sanderson associates (consulting engineers) ltd

Highways | Traffic | Transportation | Water

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Prepared on behalf of

Fairhurst

Proposed Residential Development
Flat 1, 28 Canfield Gardens, London, NW6 3LA

Flood Risk Assessment

VAT No. GB 873219218
Company No. 3235830
Registered Office
Sanderson House, Jubilee Way
Grange Moor WF4 4TD

ISO 9001 REGISTERED FIRM

Acknowledgements:

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.

This report was checked and approved on the 23nd March 2020 and the Report is therefore valid on this date, circumstances, regulations and professional standards do change which could subsequently affect the validity of this report.

Copyright

Report Ref:	11200/TW/001/03		March 2020
Author:	Thomas Walker		
Checked & Approved:	Darren Hawkyard	**Date:**	23rd March 2020

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1 Introduction

Sanderson Associates (Consulting Engineers) Ltd have been appointed to undertake a Flood Risk Assessment for a proposed residential (flat) development located at Flat 1, 28 Canfield Gardens, London, NW6 3LA.

1.1 This Flood Risk Assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF) March 2012 and the associated Planning Practice Guidance, 2014 for developments of this type and the flood zone location.

1.2 The assessment discusses the flood risk to the site, using a risk based approach and reference to the Sequential and Exception Test where appropriate.

1.3 A formal consultation with the Environment Agency has not taken place as their generalised mapping data shows the site is located within fluvial Flood Zone 1. Environment Agency and local water authority mapping data has been reviewed and referred to during the production of this report.

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2 Existing Situation

2.1 Existing Site Description

2.1.1 The property is located within the Canfield Gardens area of the Swiss Cottage electoral ward in the London borough of Camden. A plan is included in Appendix A of this report which shows the site location and surroundings. An O.S Reference for the site is: 526101,184515.

2.1.2 The site is brownfield as it currently contains an existing four storey (including basement) brick built residential property with associated gardens/yard areas to the frontage (southeast) and rear (northwest).

2.1.3 The site is bound to the north by gardens, to the east by residential properties, to the south by Canfield Garden and to the west by residential properties.

2.1.4 The closest main watercourse to the site is the River Brent which is located approximately 4.5km to the west at its closest point and generally flows from north to south prior to out falling into the River Thames. The River Thames is located approximately 5.5km to the south at its closest point. Figure 2 of the Camden Strategic Flood Risk Assessment also shows a wholly culverted watercourse that is located 2.0km to the east at its closest point and flows south from its source at lakes on Hampstead Heath.

2.1.5 It is also understood that a historic watercourse known as the River Westbourne is located in the Hampstead area (Appendix B – Historic Map A and B). The Westbourne was enclosed during the 19th century as part of the development of London and in response to pollution of the watercourse. The sewer that the watercourse now flows through is known as the Ranelegh CSO (combined sewer overflow) storm relief sewer, which forms part of the current Thames Water network. In order to establish a relative potential proximity to the development site, Thames Water asset maps have been reviewed to identify the location of CSO/storm relief sewers in the area. The Thames Water sewer apparatus map

contained within appendix B of this report identifies apparatus of this type which is located 120m to the west of 28 Canfield Gardens and is shown to flow from north to south.

3 Proposed Development

3.1 It is proposed that part of the existing residential dwelling is re-developed, maintaining its residential use. The ground floor and basement of the property will be developed into a residential flat, development plans show that the basement will include three bedrooms, bathrooms and a utility room. The first floor will contain a living room, kitchen and a bedroom. Light wells are shown to both the frontage and rear of the property.

3.2 It is proposed that access/egress to property will remain asper existing from the sites frontage onto Canfield Gardens.

3.3 The site is proposed to be developed in line with the received layout which is contained in Appendix A of this report.

4 Flood Risk

4.1 Surface Water Flooding

4.1.1 The main risk of flooding from overland flow comes from water channelled in the local highway network, impermeable areas within the vicinity of the site and land at a higher elevation.

4.1.2 Environment Agency surface water mapping has been reviewed which shows areas at an elevated risk of surface water flooding for differing storm return periods.

4.1.3 Surface water flood mapping shows that the area of the site, in general, has a 'Very Low' risk of surface water flooding. A very low risk is land that has a less than 1 in 1000 annual probability of surface water flooding. A 'Very Low' risk is the lowest risk classifications in line with surface water flood zone delineation. Figure 3v of the Camden Strategic Flood Risk Assessment also confirms that the site is not at an elevated risk from this source.

4.1.4 The surface water mapping shows that there are very few areas within the vicinity of the site that are at an elevated risk of surface water flooding, the closest being to the north in the vicinity of Compayne Gardens. At this location two areas at an elevated risk are shown to the frontage and rear of properties on the north side of the street, the areas are isolated with a limited disbursement which suggests relative low points in the local topography where surface water collects during low probability storm events, they also do not form elements of flow path areas.

4.2 Flooding from Rivers / Watercourses

4.2.1 Reviewed fluvial flood mapping confirms that the site wholly falls within Flood Zone 1. This is land that has been assessed to have a less than a 1 in 1000 (<0.1%) annual probability of flooding from a fluvial Source in any given year. The closest area of higher probability flood zone (Flood Zone 2) is located approximately 5.0km to the southwest in the general vicinity of Goldhawk Road.

4.2.2 As the site is remote from and at a relatively higher elevation (circa +40m in accordance with contour data) than the limits of areas of Flood Zones 2 & 3, the risk from a fluvial source can be deemed to be very low.

4.3 Flooding from Sewers

4.3.1 If any of the sewers/drainage apparatus adjacent to the site were to surcharge and flood, it is likely that any floodwaters would be shallow, relatively slow moving and constrained within the limits of the carriageway.

4.3.2 At the time of writing the report there was no evidence available to suggest the site has been directly affected from flooding from overloaded sewers/drainage apparatus in the past; therefore the risk of flooding from sewers would be considered low. It is likely that sewer flooding would have similar flow path to those shown for surface water, but constrained to the area of failure.

4.4 Flooding from Groundwater

4.4.1 The potential for groundwater flooding has been assessed in a separate Basement Impact Assessment. Please refer to the supplementary document with regards to groundwater conditions in the area.

4.5 Climate Change

4.5.1 It is generally considered that the intensity of rainfall will increase by up to 30% by the year 2085 and that winter months will become proportionately wetter.

4.5.2 These factors have been considered in the assessment of flood risk from all sources including watercourses.

5 Sequential and Exception Test

5.1 Sequential Approach

5.1.1 The site is considered to lie within Flood Zone 1 as confirmed by the Environment Agency and local authority data.

5.1.2 The site is currently a residential development, in accordance with Table 2 of (PPG 2014, Planning Practice Guidance 2014) its current use is classed as being 'More Vulnerable' in terms of flood risk vulnerability.

5.1.3 The proposed residential use of the site, in accordance with Table 2 (PPG 2014, Planning Practice Guidance 2014) is classed as being 'More Vulnerable' in terms of flood risk vulnerability.

5.1.4 In accordance with Table 3 (PPG 2014, Planning Practice Guidance 2014) a 'More Vulnerable' development located in Flood Zone 1 is an appropriate development, therefore the full Sequential or Exception Test would not be required as part of a planning application for this development.

6 General Mitigation Measures

6.1 It is important that any proposed development, that has the potential to change the flood mechanisms on a site, is designed such that there is no increased flood risk to the site itself, or sites upstream and downstream of the development. Below is a list of mitigation measures that will be assist in protecting the development.

6.2 A 150mm upstand should be provided on the light well surrounds, although the site is not shown on Environment Agency or Camden evidence to be at an elevated risk from this source, the above would reduce the risk of localised surface water accumulations at the developments external interface.

