PRICE & MYERS

Bentley House, North Heath Lane Estate, Horsham

Flood Risk Assessment

Prepared by: **Nirodha Perera MEng**
Reviewed by: **Dimitris Linardatos BEng (Hons) MSc CEng MICE FIHE**

Job Number: **31235**

Date	Revision	Notes/Amendments/Issue Purpose
December 2023	0	Draft for Comment

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Contents

Appendices:

Acronyms	
AOD	Above Ordnance Datum
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
FRA	Flood Risk Assessment
LLFA	Lead Local Flood Authority
NPPF	National Planning Policy Framework
PPG	Planning Practice Guidance
SW	Southern Water
WRZ	Water Resource Zone
WSCC	West Sussex County Council

1 Introduction

Price & Myers have been commissioned to undertake a Flood Risk Assessment (FRA) for the proposed change of use of Bentley House, North Heath Lane Estate, Horsham.

This report has been carried out in accordance with West Sussex County Council (WSCC) guidance on SuDS and Policy for the Management of Surface Water documents, the National Planning Policy Framework (NPPF), the Planning Practice Guidance (PPG) "Flood Risk & Coastal Change" and Horsham District Council Strategic Flood Risk Assessments (SFRA, April 2010 and January 2020). This report also incorporates advice and guidance from the Environment Agency (EA) and CIRIA documents.

The EA's flood map for planning shows that the site is in Flood Zone 1. An area at low risk of tidal and/or fluvial flooding. Therefore, this FRA will focus on surface water management, as well as assessing the flood risk from all other sources.

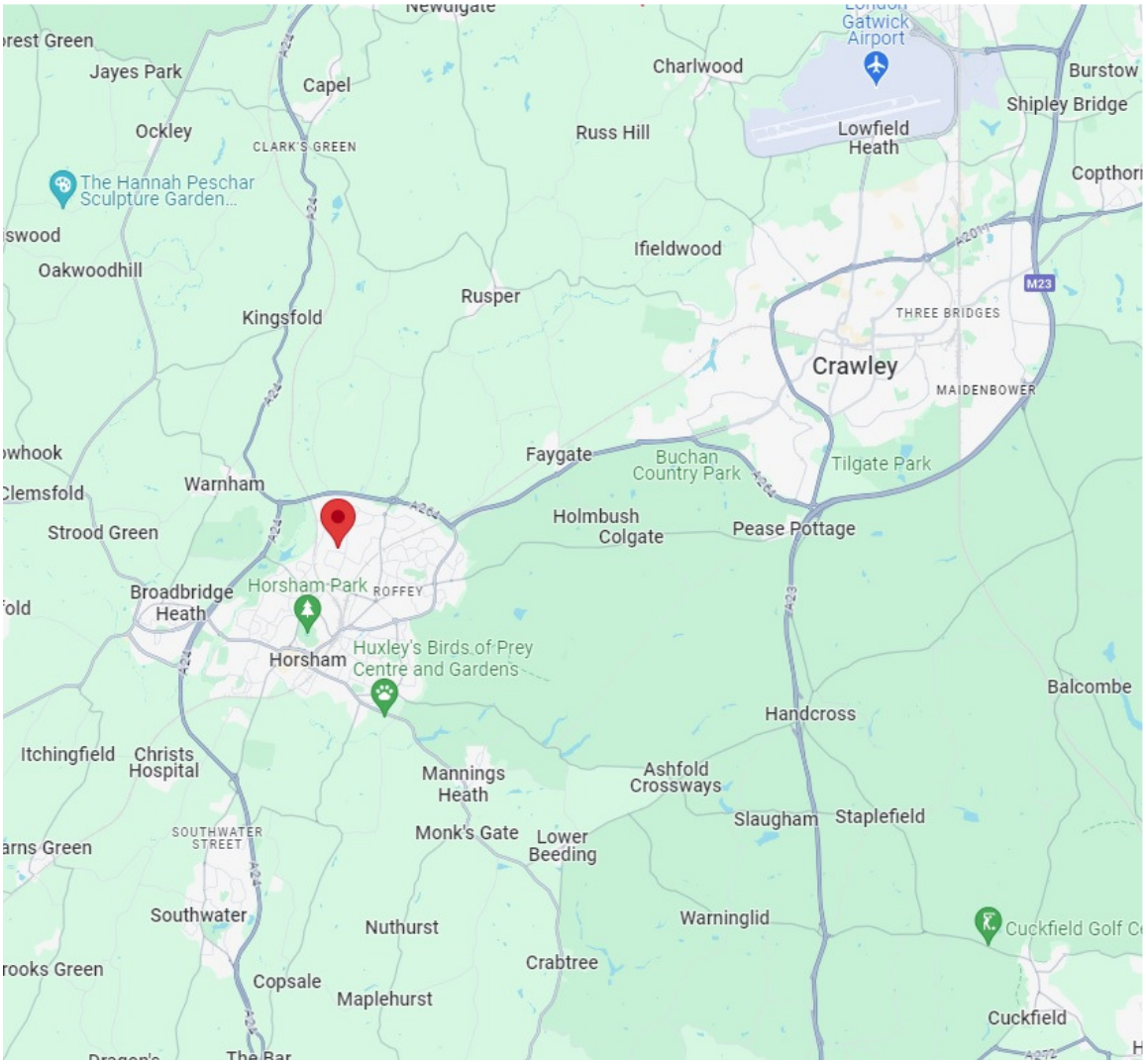


Figure 1.1: Site Location (Google Maps 2023)

2 Site Description and Location

The building is situated in the south side of North Heath Lane Industrial estate. The site area is approximately 1.885ha, however, the proposed works will affect Bentley House only which occupies an area of approximately 315m^2. The building is bounded by Pondtail Park to the south, North Heath Estate Drive to the north, an existing building to the west and hardstanding areas to the east.

The nearest watercourse to the building is Channells Brook that runs approximately 150m to the north of the site. The site's postcode is RH12 5QE and the OS grid reference is 517883E / 132597N. The topographical survey drawing shows that the site falls to the west, the maximum ground level is approximately 5m and the average ground level is 50m AOD. Bentley House's Finished Floor Level is 49.92m AOD.

