	Project	Job No
Broxwood View Limited	**Barrie House, 29 St Edmunds Terrace, London**	**CG/28408B**
CGL	Title: **Site Location Plan**	**Figure 1**



KEY

- Site Boundary
- CGL Window Sampler Boreholes
- Soil Consultants Window Samples (2012)
- Soil Consultants Boreholes (2012)

Notes

1. Site Layout Plan taken from CGL Drawing "CG/28408 Site Layout_1".

Rev	Date	Comments
0	26/05/2022	

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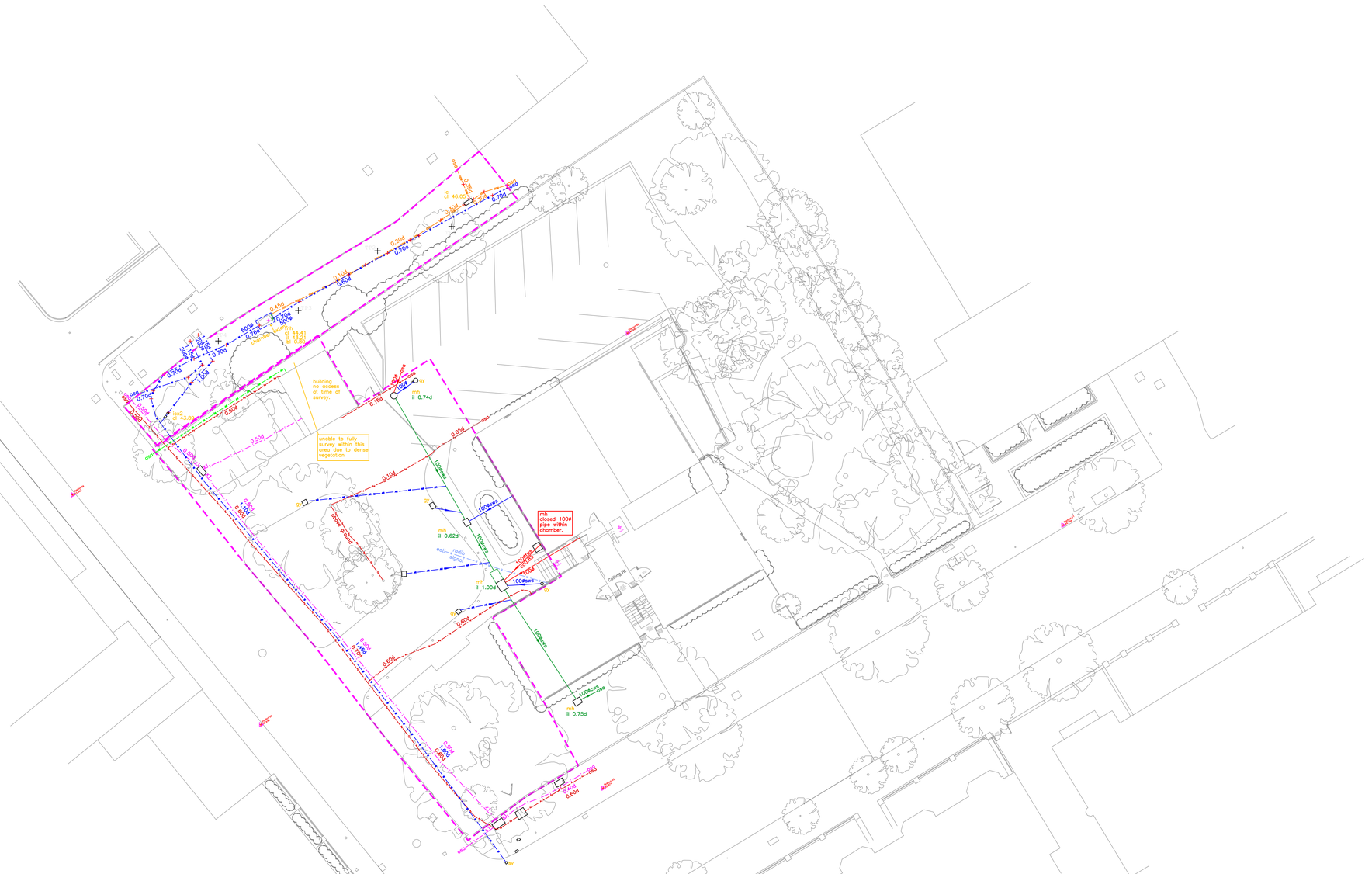
Project	**Barrie House, 29 St Edmunds Terrace, London**
Client	**Broxwood View Limited**
Drawing title	**Figure 2 - Site Layout and Exploratory Hole Location Plan**