6.3 Drains within the limits of the site should be regularly inspected and cleared where necessary to reduce the risk of blockages and flooding within onsite apparatus.

6.4 Basement and ground floor electrical circuits should be set a minimum of 450mm above the finished floor level (in accordance with the Part M of the Building Regulations 2000). The basement electrical circuits should be run to sockets and switches from the ceiling cavity above.

6.5 Any hard standing areas to the outside of the development should fall away from entrance points to the building, wherever possible, with a minimum gradient of 1 in 100.

6.6 As the development is located on the lower floors of an existing property, there is limited opportunity to introduce measures to control surface water directly into the properties existing drainage system. From received layout plans, contained in Appendix A, it can be seen that the development aims to replace existing external hard surfaces at the frontage of the site with permeable green and planting areas. This measure will help reduce surface water run-off from within the site curtilage and represents an overall reduction in surface water runoff. As an additional measure all new water consuming appliances within the proposed development should have a robust water efficiency rating to minimise water usage and

discharge into the local sewer network. It would also be recommended that non-return valves are included on the developments drainage connections to the external network.

7 Conclusion

7.1 This report serves to review and assess the sources of potential flooding to the site, the impact of the proposed development on the flood mechanisms of the site and the impact on the surrounding area in accordance with NPPF.

7.2 Sequential and Exception Tests have been assessed in accordance with NPPF and it is concluded that the development is suitable for this location.

7.3 The flood risk to the site from a number of sources of flooding have been assessed, suitable mitigation measures have been recommended in response to the assessed risk and advice has been given regarding managing surface water from the site

7.4 This report concludes that the site can be developed without increasing flood risk to the site itself and other sites in the vicinity with the implementation of suitable mitigation measures.

APPENDIX A - Drawings

Received Layout Plans

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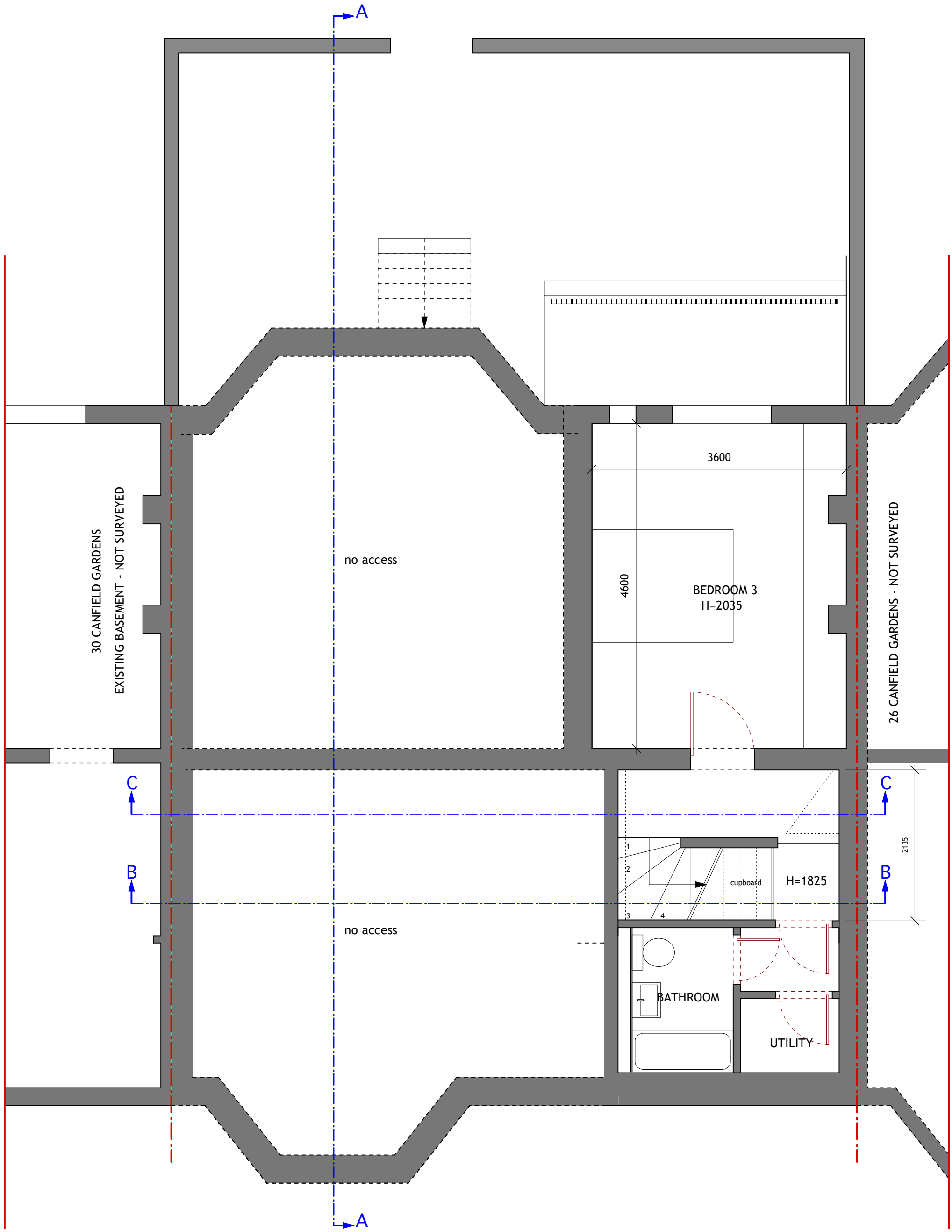
PROJECT
28 CANFIELD GARDENS
LONDON NW6 3LA

DRAWING NAME
01 - EXISTING BASEMENT FLOOR PLAN

DRAWING Ref.
28CanfieldBasement@Camden16052016

DRAWEN : *RCB*

SCALE :	PROJ No.	REV. No.	SHEET :	DATED :
1/50	*NW63LA*	*00*	*A3*	*01/06/2016*



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02 - EXISTING GROUND FLOOR PLAN