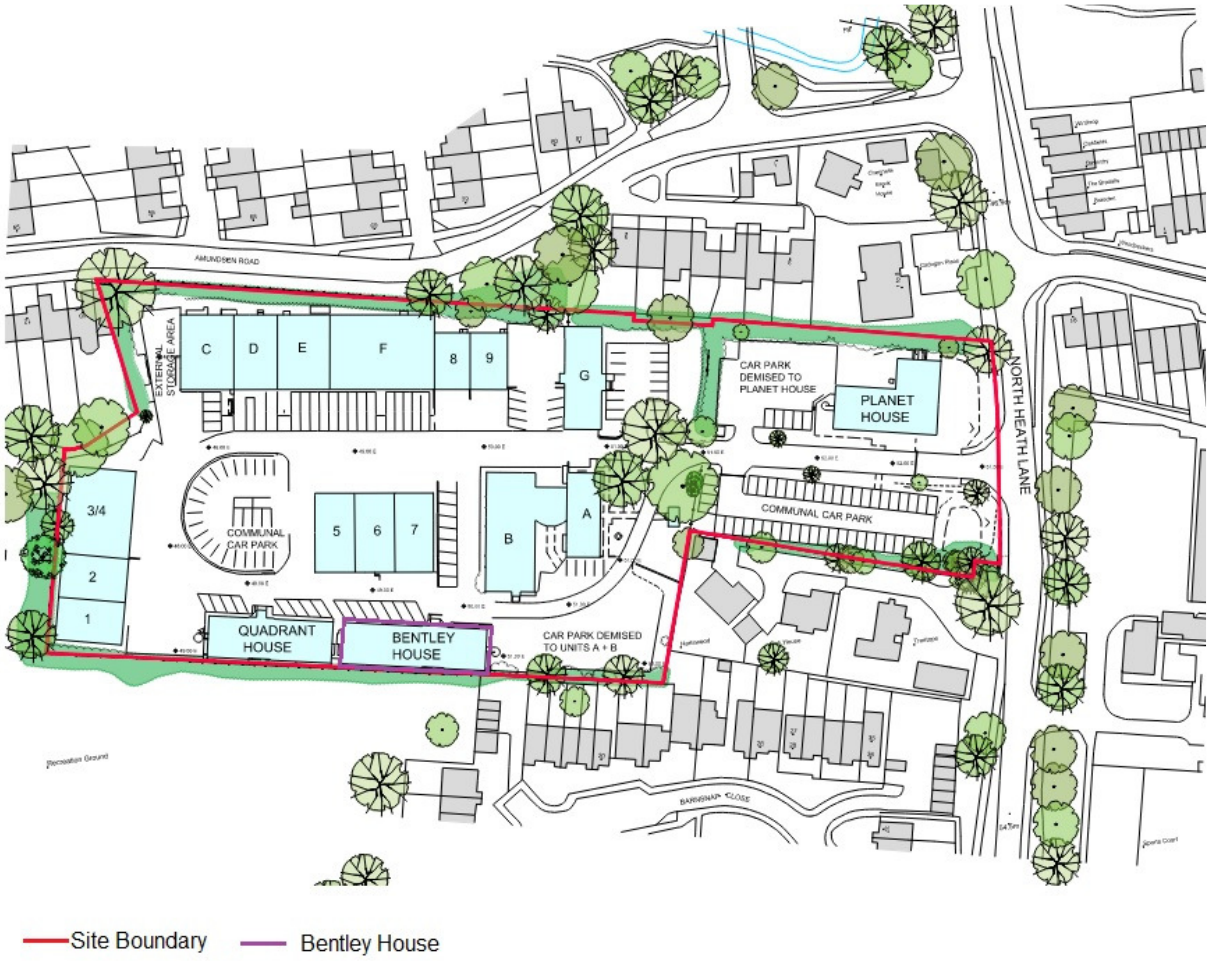


Figure 2.1: Existing Site Arrangements

2.1 Existing Drainage

A drainage CCTV survey has not yet been undertaken; therefore, the building's existing drainage arrangements are unknown. Southern Water's sewer records show that a 150mm diameter foul water sewer crosses the site's west side from south to north. It is thought that foul water from the building discharges to this sewer.

Southern Water's sewer records show that a 450mm surface water sewer runs in close proximity to the site's west boundary. It is thought that surface water from the site discharges to this sewer.

