

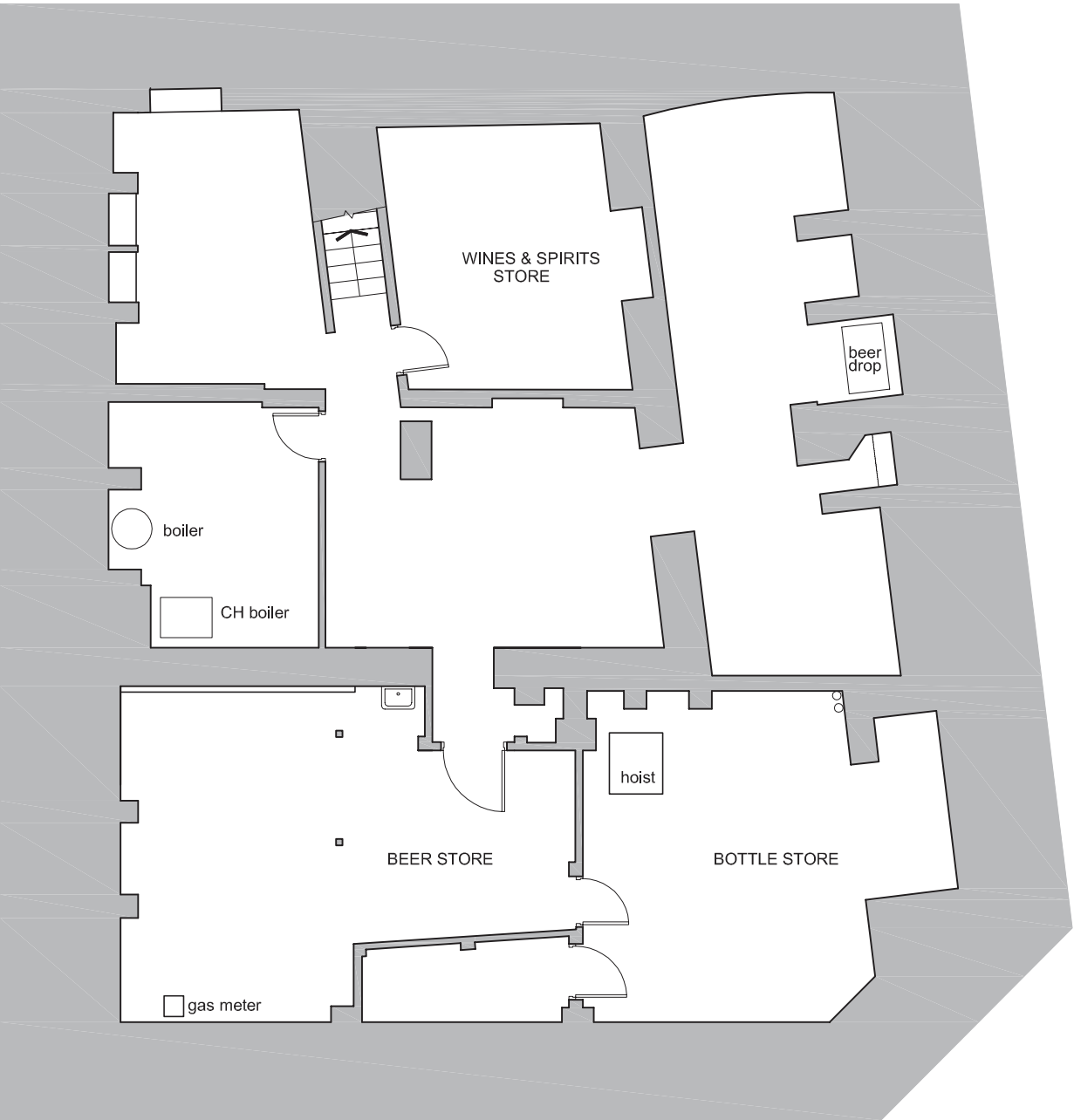
**Camden Geological, Hydrogeological
and Hydrological Study
Watercourses**

Source – Barton, Lost Rivers of London

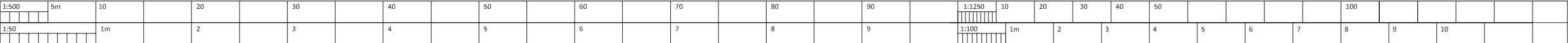
Appendix B

Existing Architectural Drawings

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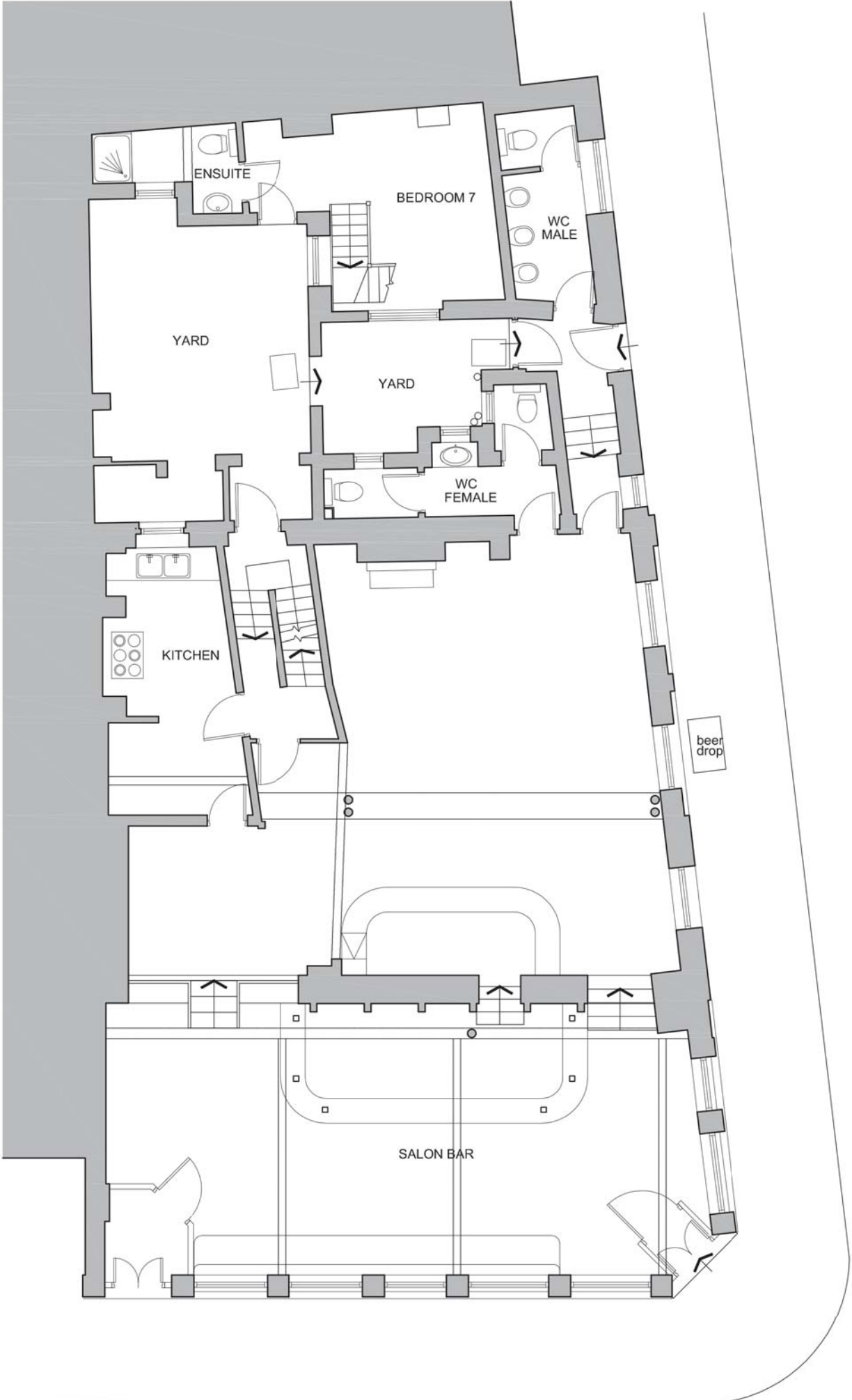
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SCALE 1:100@A3



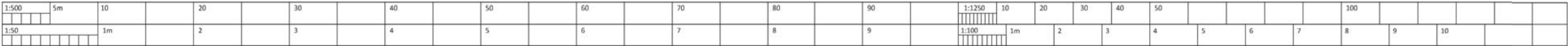
MADIGAN BROWNE

14 City Road, London, EC1Y 2AA
Telephone: 0207 036 6290
www.madiganbrowne.com

project title			
THE HOPE AND ANCHOR			
drawing title			
EXISTING BASEMENT PLAN			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	EA	P010	-
checked	AJB		



