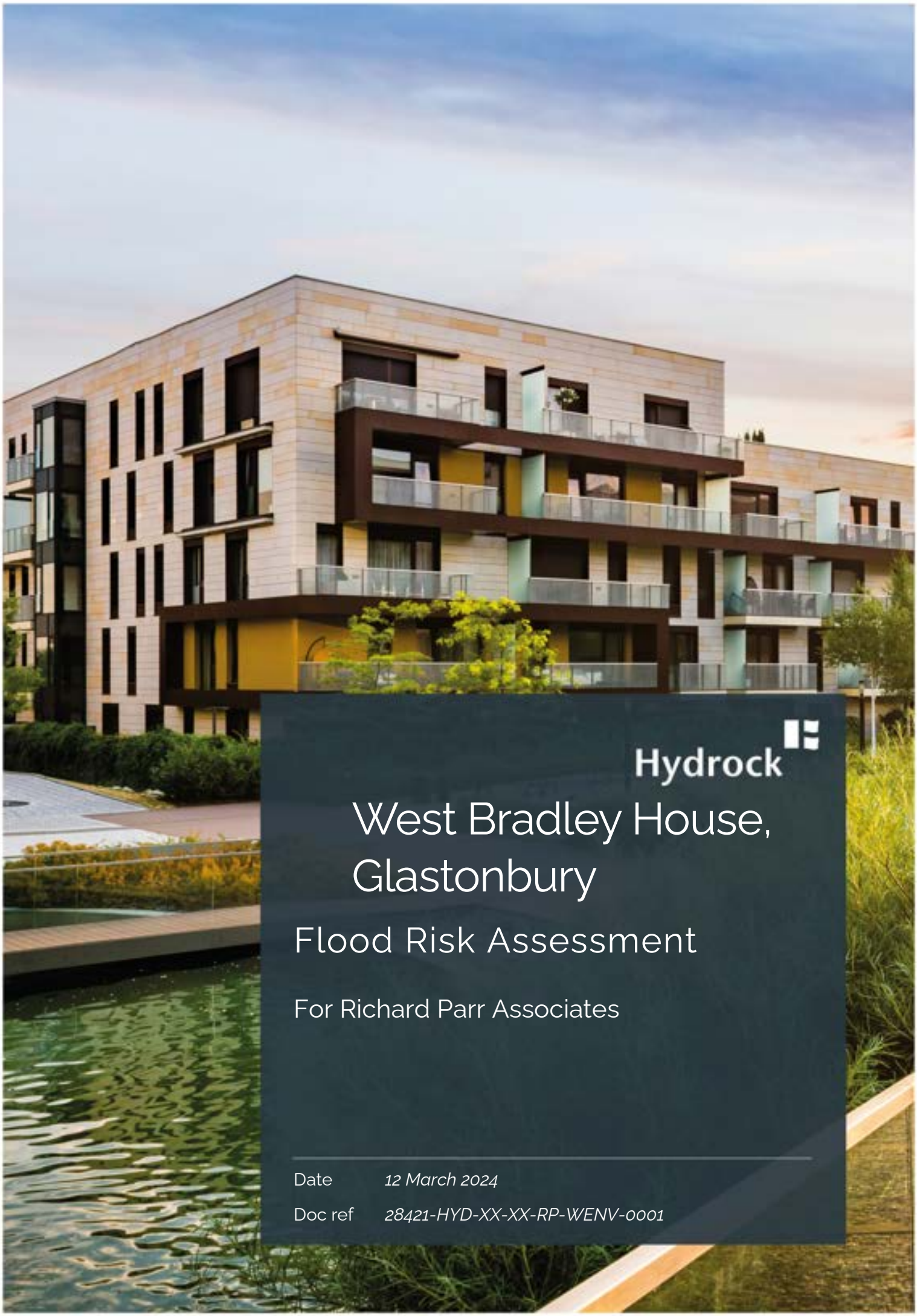

Hydrock

West Bradley House, Glastonbury

Flood Risk Assessment

For Richard Parr Associates

Date	*12 March 2024*
Doc ref	*28421-HYD-XX-XX-RP-WENV-0001*

Document control sheet

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P04	S2	05/02/2024	Final issue following further comment.
P05	S2	12/03/2024	Final issue following further comment and updates to proposed development plans.

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Appendix F 2011 PFRA Areas Susceptible to Groundwater Flooding

1. Introduction

This report has been prepared by Hydrock Consultants Limited (Hydrock) on behalf of our client Richard Parr Associates, in support of a proposed development comprising of accommodation located at West Bradley House, Glastonbury, Somerset, England, BA6 8LT.

Local Planning Authorities are advised by the Government's National Planning Policy Framework (NPPF) to consult the Environment Agency (EA) on development proposals in areas at risk of flooding and / or for sites greater than 1 hectare in area. The EA requires a Flood Risk Assessment (FRA) to be submitted in support of the planning application for the proposed development.

The report has been prepared to consider the requirements of NPPF through:

- Assessing whether the proposed development is likely to be affected by flooding;
- Assessing whether the proposed development is appropriate in the suggested location; and
- Detailing measures necessary to mitigate any flood risk identified, to ensure that the proposed development and occupants would be safe, and that flood risk would not be increased elsewhere.

The report considers the requirements for undertaking an FRA as stipulated in the NPPF Technical Guidance. Only those requirements that are appropriate to a development of this nature have been considered in the compilation of this report.

This report has been prepared in accordance with current EA policy.

2. Site Information

2.1 Location

The site is located in West Bradley, Glastonbury, Somerset, England. The site is approximately 6 km south-east of Glastonbury.

The site is bound:

- To the north by greenfield (undeveloped) land currently used for agriculture, beyond which lies Bradley Way Road;
- To the east by greenfield land used for agricultural purposes;
- To the south by West Bradley Parish Church, a commercial building and West Bradley Lane; and
- To the west by undeveloped land.

The nearest watercourse is the Bradley Brook, an Ordinary Watercourse according to the Lead Local Flood Authority, which runs through the site, entering in the east and exiting the site in the south west.

Access to the site is provided at two points from West Bradley Lane in the south of the site, adjacent to the 'lower pond' and from the west of the site.

Table 1: Site Referencing Information

Site Referencing Information	
Site Address	West Bradley House, Somerset, England, BA6 8LT
Grid Reference	ST 55036 36550 355036 136550