DRAWING NAME

PROJECT: *28 CANFIELD GARDENS LONDON NW6 3LA*

DRAWING Ref.: *28CanfieldBasement@Camden16052016*

DRAWEN : *RCB*

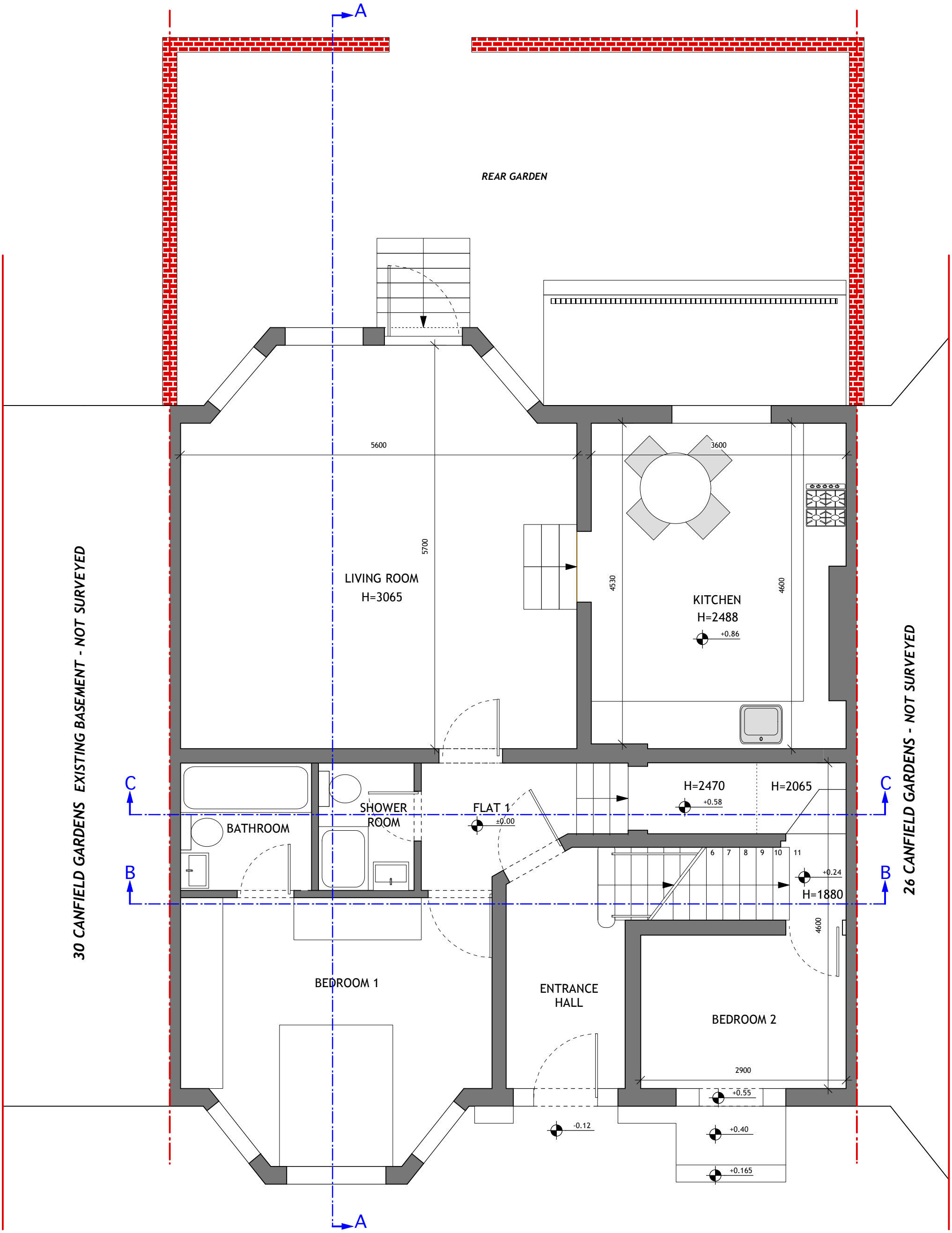
SCALE : *1/50*

PROJ No. *NW63LA*

REV. No. *00*

SHEET : *A3*

DATED : *01/06/2016*



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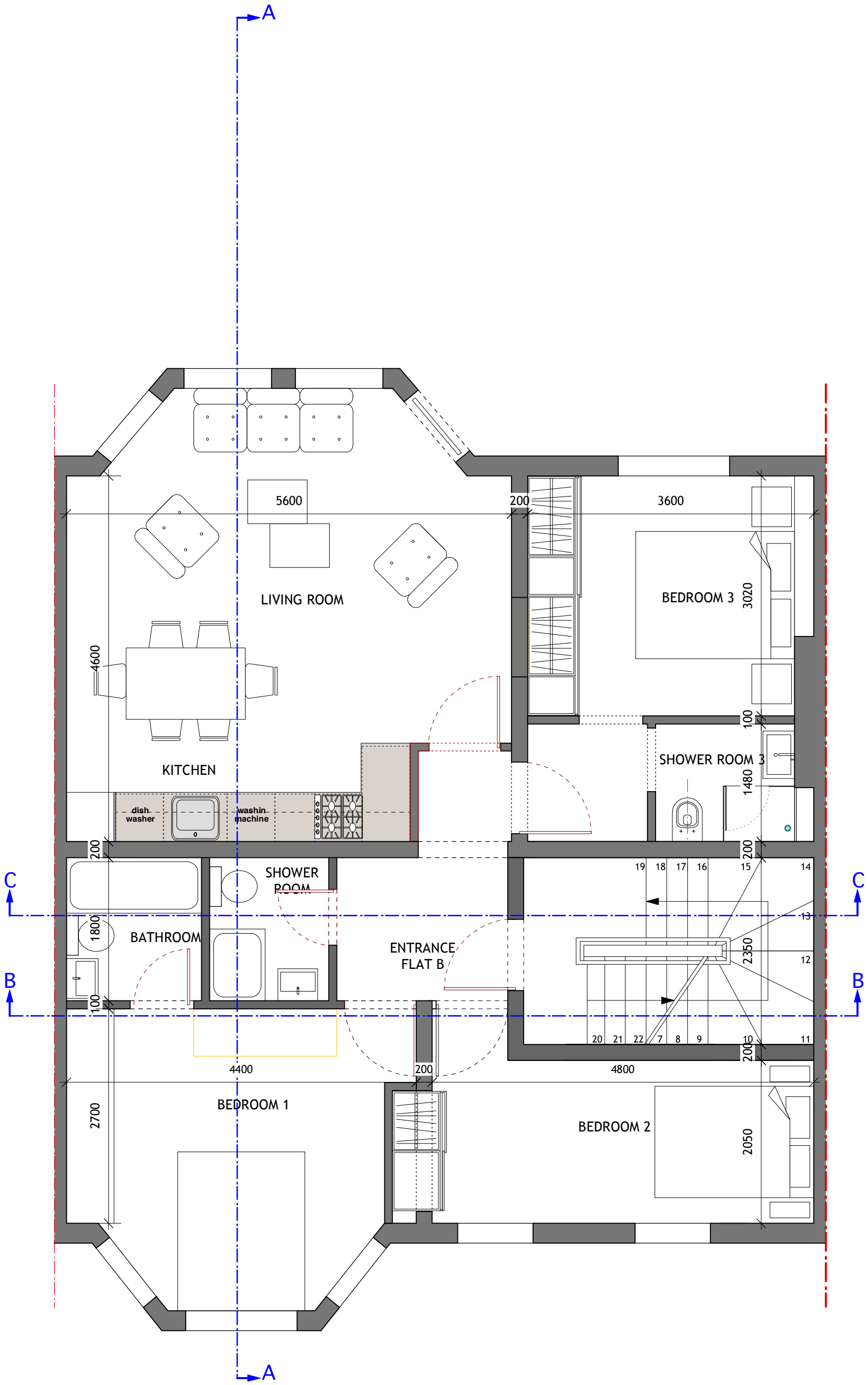
PROJECT
28 CANFIELD GARDENS
LONDON NW6 3LA

DRAWING NAME
03 - EXISTING FIRST FLOOR PLAN

DRAWING Ref.
28CanfieldBasement@Camden16052016

DRAWEN : *RCB*

SCALE :	PROJ No.	REV. No.	SHEET :	DATED :
1/50	*NW63LA*	*00*	*A3*	*01/06/2016*



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28 CANFIELD GARDENS
LONDON NW6 3LA
PROJECT

04 - EXISTING SECTION AA

DRAWING NAME

DRAWING Ref.
28CanfieldBasement@Camden16052016

SCALE :	PROJ No.	REV. No.
1/50	*NW63LA*	*00*

RCB DRAWEN :
A3 SHEET :
01/06/2016 DATED :