EXISTING GROUND FLOOR PLAN
SCALE 1:100@A3



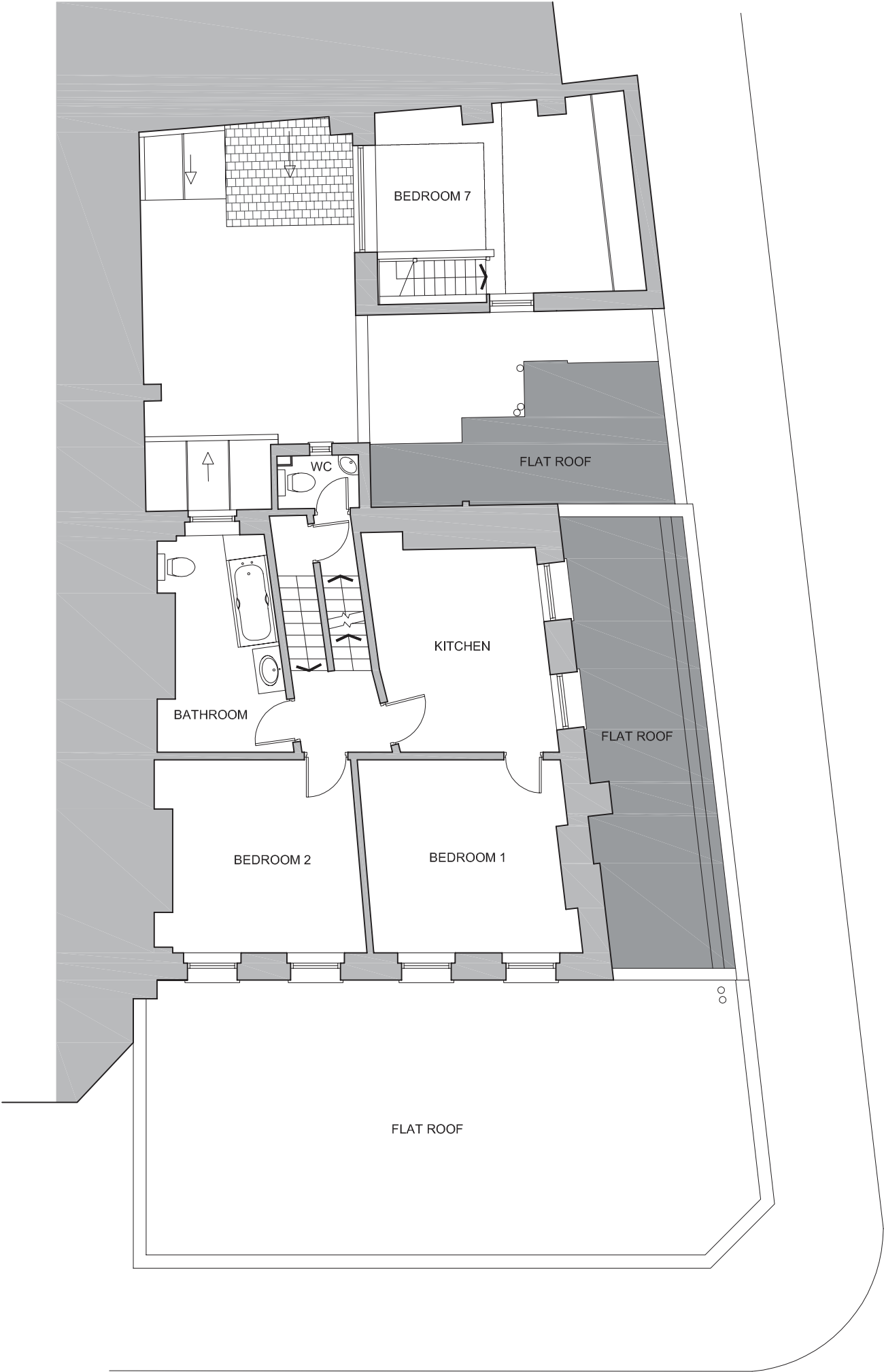
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REVISION	DATE / BY	AMENDMENT
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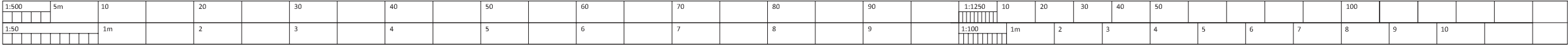
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project title			
THE HOPE AND ANCHOR			
drawing title			
EXISTING GROUND FLOOR PLAN			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1067	drawing no	revision
drawn	EA	P011	-
checked	AJB		



EXISTING FIRST FLOOR PLAN
SCALE 1:100@A3



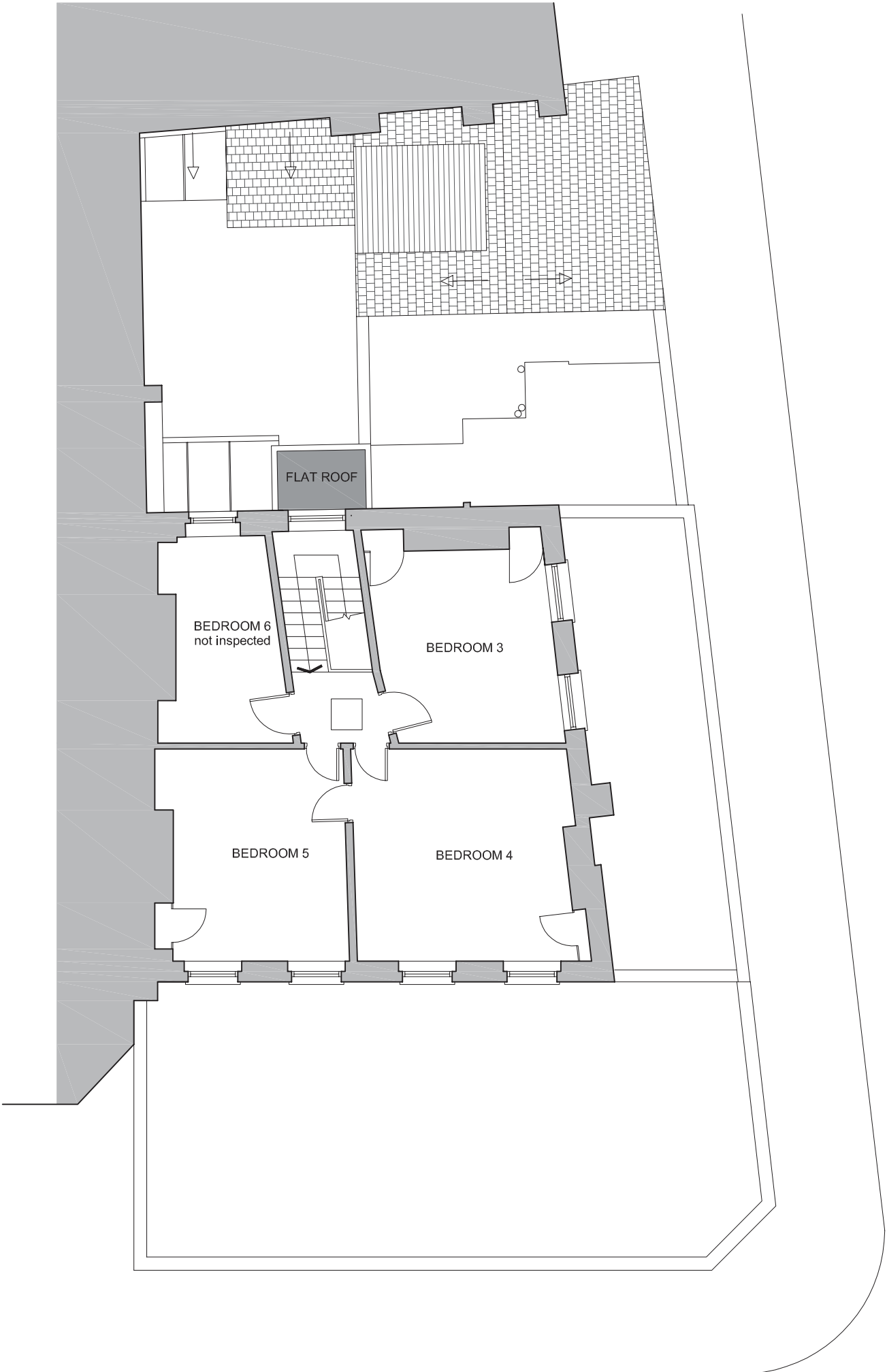
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REVISION	DATE / BY	AMENDMENT
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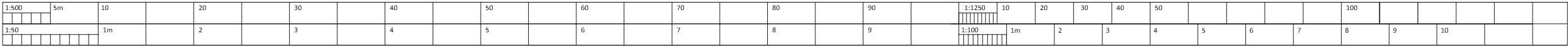
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project title			
THE HOPE AND ANCHOR			
drawing title			
EXISTING FIRST FLOOR PLAN			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	EA	P012	-
checked	AJB		



EXISTING SECOND FLOOR PLAN
SCALE 1:100@A3



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project title			
THE HOPE AND ANCHOR			
drawing title			
EXISTING SECOND FLOOR PLAN			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	EA	P013	-
checked	AJB		