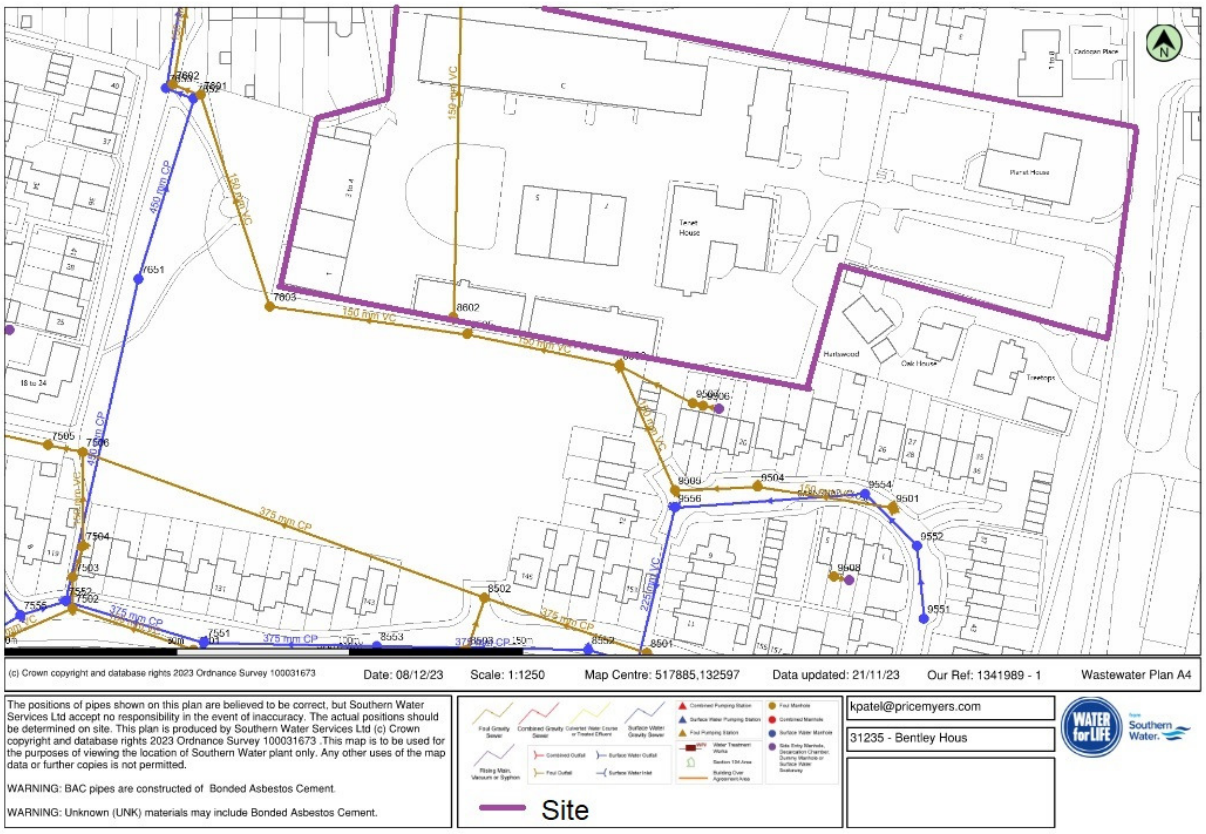


Figure 2.2: Southern Water Sewer Records

3 Development Proposal

The development proposals involve the refurbishment of the existing building and its change of use from office space to a block of flats, providing 10 units on two floors. The proposals will not affect the roof and walls of the building, neither the external areas.

Figure 3.1: Proposed Floor Plans

4 Flood Risk Assessment

4.1 Flood Risk from Watercourses and Tidal Flooding

The EA's flood map for planning shows that the building is located in Flood Zone 1. Land in Flood Zone 1 is at low risk of flooding from rivers, having an annual probability of river flooding of less than 0.1%.

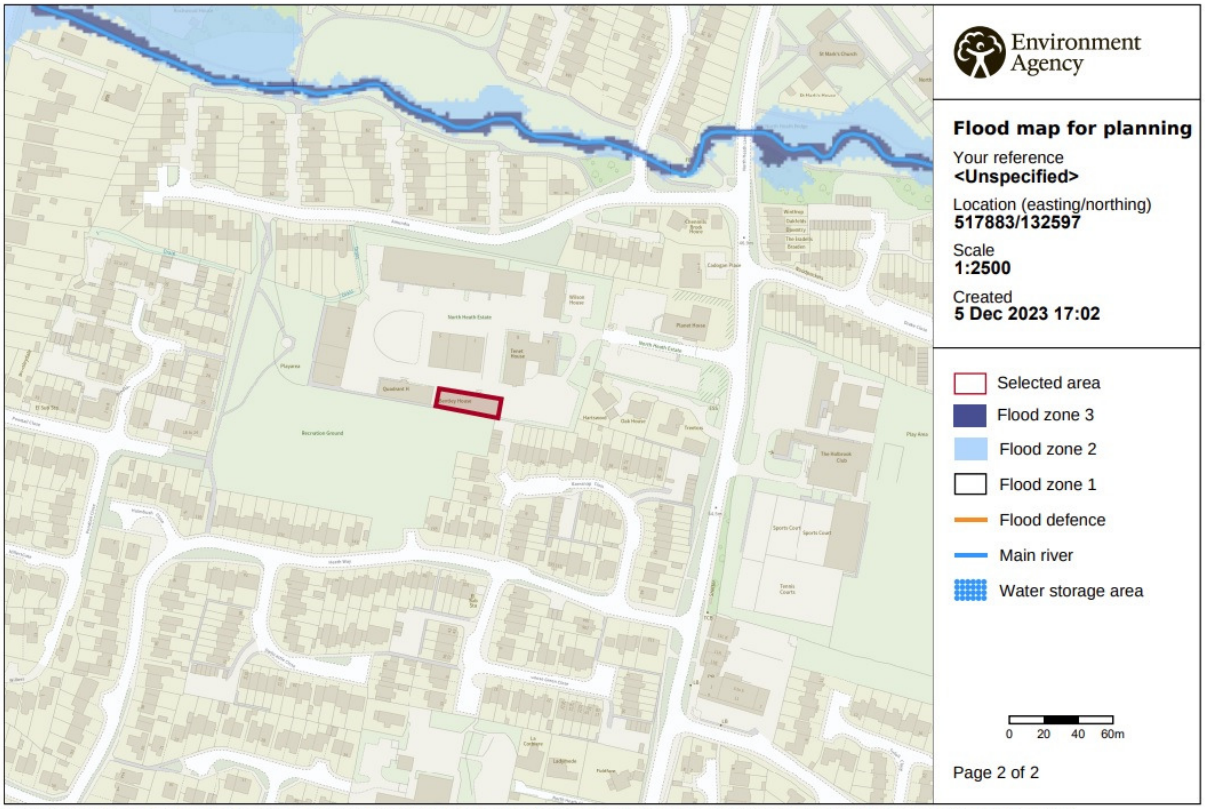


Figure 4.1: EA Flood Risk for Planning Map (EA, 2023)

4.2 Flood Risk from Groundwater

Groundwater flooding occurs when water originating from sub-surface permeable strata emerges from the ground, typically after prolonged rainfall.

A site investigation report was not available at the time of writing this report. The British Geological Survey Maps show that there are no superficial deposits at this location and that sandstone and mudstone form the site's bedrock geology. This suggests that groundwater should not be present at shallow depths. Furthermore, the proposals aim to maintain the existing building which has no recorded history of groundwater flooding and has no basements which are vulnerable to groundwater flooding. Therefore, the flood risk from groundwater is considered low.

4.3 Flood Risk from Surface Water and Overland Flows

Surface water flooding occurs when intense rainfall is unable to soak into the ground or enter a drainage system due to blockages or the capacity of the system being exceeded. Overland flows can also be generated by burst water mains, failed dams and any failure in a system storing or transferring water.