Scale(s)	Job No.
NTS	**CG/28408B**

Drawn	OCR	26/05/2022	Dwg No. **CG/28408B-001**	Rev. **0**
Checked	ARA	21/06/2022		
Approved	NJL	22/06/2022		

APPENDIX A

Utility Plan



NOTES

GENERAL NOTES :-

TOPOGRAPHICLA SURVEY HAS BEEN SUPPPLIED BY THIRD PARTY, THEREFORE MIDLAND SURVEY ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THIS DRAWING.

THE COORDINATE GRID IS BASED ON ASSUMED VALUES.

ALL LEVELS ARE IN METRES DERIVED FROM GPS TRANSFORMATION.

THIS DRAWING HAS BEEN PRODUCED WITH A PLOT SCALE ACCURACY OF 1:200

SERVICE COVERS INDICATED WHERE VISIBLE. PIPE INVERTS / DETAILS SURVEYED FROM SURFACE INSPECTION ONLY. GENERALLY DAMAGED COVERS AND COVERS WITHIN HIGHWAYS WILL NOT BE LIFTED

TREE SPECIES SHOULD BE CONFIRMED BY TREE SPECIALIST IF CRITICAL.

OVERHEAD CABLES ARE INDICATED USING REMOTE SURVEY METHODS AND ARE SUBJECT TO SEASONAL VARIATION, AND SHOULD BE TREATED AS APPROXIMATE.

THE SURVEYOR WILL NOT BE RESPONSIBLE FOR THE OMISSION OF DETAILS OBSCURED DURING SITE SURVEY

RICS PROFESSIONAL STANDARDS 3RD EDITION RULE 1.19 APPLIES TO THIS SURVEY.

TOPOGRAPHICAL SURVEY/UTILITY KEY :-

(ht) – height
ø – diameter
– pea trap
a/g – above ground
a/r – assumed route
av – air valve
bb – bellsha beacon
bd – back drop
bl – bed level
boll – bollard
bos – bottom of shaft
bt – telecom
c/b fence – closeboard fence
c/box – control box
catv – cable television
cl – cover level
con – conifer
cr – cable riser
cws – combined water sewer
d/chan – drainage channel
ejb – electric junction box
elec – electric
eot – end of trace
ep – electric pole
er – earth rod
f/bed – flower bed
fh – fire hydrant
fl – floor level
fs – fire switch
fws – foul water sewer
g – gully
g/run – gully run
gr – gas riser
h/chestnut – horse chestnut
h/thorn – hawthorn
ic – inspection cover
il – invert level
ill – illumninated
int – interceptor
lp – lamp post
mh – manhole cover
mkr – marker
o/h – over head
ol – off let
osa – off survey area
OSBM – ordnance survey bench mark
p & r fence – post & rail fence
pd – pit depth
pr – pipe riser
ptg – pipe to ground
pts – pipe to surface
rs – rodding eye
ret wall – retaining wall
rs – road sign
rwp – rain water pipe
s/birch – silver birch
s/p – safety paving
sap – sapling
sec fence – security fence
sfc – soil filled chamber
sl – spot light
sp – soil pipe
st – stop tap
sv – stop valve
svp – soil vent pipe
sws – storm water sewer
TBM – temporary bench mark
ttr – taken from records
tl – threshold level
toc – top of cap
top – top of pipe
tot – top of tank
tp – telecom pole
ts – traffic signal
t/s – trench scar
u/s – underside
utl – unable to lift
utr – unable to rod
uts – unable to survey
utt – unable to trace
vp – vent pipe
wfc – water filled chamber
wl – water level
wm – water meter
wp – waste pipe
wr – water riser

UTILITY SURVEY KEY :-

HATCHED AREA
BOREHOLE
CPT
TRIAL PIT
HAND PIT
WINDOW SAMPLE

ELECTRIC CABLE
WATER PIPE
FOUL SEWER
STORM SEWER
COMBINED SEWER
DUCTS
CABLE TELEVISION
DATA CABLE
TELECOM CABLE
GAS PIPE
UNIDENTIFIED SERVICE
OTHER
CCTV
TRAFFIC LIGHT
OFFSET FILL
VENT
FUEL PIPE
GAUGE LINES
PIPE
ASSUMED ROUTE
TAKEN FROM RECORDS

DISCLAIMER :-

Electromagnetic techniques have been used in the location of underground services. The results are not infallible and trial excavations should be carried out to confirm service identification, positions and particularly depths, where these are critical. The completeness of the underground services information cannot be guaranteed.