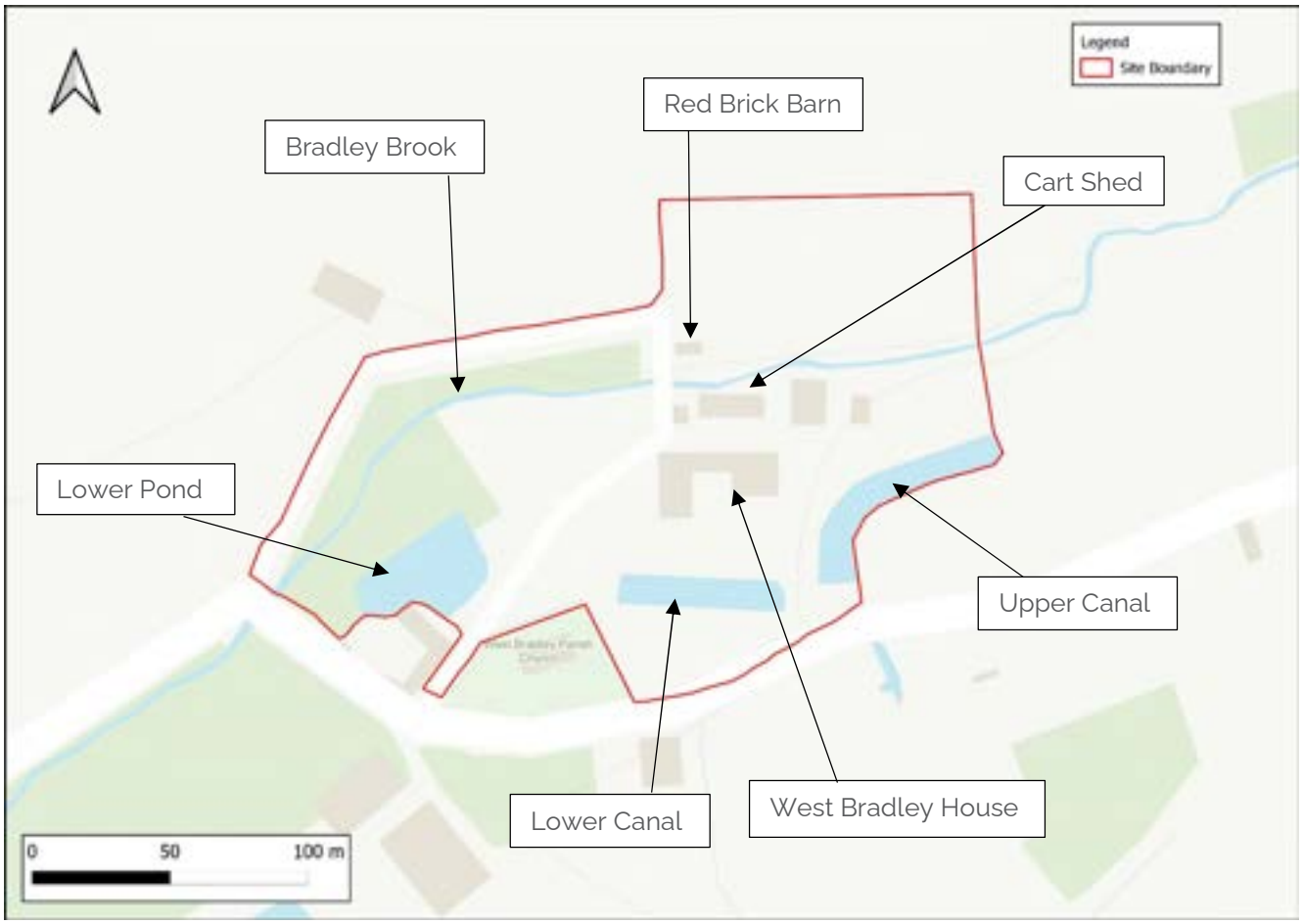


Figure 1: Site Location

2.2 Topography

A topographic survey was undertaken in 2022 (Appendix A). Topographic levels are measured in meters Above Ordnance Datum (m AOD). The site is shown to slope from approximately 35 m AOD in the north-eastern corner of the site to 26 m AOD in the south-western corner of the site. The surrounding area slopes in this general pattern from approximately 40 m AOD in the north-east to 23 m AOD in the south-west.

2.3 Current Site Use

The existing site plan layout is included within Appendix B**.** The site currently comprises West Bradley House, a 10-guest accommodation building, with associated landscaping which includes 5 outer buildings and a tennis court. According to Google Aerial imagery accessed [06/11/2023], there are areas of soft landscaping and vegetation along Bradley Brook, 'Lower Pond', 'Upper Canal' and 'Lower Canal'.

2.4 Proposed Site Use

The proposed development layout is included within Appendix C**.** The proposed development includes the relocation of the tennis courts from the western extents of the site to the north of Bradley Brook 'away from the principal views', with a new footbridge proposed for access to the tennis courts. The proposed accommodation will increase in capacity to accommodate a total of 20 guests across West Bradley House, Cart Shed and Red Brick Barn.

2.5 Storm Henk Site Visit

A visit to the site in the aftermath of Storm Henk in January 2024 indicated that the watercourse on site, the Bradley Brook, was operating at circa 25% capacity. The site representative noted that the brook is managed by a sluice gate upstream and according to the on-site caretaker there have been no recorded floods on the site.

Appendix D contains 5 photographs taken during the visit to the site as an indication of the state of the Bradley Brook during such events. However, no data is available to suggest what the equivalent return period event of Storm Henk would be for the Bradley Brook catchment.

3. Sources of Flood Risk

3.1 Fluvial and Tidal Flood Risk

According to the current EA Flood Map for Planning (FMfP - Figure 2), the site and immediate surrounding area is wholly located within Flood Zone 1 (Low Probability). The Bradley Brook flows in a westerly direction, entering the site from the east and exiting the site at the south-western boundary, and has a catchment area too small to be mapped within the EA FMfP. Further information regarding the Bradley Brook and its interaction with the site is available within section 3.2. There are three other water bodies located on the site. The site is not considered to be directly impacted by tidal flood risk and is located approximately 30 km south-east of the nearest coastline.

Figure 2: EA Flood Map for Planning (Rivers and Seas)

As such, the site is considered to be at 'negligible' risk of tidal flooding.

For reference, the EA Flood Zones are defined as follows:

- Flood Zone 1 (Low Risk) comprises land assessed as having a ≤0.1% AEP of fluvial flooding in any given year, equivalent to the ≥1 in 1,000-year return period flood event.
- Flood Zone 2 (Moderate Risk) comprises land assessed as having a 0.1-1% AEP of fluvial flooding in any given year, equivalent to the 1 in 1,000 - 1 in 100-year return period flood event.
- Flood Zone 3 (High Risk) comprises land assessed as having a ≥1% AEP of fluvial flooding in any given year, equivalent to the ≤ 1 in 100-year return period flood event.
    - Flood Zone 3a (High Risk) comprises land assessed as having a 1-3.33% AEP of fluvial flooding in any given year, equivalent to the 1 in 100 - 1 in 30-year return period flood event.

- Flood Zone 3b (Functional Floodplain) comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the EA. Flood Zone 3b is defined as land that has a 3.33% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme, even if it would only flood in more extreme events.

According to the 'Recorded Flood Outlines' dataset provided by the EA, the site is shown to be outside of the extents of historical fluvial flooding events.

There is no evidence contained within the 2011 Preliminary Flood Risk Assessment (PFRA)[1] report to suggest that the site is at risk of fluvial flooding. No Strategic Flood Risk Assessment (SFRA) report was available at the time of writing; however, a request was sent to the relevant authority to confirm its absence.

As such, the site is considered to be at 'low' risk of fluvial flooding from Main Rivers and 'negligible' risk of tidal flooding.

[1] *https://webarchive.nationalarchives.gov.uk/ukgwa/20140328094443/http://www.environment-agency.gov.uk/research/planning/135540.aspx#8*

3.2 Surface Water Flooding

Surface water flooding occurs as the result of an inability of intense rainfall to infiltrate the ground. This often happens when the maximum soil infiltration rate or storage capacity is reached. Flows generated by such events either enter existing land drainage features or follow the general topography which can concentrate flows and lead to localised ponding/flooding.

The EA Long Term Flood Risk Map (Surface Water) in Figure 3 shows surface water risk levels ranging from Very Low (<0.1% annual probability) across the majority of the site to High (≥3.3% annual probability) in areas representative of Bradley Brook, Lower Pond, and the Upper and Lower Canal.

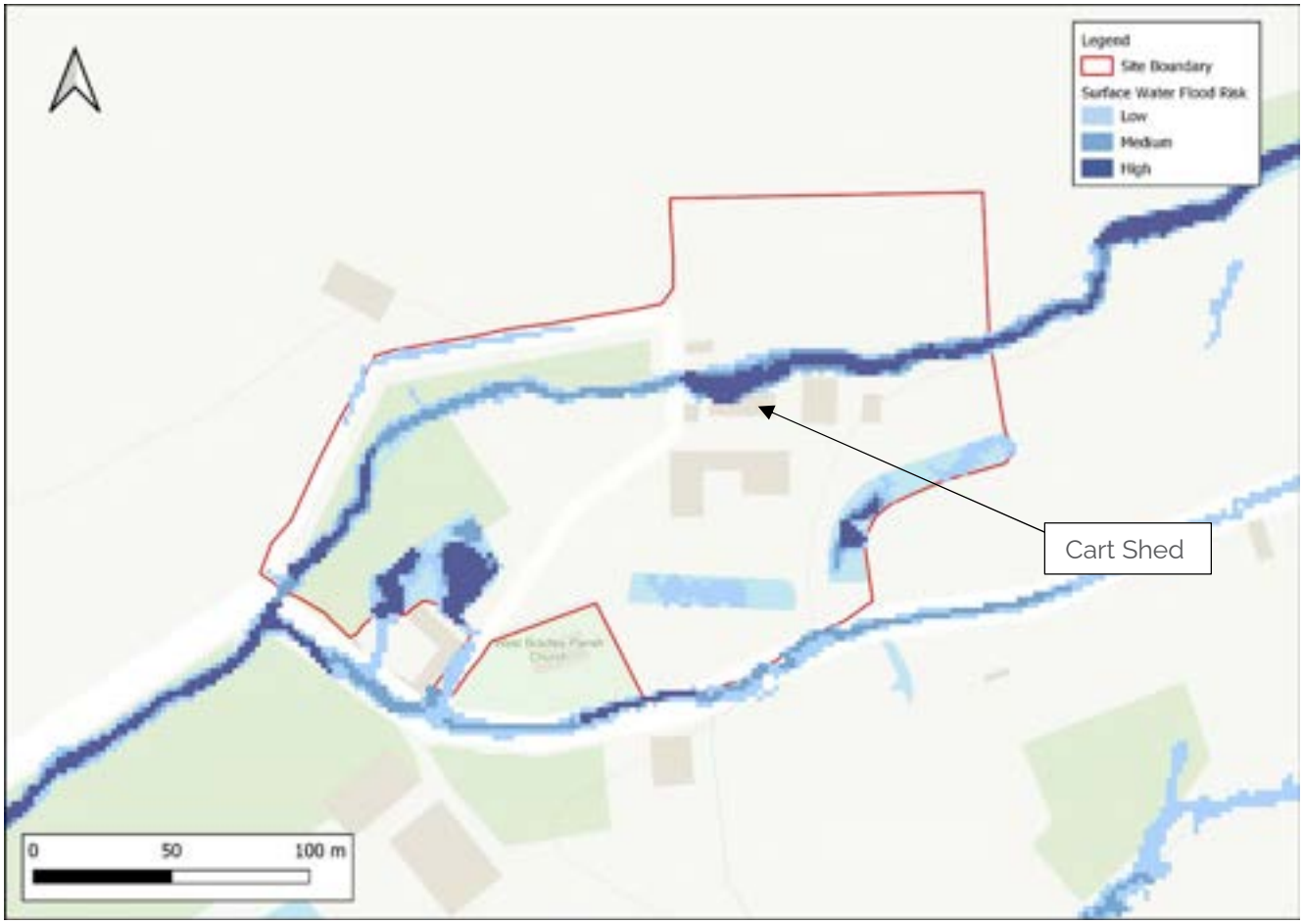


Figure 3: EA Long Term Flood Risk Map (Surface Water)