The EA's flood risk from surface water map shows that medium to low flooding could occur to the northwest of the site. However, the building is at "Very Low" risk of flooding from surface water.

Figure 4.2: EA Surface Water Flood Risk Map (EA, 2023)

4.4 Flood Risk from Reservoir Failure

The EA provides information on flood risk from reservoirs. Figure 4.3 below shows that the site is not at risk of flooding from reservoir failure.

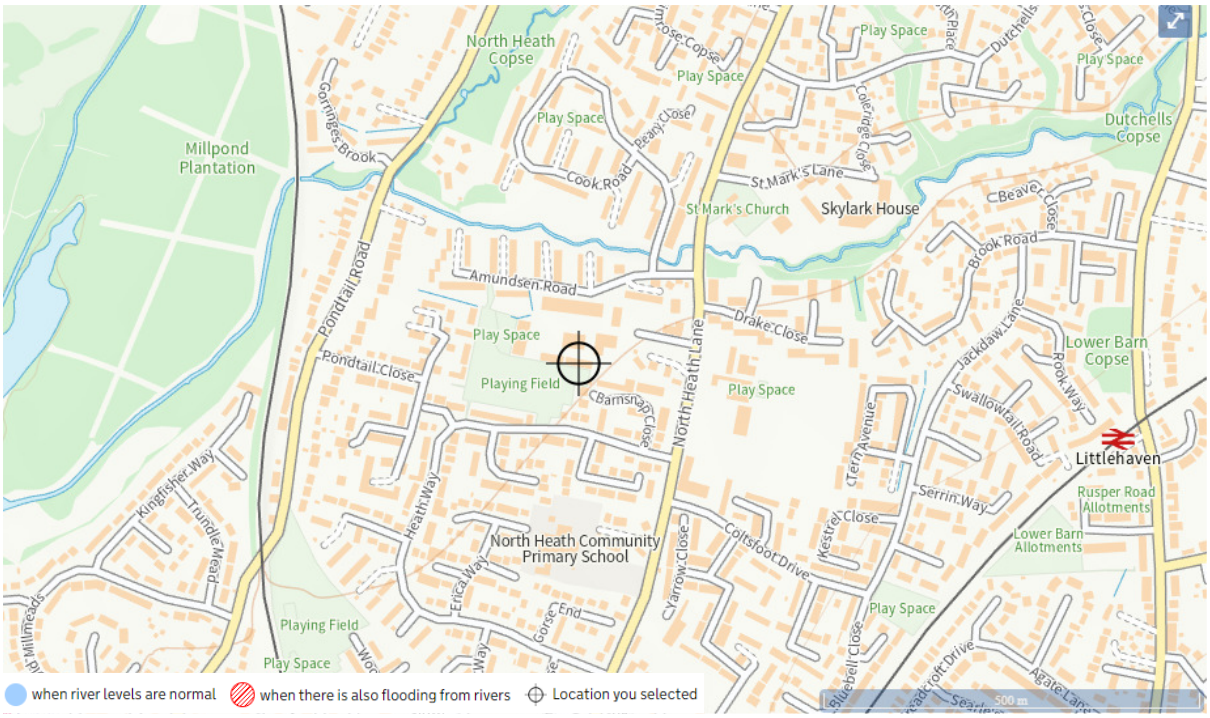


Figure 4.3: Environment Agency Risk of Reservoir Flooding Map (EA, 2023)

5 Run-off Assessment

The proposed works are for the internal modifications of the existing building. The proposals will not affect the existing roof and its drainage arrangements. Therefore, the existing development will not increase the flood risk from surface water on site and the surrounding areas.