This method of survey does not differentiate between live and dead services, and as such all services should be treated as live. This drawing may not include the location of all public services that may cross the site, therefore the relevant service drawings should be obtained from the appropriate utility company and used in conjunction with this drawing.

Private service pipes and cables in highways are not shown, but there presence should be anticipated.

Additional below ground structures or obstructions not shown on this drawing may be present. Reference should be made to historical plans and as–built drawings. Excavations in the vicinity of services should be carried out with due diligence ref: HSG47 document avoiding dangers from underground services

Please note that factors such as ground conditions, proximity of other utilities, material and method of construction have an influence on the quality of the data collected on site.

TSA Standards – "A utility mapping survey can be considered a 100% accurate depiction of the sub–surface environment, and the use of these drawings does not remove the requirement for the use of safe digging techniques at all times, in line with requirements of HSG47 and current CDM regulations".

UTILITY NOTES

TOPOGRAPHICAL SURVEY / ORDNANCE SURVEY BASE PLAN HAS BEEN PROVIDED BY A THIRD PARTY, THEREFORE MIDLAND SURVEY LTD ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THIS SURVEY.

NO INDICATION OF GAS WITHIN SITE SURVEY AREA. IT IS RECOMMENDED THAT THE RELEVANT SERVICE PROVIDER IS CONTACTED FOR DESKTOP SEARCH INFORMATION.

POOR GPR RESULTS ACROSS SITE

ADVISED BY CLIENT WHERE TO LOCATE THE TRIAL PITS

VERBAL INFOMATION SUGGETS INCOMING GAS, WATER AND MAINS ELECTRIC IS NOT WITHIN THE SURVEY BOUNDARY.

IT IS RECOMMENDED TO OBTAIN RECORDS BEFORE ANY INTRUSIVE WORKS BEGIN.

0 2 4 8 12 16 20

MIDLAND SURVEY LTD

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Client	CGL
Project	BARRIE HOUSE, LONDON, NW8 7QH
Title	UTILITY SURVEY
Date	JUNE 2022
Scale	1:200@A0
Dwg No	U07932 0
Surveyor	JHG/J.L.W
Checked	K.N

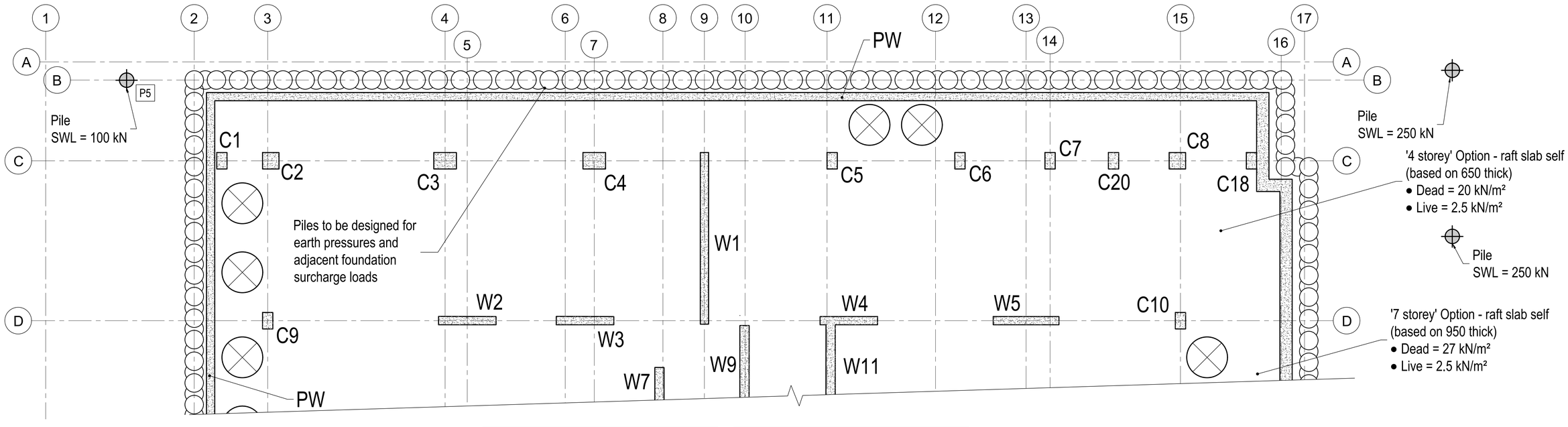
Revisions

TOPOGRAPHICAL (LAND) SURVEYORS / UTILITY SURVEYORS
BUILDING MEASUREMENT SURVEYORS / 3D LASER SCANNING

Notes.