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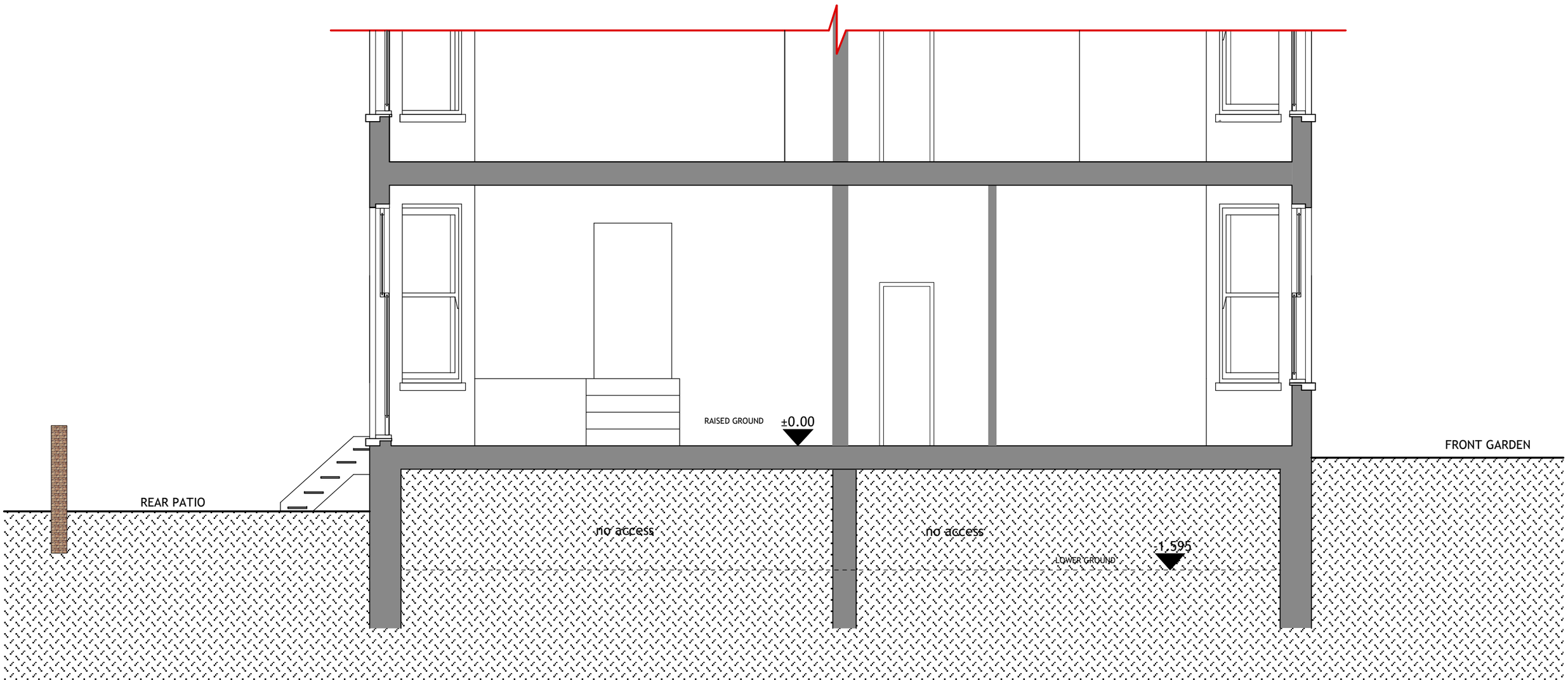

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Landline: 020 8883 2503 Mobile: 07887 646505

05 - EXISTING SECTIONS BB & CC

DRAWING Ref. 28CanfieldBasement@Camden16052016

DRAWEN : RCB

SCALE :	PROJ No.	REV. No.	SHEET :	DATED :
1/50	NW63LA	00	A3	01/06/2016

PROJECT: 28 CANFIELD GARDENS LONDON NW6 3LA

DRAWING NAME

30 CANFIELD GARDENS NOT SURVEYED

26 CANFIELD GARDENS NOT SURVEYED

3650

+0.865

+0.53

±0.00

RAISED GROUND

1880

300

1825

-1.525

SECTION CC

30 CANFIELD GARDENS NOT SURVEYED

26 CANFIELD GARDENS NOT SURVEYED

3650

+0.865

+0.53

RAISED GROUND ±0.00

1880

300

1825

11
10
9
8
7
6
5
4
3
2
1

LOWER GROUND

-1.595

SECTION BB

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28 CANFIELD GARDENS
LONDON NW6 3LA
PROJECT

06 - EXISTING FRONT ELEVATION

DRAWING NAME

DRAWING Ref. *28CanfieldBasement@Camden16052016*

DRAWEN : *RCB*

SCALE :	PROJ No.	REV. No.	SHEET :	DATED :
1/50	*NW63LA*	*00*	*A3*	*01/06/2016*

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PROJECT
28 CANFIELD GARDENS
LONDON NW6 3LA

DRAWING NAME
07 - EXISTING REAR ELEVATION

DRAWING Ref.
28CanfieldBasement@Camden16052016

DRAWEN : *RCB*

SCALE :	PROJ No.	REV. No.	SHEET :	DATED :
1/50	*NW63LA*	*00*	*A3*	*01/06/2016*

THE TREATMENT ARCHITECTURE LTD.
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Landline: 020 88832503 Mobile: 07887 646505

DATE: 06/09/2019

REV NUMBER: 00

PROJECT: **28 CANFIELD GARDENS, LONDON NW6 3EE**

DRAWING NAME: **08 - PROPOSED BASEMENT FLOOR PLAN**

SCALE: 1/50

0.0 1.0 2.0 3.0 4.0 5.0

LEGEND: NEW

F Foul Water Pipe
S Surface Water Pipe

Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
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DPC	Damp Proof Course	VP	Vent Pipe
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DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level Detail Approx.
25.56		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Topographical Abbreviations

A/R	Assumed Route	MKR	Marker	EJB	Electricity Junction Box	SPR	Spread
BH	Borehole	MT	Mercury Telecom Cover	EC	Electricity Cover	STA	Traverse Station
BOL	Bollard	OHC	Overhead Cable	EP	Electricity Pole	SV	Stop Valve
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BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark	FH	Fire Hydrant	SW	Storm Water
BWK	Brickwork	PB	Post Box	FIG	Feed Into Ground	TB	Telephone Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker	FW	Foul Water	TBM	Temporary Bench Mark
CB	Close Boarded Fence	PR	Post & Rail Fence	GU	Gully	TFR	Taken From Records
CCTV	Closed Circuit TV	PW	Post & Wire Fence	GV	Gas Valve	TJB	Telephone Junction Box
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence	H	Height	TPT	Trial Pit
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CL	Cover Level	RG	Road Gully	IL	Invert Level	TP	Telephone Pole
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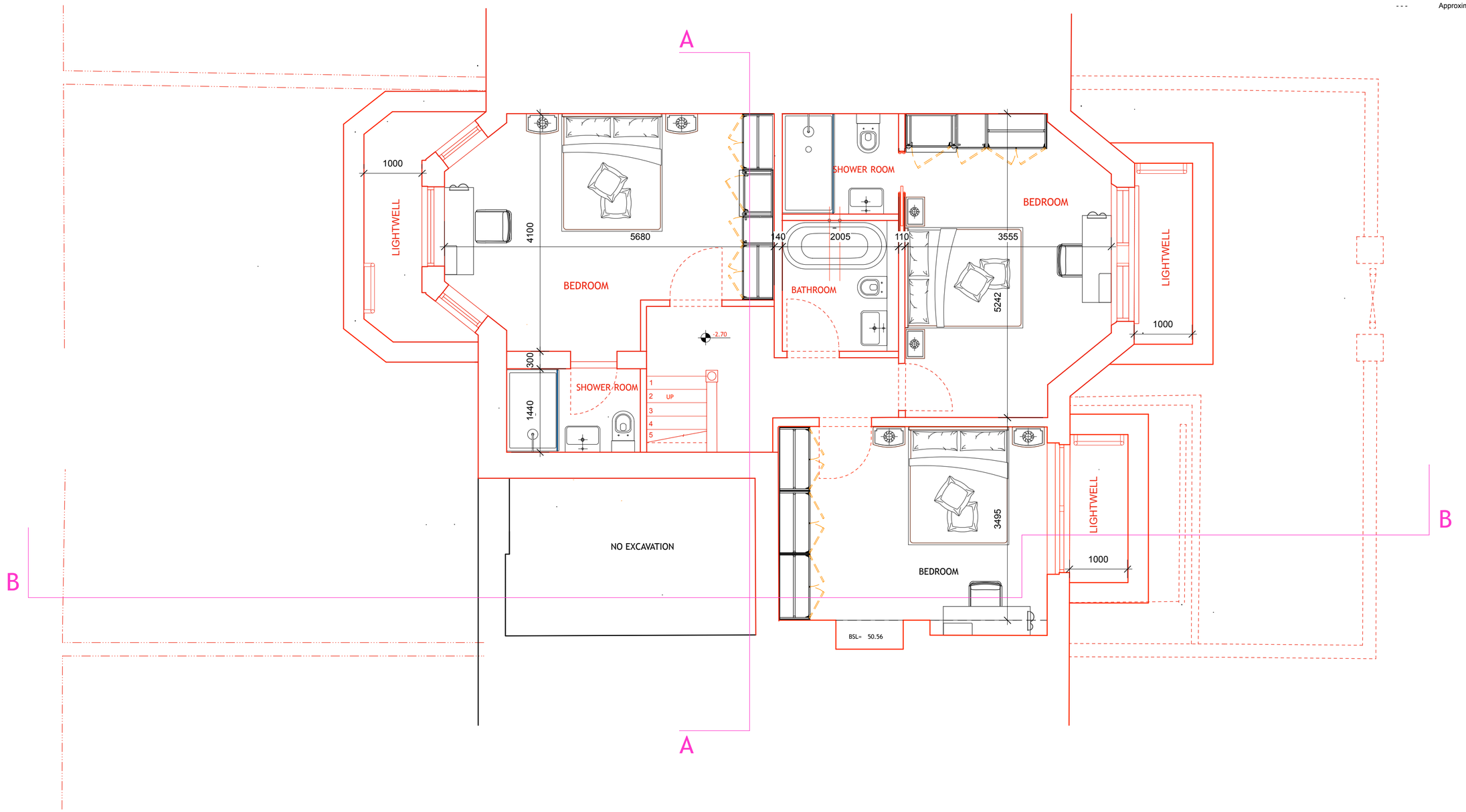
						- - -	Approximate