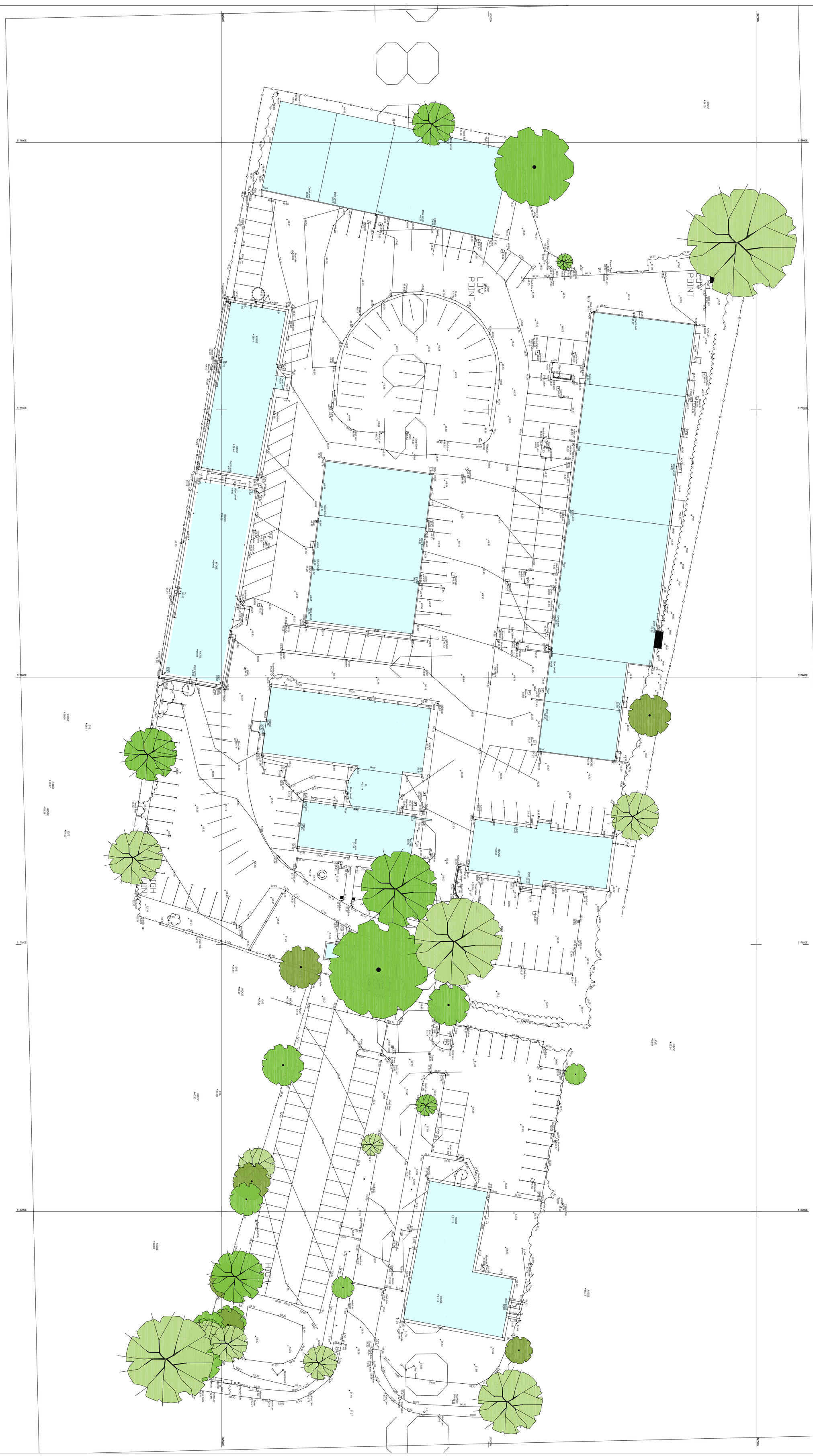
6 Foul Water Assessment

The existing building currently provides office space. The proposed development is for conversion of the office space to flats. The Design and Construction Guidance for Foul and Surface Water Sewers Offered for Adoptions states that the peak flow rates for dwellings and commercial buildings are 0.05 l/sec/dwelling and 0.6 l/sec per hectare of developable land respectively. Therefore, the building's existing and proposed peak flow rates are 0.04 l/sec and 0.5 l/sec respectively. Therefore, the proposed development will increase the peak flow rates to the public sewers by 0.46 l/sec. Therefore, a Section 106 application will need to be submitted to Southern Water.

7 Conclusions

- The site is at low risk of flooding from watercourses, groundwater, sewers, and reservoir failure.
- The development is proposed to have the same external façade and the existing drainage system is expected to be re used.
- The proposed works will increase the flow rates to the public sewers and therefore a Section 106 application will be submitted to Southern Water for the proposed development.
- Therefore, the proposed redevelopment has an acceptable flood risk within the terms and requirements of NPPF.

Appendix A
Topographical Survey Drawing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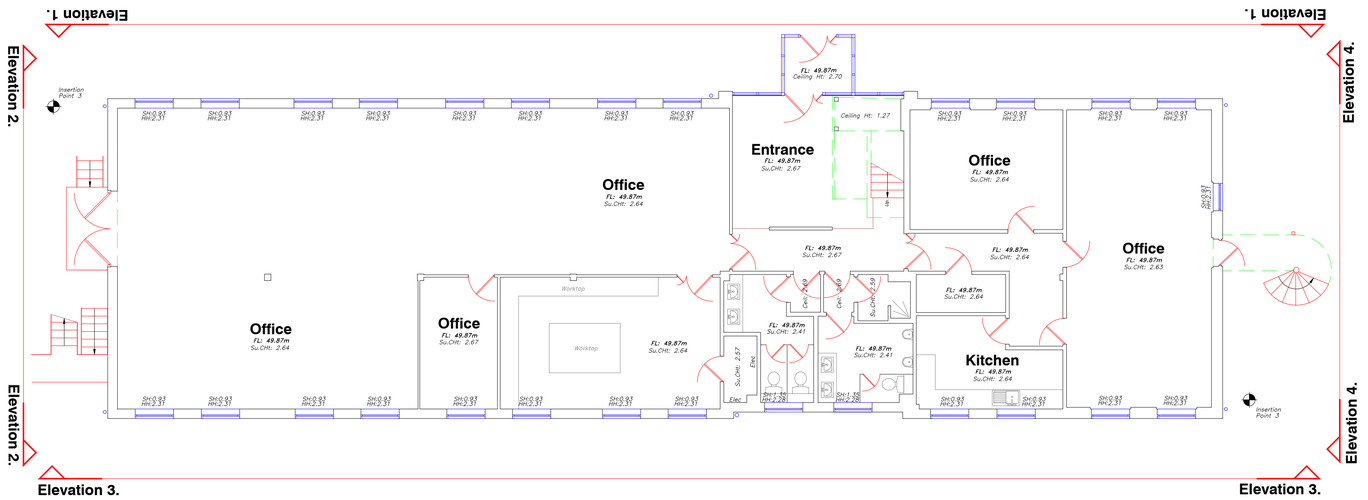
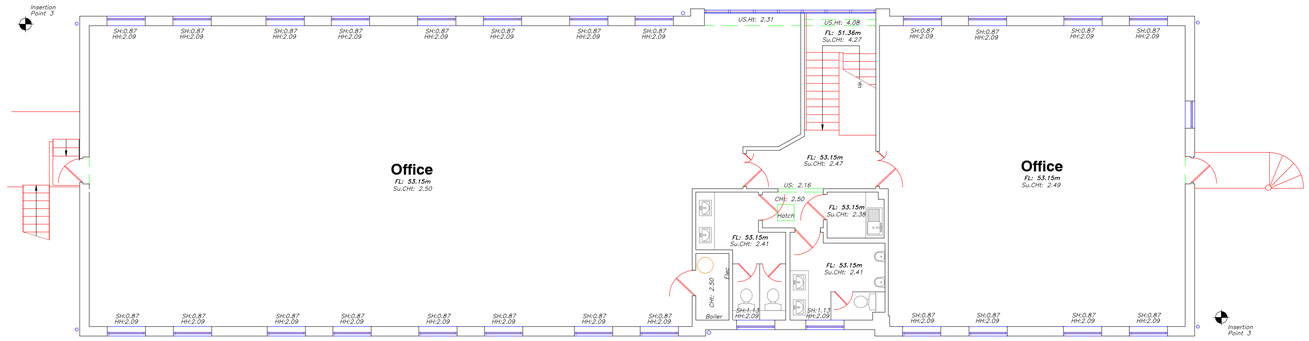
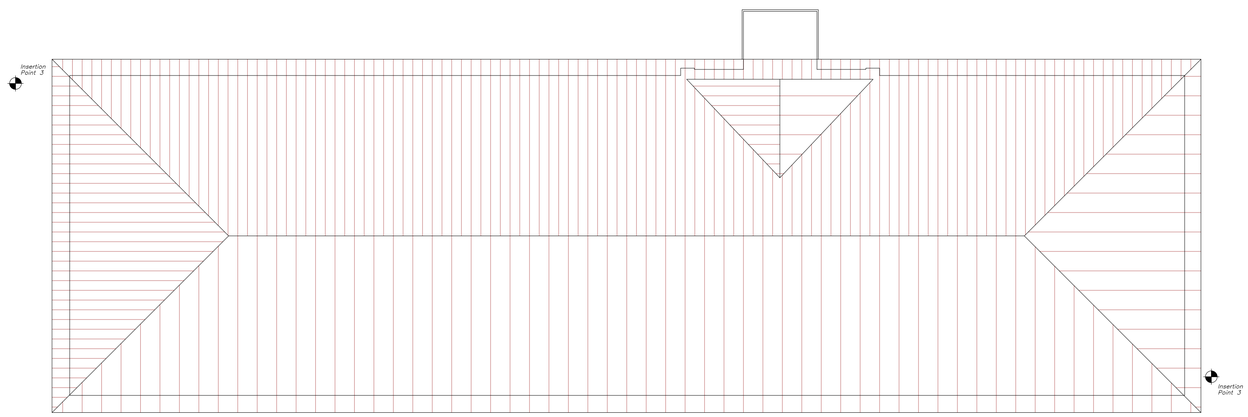
LOW POINT
HIGH POINT
HIGH POINT
517800E
517850E
517900E
517950E
518000E
12500mN
12550mN
RIDGE
Fence Top
Roof
Door Level
Manhole
Kerb Low
Drain
Power Pole
Sign Board
Gas
Telecom
Pool

