



**Richard Jackson**  
Engineering Consultants

## FLOOD RISK ASSESSMENT

1-4 Church Close, Sproughton

Church Close Property Group

February 2023

Project no: 62146

Document Review Sheet: -

Document prepared by: - *Richard Miall*  
on behalf of Richard Jackson Ltd

Date: - 23 / 02 / 2023

Document checked by: - *Mark Geddes*  
on behalf of Richard Jackson Ltd

Date: - 23/ 12 / 2023

Document Approved by: - *Richard Miall*  
on behalf of Richard Jackson Ltd

Date: - 27 / 02 / 2023

Document Status

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Revision Status

Issue	Date	Description	Prepared	Checked	Approved

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Title: FLOOD RISK ASSESSMENT  
 Project: 1-4 Church Close, Sproughton  
 Client: Church Close Property Group  
 Project No.: 62146

## Contents: -

1. Introduction.....	2
2. Development Site and Location.....	2
3. Development Proposals .....	2
4. Sequential Test .....	2
5. Climate Change.....	3
6. Site Specific Flood Risk .....	3
7. Surface Water Management.....	4
8. Occupants and Users of the Development .....	4
9. Exception Test .....	5
10. Residual Risk .....	5

## Appendix

Appendix A	:	Site Location Plan
Appendix B	:	Flood Map for Planning
Appendix C	:	Existing Site Plan and Topographical Survey
Appendix D	:	Proposed Site Plan and Drainage Calculations
Appendix E1-E7	:	Surface Water Flood Risk Mapping
Appendix E8	:	Tidal/Fluvial Flood Risk Mapping
Appendix E9	:	Reservoir Flood Risk Mapping
Appendix F	:	Maintenance Schedule

1. Introduction
  - 1.1. Richard Jackson Ltd has been appointed by Church Close Property Group to carry out a Flood Risk Assessment for 1-4 Church Close, Church Lane, Sproughton, Suffolk in support of a development planning application for the conversion of an existing building; some extensions to some existing buildings and the construction of a new dwelling. This assessment will follow the checklist for flood risk assessment published as part of the National Planning Practice Guidance website (NPPG).
  
2. Development Site and Location
  - 2.1. The site is located at 1-4 Church Close, Church Lane, Sproughton, Suffolk, IP8 3BA. The approximate Ordnance Survey grid reference for the centre of the site was TM 124 450. The site is surrounded by existing dwellings to the north, south and west and by All Saints Church to the East.
  - 2.2. A site location plan and existing site plan can be found in Appendix A.
  - 2.3. The site is predominantly within Flood Zone 1 although isolated elements are located in Flood Zone 2 as shown in flood map for planning in Appendix B.
  - 2.4. The site has not been topographically surveyed at this stage but the existing site layout is included as Appendix C. The site covers an area of approximately 0.5 hectares. At the time of the walkover survey the site formed residential properties 1-4 Church Close, which were located in the centre of the site. These central residential buildings comprised a two-storey brick structure with a pitched roof. A single storey brick outbuilding was located to the west, along with a small glass greenhouse structure and area used for planting.
  - 2.5. Published Data shows the site levels in the range of 7.280 AOD to 8.450m AOD. A walkover of the site highlighted the site to slope gently down, from the southern boundary to the northern boundary
  
3. Development Proposals
  - 3.1. It is proposed to develop the site by converting and refurbishing some existing buildings and also adding an extension, a car port and a further new dwelling at the site. A plan of this proposal is in Appendix D.
  - 3.2. The existing land use is defined as 'More Vulnerable' as per Annex 3: Flood Risk Vulnerability Classification of the NPPG and the proposed development will not change this.
  - 3.3. The life span of this development is 100 years.
  
4. Sequential Test
  - 4.1. This development as defined by the National Planning Policy Framework (NPPF) does not require a Sequential Test as this is a small scale rural development/minor works proposal. Further, it is not possible to provide an extension in an alternative location.

5. Climate Change

- 5.1. The NPPG defines climate change allowances that should be considered for various development proposals across the nation. Climate change will cause increases in sea level, watercourse flow and rainfall over time. As the life span of this development is 100 years and residential development being classed as 'More Vulnerable', the following uplifts need to be considered.

Rainfall uplift	45%
Watercourse flow	25%
Tidal	1.6m Sea level rise

6. Site Specific Flood Risk

- 6.1. The major source of flooding identified at this site is River Gipping.