EXISTING BAYHAM STREET ELEVATION
SCALE 1:250 @ A3



EXISTING CROWNDALE ROAD ELEVATION
SCALE 1:250 @ A3

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project title
THE HOPE AND ANCHOR

drawing title
EXISTING ELEVATIONS

status
PLANNING

date
NOVEMBER 2013

scale
1:250@A3

job no
1087

drawn
NAA

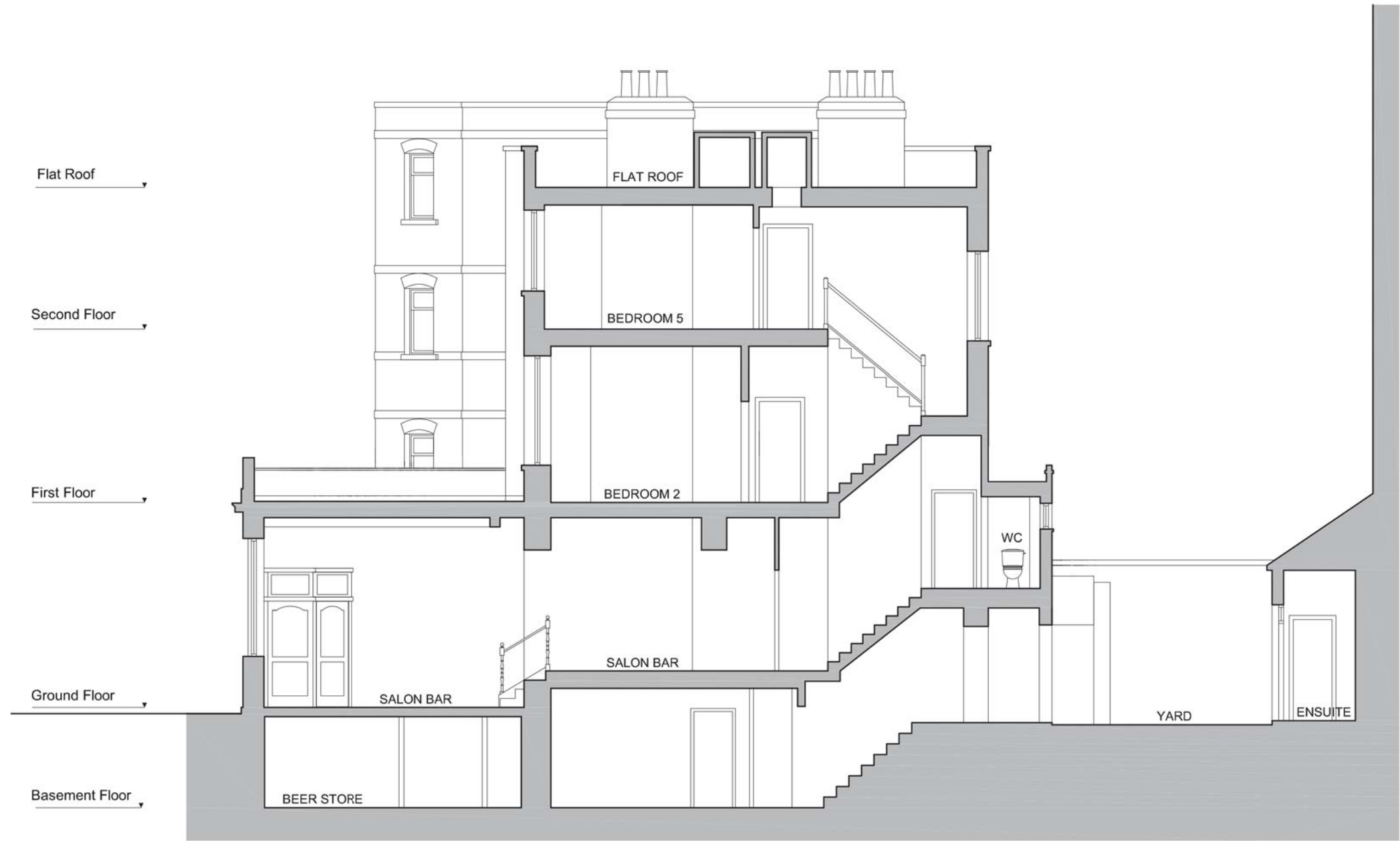
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P022

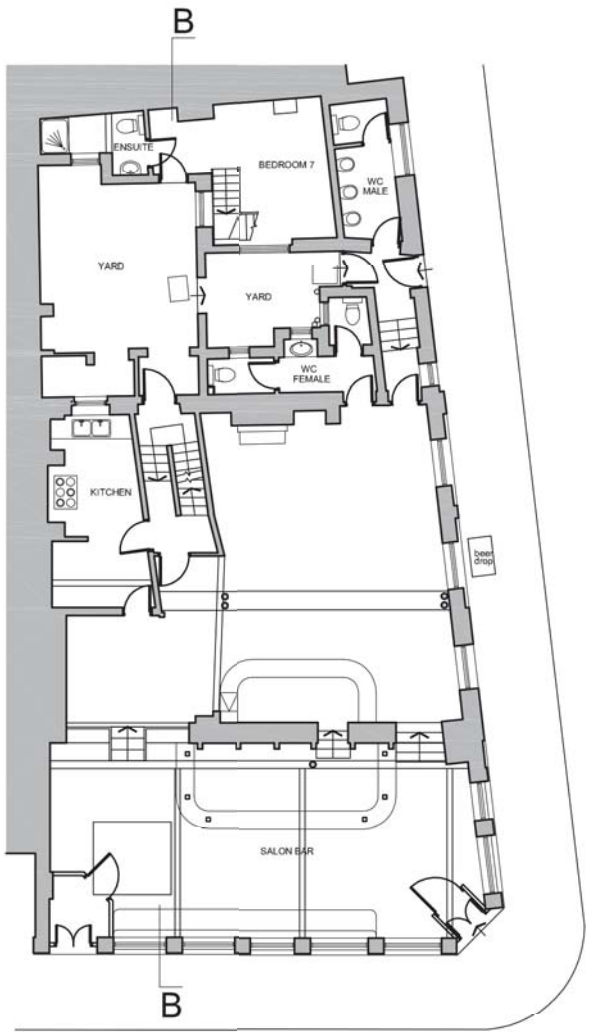
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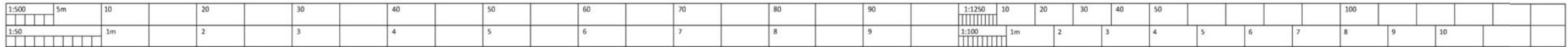
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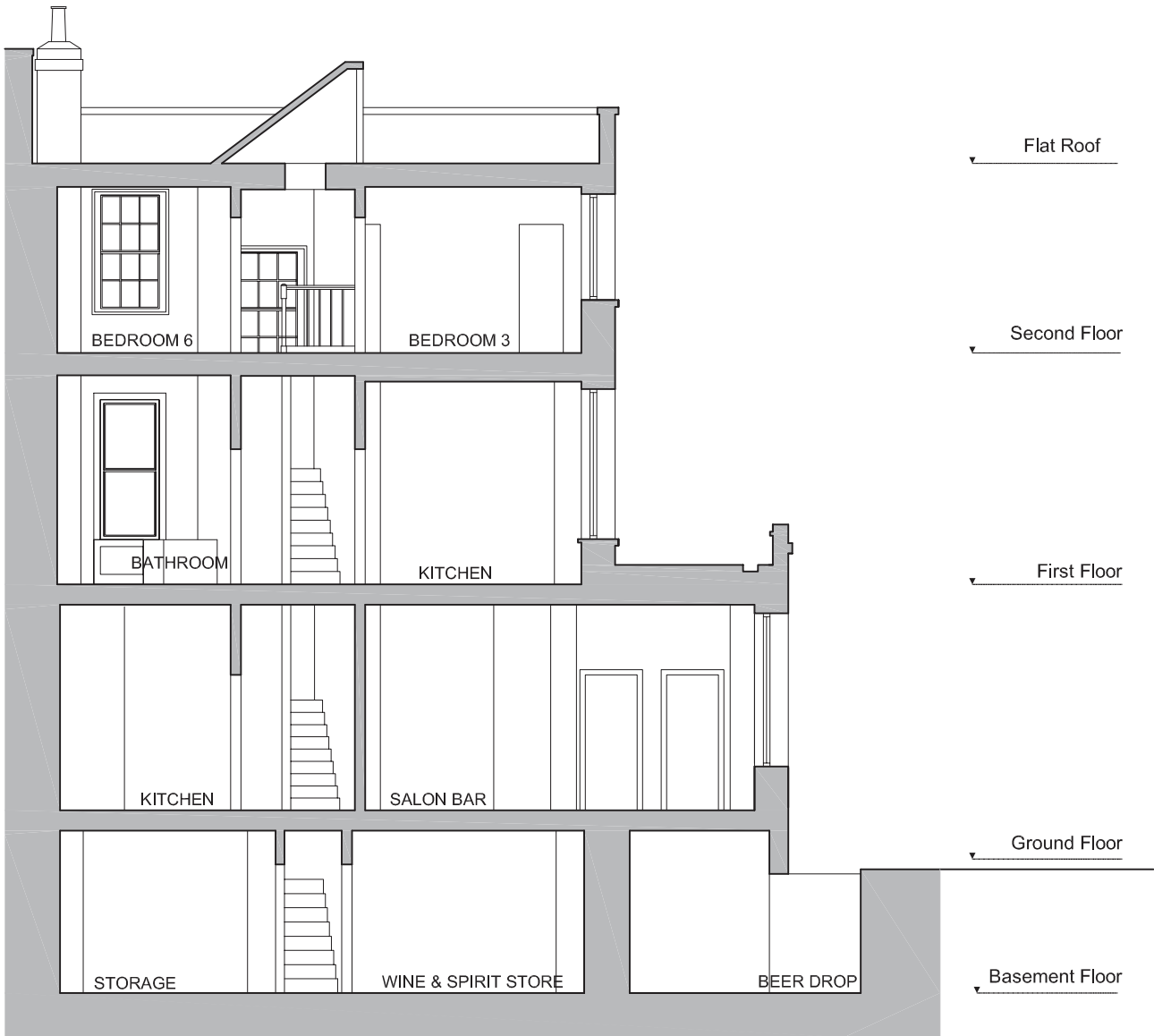
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SCALE 1:100 @ A3