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DATE: 06/09/2019

REV NUMBER: 00

PROJECT: 28 CANFIELD GARDENS, LONDON NW6 3EE

DRAWING NAME: 09 - PROPOSED GROUND FLOOR PLAN

SCALE: 1/50

0.0 1.0 2.0 3.0 4.0 5.0

LEGEND: NEW

Building Abbreviations

BL	Basement Level	HD	Heating Duct
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BWK	Brickwork	PB	Post Box	FIG	Feed Into Ground	TB	Telephone Box
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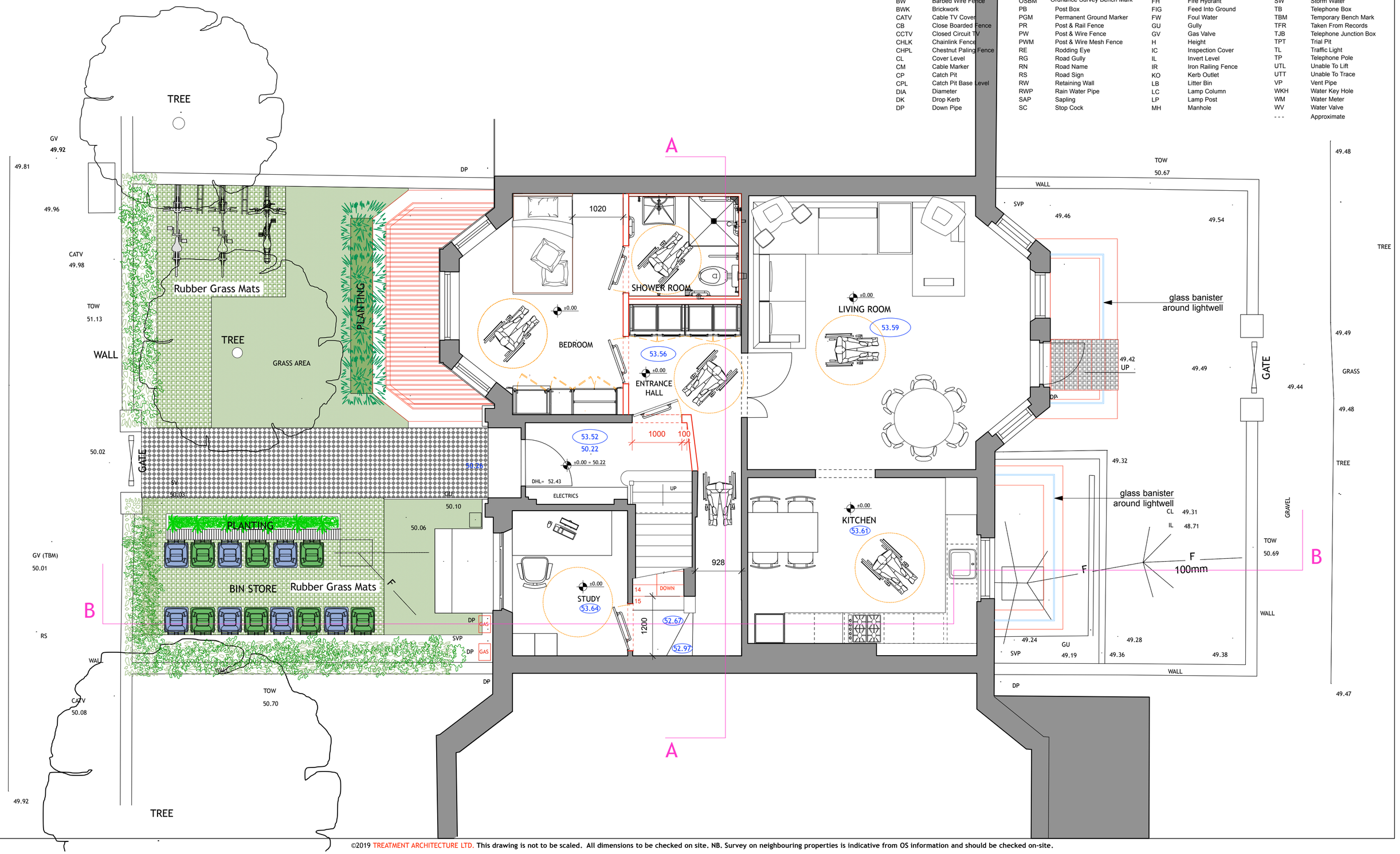
DP	Down Pipe	SC	Stop Cock	MH	Manhole	WV	Water Valve
						- - -	Approximate