The risk of the existing watercourse (Bradley Brook) was assessed by viewing the available 'EA Risk of Flooding Surface Water Depth 1 in 1000-year' scenario. This was selected as a proxy for climate change in absence of 1 in 100-year with climate change data. An assumption is made that this is a conservative approach as this mapping does not account for the culverting of the watercourse immediately downstream of the Cart Shed, where the watercourse is crossed by the existing road / track within the site. Upon investigation, the two locations of proposed built development highlighted that the north of the 'Cart Shed' building could experience flood depths over 900 mm during the 1 in 1000-year event. The surface water is shown to pond here due to the low resolution of the mapping that does not account for the culvert and true capacity of the channel.

As noted in Section 2.5, information obtained during a site visit in January 2024 in the aftermath of Storm Henk, indicated that the brook was running at circa 25% capacity, Appendix D contains

photographs that provide an indication of the state of the Bradley Brook during such event and further the assumption that the EA surface water mapping has taken a conservative approach.

Figure 4 overleaf shows a cross section of the river channel at the point at which Cart Shed appears to be affected. From analysis of the topographic survey, available lidar data, and the flood extent provided within the EA Long Term Flood Risk Map, it is noted that the bottom of the river channel sits at circa 28.3 m AOD and the Finished Floor Level (FFL) of the Cart Barn measures 30.01 m AOD - 30.30m AOD. The Cart Shed's FFL is elevated 1.7-2.0m above the bottom of the river channel.

Using the 1 in 1000-year surface water flood extents and LiDAR data, a maximum flood level of 30.00 m AOD was extracted adjacent to the Cart Shed. The lowest existing FFL of the Cart Shed is therefore raised above the flood level. It should be noted that this method is conservative as it uses the extreme 1 in 1000-year surface water flood extent.

Therefore, according to the available mapping depths and valley depth against the FFL level, the area does not appear to be a floodplain associated with the Bradley Brook and flows are expected to be confined to the channel. Please see Section 4.2 for information regarding mitigation measures at the site.

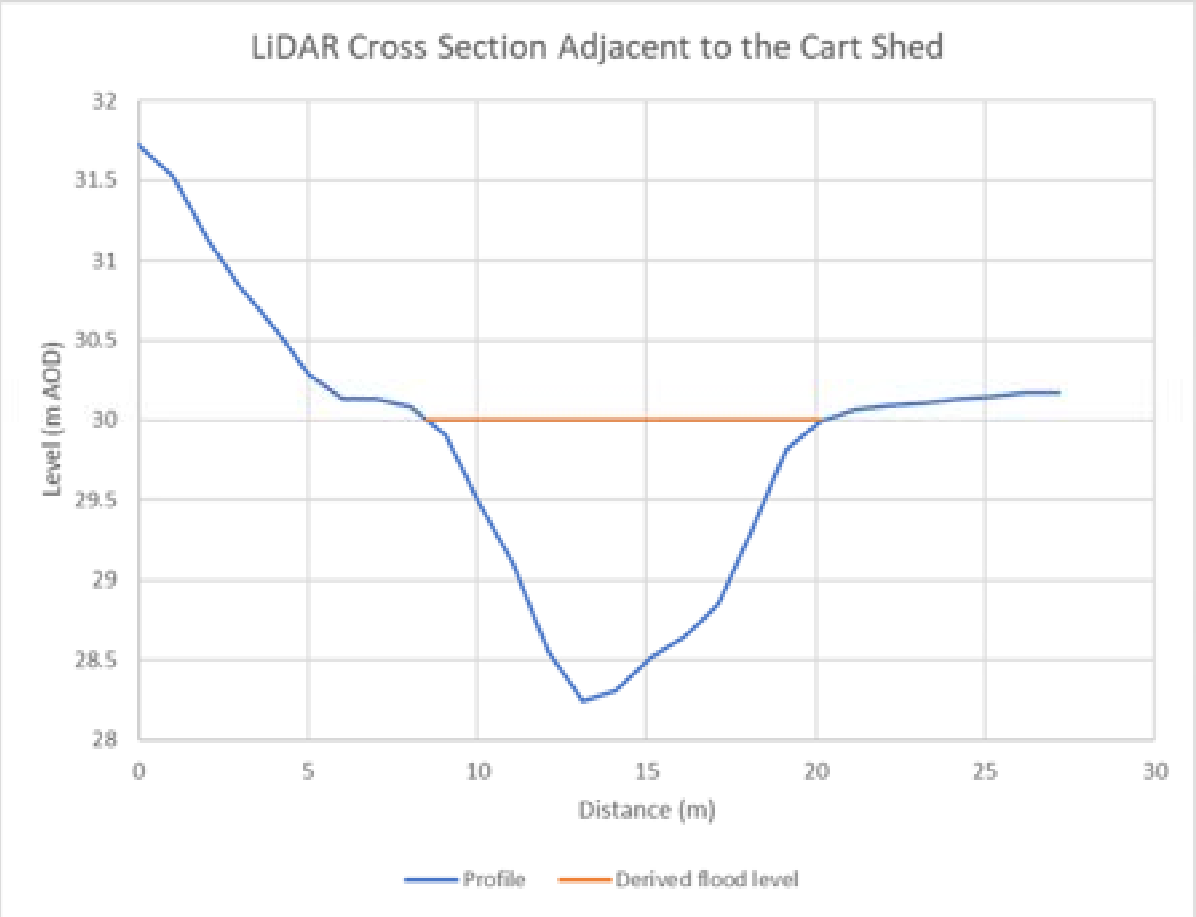


Figure 4: Cross Section of the Bradley Brook

During the low-risk scenario (0.1% annual probability), depths mostly remain below 300 mm on the site. However, during the low-risk scenario depths between 300 - 900 mm are indicated at the south of the site along West Bradley Lane, which is considered impassable to people and vehicles and should be avoided during extreme rainfall events. Depths of up to 900 mm in the south-western corner of the site are also indicated where Bradley Brook is culverted beneath West Bradley Lane. It should be noted that the EA Long Term Flood Risk Map (surface water) does not take into account local drainage and therefore appears to be overestimating the level of surface water risk in this location. However, it would be prudent to avoid this area during extreme rainfall events.

The flow velocities are indicated on Figure 5 which show velocities of over 0.25 m/s travelling in a south-westerly/westerly direction through the site (Bradley Brook) and along West Bradley Lane.

Figure 5: EA Long Term Flood Risk Map (Surface Water) - Velocity (Low Risk)

There is no evidence contained within the 2011 PFRA report to suggest that the site has historic surface water flooding issues.

Given the above, the site is concluded to be at 'medium' risk of flooding from the Bradley Brook and a low risk of general surface water flooding.

3.3 Groundwater Flood Risk

British Geological Survey (BGS) Mapping shows the site to be underlain by bedrock geology described as Langport Member, Blue Lias Formation and Charmouth Mudstone Formation (Mudstone and limestone interbedded) which is classified as a Secondary A Aquifer, defined as *'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers*'. No superficial deposits are recorded within the site boundaries.

According to Soilscapes[2] mapping, the site is located within *'Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils'*.

A ground investigation was completed for the site by Hydrock in August 2023 (Doc REF:28421-HYD-XX-XX-RP-GE-1001) for which groundwater monitoring and observations were undertaken. Groundwater was encountered between 0.8 - 2.7 m bgl in 6 exploratory hole locations across the site. Groundwater observation represents the depth at which the groundwater was first observed and levels are likely to be deeper than the actual water table at the location observed. A map of the exploratory hole locations is included within Appendix E.

Furthermore, the 'Areas Susceptible to Groundwater Flooding' map from the 2011 PFRA, Appendix F, indicates that the site has a less than 25% risk of groundwater flooding.