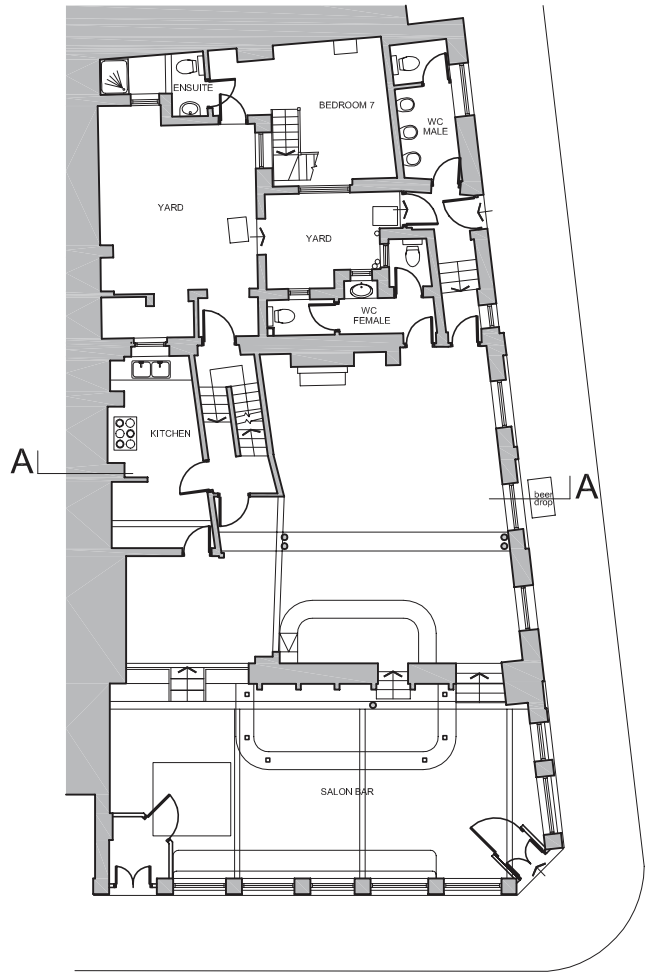
EXISTING GROUND FLOOR PLAN
SCALE 1:200 @ A3



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THE HOPE AND ANCHOR		
drawing title		
SECTION B-B AS EXISTING		
status	PLANNING	
date	OCTOBER 2013	
scale	1:100@A3	
job no	1087	drawing no
drawn	NAA	revision
checked	AJB	P031 -



EXISTING SECTION A-A
SCALE 1:100 @ A3



EXISTING GROUND FLOOR PLAN
SCALE 1:200 @ A3

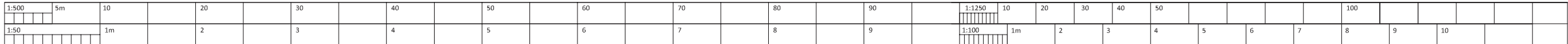
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THE HOPE AND ANCHOR		
drawing title		
SECTION A-A AS EXISTING		
status	PLANNING	
date	OCTOBER 2013	
scale	1:100@A3	
job no	1087	drawing no
drawn	NAA	P030
checked	AJB	
		revision
		-



Appendix C

Proposed Architectural Drawings



1:500		5m	10			20			30			40			50			60			70			80			90			1:1250		10	20	30	40	50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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- EXISTING WALL
PROPOSED WALL

REVISION DATE / BY AMENDMENT

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Telephone: 0207 036 6290
www.madiganbrowne.com

project title			
THE HOPE AND ANCHOR			
drawing title			
PROPOSED GROUND FLOOR PLAN			
status	PLANNING		
date	JANUARY 2014		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	P101	-
checked	AJB		



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- EXISTING WALL
PROPOSED WALL

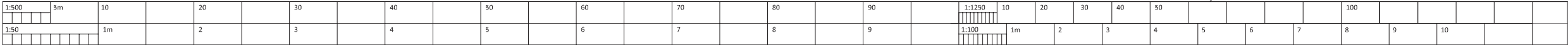
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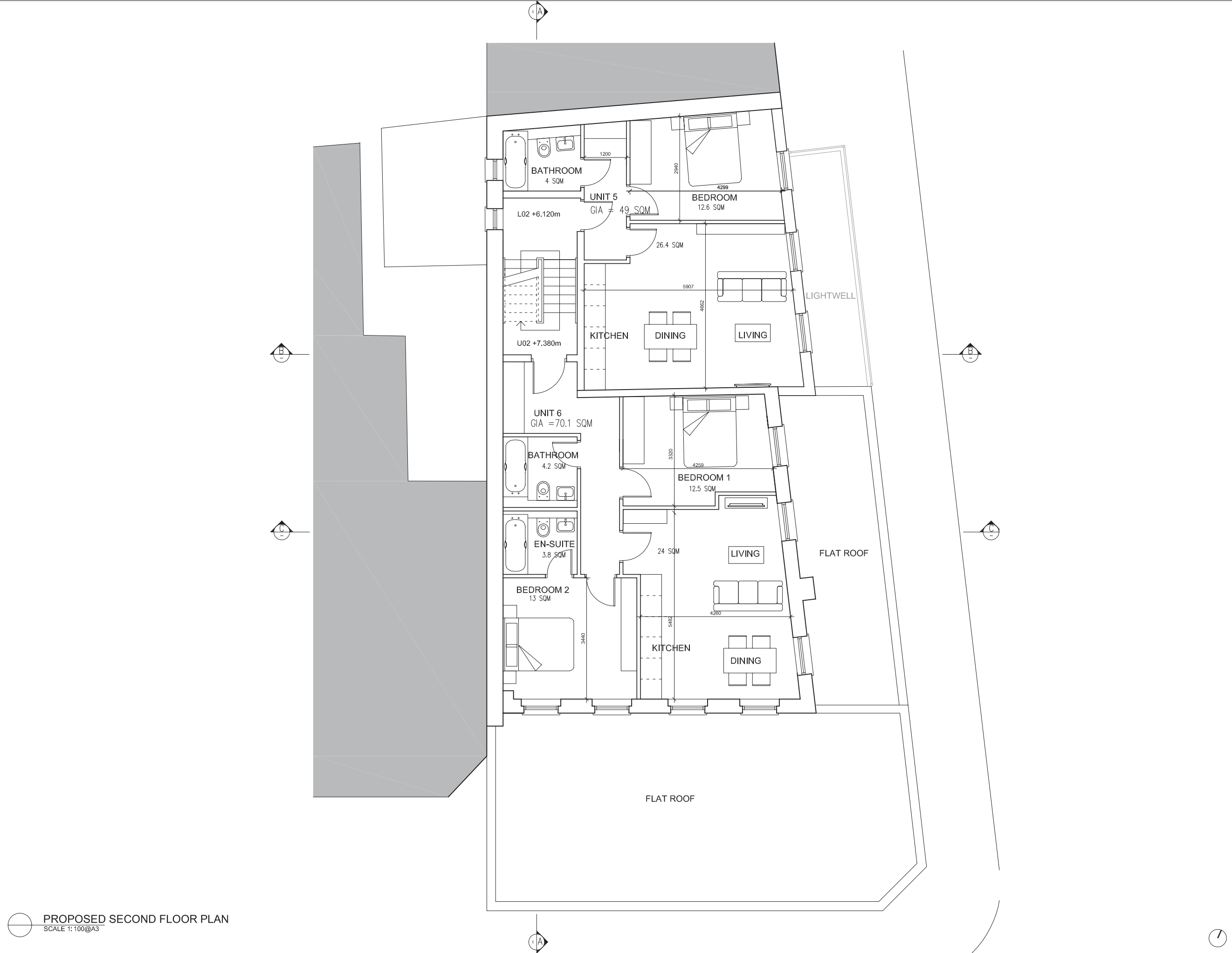
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project title		
THE HOPE AND ANCHOR		
drawing title		
PROPOSED FIRST FLOOR PLAN		
status		
PLANNING		
date		
JANUARY 2014		
scale		
1:100@A3		
job no	1087	drawing no
drawn	NAA	P102
checked	AJB	
		revision
		-

PROPOSED FIRST FLOOR PLAN
SCALE 1: 100@A3





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- ☐ EXISTING WALL
- ☐ PROPOSED WALL