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DATE: 06/09/2019

REV NUMBER: 00

PROJECT: **28 CANFIELD GARDENS, LONDON NW6 3EE**

DRAWING NAME: **10 - PROPOSED SECTIONS A-A**

SCALE: 1/50

0.0 1.0 2.0 3.0 4.0 5.0

LEGEND: NEW

Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
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25.56			Detail Approx.
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CL	Cover Level	RG	Road Gully	IL	Invert Level	TP	Telephone Pole
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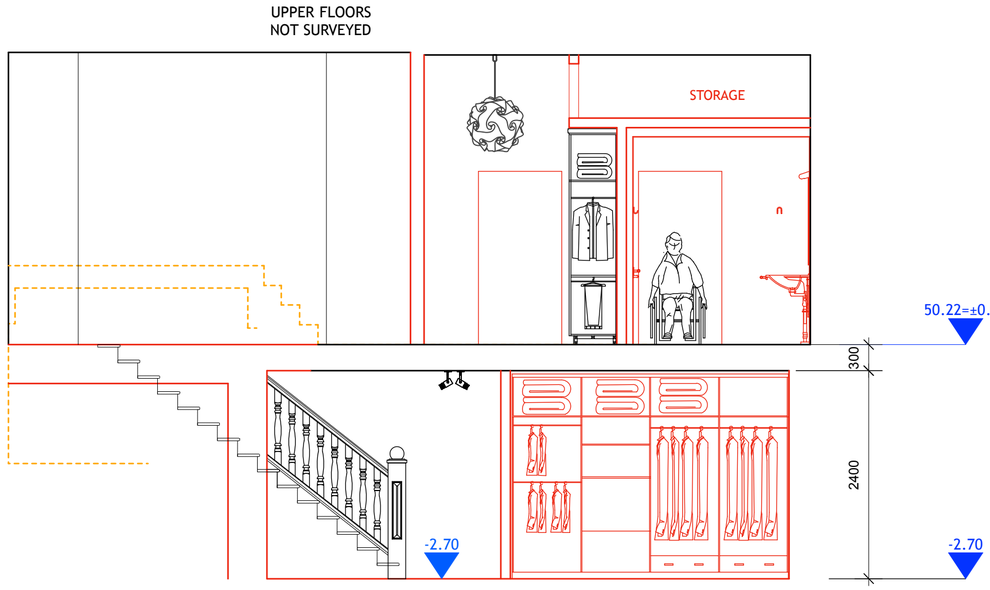
DP	Down Pipe	SC	Stop Cock	MH	Manhole	WV	Water Valve
						- - -	Approximate



DATUM 46.00m

THE TREATMENT ARCHITECTURE LTD.
43 WILTON ROAD , LONDON N10 1LX , UK
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06/09/2019 DATE:

00 REV NUMBER:

PROJECT: **28 CANFIELD GARDENS, LONDON NW6 3EE**

DRAWING NAME: **11 - PROPOSED SECTION B-B**

SCALE: 1/50

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LEGEND: NEW

Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
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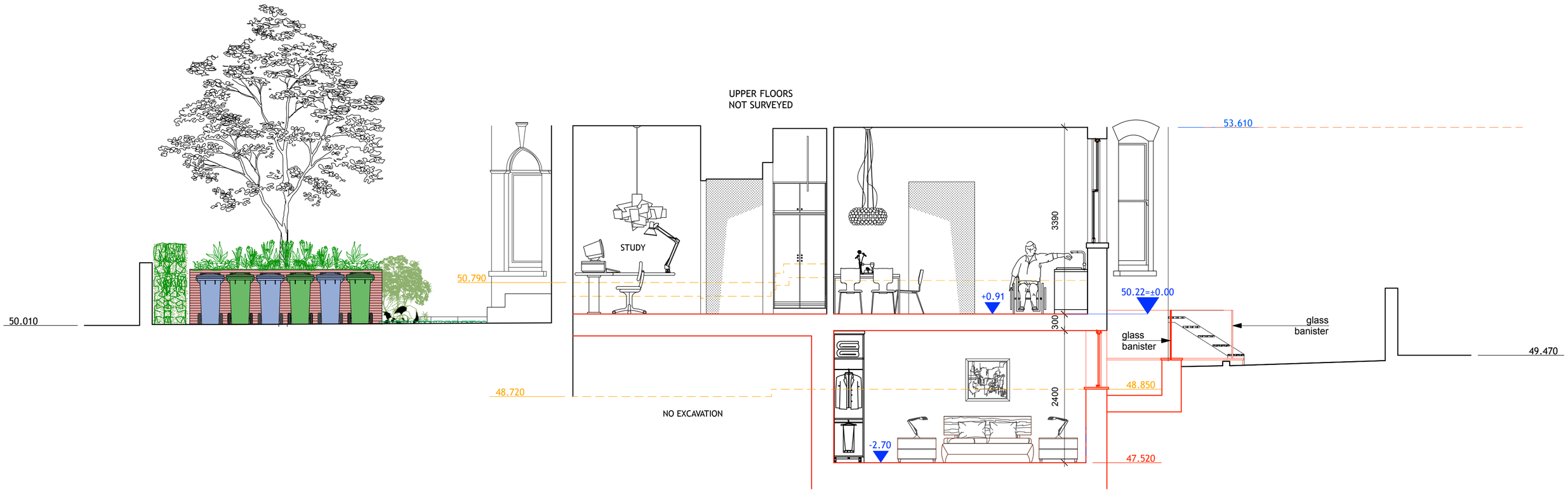
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	~~Finished Floor Level~~	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.56			Detail Approx.
CH	Ceiling Height	CSU	Ceiling slopes up
		F-H	Floor - Window head Ht