NOTES

1. This drawing is to be read in conjunction with the specification and all relevant Engineers and Architects drawings.
2. Work to figured dimensions only.
3. For general notes see drawing 5295 - TS01.



'4 storey' Option

Total Base shear to be distributed via capping beam into piles at Ground Level from:
- Wind north - south = 595 kN (characteristic)
- Wind east - west = 250 kN (characteristic)

'7 storey' Option

Total Base shear to be distributed via capping beam into piles at Ground Level from:
- Wind north - south = 720 kN (characteristic)
- Wind east - west = 300 kN (characteristic)

All loads characteristic.

Floatation forces to be assessed for full depth.

Proposed Partly Basement

Scale 1 : 50

Column	Size	Dead (kN)		Live (kN)		Wind (±kN)	
		'7 storey'	'4 storey'	'7 storey'	'4 storey'	'7 storey'	'4 storey'
C1	A	75	50	100	75	0	0
C2	B	925	620	375	270	15	0
C3	D	1100	670	420	200	15	0
C4	D	1050	740	275	175	180	113
C5	A	750	490	270	140	180	113
C6	A	750	460	230	115	75	50
C7	A	690	420	250	125	30	0
C8	B	500	305	225	125	15	0
C9	A	220	215	110	110	0	0
C10	A	220	215	105	105	0	0
C11	A	75	50	100	75	0	0
C12	B	1075	730	430	300	0	0
C13	E	1350	675	450	210	0	0
C14	F	150	130	25	25	0	0
C15	C	780	500	300	200	0	0
C16	C	300	245	100	70	0	0
C17	A	450	360	225	175	0	0
C18	A	70	70	80	80	0	0
C19	A	70	70	80	80	0	0
C20	A	790	440	350	155	0	0

Wall	Length (m)	Thickness	Dead (kN/m)		Live (kN/m)		Wind (±kN) at wall extremities			
							East / West		South / North	
			'7 storey'	'4 storey'	'7 storey'	'4 storey'	'7 storey'	'4 storey'	'7 storey'	'4 storey'
W1	4	200	425	245	175	90	0	0	180	90
W2	1.4	200	475	345	275	190	0	0	0	0
W3	1.4	200	125	100	30	21	0	0	0	0
W4	1.4	200	450	308	225	145	0	0	0	0
W5	1.6	200	425	310	200	140	0	0	0	0
W6	1.4	400	375	270	55	40	0	0	0	0
W7	0.8	225	75	55	10	10	0	0	0	0
W8	2	400	525	425	125	80	0	0	1010	450
W9	2	225	50	40	10	10	0	0	0	0
W10	2	400	700	410	170	80	420	185	1010	450
W11	2	225	36	36	5	5	0	0	0	0
W12	2	400	620	570	170	110	420	185	1010	450
PW	PERIMETER	200	25	25	5	5	0	0	0	0

Columns Schedule	
Columns	Size (mm)
A	250x400
B	400x400
C	250x600
D	400x550
E	400x600 corbel
F	400x800

Preliminary Scheme for Comment Only
Do not order materials from this drawing.

REV.	AMENDMENTS	BY	DATE	CHECKED

PROJECT
Broxwood View
Barrie House

TITLE
Loading Plan - Basement

ARCHITECTS
Carbogno Ceneda Architects

DRAWING No.
5295-TS50

DATE	12.10.2022
SCALE	As shown @ A1
DRAWN	AR
CHECKED	RT
REVIEWED	-

Richard Tant Associates
Consulting Civil & Structural Engineers
54 LISSON STREET LONDON NW1 5DF
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info@richardtantassociates.com