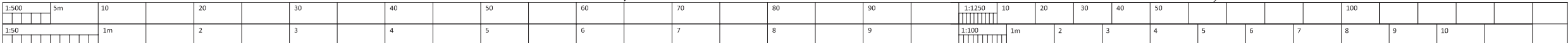
REVISION	DATE / BY	AMENDMENT

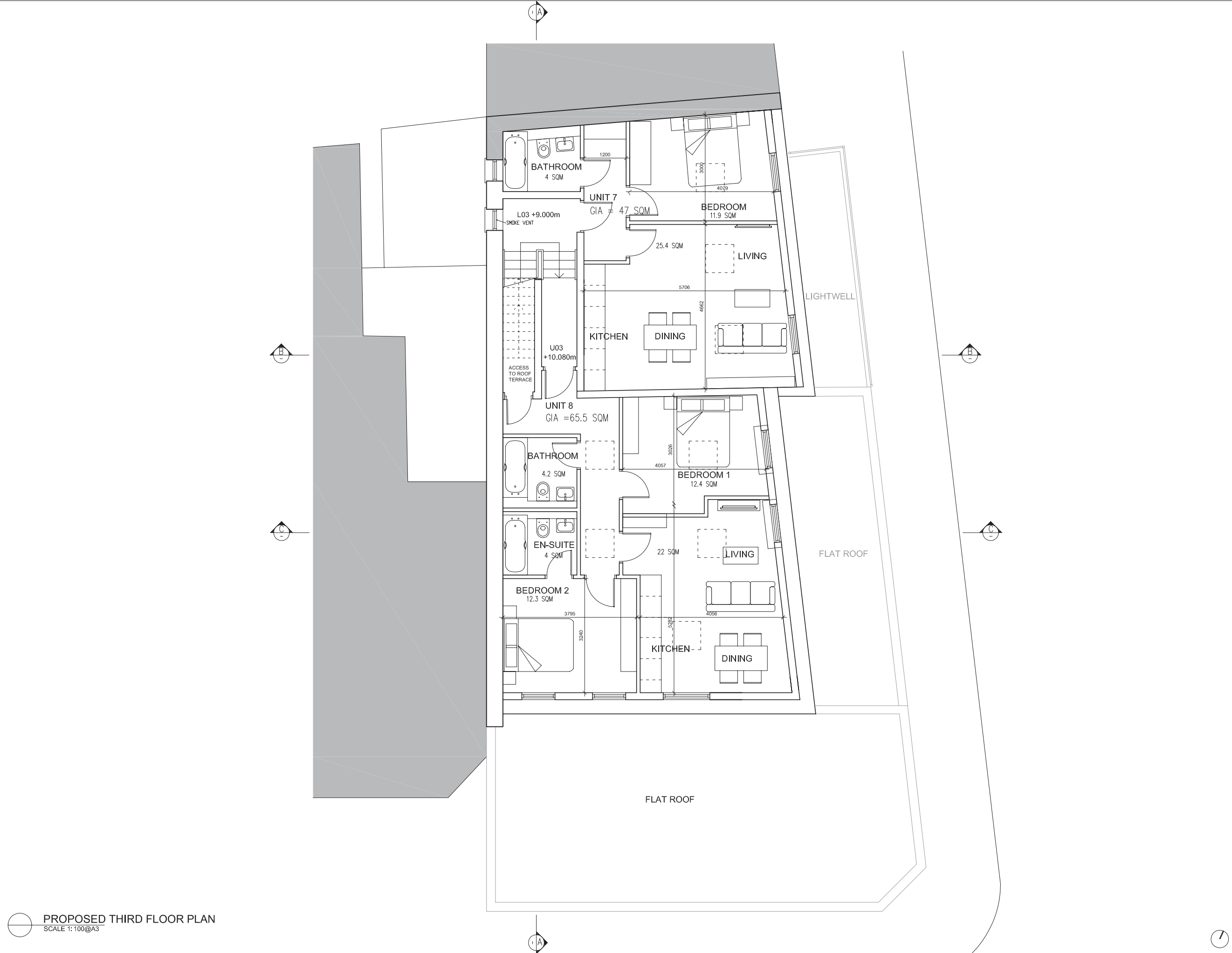
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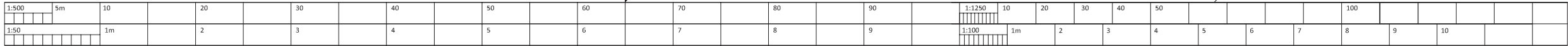
project title THE HOPE AND ANCHOR		
drawing title PROPOSED SECOND FLOOR PLAN		
status	PLANNING	
date	JANUARY 2014	
scale	1:100@A3	
job no	1087	drawing no
drawn	NAA	P103
checked	AJB	
		revision
		-

PROPOSED SECOND FLOOR PLAN
SCALE 1: 100@A3





PROPOSED THIRD FLOOR PLAN
SCALE 1: 100@A3



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☐ PROPOSED WALL

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project title THE HOPE AND ANCHOR			
drawing title PROPOSED THIRD FLOOR PLAN			
status	PLANNING		
date	JANUARY 2014		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	P104	-
checked	AJB		



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project title			
THE HOPE AND ANCHOR			
drawing title			
PROPOSED ROOF PLAN			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	P105	-
checked	AJB		



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63 Grosvenor Street, London, W1K 3JG Telephone: 0207 036 6290 www.madiganbrown.co.uk			
project title Hope and Anchor Pub			
drawing title PROPOSED ELEVATION			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	SK200	-
checked	AJB		



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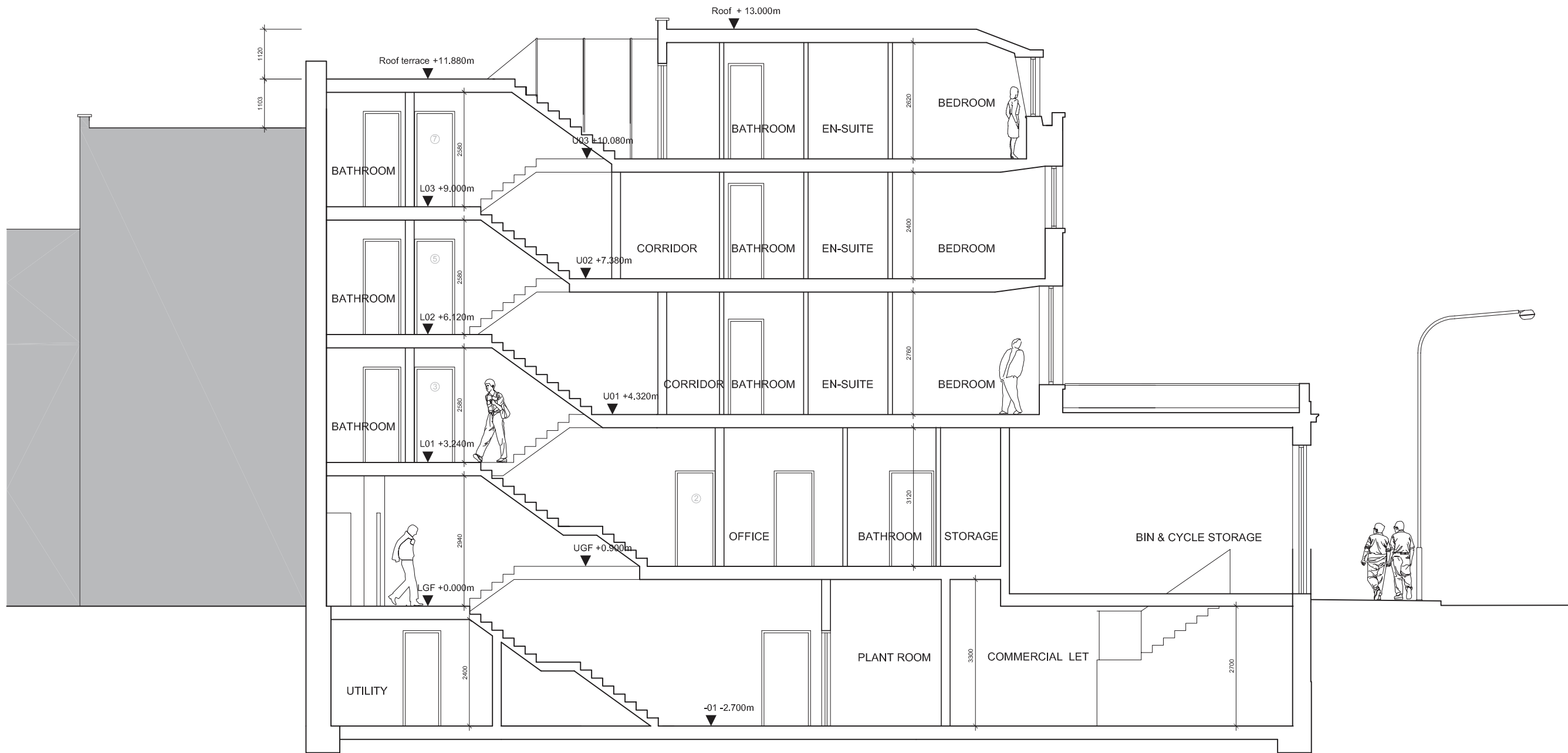
MADIGAN BROWNE

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www.madiganbrowne.com

project title Hope and Anchor Pub			
drawing title PROPOSED ELEVATION, CROWNDAL RD			
status	PLANNING		
date	NOVEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	SK201	-
checked	AJB		