F Foul Water Pipe

S Surface Water Pipe

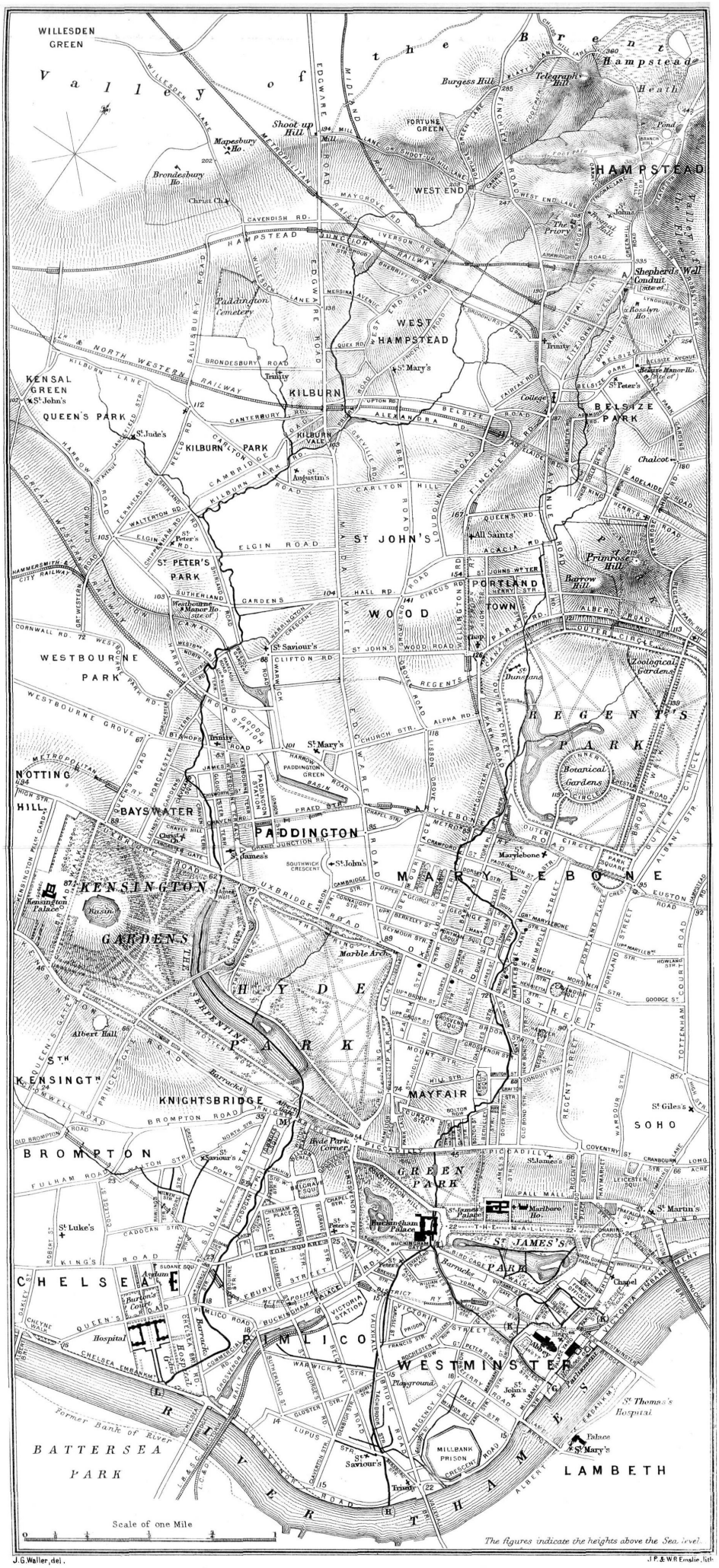
Topographical Abbreviations

A/R	Assumed Route	MKR	Marker	EJB	Electricity Junction Box	SPR	Spread
BH	Borehole	MT	Mercury Telecom Cover	EC	Electricity Cover	STA	Traverse Station
BOL	Bollard	OHC	Overhead Cable	EP	Electricity Pole	SV	Stop Valve
BT	British Telecom Cover	OHP	Overhead Pipe	ER	Earthing Rod	SVP	Soil Vent Pipe
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark	FH	Fire Hydrant	SW	Storm Water
BWK	Brickwork	PB	Post Box	FIG	Feed Into Ground	TB	Telephone Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker	FW	Foul Water	TBM	Temporary Bench Mark
CB	Close Boarded Fence	PR	Post & Rail Fence	GU	Gully	TFR	Taken From Records
CCTV	Closed Circuit TV	PW	Post & Wire Fence	GV	Gas Valve	TJB	Telephone Junction Box
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence	H	Height	TPT	Trial Pit
CHPL	Chestnut Paling Fence	RE	Rodding Eye	IC	Inspection Cover	TL	Traffic Light
CL	Cover Level	RG	Road Gully	IL	Invert Level	TP	Telephone Pole
CM	Cable Marker	RN	Road Name	IR	Iron Railing Fence	UTL	Unable To Lift
CP	Catch Pit	RS	Road Sign	KO	Kerb Outlet	UTT	Unable To Trace
CPL	Catch Pit Base Level	RW	Retaining Wall	LB	Litter Bin	VP	Vent Pipe
DIA	Diameter	RWP	Rain Water Pipe	LC	Lamp Column	WKH	Water Key Hole
DK	Drop Kerb	SAP	Sapling	LP	Lamp Post	WM	Water Meter
DP	Down Pipe	SC	Stop Cock	MH	Manhole	WV	Water Valve
						- - -	Approximate