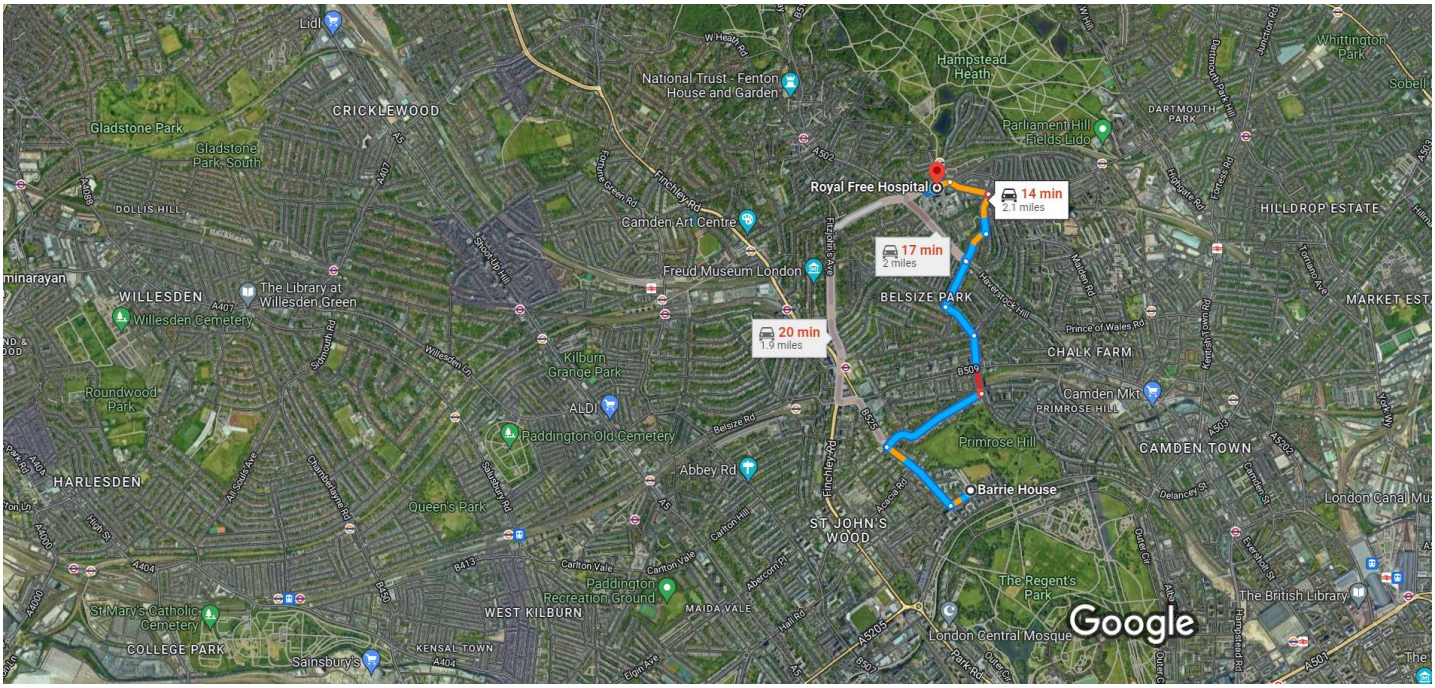
APPENDIX B

Route to Hospital

Google Maps

Barrie House, 29 St Edmund's Terrace, London NW8 7QH to Royal Free Hospital, Pond St, London NW3 2QG

Drive 2.1 miles, 14 min



Imagery ©2022 Bluesky, CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Landsat / Copernicus, Maxar Technologies, The GeoInformation Group, Map data ©2022 500 m

Barrie House
29 St Edmund's Terrace, London NW8 7QH

1. Head south-west on St Edmund's Terrace towards Titchfield Rd

36 s (0.1 mi)

2. Turn right onto Avenue Road/B525

1 min (0.3 mi)

Continue on Elsworthy Rd to Haverstock Hill/A502

5 min (1.0 mi)

3. Turn right onto Elsworthy Rd

0.4 mi

4. Turn left onto Primrose Hill Rd

0.2 mi

5. Slight left onto Belsize Park Gardens

0.2 mi

6. Turn right onto Belsize Grove

0.2 mi

7. Turn left onto Haverstock Hill/A502

2 s (36 ft)

Take Lawn Rd to Fleet Rd

1 min (0.3 mi)

8. Turn right onto Downside Cres

0.1 mi

9. Turn left onto Lawn Rd

0.2 mi

Continue on Fleet Rd to Hampstead Grn

1 min (0.3 mi)

10. Turn left onto Fleet Rd

0.2 mi

11. Turn left onto Pond St/B518

0.1 mi

Drive to your destination

28 s (249 ft)

12. Turn left onto Hampstead Grn

49 ft

13. Turn left

Destination will be on the left

200 ft

Royal Free Hospital
Pond St, London NW3 2QG