PROPOSED ELEVATION
SCALE 1: 100@A3

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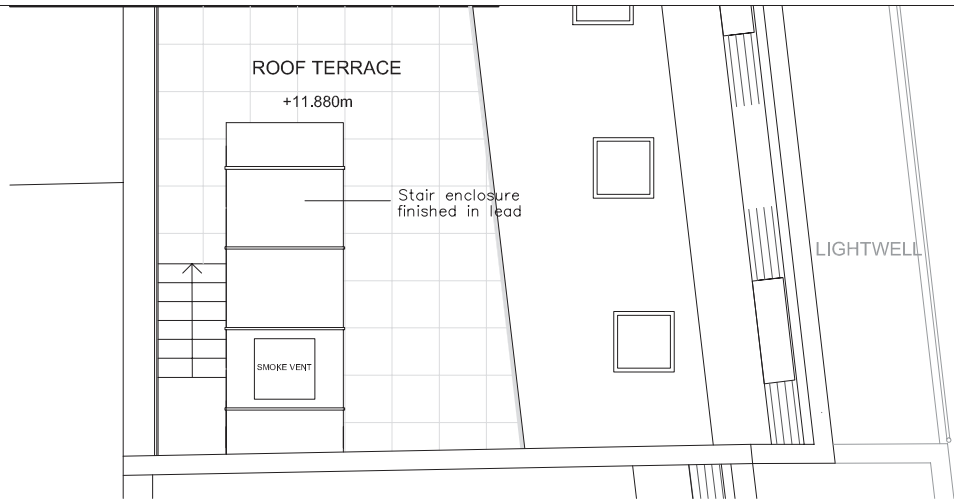
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PROPOSED

REVISION DATE / BY AMENDMENT

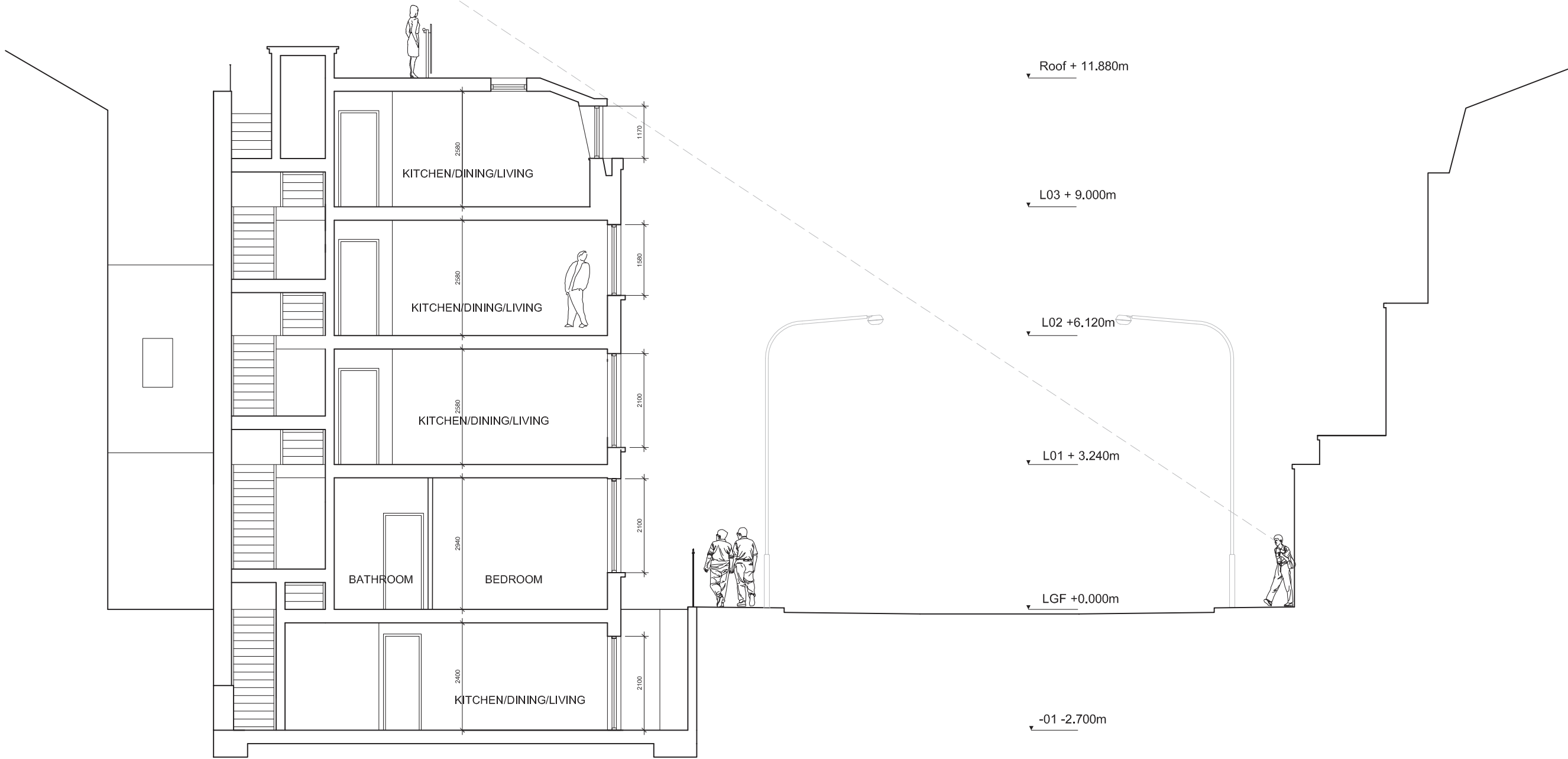
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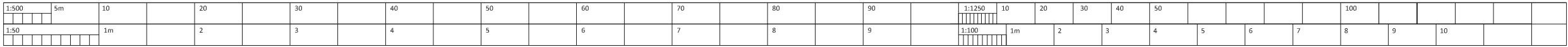
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THE HOPE AND ANCHOR			
drawing title			
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status	PLANNING		
date	JANUARY 2014		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	P300	-
checked	AJB		



PROPOSED ROOF PLAN
SCALE 1:100 @ A3



PROPOSED SECTION B-B
SCALE 1:100 @ A3



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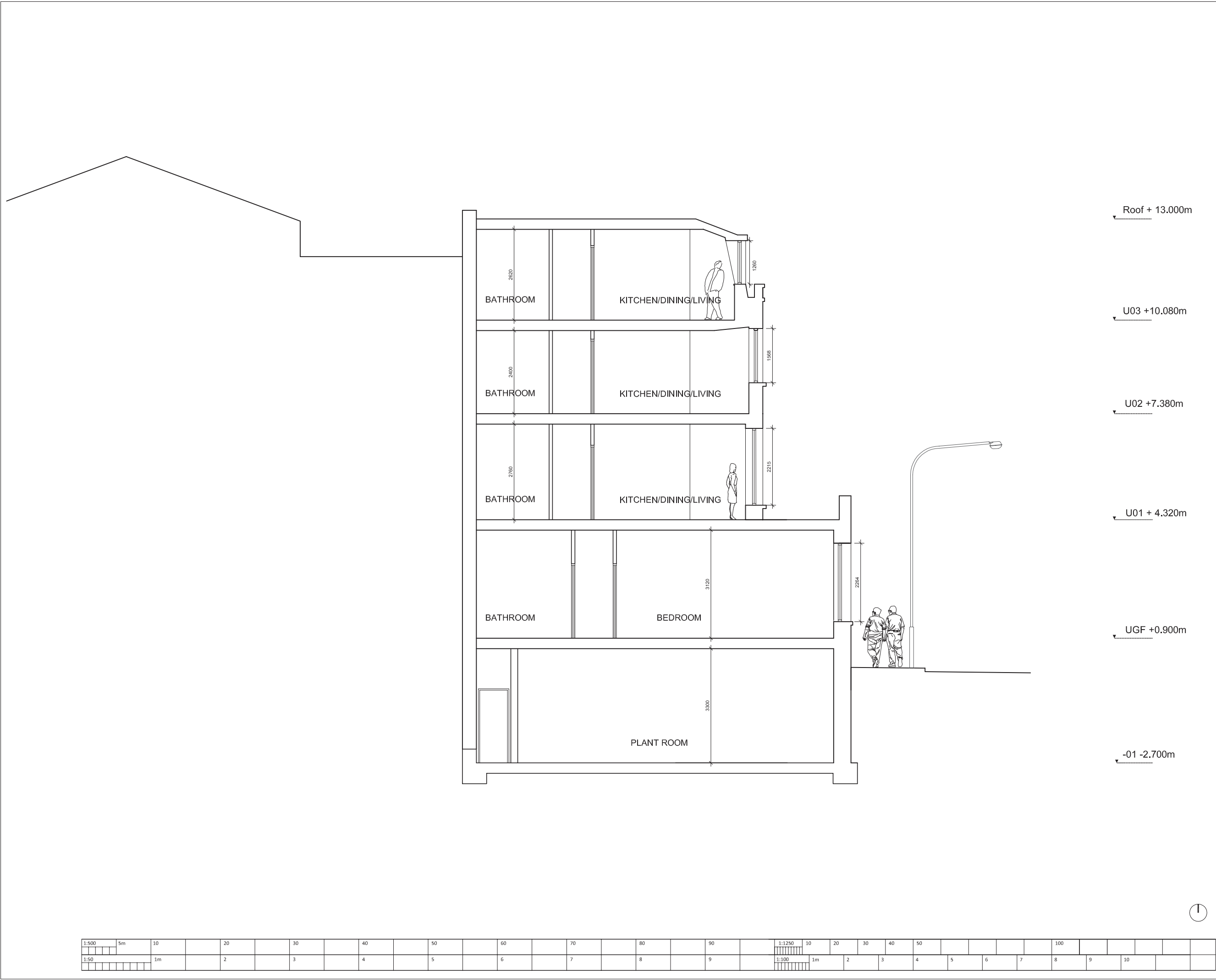
- ☐ EXISTING
☐ PROPOSED

REVISION DATE / BY AMENDMENT

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project title THE HOPE AND ANCHOR		
drawing title PROPOSED SECTION B-B		
status	PLANNING	
date	JANUARY 2014	
scale	1:100@A3	
job no	1087	drawing no
drawn	NAA	P301
checked	AJB	
		revision
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- ☐ EXISTING
- ☐ PROPOSED

REVISION	DATE / BY	AMENDMENT
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MADIGAN BROWNE

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project title THE HOPE AND ANCHOR			
drawing title PROPOSED SECTION C-C			
status	PLANNING		
date	DECEMBER 2013		
scale	1:100@A3		
job no	1087	drawing no	revision
drawn	NAA	P302	-
checked	AJB		

Appendix D

Southern Testing Site Investigation Interpretive Report.