Appendix B
Existing Drawings







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OS Note:

The Ordnance Survey tile is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigational Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36(15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid.

Building Survey Legend:

SHt 1.00 HHt 2.12	Sill Height from FFL. Head Height from FFL.
SL 51.03m HL 52.82m	Sill Level from defined datum. Head Level from defined datum.
Susp CHt: 2.00 Struct CHt: 3.00	Suspended Ceiling Height from FFL. Structural Ceiling Height from FFL.
Susp Ceil: 30.00m Struct Ceil: 31.00m	Suspended Ceiling Level from datum. Structural Ceiling Level from datum.
IFL: 100.00m +100.00m	Internal Floor Level (General). Internal Floor Level (Specific).
Insertion Point	Insertion Point for overlay drawings of other floors or details.

Incoming Services

Elec Gas Water

Topographical Survey Legend:

Buildings; Overhead Cable; Wall; Concrete edge; Kerb line; Tarmac edge; Line marking; Grass verge; Drop kerb; Canopy/Overhang; Centre line; Verge; Station and Name; Station Level; Tree / Bush / Sapling; Area of Undergrowth; Woodland; Ridge Level; Eaves Level; Flat Roof Level; Gate

Fence types: Interwoven; Iron Railings; Wire Mesh; Post & Rail; Post & Wire; Chain Link; Wooden Panels; Concrete Panels; Steel Palisade

IC	Inspection chamber	BollI	Bollard		
PInv	Pipe invert	IB	Illuminated bollard		
Gy	Gully	Bin	Rubbish bin		
Bg	Back gully	Vp	Vent pipe		
Dp	Down pipe	Grl	Ground light		
Pipe	Pipe above ground	Lbox	Letter box		
MH	Manhole	Ldr	Ladder		
WL	Water level	Sty	Stile		
FI	Flood light	FL	Internal floor level		
Lp	Lamp post	THL	Threshold level		
Tp	Telegraph post	Sp	Sign post		
Ep	Electricity post	TH	Triathole		
Tl	Traffic light	BH	Borehole		
Bollt	Bus stop	ELC	Electric		
Sv	Stop valve	BT	British Telecom		
St	Stop tap	Cbox	Control box		
Et	Earth rod	TT	Tactile		
Wm	Water meter	BP	Brick paved		
Gas	Gas valve	CPS	Concrete paving slab		
Av	Air valve	CVR	Cover		
ICU	Unidentified inspection	IC	Inspection chamber		
Wo	Wash out	Rwall	Retaining wall		
Re	Rodding eye	UTL	Unable to lift		
BB	Belisha beacon	TCL	Tree canopy level		
CTV	Cable tv	G	Girth		
Mkr	Marker post	MG	Multi girth		
Gmkr	Gas marker post	Stmp	Tree Stump		
So	Soffit	CL	Cover level		
		Iv	Invert level		

Rev	Date	Description	Drawn	Q. Rel

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- Utility / CCTV Surveys
- Bathymetric Surveys
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- 3D Laser Scanning
- 3D Revit & BIM Models
- Area, Lease & Fire Plans

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PROJECT
North Heath Business Park Horsham RH12 5QE

TITLE
Bentley House Floor Plans

SCALE	DATE
A1@ 1: 100	Nov 2023
DRAWN	QUALITY REF
KD	GH18968

Level datum	OS (GPS Verified)
Grid orientation	OS (GPS Verified)
Job number	49042