As such, the site is considered to be at 'medium' risk of groundwater flooding. It would be prudent to consider using preventative measures to reduce the probability of groundwater seepage, for example, by implementing groundwater dewatering measures during construction works and prioritising undertaking construction during the summer months.

3.4 Infrastructure Flooding

Aerial imagery and development plans show that there is an 'Upper Canal', 'Lower Canal', and 'Lower Pond' recorded within the site, as indicated in Figure 1. These features appear to be waterbodies as opposed to real functioning 'canals'. Using the EA Long Term Flood Risk Map to assess the flood risk from the waterbodies, it appears that the 'Upper Canal' could spill north into the site; however, as the waterbody is referred to as a 'canal' it is presumed that the water level within is controlled and maintained by the site owner. Due to this, it is unlikely that any infrastructure failure relating to canals would result in a flood event affecting the site.

The EA Reservoir Failure Extent mapping shows the site to lie outside of the extents of potential reservoir flooding.

Considering the current use of the site, it can be assumed that there are private sewers at the site that are maintained for the current use. If existing sewers were to surcharge at the site it is likely that this would follow the general topography of the land discharging into the watercourse on site and therefore be intercepted by the Bradley Brook.

There is no evidence contained within the 2011 PFRA report to suggest that the site is at risk of infrastructure flooding.

Given that there are no known risks of flooding from artificial sources at the site, it can be concluded that the risk of flooding from infrastructure failure is 'low'.

[2] https://www.landis.org.uk/soilscapes/

4. National Planning Policy Framework

4.1 Sequential & Exception Tests

This assessment has demonstrated that the site and surrounding areas are on land designated by the EA's Flood Zone Mapping as Flood Zone 1 (Low Risk). The site is considered to be at 'medium risk' of surface water flooding and 'medium' risk of groundwater flooding and 'low' risk of infrastructure flooding.

Paragraph 023 of the Flood Risk and Coastal Change National Planning Practise Guidance (NPPG) states that the Sequential Test 'is designed to ensure that the areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding.' Therefore, a sequential approach to the site should be used, with no development in the surface water exceedance routes.

The NPPG Flood Risk Vulnerability and Flood Zone Compatibility matrix (Table 2 of the NPPG) (Table 2) also indicated that 'less vulnerable' development is "appropriate" in Flood Zone 1 without application of the Exception Test.

Table 2: Flood Risk Vulnerability and Flood Zone Compatibility Matrix

	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test Required	✓	✓	✓
Zone 3a	Exception Test Required	**X**	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	**X**	**X**	**X**	✓

Accordingly, the application of the Exception Test is concluded to not be required in this instance.

4.2 Mitigation Measures

Whilst an Exception Test is not explicitly required under the NPPG, the following section details any measures recommended to mitigate any of the flood risks identified and to ensure that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, akin to the requirements of section 'b' of the Exception Test as outlined in the NPPG.

4.2.1 Flow Route Mitigation

Comparing the proposed layout plan with the EA Long Term Flood Risk Map (Surface Water) it can be viewed that surface water flow routes do not directly impact the majority of areas proposed for development. What is shown as a flow route that passes through the site is in fact fluvial in nature as it originates from the Bradley Brook, however, the flood extents are confined to the channel. Providing that the development does not increase built footprint/encroach into the channel, there will be no impedance of any existing flow routes.

4.2.2 Safe Access and Egress

An existing access road is present within the site that crosses the Bradley Brook and provides a means of exiting the site in both the south west and west.

It is expected that the preferred means of access/egress during times of high water levels in the Bradley Brook will be via the existing crossing, which is considered as appropriately designed to accommodate the design flow. This route is also shown to be at a "low" risk of surface water flooding.

It is further noted that a new footbridge is proposed as part of the scheme, to give access to the relocated tennis courts. It is recommended that this is designed appropriately to convey design flow and clear-span the channel so that it does not impact channel capacity.

The site manager/owner should prepare an emergency response flood plan and educate guests on any actions to take should extreme rainfall events occur, following Met Office Weather Warnings. There is also an option for users to remain within the site which is considered to be safe refuge.

4.2.3 Floodplain Storage

Paragraph 49 of the NPPG states that where development may result in an increase in flood risk elsewhere as a result of 'loss of floodplain storage, the deflection or constriction of flood flow routes or through inadequate management of surface water'. Therefore, where flood storage from any source of flooding is lost, as a result of development, on-site level-for-level compensatory storage should be provided.

Given the location of the proposed development as wholly within Flood Zone 1 and therefore not on a floodplain, it is not considered necessary to elevate site levels within the design floodplain.

4.2.4 Finished Floor Levels

As discussed in Section 3.2, the Cart Shed was identified to be partially at risk from the Bradley Brook according to surface water mapping. According to the available mapping depths and valley depth against the FFL level, the area does not appear to be a floodplain associated with the Bradley Brook and flows are expected to be confined to the channel.

Whilst it would typically be recommended that sleeping accommodation should be at least 600 mm above the potential flood level of 30.00 m AOD, the architect has confirmed that this is not considered to be feasible within the design of the building. As outlined in Section 3.2, based off current analysis, the lowest floor level of the Cart Shed (30.01 m AOD) is above what is understood to be the 1 in 1000-year flood levels (30.00 m AOD) (1 in 1000 year being used as a proxy for climate change in absence of 1 in 100-year with climate change data). Therefore, resilient / resistant materials should be used to depths of up to 300 - 600 mm where possible, in line with the CIRIA Code of Practice for Property Flood Resilience[3]. Some examples of how building materials perform during flood conditions are contained in Table 3 below.

[3] *https://www.ciria.org/ItemDetail?iProductCode=C790F&Category=FREEPUBS*

Table 3: Table 6.1 Flood resilience characteristics of building materials (based on laboratory testing) taken from the EA's 'Improving the Flood Performance of New Buildings' guidance document[4].

Flood resilience characteristics of building materials (based on laboratory testing)			
Material	**Resilience characteristics***		
	Water penetration	**Drying ability**	**Retention of pre-flood dimensions, integrity**
Bricks			
Engineering bricks (Classes A and B)	Good	Good	Good
Facing bricks (pressed)	Medium	Medium	Good
Facing bricks (handmade)	Poor	Poor	Poor
Blocks			
Concrete (3, 5N, 7N)	Poor	Medium	Good
Aircrete	Medium	Poor	Good
Timber board			
OSB2, 11mm thick	Medium	Poor	Poor
OSB3, 18mm thick	Medium	Poor	Poor
Gypsum plasterboard			
Gypsum plasterboard, 9mm thick	Poor	Not assessed	Poor
Mortars			
Below d.p.c 1:3 (cement:sand)	Good	Good	Good
Above d.p.c 1:6 (cement:sand)	Good	Good	Good

*** Resilience characteristics are related to the testing carried out and exclude aspects such as ability to withstand freeze/thaw cycles, cleanability and mould growth**

In accordance with Building Regulations, FFLs of the proposed development elsewhere should be set to remain 150 mm above surrounding ground levels where feasible, so that any exceedance flows can be directed away from built development and towards the nearest drainage point. It is understood that setting the FFLs at 150 mm above surrounding ground levels will not be feasible for the Cart Shed, Link and Apple Barn elements of the proposed development; however, it is recommended that FFLs are set to remain as high as practicable here. If proposed buildings are not

[4] Improving the Flood Performance of New Buildings (publishing.service.gov.uk)

in an area of increased flood risk and they are being redeveloped / converted so FFLs cannot be raised, having level thresholds with level drains should also be considered acceptable.

4.2.5 *Surface Water Drainage*

The impact of the proposed development on surface water risk can be considered upon the production of final layout plans and a suitable surface water drainage strategy. This should ensure that surface water risk is not exacerbated through appropriate Sustainable Drainage Systems (SuDS) measures.

5. Summary

This report has been prepared by Hydrock on behalf of our client Richard Parr Associates, in support of a proposed development comprising of accommodation located at West Bradley House, Glastonbury, Somerset, England, BA6 8LT.