Site Investigation Report



Desk Studies | Risk Assessments | Site Investigations | Geotechnical | Contamination Investigations | Remediation Design and Validation

Site: Hope and Anchor Public House NW1 1TP

Client: Vidacraft Limited

Report Date: April 2014

Project Reference: J11708

Southern Testing
Keeble House, Stuart Way
East Grinstead, West Sussex RH19 4QA

t 01342 333100 f 01342 410321
e info@southerntesting.co.uk
w southerntesting.co.uk

Site Investigation, Geotechnical, Environmental & Remediation
Northampton Office: ST Consult t 01604 500020



SUMMARY

The site comprises the existing Hope and Anchor Public House NW11TP. The subject property is located on the corner of Crowndale Road and Bayham Street, Camden.

As part of the redevelopment works to the property it is proposed to extend the existing cellar area to the Public House with a single level basement beneath the existing rear courtyard area and toilet/bedroom structure which is located on its more northern elevation. The works will also include the lowering of the existing ground floor of the cellar area of the Public House. An initial Basement Impact Assessment (Screening and Scoping) was carried out which highlighted the need for an intrusive investigation to establish the underlying soil and groundwater conditions.

Geological records indicate the site to be underlain by London Clay.

The soils encountered during the investigation comprised variable depths of made ground, overlying Weathered London Clay.

To date, standing water levels of between 1.37 and 1.52m BGL below the existing cellar floor and between 2.5 and 2.54m BGL below the upper rear courtyard area have been measured.

Precautions for BRE Class DS-3 sulphate are recommended for subsurface concrete with an ACEC classification of AC-3. NHBC High Volume Change Potential precautions will apply for the underlying clay soils.

The development includes a basement and also lowering of the floors to the existing cellar areas which will likely be carried out using conventional underpinning methods of existing foundations of the building and boundary/party walls. Accordingly parameters for foundation and retaining wall design have been given within this report along with an assessment of the impact of the proposed works on the local hydrogeology and adjacent structures.

The design of the new basement foundation system should take account the nature of the existing/adjacent foundations and their condition. Throughout the construction phase it is recommended that the adjacent properties to the subject building are monitored for movements to make sure they are kept within acceptable limits.

The site investigation was conducted and this report has been prepared for the sole internal use and reliance of Vidacraft Limited and the appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The findings and opinions conveyed via this Site Investigation Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd believes are reliable. Nevertheless, Southern Testing Laboratories Ltd cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

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For and on behalf of Southern Testing Laboratories Limited

STL: J11708
4 April 2014

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A INTRODUCTION

1 Authority

Our authority for carrying out this work was given by Stefan Benarroch of Madigan Browne Architects on behalf of the client Eli Korman, Vidacraft Ltd.

2 Location

The site comprises the existing Hope and Anchor Public House NW11TP which is located on the corner of Crowndale Road and Bayham Street, Camden and approximately 90m to the east of Mornington Crescent Underground Station.

The approximate National Grid Reference of the site is TQ 292 834.

3 Proposed Construction

As part of the redevelopment works to the property it is proposed to extend the existing cellar area to the Public House with a single level basement beneath the open lower rear courtyard area and the rear toilet/bedroom storey structure which are located on its more northern elevation. The works will also include the lowering of the existing ground floor to the cellar area.

4 Object

An initial Basement Impact Assessment was carried out for Screening and Scoping purposes in relation to the proposed construction which highlighted the need for an intrusive investigation was carried out. The object of the investigation was to provide foundation bearing and groundwater conditions together with other soil parameters relevant to the proposed development.

5 Scope

This report presents our exploratory hole logs and test results and our interpretation of these data.

As with any site there may be differences in soil conditions between exploratory hole positions.

Issues relating to contamination are outside of the scope of this investigation.

This report is not an engineering design and the figures and calculations contained in the report should be used by the Engineer, taking note that variations will apply, according to variations in design loading, in techniques used, and in site conditions. Our figures therefore should not supersede the Engineer's design.

The findings and opinions conveyed via this Site Investigation Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Limited believes are reliable. Nevertheless, Southern Testing Laboratories Limited cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The site investigation was conducted and this report has been prepared for the sole internal use and reliance of Vidacraft Limited and the appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The recommendations contained in this report may not be appropriate to alternative development schemes.

B THE SITE

5.1 Geology

The British Geological Survey Map at 1:50,000 indicates that the site geology consists of London Clay.

London Clay

London Clay is a well-known stiff (high strength) blue-grey, fissured clay, which weathers to a brown colour near the surface. It contains thin layers of nodular calcareous mudstone - "claystone" - from place to place, and crystals of water clear calcium sulphate (selenite) are common.

5.2 Hydrology and Hydrogeology

Data from the Environment Agency and other information relating to controlled waters is summarised below. The groundwater vulnerability assessment is based on the current data on the EA website.

Data		
Groundwater Vulnerability	Superficial Deposits	There are no superficial deposits mapped.
	Bedrock	Unproductive Strata (London Clay) - deposits with low permeability that have negligible significance for water supply or river base flow.
Source Protection Zones		The site is not located within a Source Protection Zone.
Surface Water Features		There are no surface water features within the immediate vicinity of the site. The nearest surface water features are the Regent's Canal which is around 0.55km to the north east, a series of ponds within Regent's Park approximately 1.5km to the west. The River Thames lies approximately 3.25km to the south.
Flood Risk		On the basis of the information given on the EA website the site is not located within an area at risk of flooding from fluvial sources.

5.3 Radon Risk

With reference to BRE guidance, no radon protection is required on this site.

5.4 Bomb Map

The published bomb map for the area taken from the London County Council Bomb Damage Maps (1939-1945), shows that the site did not suffer any bomb damage during WWII (refer Figure 3- Appendix D). The adjacent properties to the east and south that front onto Crowndale Road suffered minor and general blast damage.

5.5 General Description

The site/subject property the Hope and Anchor Public House is located on the corner of Crowndale Road and Bayham Street, Camden. The site is bounded on its west side by the Koko music/club venue and to the north by a four storey property fronting onto Bayham Street. Inspection of the historical map dated 1871 which was freely available on the internet shows the presence of a public house on the site with adjacent terraced buildings to the west where the current "Koko" music venue is now located. The earlier map dated 1851 was of such a scale that other than the road lines, no buildings were shown. The later 1916 map shows the adjacent terraced properties as being replaced with a Picture Theatre (now Koko). The later 1954 map shows that the Picture Theatre was renamed as the Camden Hippodrome.

The existing public house building has single storey elevations on its southern and eastern sides with Crowndale Road and Bayham Street with 2-storeys of residential bedrooms above the main salon bar area. The building is underlain by a cellar area/beer store. The ground floor salon area has a raised floor area over its more northern extremes.

The rear area comprises an open courtyard with a two storey structure on its northern side housing a toilet/shower room and bedroom areas and a single storey section on its east side housing toilets to the Public House .

It was not possible to carry out a full internal inspection of the adjacent properties but from a very limited inspection of the adjacent Koko Building it was noted that it has a lower stage area and also a deeper basement area located beneath the booking office which shares the party wall with the subject building. It was also noted that within the rear area to Koko's that the ground level is some 2.0m lower than that of the rear courtyard to the Public House. Given the nature of the works it is recommended that a full inspection is carried of the adjacent properties to establish if they have existing basements and their respective depths.

From our walkover survey of the local area, the majority of the nearby residential properties that front onto Crowndale Road and Bayham Street have existing single storey basements and also lower front lightwell areas.

Regionally ground levels are essentially level with very slight local falls to the south/south east.

The site and immediate areas are devoid of trees and vegetation.

C SITE INVESTIGATION

11 Method

The strategy adopted for the intrusive investigation comprised the following:

- 3 No window sample boreholes were carried out to depths of 3-6m (WS1-3).
- Groundwater monitoring standpipes were installed in each of the above test locations.
- A series of 10 No test pits were hand excavated to establish foundation conditions to the existing property and party walls (TP's 1-10).

The exploratory borehole and trial pit locations are shown in Figures A and B in Appendix A.

The fieldwork was carried out on the 14th and 18th March 2014 at which time the weather was dry and sunny.

12 Soils as Found

The soils encountered during the investigation (WS1-3) are described in detail in the attached exploratory hole logs (Appendix A). WS1 and WS2 were carried out within the lower cellar area to the Public house while WS3 was located in the upper open rear courtyard area. Scaling off the sections provided the client's Architect the difference in level between the two areas is approximately 1.5m.

A brief summary of the soils encountered within WS1-3 is also given below.