Ground Water Flooding

- 6.2. According to the British Geological Survey (BGS) the predominant underlying geology comprises superficial River Terrace Deposits (RTD), with a bedrock formation of the undifferentiated Thanet Formation and Lambeth Group and the Newhaven Chalk Formation along the eastern boundary of the site.
- 6.3. The adjacent surrounding area is underlain by superficial Lowestoft Formation Sand and Gravel approximately 30m to the west of the site, and superficial Alluvium approximately 30m to the north of the site. A bedrock of Thames Group is recorded approximately 95m to the southwest of the site.
- 6.4. The nature of the soils are such that groundwater is unlikely to rise to the surface, reducing the risk of groundwater flooding. No ground water features were noted during the walkover or in the published boreholes and therefore risk of flooding from ground water is considered low.

Surface Water Flooding (Appendix E1 to E7)

- 6.5. The GOV.UK mapping has been reviewed. The flood mapping shows this site is at low risk from surface water flooding.

In the high risk (1 in 30 year) event there is no water across site.

In the medium risk (1 in 100 year) event, there is no water across the site.

In the low risk (1 in 1000 year) event water depth is shown to be up to 300mm across part of the site closest to the main road with a link to the road at the existing gate access.

Fluvial Flood Risk (Appendix E8)

- 6.6. The GOV.UK flood mapping shows the site is at medium risk of flooding.

- 6.7. The Environment Agency (EA) has been contacted to provide the best available flood information for this site, the EA website Information can be found in Appendix E8.
- 6.8. The water level at proposed building location within the site have been used to assess the fluvial flood risk. The potential water depths are as shown in Table 1 below using the existing finished floor level of 7.50m AOD (river bank level of circa 5.0m AOD):

Event	Base			With CC (25%)	
	1 in 30 (3.33%)	1 in 200 (0.5%)	1 in 1000 (0.1%)	1 in 100 (1.0%)	1 in 1000 (0.1%)
Water Level (m AOD)	tbc	tbc	tbc	tbc	tbc
Depth (m)	0	0	0	0	0

Table 1 – Defended EA modelled water levels at the site

- 6.9. The defended EA model mapping shows that the site is only at minor risk of flooding during a 1 in 1000 year event plus 25% climate change.
- 6.10. It is proposed that Finish Floor Level for the new property should be 8.5m AOD.

#### Reservoir and Artificial Flooding (Appendix E9)

- 6.11. The Gov.UK flood mapping shows that flooding from a reservoir failure will not reach the boundary of this site. Reservoir flood prediction is based on a worst-case scenario of a failure occurring when the reservoir is full to capacity. Reservoirs are monitored by the EA in the UK and therefore the risk of such an event is extremely low.
- 6.12. It is likely that there will be foul, surface water sewers and water mains serving the nearby dwellings along Church Lane adjacent to the site, which may be a further source of flooding.