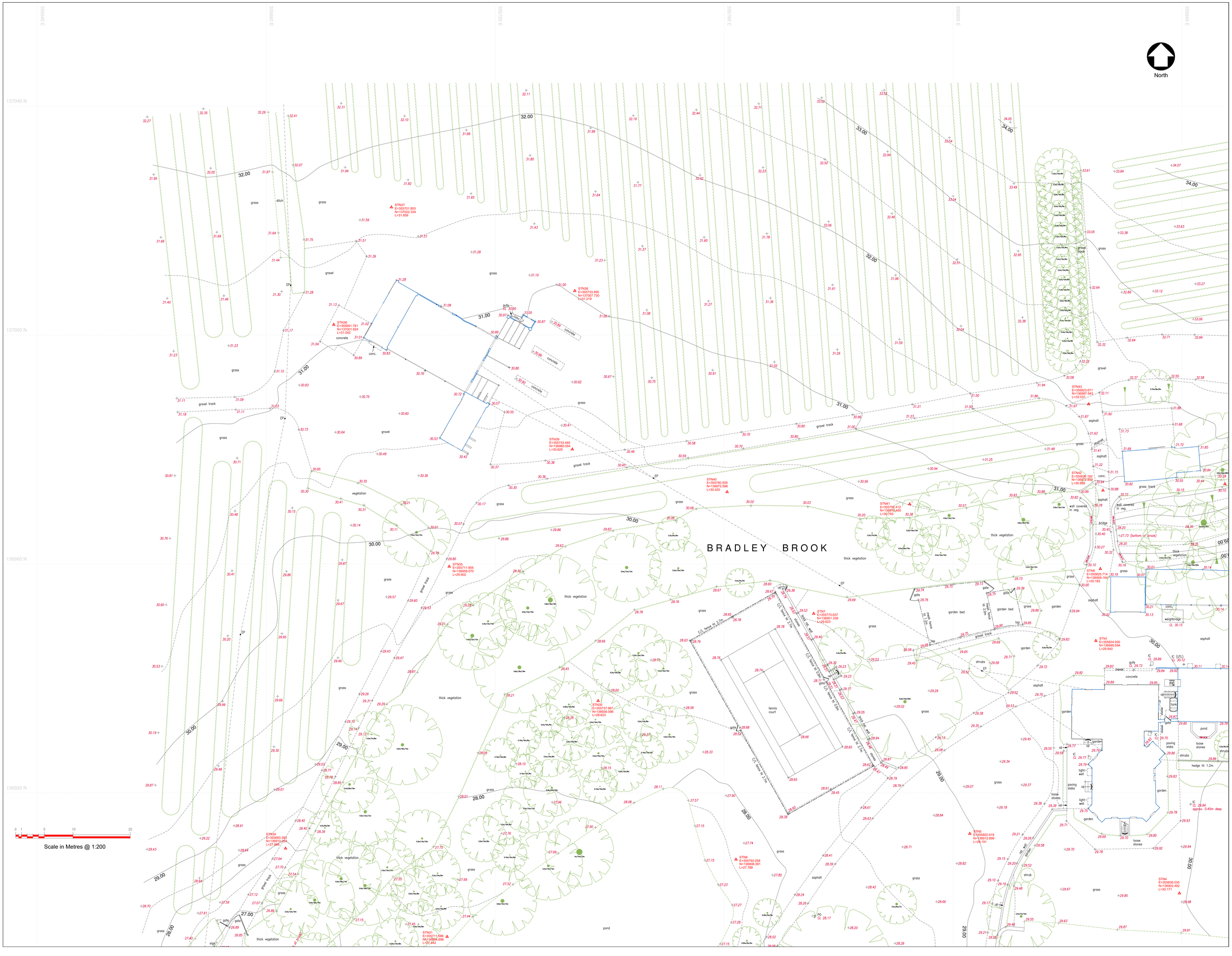
A detailed assessment of flood risk has identified that the site is located wholly within Flood Zone 1 (Low risk). The site is at 'medium' risk of flooding from an Ordinary Watercourse, the Bradley Brook, and at a 'medium' risk of groundwater flooding. The site is at 'low' or 'negligible' risk from all remaining sources.

This report therefore demonstrates that, in the respect to flood risk, the proposed development:

- Is suitable in location proposed if mitigation measures are considered;
- Will be adequately flood resistant and resilient;
- Will not place additional persons at risk of flooding, and will offer a safe means of access and egress;
- Will not increase flood risk elsewhere as a result of the proposed redevelopment through the loss of floodplain storage or impedance of flood flows; and
- Will put in place measures to ensure surface water is appropriately managed.

As such, the application is concluded to meet flood risk requirements of the NPPF.

Appendix A Topographical Survey



Abbreviations

AB	Air Brick	IR	Iron Railings
AV	Air Valve	JB	Junction Box
BB	Bellsha Beacon	KO	Kerb Outlet
BGP	Break Glass Point	LB	Litter Bin
BK	Brick	LP	Lamp Post
BO	Bollard	LW	Light Well
BS	Bus Stop	MH	Manhole
BT	British Telecom cover	MK	Marker
C	Floor to Cill height	MT	Meter
C/B	Close Board	MY	Mercury
CL	Cover Level	OH	Overhead
C/L	Chain Link	PM	Parking Meter
CO	Column	PB	Post Box
CONC	Concrete	P/R	Post & Rail
CP	Catch Pit	PT	Post
CPL	Coping Level	P/W	Post & Wire
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television Cover	RET	Retaining
DK	Drop Kerb	RS	Road Sign
DH	Door Height	RSS	Rolled Steel Stansion
EP	Electricity Pole	RSJ	Rolled Steel Joist
ER	Earthing Rod	RWP	Rain Water Pipe
FB	Flower Bed	SC	Stop Cock
FC	False Ceiling	SVP	Soil Vent Pipe
FE	Fire Escape	TCB	Telephone Call Box
FH	Fire Hydrant	TBM	Temp. Bench Mark
FHR	Fire Hose Reel	TP	Telegraph Pole
FL	Floor Level	TL	Traffic Light
FP	Flag Pole	TK	Trunking
GP	Gate Post	UTL	Unable To Lift
GU	Gully	V	Vent
GV	Gas Valves	VP	Vent Pipe
H	Cill to Head height	WM	Water Meter
HT	Height	WP	Waste Pipe
IC	Inspection Cover	WSC	Water Stop-Cock
IL	Invert Level	WV	Water Valve

Notes

Ceiling Height	3050	Arch	
Level	+20.00	Radiator	
Floor Level	+20.00 FL	Station	
Ceiling Level	+20.00 CL	Hedge	
Soffit Level	+20.00 SL	Steep slope	
False Ceiling Level	+20.00 FCL		
Floor to cill height	c~1234	Fence	
Cill to head height	h~1234	Foul pipe	
Door height	DH 2000	Storm pipe	

Survey Coordinates and Grid

Please note that the grid shown on this drawing is as follows;

- ☐ Arbitrary
- ☐ Arbitrary but related to building line
- ☐ Arbitrary but approx. related to North
- ☐ Best fit to an Ordnance Survey Digital Sheet
- ☒ Related to the Ordnance Survey National Grid

Levels

Please note that the levels shown on this drawing are as follows;

- ☐ Arbitrary and related to a temporary bench mark
- ☐ Related to an Ordnance Survey Bench Mark
- ☒ Related to the Ordnance Survey National GPS Network

Level positions are indicated by a cross or the decimal point

Bench Mark

Type	Ordnance Survey
Position	N/A
Value	N/A

Trees

All trees sizes are approximate and should be checked on site before using information. Where guaranteed tree species become important the services of a tree expert should be employed

Notation : diameter of trunk / Height / Spread

Drainage

Where drainage covers have been lifted data has been recorded for each individual manhole from the surface and connections to other manholes, pipes or gullys are assumed. Where information is required by accessing the manhole or tracing to other manholes then a services trace will be needed.

Notes

13727-01

Revision	Date	By

CADPLAN PRECISION MEASUREMENTS

Land Surveys . Measured Building Surveys . 3D Laser Scanning
Utility Surveys . Lease Plans . 3D Models . Rights of Light Surveys