Drawing No.	Rev.
49042_01.1_P	0

Comments

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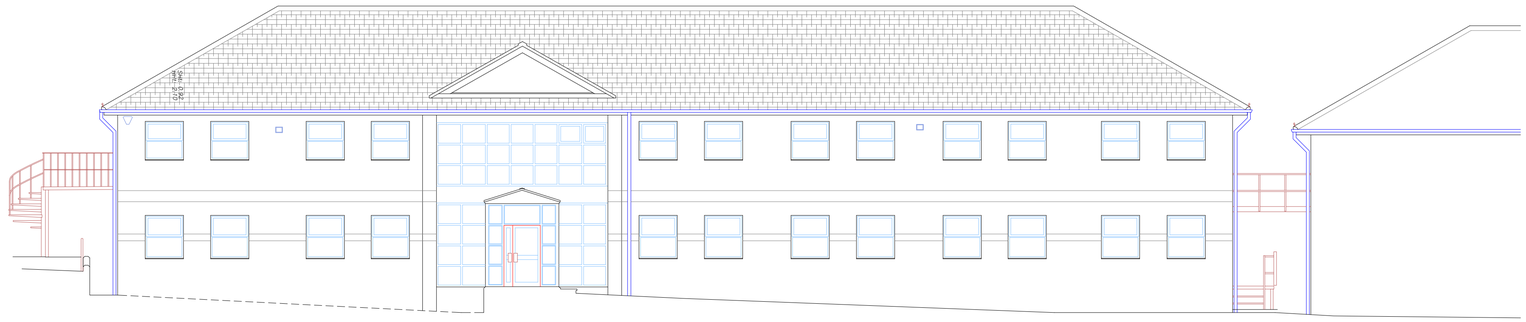
Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:



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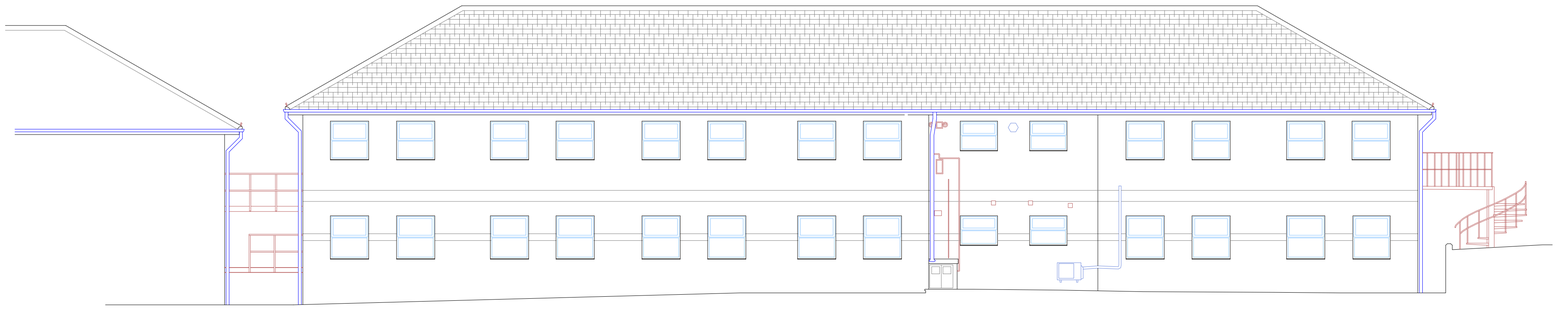
Elevation 1.



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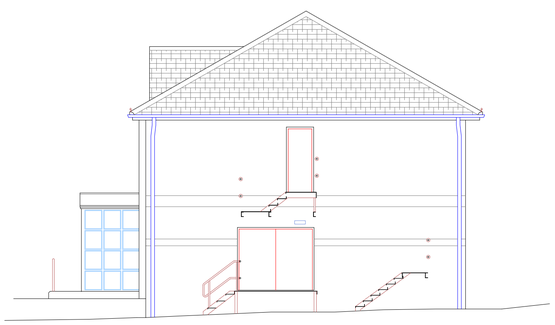

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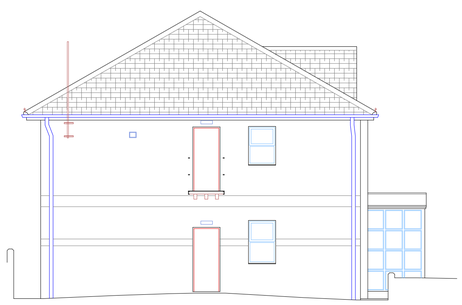

Datum: 48.00m.
Elevation 4.

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Line marking	Grass verge	Bg	Back gully	Vp	Vent pipe
Drop kerb	Canopy/Overhang	Dp	Down pipe	Grl	Ground light
Centre line	Verge	Pipe	Pipe above ground	Lbox	Letter box
100.000	Station and Name	MH	Manhole	Ldr	Ladder
	Station Level	WL	Water level	Sty	Stile
	Tree / Bush / Sapling	Fl	Flood light	FL	Internal floor level
	Area of Undergrowth	Lp	Lamp post	THL	Threshold level
	Woodland	Tp	Telegraph post	Sp	Sign post
R	Ridge Level	Ep	Electricity post	TH	Trialhole
E	Eaves Level	Tl	Traffic light	BH	Borehole
F	Flat Roof Level	Bus	Bus stop	ELC	Electric
	Gate	Sv	Stop valve	BT	British Telecom
Fence types:		St	Stop tap	Cbox	Control box
SW	Interwoven	Er	Earth rod	TT	Tactile
HR	Iron Railings	Wm	Water meter	BP	Brick paved
WM	Wire Mesh	Gas	Gas valve	CPS	Concrete paving slab
PIR	Post & Rail	ICU	Unidentified inspection	IC	Inspection chamber
PW	Post & Wire	Wo	Wash out	Rwall	Retaining wall
CL	Chain Link	Re	Roddng eye	UTL	Unable to lift
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SP	Concrete Panels	CTV	Cable tv	G	Girth
	Steel Palisade	Mkr	Marker post	MG	Multi girth
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		So	Soffit	CL	Cover level
				IL	Invert level

Rev.	Date	Description	Drawn	Q. Ref.