Depth to Base (m BGL)	Soil Type	Description
0.27-0.65m (<i>within the lower cellar area WS1-2</i>) and 2.9m (<i>within the window sample hole in the rear courtyard area-WS3</i>)	MADE GROUND	Concrete over MADE GROUND comprising variable sandy clay with brick fragments, flint gravel, clinker, glass, ceramic etc.
6.0+	WEATHERED LONDON CLAY	Firm to stiff, high strength grey brown CLAY with occasional sand lenses and selenite crystals and occasional claystone.

A series of hand excavated pits was carried out to establish the foundations of the existing property/party walls within the cellar area and the rear courtyard boundary walls. Cross sections showing our findings are given in Appendix A.

13 Groundwater Observations

A summary of the various water level observations during siteworks is given below.

Test Location	Water Strikes/Observations
WS1	Soils moist from 3.0m on completion to 3.43mBGL
WS2	Soils moist from 3.0m on completion to 3.44mBGL
WS3	Soils moist from 3.0m on completion to 6.0mBGL
TP1	Dry to base of hole on completion (1.4mBGL)
TP2	Dry to base of hole on completion (1.0mBGL)
TP3	Dry to base of hole on completion (1.5mBGL)
TP4	Dry to base of hole on completion (1.0mBGL)
TP5	Dry to base of hole on completion (0.7mBGL)
TP6	Dry to base of hole on completion (0.36mBGL)
TP7	Dry to base of hole on completion (0.48mBGL)
TP8	Dry to base of hole on completion (0.7mBGL)
TP9	Dry to base of hole on completion (0.65mBGL)
TP10	Dry to base of hole on completion (0.55mBGL)

13.1 Groundwater Monitoring

Following the initial fieldworks the site was re-visited on two separate occasions, to monitor the standpipes installed in WS1-3. The results of these measurements are given below.

Date of Reading	Standing Water Level (mBGL)*		
	WS1	WS2	WS3
26/3/2014	1.37	1.51	2.50
04/04/2014	1.37	1.52	2.54

*WS1 and WS2 were carried out within the lower cellar area to the public house while WS3 was carried out in the upper rear courtyard. Scaling off the sections provided by the client's Architect the difference in level between the two areas is approximately 1.5m.

D FIELD TESTING AND SAMPLING

The following in-situ tests and sampling methods were employed. Descriptions are given in Appendix B.

- Disturbed Samples
- Hand Penetrometer Tests

E GEOTECHNICAL LABORATORY TESTS

The following tests were carried out on selected samples. Test method references and results are given in Appendix C.

- Atterberg Limit Tests
- Soluble Sulphate and pH

F DISCUSSION OF GEOTECHNICAL TEST RESULTS AND RECOMMENDATIONS

14 Soil Classification and Properties

Soil Type	Depth	Compressibility	VCP	Permeability	Frost Susceptible	CBR	Remarks
Made Ground	GL to 0.27/2.9m	N/A	N/A	Low but seepages from more permeable horizons are anticipated	No	N/A	Not suitable for foundations
Weathered London Clay	3.0/6.0m+	Medium	High	Very low/impermeable but seepages from fissures can occur	No	Poor	

15 Swelling and Shrinkage

The results of the Atterberg Limit Tests on the natural Weathered London clay soils, indicate that NHBC High Volume Change Potential precautions are applicable. However given the depth of the proposed basements, and the absence of trees or vegetation no specific precautions are considered necessary with respect to further foundation deepening. Where shallower foundations are required, then NHBC High Volume Change precautions would be applicable.

16 Groundwater Levels

It should be noted that ground water levels vary considerably from season to season and year to year, often rising close to the ground surface in wet or winter weather, and falling in periods of

drought. Long term monitoring is required to assess the ground water regime and this was not possible during the course of this site investigation.

While siteworks were in progress, no groundwater entries were encountered although within the underlying Weathered London Clay the soils were generally noted to be moist from 2.5mBGL within the window sample boreholes.

The subsequent groundwater monitoring visits to date have measured standing water levels within the monitoring well installed in WS1and WS2 of between 1.37 and 1.52m BGL (note that these levels are measured from the existing cellar floor). Within WS3 standing water levels of between 2.5 and 2.54m BGL (upper rear courtyard area) have been measured.

On the basis of the measurements to date, and the soil types encountered i.e. very low permeability clays groundwater ingress is not expected to be a significant problem in terms of dewatering issues etc during construction. Allowances for some dewatering, however, should be made from perched sources or from fissures and claystone layers, in the form of intermittent pumping from strategically placed collector sumps.

For the longer term condition, seepage entries from fissure flow, sand lenses or claystone layers within the clays and perched water from within the overlying made ground should be allowed for in the design of the basement area e.g. provision of drainage cavity/tanking/waterproofing, and also for hydrostatic uplift of the floor slabs.

Published data for the permeability of the London Clay indicates the horizontal permeability to generally range between 1×10^{-9} m/s and 1×10^{-14} m/s, with an even lower vertical permeability. Accordingly, the groundwater flow rate is anticipated to be extremely low to negligible.

Any groundwater flows that take place will likely follow the local topography which in this instance is flat/level. Given the almost flat topography, hence negligible hydraulic gradient, and the very low/impermeable nature of the underlying clay materials, there is negligible risk of the proposed basement walls causing a "damming effect" or mounding of water on the upstream faces.

On the basis of the observations/comments, it is concluded that the proposed development will not result in any specific issues relating to the hydrogeology and hydrology of the site.

17 Sulphates and Acidity

The measured pH of the made ground ranged between 7.9 and 8.7, indicating alkaline conditions. The measured pH of the natural clay soils was 7.9 and 8.0 and therefore they are also alkaline in reaction.

Within the made ground materials, soluble sulphate levels of between 170 and 2100mg/l were measured. Within the underlying natural clay soils soluble sulphate ranged between 1900 and 2000mg/l.

On the basis of the above measurements, we would recommend that BRE Class DS-3 precautions are adopted for subsurface concrete together with an ACEC Class of AC-3.

18 Bearing Capacity

We understand that it is proposed to construct the basement using conventional underpinning methods.

Where it is necessary to construct spread foundations or bases to retaining walls/underpinned sections as part of the proposed works, all foundations should clearly penetrate any made ground and be formed on the underlying natural firm to stiff High Strength Clay materials. For foundations formed on these materials, an allowable bearing capacity of 125kPa may be adopted.

If required a spring constant/modulus of subgrade reaction of 20MN/m^3 can be adopted for the firm to stiff Weathered London Clay materials.

19 Heave

Due to stress relief following the removal of the existing soils to form the basement structure(s), both immediate (undrained) and long term (drained) heave displacements can be expected to occur in the underlying London Clay.

The immediate (undrained) heave displacements will occur as excavation of the basement takes place and before the construction of basement elements e.g. slabs etc. Accordingly, only the long term (drained) heave displacements will need to be catered for in design, to overcome the problem of uplift pressures forming. This is normally overcome by installing appropriate void forming materials beneath the basement elements.

For the analysis of heave movements the following stiffness parameters after Burland and Kalra (1986)¹ are suggested for the London Clay:

$$\text{Undrained Young's Modulus } (E_u) = (10+5.2z) \text{ (MN/m}^2\text{)}$$

$$\text{Undrained Poisson Ratio } (v_u) = 0.5$$

$$\text{Drained Young's Modulus } (E_d) = (7.5+3.9z) \text{ (MN/m}^2\text{)}$$

$$\text{Drained Poisson Ratio } (v_d) = 0.2$$

Where z (m) is taken from the surface of the London Clay

Assuming a basement/excavation formation depths of about 3.0m beneath the rear courtyard and toilet/bedroom structure (which would be equivalent to an unload pressure of approximately 60kPa) and 900mm -1m below the existing cellar floor levels of the property (an unload pressure of approximately 20kPa), a preliminary analysis of heave displacements has been carried out using PDisp and the above parameters.

The results of the analysis are given in Appendix E. Figure U1 relates to the immediate (undrained) heave displacements and Figure V1 to the total long term (drained) heave displacements (which includes the immediate heave displacements).

¹ Burland J.B. and Kalra J.C. (1986) Queen Elizabeth Conference Centre: geotechnical aspects, Proc. Inst. Civ. Engrs, Part 1,80,1479-1503

The maximum undrained heave displacement (11mm) occurs beneath the central point of the rear courtyard area. The total long term drained heave movement (which includes the initial undrained heave movements) occurs at the same point and is 19mm.

20 Basement Construction

The following soil parameters are suggested for design of retaining walls:

Soil Type	Bulk density γ_b (kN/m^3)	Undrained Shear Strength (Temporary Condition)	Long Term Drained Condition	
			c' (kN/m^2)	ϕ°
Made Ground	20	N/A	0	25
Weathered London Clay	20	75kPa	0	25

21 Excavations and Trenching

Statutory lateral earth support will be required in all excavations where men must work. Instability of the sides of any excavations carried out must be expected. Accordingly, measures should be taken at all times to ensure that excavations are adequately supported. Given the presence of the existing adjacent foundations, close attention in design of temporary and permanent propping is required at all times to prevent settlement or excessive lateral yielding of the excavation/foundations. Throughout the construction phase it is recommended that the adjacent properties to the subject building are monitored for movements to make sure they are kept within acceptable limits.

APPENDIX A

Site Plans and Exploratory Hole Logs