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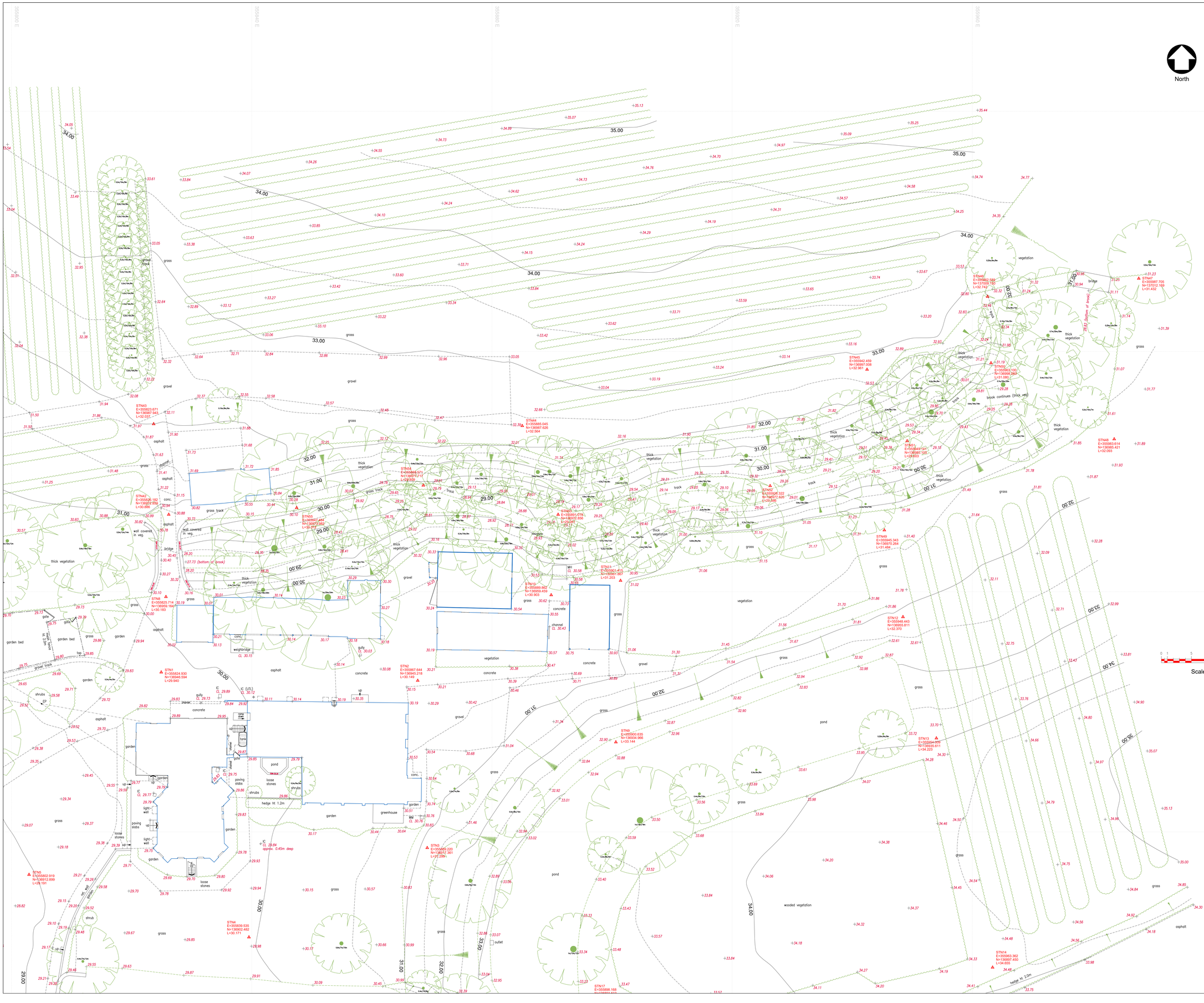
Client
Richard Parr Associates

Project
West Bradley House
West Bradley
Somerset BA6 8LT

Drawing Title
Topographic Survey

Sheet/Scale	Date	Drawn	Checked
A0@1:200	11/08/22	B.J.V.	C.S.D.
Project No.	Drawing No.		Revision
13727	01	Preliminary	



Abbreviations

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C/B	Close Board	MY	Mercury
CL	Cover Level	OH	Overhead
C/L	Chain Link	PM	Parking Meter
CO	Column	PB	Post Box
CONC	Concrete	P/R	Post & Rail
CP	Catch Pit	PT	Post
CPL	Coping Level	P/W	Post & Wire
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television Cover	RET	Retaining
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FB	Flower Bed	SC	Stop Cock
FC	False Ceiling	SVP	Soil Vent Pipe
FE	Fire Escape	TCB	Telephone Call Box
FH	Fire Hydrant	TBM	Temp. Bench Mark
FHR	Fire Hose Reel	TP	Telegraph Pole
FL	Floor Level	TL	Traffic Light
FP	Flag Pole	TK	Trunking
GP	Gate Post	UTL	Unable To Lift
GU	Gully	V	Vent
GV	Gas Valves	VP	Vent Pipe
H	Cill to Head height	WM	Water Meter
HT	Height	WP	Waste Pipe
IC	Inspection Cover	WSC	Water Stop-Cock
IL	Invert Level	WV	Water Valve

Notes

Ceiling Height	(3050)	Arch	
Level	+20.00	Radiator	
Floor Level	+20.00 FL	Station	
Ceiling Level	+20.00 CL	Hedge	
Soffit Level	+20.00 SL	Steep slope	
False Ceiling Level	+20.00 FCL		
Floor to cill height	c~1.234	Fence	
Cill to head height	h~1.234	Foul pipe	
Door height	DH 2000	Storm pipe	

Survey Coordinates and Grid

Please note that the grid shown on this drawing is as follows;

- ☐ Arbitrary
- ☐ Arbitrary but related to building line
- ☐ Arbitrary but approx. related to North
- ☐ Best fit to an Ordnance Survey Digital Sheet
- ☒ Related to the Ordnance Survey National Grid

Levels

Please note that the levels shown on this drawing are as follows;

- ☐ Arbitrary and related to a temporary bench mark
- ☐ Related to an Ordnance Survey Bench Mark
- ☒ Related to the Ordnance Survey National GPS Network

Level positions are indicated by a cross or the decimal point

Bench Mark

Type	Ordnance Survey
Position	N/A
Value	N/A

Trees

All trees sizes are approximate and should be checked on site before using information. Where guaranteed tree species become important the services of a tree expert should be employed

Notation : diameter of trunk / Height / Spread

Drainage

Where drainage covers have been lifted data has been recorded for each individual manhole from the surface and connections to other manholes, pipes or gullys are assumed. Where information is required by accessing the manhole or tracing to other manholes then a services trace will be needed.

Notes

13727-02

Revision	Date	By

CADPLAN
PRECISION ● MEASUREMENTS

Land Surveys . Measured Building Surveys . 3D Laser Scanning
Utility Surveys . Lease Plans . 3D Models . Rights of Light Surveys

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Tel : 01732 469100 Fax : 01732 469101 E : post@cadplan.co.uk

Client
Richard Parr Associates

Project
West Bradley House
West Bradley
Somerset BA6 8LT

Drawing Title
Topographic Survey

Sheet/Scale	Date	Drawn	Checked
A0@1:200	11/08/22	B.J.V.	C.S.D.
Project No.	**Drawing No.**	**Preliminary**	**Revision**
13727	02		

North

BRADLEY BROOK

Scale in Metres @ 1:200

0 1 5 10 20

136960 N
136920 N
136880 N
136840 N

3356640 E
3356680 E
3356720 E
3356760 E
3356800 E
3356840 E

Abbreviations

AB	Air Brick	IR	Iron Railings
AV	Air Valve	JB	Junction Box
BB	Bellsha Beacon	KO	Kerb Outlet
BGP	Break Glass Point	LB	Litter Bin
BK	Brick	LP	Lamp Post
BO	Bollard	LW	Light Well
BS	Bus Stop	MH	Manhole
BT	British Telecom cover	MK	Marker
C	Floor to Cill height	MT	Meter
C/B	Close Board	MY	Mercury
CL	Cover Level	OH	Overhead
C/L	Chain Link	PM	Parking Meter
CO	Column	PB	Post Box
CONC	Concrete	P/R	Post & Rail
CP	Catch Pit	PT	Post
CPL	Coping Level	P/W	Post & Wire
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television Cover	RET	Retaining
DK	Drop Kerb	RS	Road Sign
DH	Door Height	RSS	Rolled Steel Stansion
EP	Electricity Pole	RSJ	Rolled Steel Joist
ER	Earthing Rod	RWP	Rain Water Pipe
FB	Flower Bed	SC	Stop Cock
FC	False Ceiling	SVP	Soil Vent Pipe
FE	Fire Escape	TCB	Telephone Call Box
FH	Fire Hydrant	TBM	Temp. Bench Mark
FHR	Fire Hose Reel	TP	Telegraph Pole
FL	Floor Level	TL	Traffic Light
FP	Flag Pole	TK	Track
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GU	Gully	V	Vent
GV	Gas Valves	VP	Vent Pipe
H	Cill to Head height	WM	Water Meter
HT	Height	WP	Waste Pipe
IC	Inspection Cover	WSC	Water Stop-Cock
IL	Invert Level	WV	Water Valve

Notes

Ceiling Height	3050	Arch	
Level	+20.00	Radiator	
Floor Level	+20.00 FL	Station	
Ceiling Level	+20.00 CL	Hedge	
Soffit Level	+20.00 SL	Steep slope	
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Floor to cill height	c~1.234	Fence	
Cill to head height	h~1234	Foul pipe	
Door height	DH 2000	Storm pipe	

Survey Coordinates and Grid

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Bench Mark

Type	Ordnance Survey
Position	N/A
Value	N/A

Trees

All trees sizes are approximate and should be checked on site before using information. Where guaranteed tree species become important the services of a tree expert should be employed

Notation : diameter of trunk / Height / Spread

Drainage

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Notes

13727-03

Revision	Date	By

CADPLAN
PRECISION MEASUREMENTS

Land Surveys , Measured Building Surveys , 3D Laser Scanning
Utility Surveys , Lease Plans , 3D Models , Rights of Light Surveys

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Drawing Title
Topographic Survey