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PROJECT
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TITLE
Bentley House Elevations

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A1@ 1: 100	Nov 2023
DRAWN	QUALITY REF
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Job number	49042

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49042_02.1_E	0

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Notes:

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Proposed Drawings

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LIST OF INFORMANTS :
ORDNANCE SURVEY
TOPOGRAPHIC SURVEY
-
-
-

REVISIONS	DATE	DRN	REV
BIN STORE & CYCLE STORE RELOCATED	04.12.23	GF	P02
BOUNDARY ADDED	06.12.23	GF	P03

NORTH HEATH ESTATE DRIVE

NORTH HEATH LANE

1 to 8

CYCLE STORE FOR 5 CYCLES
BIN STORE

BENTLEY HOUSE

Hartswood

Oak House

Treetops

20

26

27
28

35
36

BARNSNAP CLOSE

54.5m

APPLICATION SITE BOUNDARY

North

0 5m 10m 15m 20m

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BENTLEY HOUSE
HORSHAM - NORTH HEATH

SITE PLAN
AS PROPOSED

PROJECT	ORIGINATOR	TYPE	NUMBER	REVISION
2286	A12	MP	DR-P001	P03

1:500 @ A3
DRAWN BY GF

23.11.23

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LIST OF INFORMANTS :
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TOPOGRAPHIC SURVEY
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-
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REVISIONS	DATE	DRN	REV
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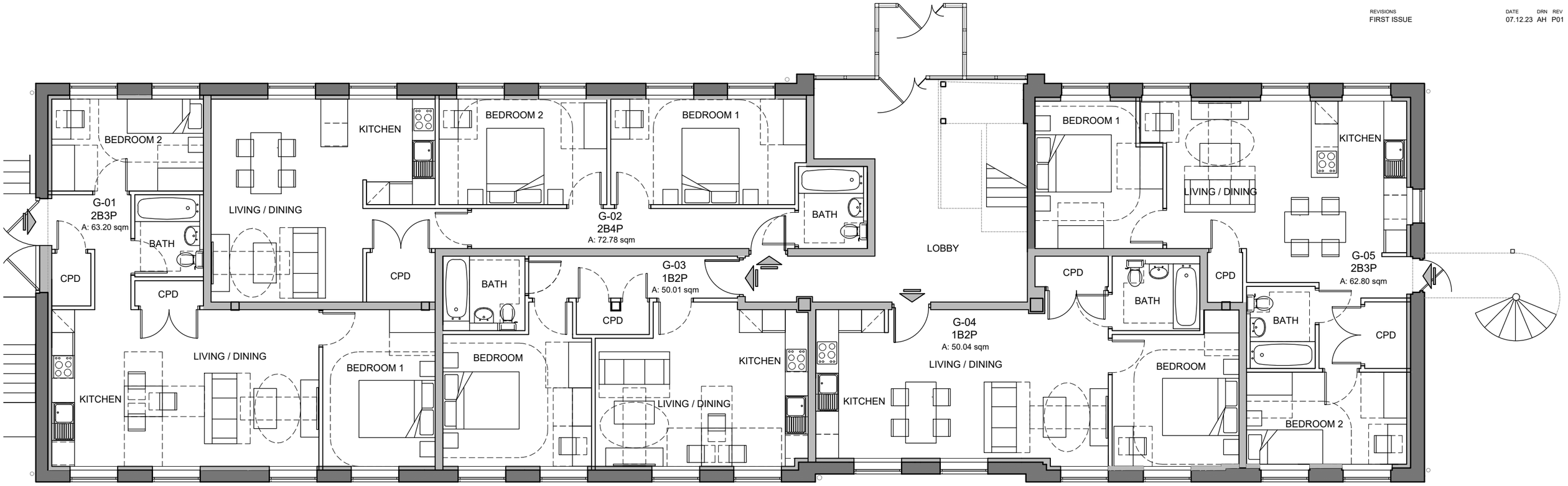

GROUND FLOOR PLAN

North

0 1m 2m 3m 4m 5m

MountfordPigott

BENTLEY HOUSE
HORSHAM - NORTH HEATH

GROUND FLOOR PLAN
AS PROPOSED

PROJECT	ORIGINATOR	TYPE	NUMBER	REVISION
2286	A12	MP	DR-P002	P01

1:100 @ A3
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LIST OF INFORMANTS :
ORDNANCE SURVEY
TOPOGRAPHIC SURVEY
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-
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REVISIONS	DATE	DRN	REV
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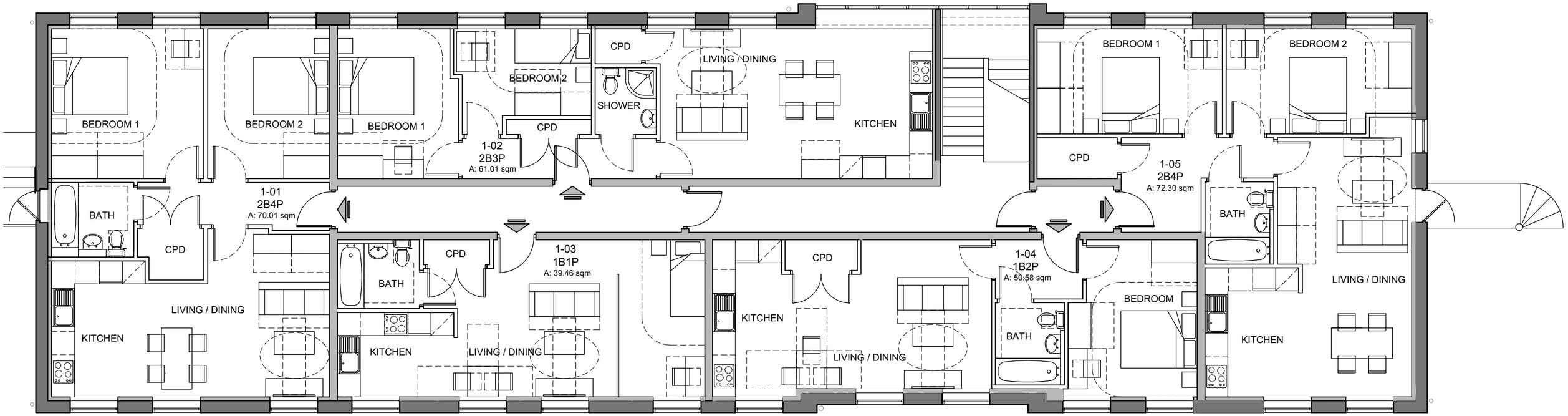

FIRST FLOOR PLAN

North

0 1m 2m 3m 4m 5m

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BENTLEY HOUSE
HORSHAM - NORTH HEATH

FIRST FLOOR PLAN
AS PROPOSED

PROJECT	ORIGINATOR	TYPE	NUMBER	REVISION
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