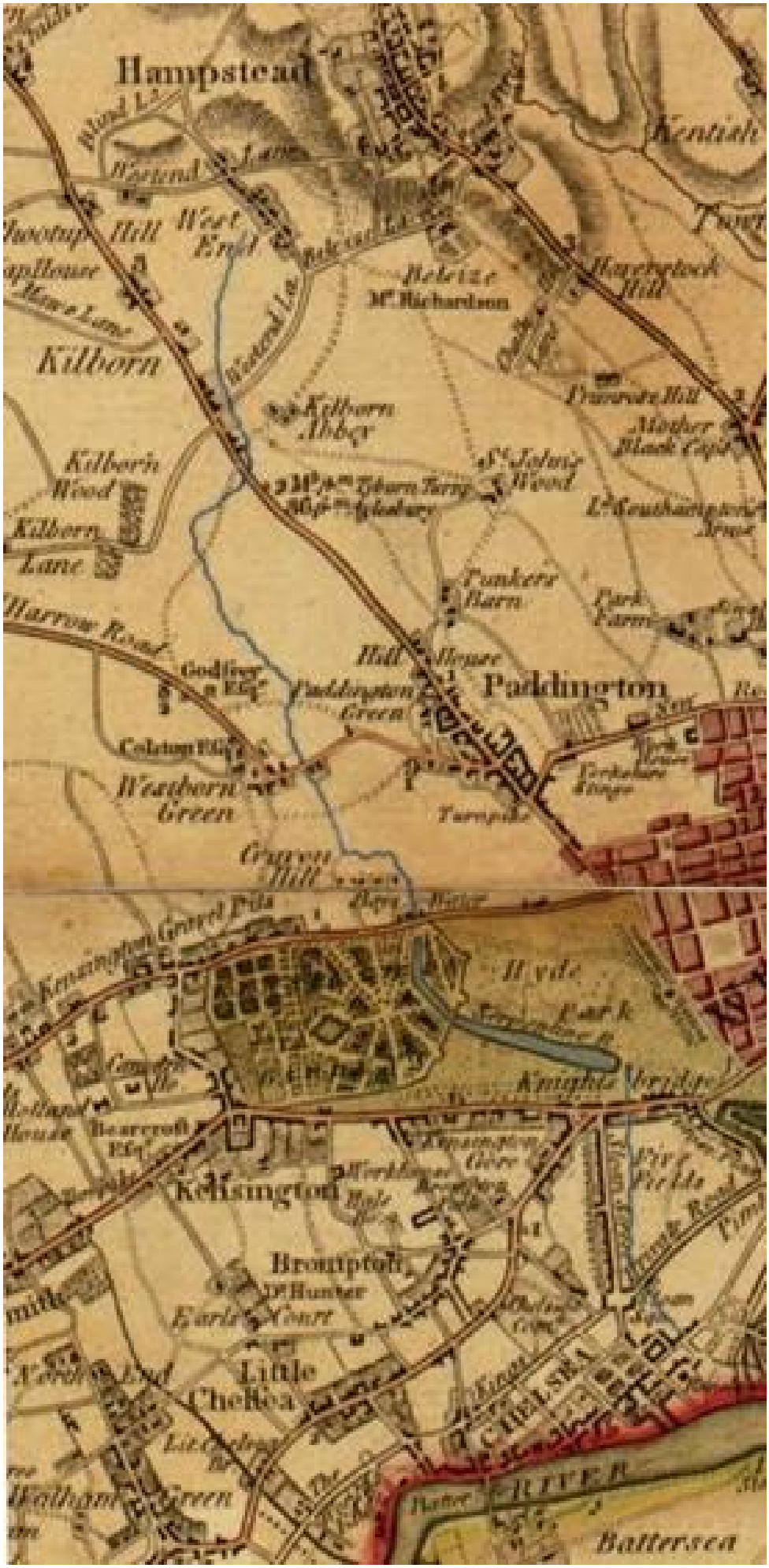
DATUM 46.00m

APPENDIX B – River Westbourne



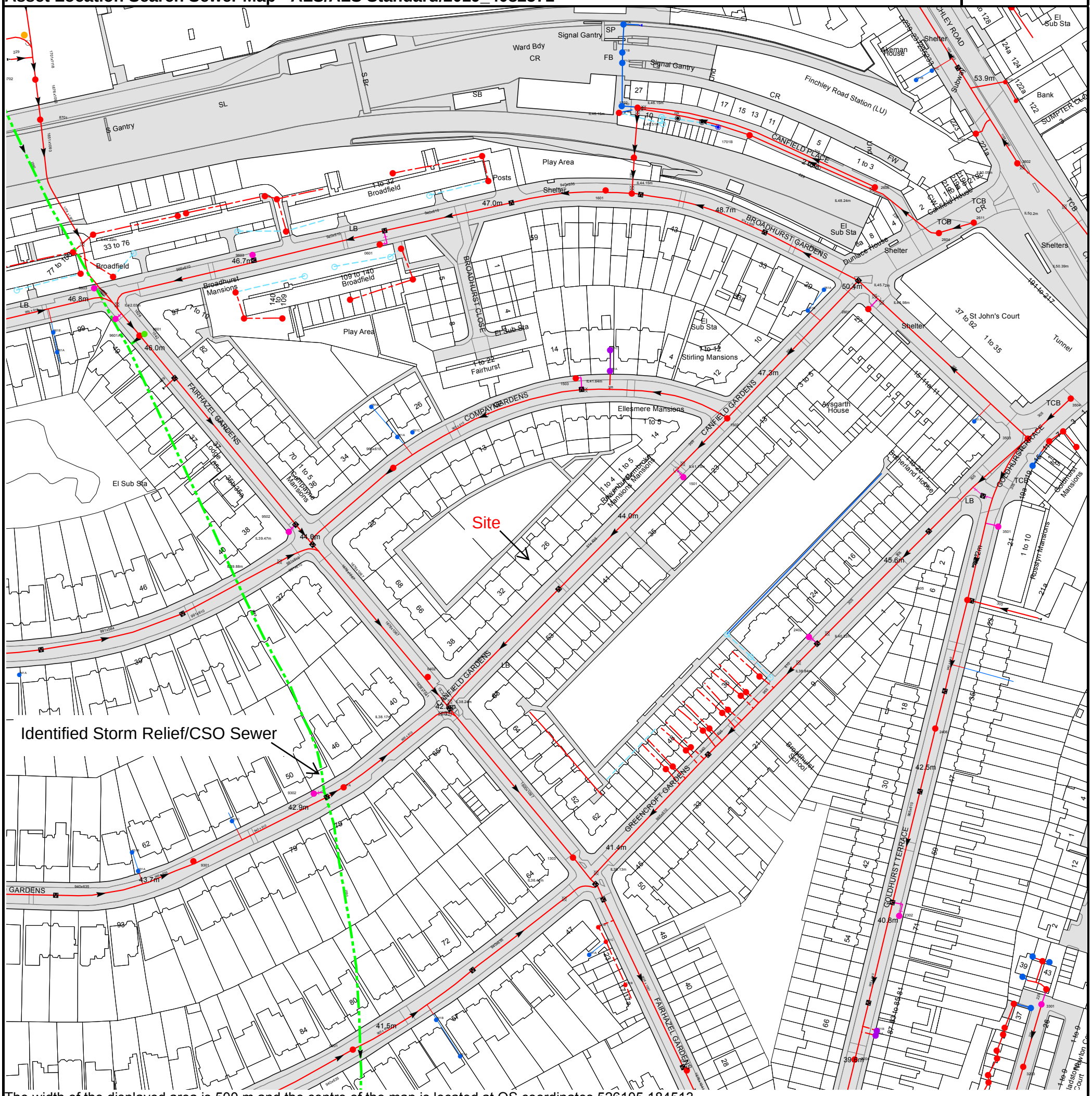
COURSE OF THE WEST-BOURNE AND OF THE TY-BOURNE.

Map A - Transactions of the London & Middlesex Archaeological Society 1890


Hampstead
Kilburn
Kilburn Wood
Kilburn Lane
Harrow Road
Paddington
Paddington Green
Westbourne Green
Hyde Park
Kensington
Brompton
Little Chelsea
Battersea
Primrose Hill
Regents Park
Kensington Gravel Pits

Map B

Asset Location Search Sewer Map - ALS/ALS Standard/2019_4082571



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 526105,184513

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.

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
3706	n/a	n/a
3501	n/a	n/a
3503	50.97	47.23
35BJ	n/a	n/a
35CB	n/a	n/a
35CD	n/a	n/a
32CJ	n/a	n/a
32DB	n/a	n/a
32DC	n/a	n/a
33AF	n/a	n/a
33BB	n/a	n/a
3203	n/a	n/a
33AG	n/a	n/a
33AJ	n/a	n/a
3301	41.51	39.42
33AI	n/a	n/a
33BF	n/a	n/a
33AH	n/a	n/a
221A	n/a	n/a
221B	n/a	n/a
32CI	n/a	n/a
32BF	n/a	n/a
32DA	n/a	n/a
1502	46.46	42.31
1701B	50.28	47.36
261B	n/a	n/a
261A	n/a	n/a
2601	n/a	n/a
2605	52.05	50.07
271B	n/a	n/a
271C	n/a	n/a
2604	52.67	48.54
2611	53.12	49.01
351A	n/a	n/a
3701	n/a	n/a
371D	n/a	n/a
371B	n/a	n/a
3602	53.34	52.43
35CC	n/a	n/a
3504	52.33	48.88
361A	n/a	n/a
96BC	n/a	n/a
06AF	n/a	n/a
06AJ	n/a	n/a
051B	n/a	n/a
0601	n/a	n/a
06AG	n/a	n/a
06BB	n/a	n/a
06AH	n/a	n/a
051C	n/a	n/a
06BA	n/a	n/a
06BG	n/a	n/a
06BE	n/a	n/a
06BH	n/a	n/a
1503	n/a	n/a
1601	47.44	43.74
151A	n/a	n/a
161C	n/a	n/a
17BC	n/a	n/a
171D	n/a	n/a
171C	n/a	n/a
171B	n/a	n/a
171A	n/a	n/a
161B	n/a	n/a
161A	n/a	n/a
1702	48.6	n/a
17BE	n/a	n/a
17BD	n/a	n/a
131D	n/a	n/a
2302	n/a	n/a
1303	41.29	36.03
9302	42.9	n/a
041A	n/a	n/a
1403	n/a	n/a
1404	n/a	n/a
1405	n/a	n/a
1406	n/a	n/a
1407	n/a	n/a
2406	n/a	n/a
1408	n/a	n/a
1409	n/a	n/a
1410	n/a	n/a
1411	n/a	n/a
1412	n/a	n/a
24DD	n/a	n/a
0402	42.79	n/a
2409	n/a	n/a
14DG	n/a	n/a
2402	n/a	n/a
14DD	n/a	n/a
2405	46.16	41.74

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9502	44.25	39.42
1501	45.13	n/a
auto	n/a	n/a
051A	n/a	n/a
0201	41.49	37.06
021B	n/a	n/a
021A	n/a	n/a
131A	n/a	n/a
131C	n/a	n/a
131B	n/a	n/a
1203	n/a	n/a
2204	n/a	n/a
86BE	n/a	n/a
8702	49.13	44.68
8701	49.78	44.64
861B	n/a	n/a
861A	n/a	n/a
86AJ	n/a	n/a
86BF	n/a	n/a
86AI	n/a	n/a
8603	46.58	44.58
96CF	n/a	n/a
961A	n/a	n/a
96CG	n/a	n/a
9601A	46.15	41.36
9601	46.6	29.86
96CE	n/a	n/a
96CD	n/a	n/a
96BD	n/a	n/a
96BI	n/a	n/a
96BG	n/a	n/a
9603	46.67	n/a
96CC	n/a	n/a
96CB	n/a	n/a
96BF	n/a	n/a
96CA	n/a	n/a
931A	n/a	n/a
9301	43.31	39.21
931B	n/a	n/a
931C	n/a	n/a
841A	n/a	n/a

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Trunk Surface Water
- Trunk Foul
- Storm Relief
- Trunk Combined
- Vent Pipe
- Bio-solids (Sludge)
- Proposed Thames Surface Water Sewer
- Proposed Thames Water Foul Sewer
- Gallery
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Sludge Rising Main
- Proposed Thames Water Rising Main
- Vacuum

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
- Dam Chase
- Fitting
- Meter
- Vent Column

Operational Controls

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

- Control Valve
- Drop Pipe
- Ancillary
- 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.

- Outfall
- Undefined End
- Inlet

Other Symbols

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

- Public/Private Pumping Station
- Change of characteristic indicator (C.O.C.I.)
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Operational Site
- Chamber
- Tunnel
- Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gulley
- Culverted Watercourse
- Proposed
- Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plans are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole level indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. 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 present on the plan, please contact a member of Property Insight on 0845 070 9148.