Sheet/Scale	Date	Drawn	Checked
A0@1:200	11/08/22	B.J.V.	C.S.D.
Project No.	Drawing No.	Preliminary	Revision
13727	03		

Abbreviations

AB	Air Brick	IR	Iron Railings
AV	Air Valve	JB	Junction Box
BB	Bellsha Beacon	KO	Kerb Outlet
BGP	Break Glass Point	LB	Litter Bin
BK	Brick	LP	Lamp Post
BO	Bollard	LW	Light Well
BS	Bus Stop	MH	Manhole
BT	British Telecom cover	MK	Marker
C	Floor to Cill height	MT	Meter
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CL	Cover Level	OH	Overhead
C/L	Chain Link	PM	Parking Meter
CO	Column	PB	Post Box
CONC	Concrete	P/R	Post & Rail
CP	Catch Pit	PT	Post
CPL	Coping Level	P/W	Post & Wire
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television Cover	RET	Retaining
DK	Drop Kerb	RS	Road Sign
DH	Door Height	RSS	Rolled Steel Stansion
EP	Electricity Pole	RSJ	Rolled Steel Joist
ER	Earthing Rod	RWP	Rain Water Pipe
FB	Flower Bed	SC	Stop Cock
FC	False Ceiling	SVP	Soil Vent Pipe
FE	Fire Escape	TCB	Telephone Call Box
FH	Fire Hydrant	TBM	Temp. Bench Mark
FHR	Fire Hose Reel	TP	Telegraph Pole
FL	Floor Level	TL	Traffic Light
FP	Flag Pole	TK	Tanker
GP	Gate Post	UTL	Unable To Lift
GU	Gully	V	Vent
GV	Gas Valves	VP	Vent Pipe
H	Cill to Head height	WM	Water Meter
HT	Height	WP	Waste Pipe
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IL	Invert Level	WV	Water Valve

Notes

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Floor Level	+20.00 FL	Station	
Ceiling Level	+20.00 CL	Hedge	
Soffit Level	+20.00 SL	Steep slope	
False Ceiling Level	+20.00 FCL		
Floor to cill height	c~1.234	Fence	
Cill to head height	h~1.234	Foul pipe	
Door height	DH 2000	Storm pipe	

Survey Coordinates and Grid

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Bench Mark

Type	Ordnance Survey
Position	N/A
Value	N/A

Trees

All trees sizes are approximate and should be checked on site before using information. Where guaranteed tree species become important the services of a tree expert should be employed

Notation : diameter of trunk / Height / Spread

Drainage

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Notes

13727-04

Revision	Date	By

CADPLAN PRECISION MEASUREMENTS

Land Surveys . Measured Building Surveys . 3D Laser Scanning
Utility Surveys . Lease Plans . 3D Models . Rights of Light Surveys

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Project: West Bradley House, West Bradley, Somerset BA6 8LT

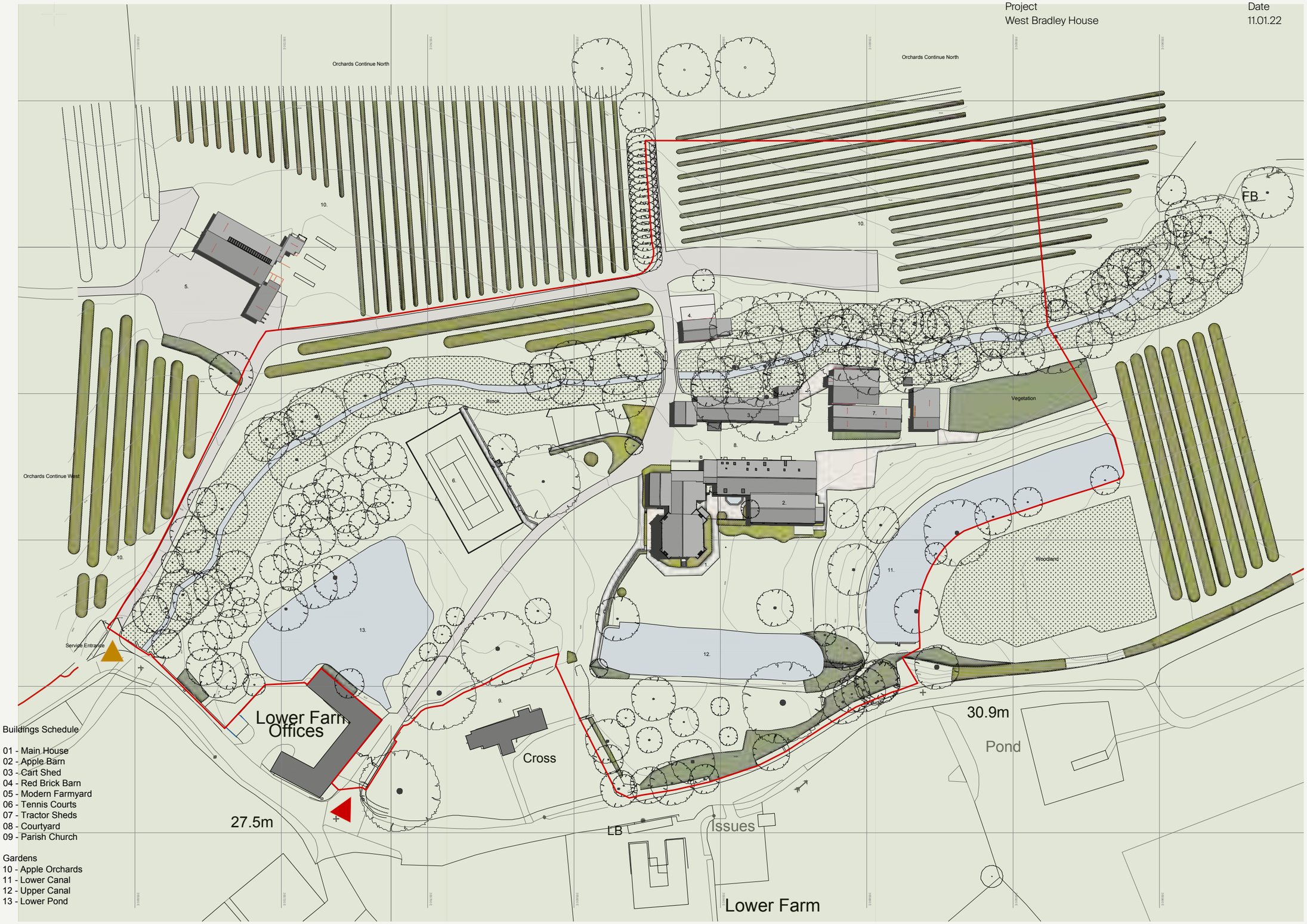
Drawing Title: Topographic Survey

Sheet/Scale	Date	Drawn	Checked
A0@1:200	11/08/22	B.J.V.	C.S.D.
Project No.	Drawing No.	Preliminary	Revision
13727	04		

Appendix B Existing Site Plan Layout

Project
West Bradley House

Date
11.01.22



Buildings Schedule

01 - Main House
02 - Apple Barn
03 - Cart Shed
04 - Red Brick Barn
05 - Modern Farmyard
06 - Tennis Courts
07 - Tractor Sheds
08 - Courtyard
09 - Parish Church

Gardens
10 - Apple Orchards
11 - Lower Canal
12 - Upper Canal
13 - Lower Pond

Application Boundary

01 Existing Site Plan
1:500 @ A1

0 10 20 30 40 50

Checked by
Drawn by
Date

Rev Description

Job No
315

Project
West Bradley House

Title
Existing Site Plan

Drg No	315-P-SP-005
Scale	1:500 @ A1
Date of First Issue	22.12.16
Rev	-
Status	Planning

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TOWN
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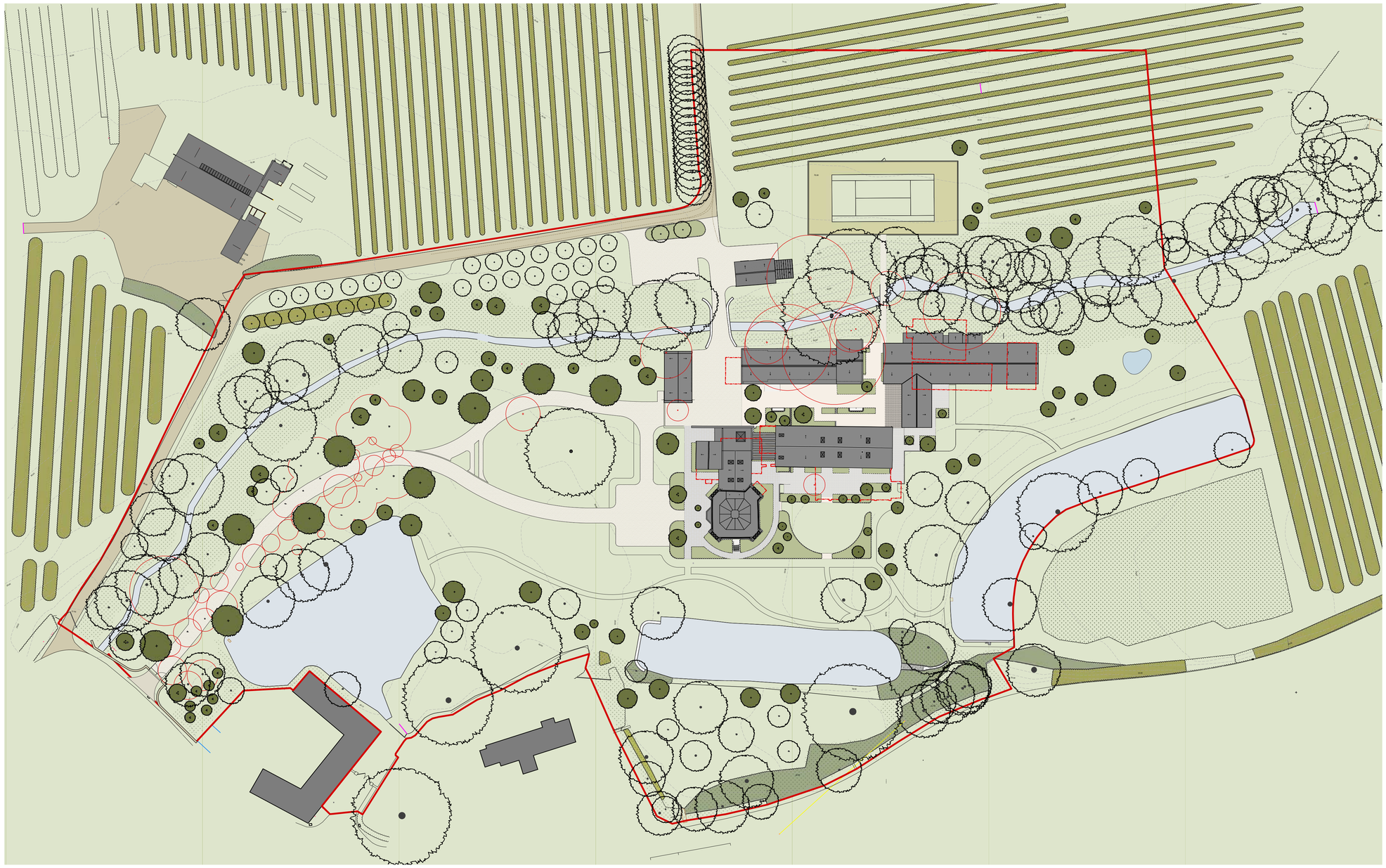
Studio 5, 2 Olaf Street
London W11 4BE

Appendix C Proposed Site Plan Layout



01 Proposed Site Plan
1:500@A1, 1:1000@A3

0 20 40 60 80 100 M

Checked by ---- ---- ----

Drawn by ---- ---- ----

Date ---- ---- ----

Rev	Description
----	----
----	----
----	----

Job No
315

Project
West Bradley House

Title
Proposed Site Plan

Drg No	315-00-00-102-Draft
Scale	1:500@A1, 1:1000@A3
Date of First Issue	November 2023
Status	Planning

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TOWN
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Studio 5, 2 Olaf Street
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NI

Appendix D Photographs taken of Bradley Brook during Storm Henk

Photograph 1 A section of the Bradley Brook adjacent to the Cart Shed during Storm Henk, January 2024

Photograph 2 The bank of Bradley Brook behind Cart Shed during Storm Henk, January 2024

Photograph 3 A section of Bradley Brook during Storm Henk, January 2024

Photograph 4 A section of Bradley Brook adjacent to the Cart Shed during Storm Henk, January 2024

Photograph 5 The view of Bradley Brook upstream from the Cart Shed during Storm Henk, January 2024

Appendix E Exploratory Hole Location Plan

KEY PLAN

Site Boundary

Exploratory Hole Locations

- Trial Pit
- Hand Pit
- Window Sampling
- TRL PROBE
- Soakaway

NOTES

1. Contains OS data © Crown copyright and database right (2022)

2. Base map extracted from: Richard Parr Associates. January 2023. 'West Bradley House Consultant Summary Documentation', Ref: 315.

REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS
P01	DG	RSW	24/07/23	First issue

Hydrock

TITLE: EXPLORATORY HOLE LOCATION PLAN

HYDROCK PROJECT NO.: 28421

SCALE @ A3: 1:900

CLIENT: Mr and Mrs T. Steyn

PURPOSE OF ISSUE: SUITABLE FOR INFORMATION

STATUS: S2

PROJECT: West Bradley House, Glastonbury

DRAWING NO.: 28421-HYD-XX-XX-DR-GE-1003

REVISION: P01

Appendix F 2011 PFRA Areas Susceptible to Groundwater Flooding

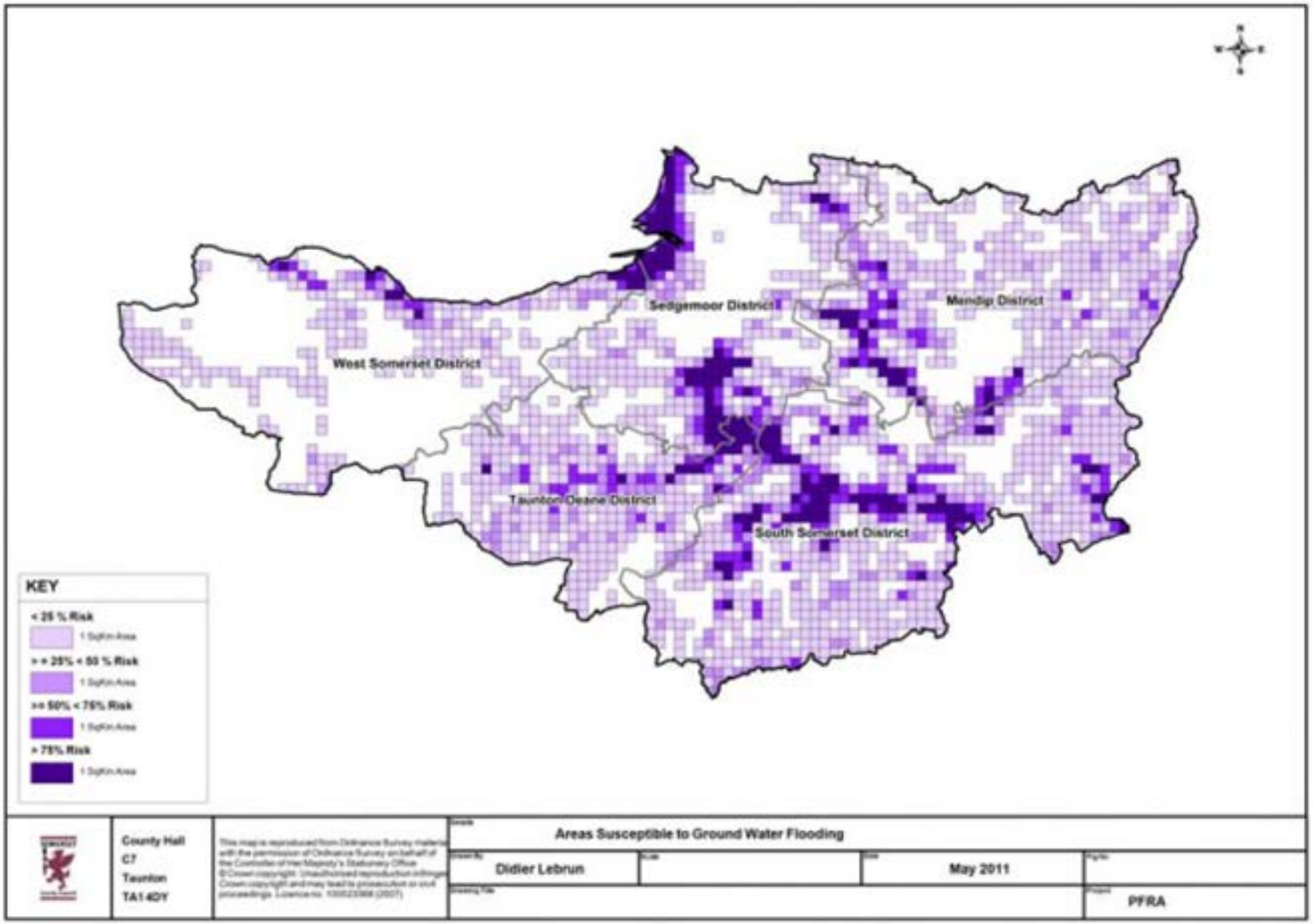

Figure 6: Areas Susceptible to Groundwater Flooding