#### 7. Surface Water Management

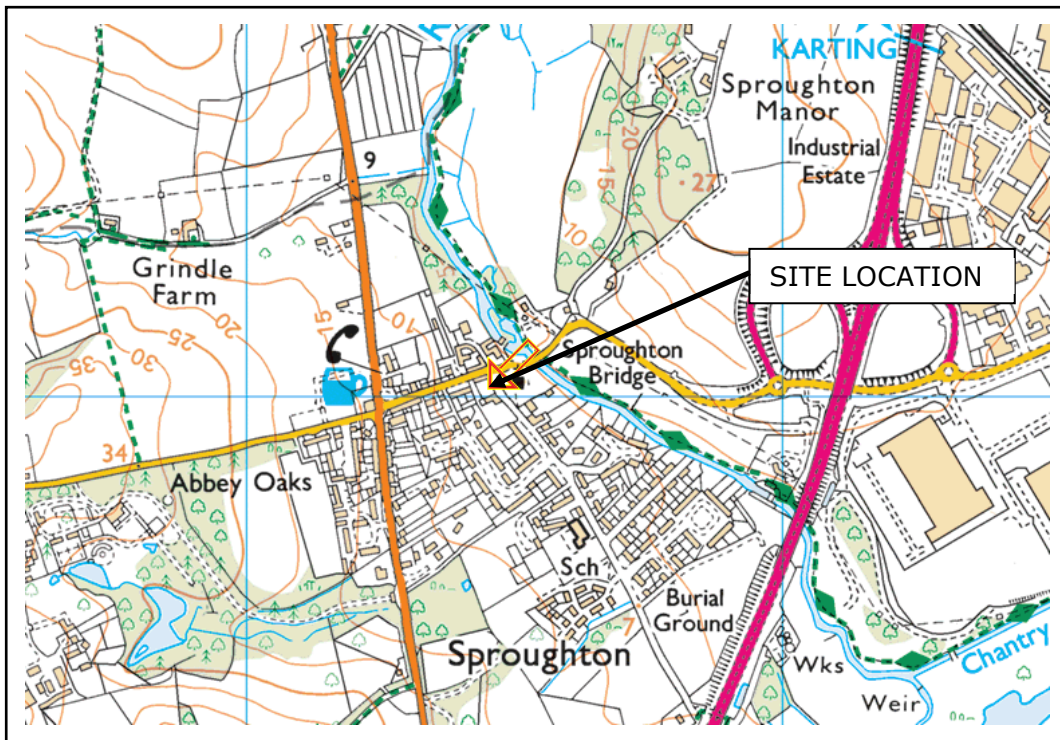
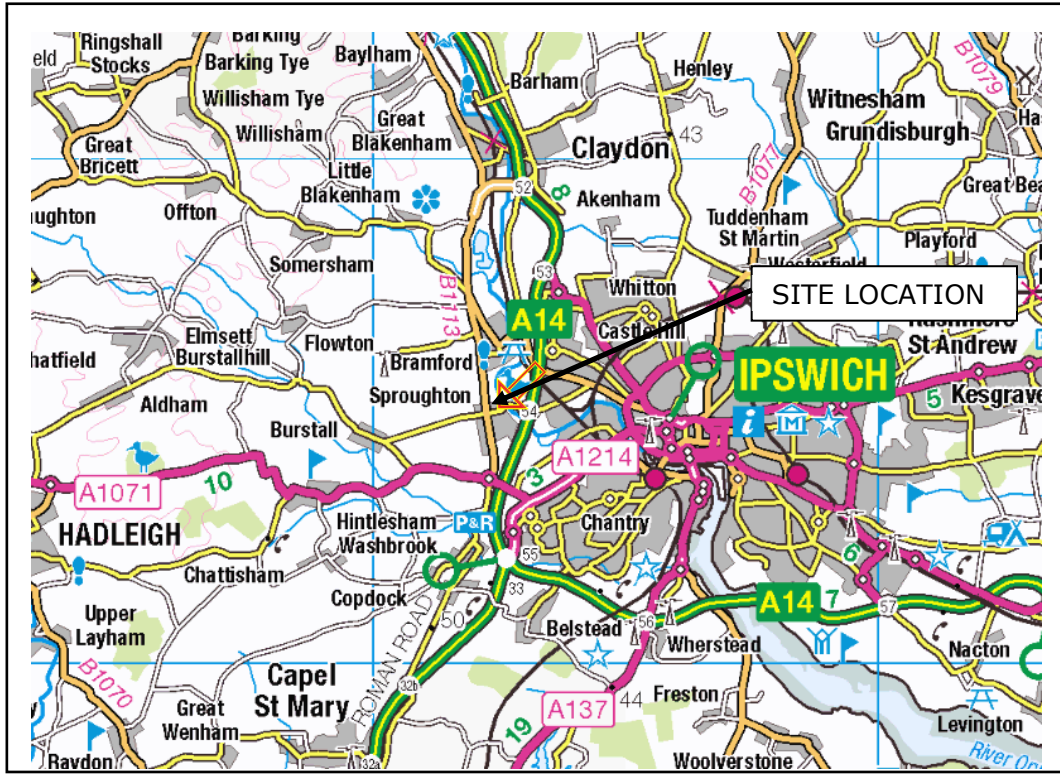
- 7.1. The proposals see no change to units 1 and 3. Unit 2 is to be extended with the roof area to be increased by 88m<sup>2</sup> and a new garage adding a further 82m<sup>2</sup>. Unit 4 is a new dwelling with a roof area of 228m<sup>2</sup> and a garage with a roof of 27.5m<sup>2</sup> which will increase to 250m<sup>2</sup> and 31m<sup>2</sup> when 10% uplift for urban creep is considered. The area of the proposed new access road and driveway is approximately 87m<sup>2</sup>
- 7.2. A flow control is proposed to limit the flow to 1.0 l/s with a 100mm dia orifice with the access road and driveway being a permeable paving construction approximately 689m<sup>2</sup> for units 1, 2 and 3 and 115m<sup>2</sup> for unit 4 with an approved subbase 600mm deep to provide adequate storage for the 1 in 100 plus 45% climate change event.

- 7.3. In extreme events that exceed the capacity of the drainage system will result in the water flowing over the ground away from the building. Any water flowing over the land surface will flow away from the entrance of the building as a result.
- 7.4. The surface water system will be the responsibility of the dwelling owner in perpetuity. A schedule of recommended maintenance is in Appendix F.
8. Occupants and Users of the Development
  - 8.1. The occupants of the new building will be encouraged to sign up for flood warnings from the Environment Agency. Any occupants of the building will be able to exit to the south to safer higher ground or remain safe from flooding on the upper floor of the dwelling.
  - 8.2. As climate change occurs, the potential for fluvial and surface water events of a large enough scale to impact upon this site will increase.
9. Exception Test
  - 9.1. This application is in Flood Zone 2 and in the 'More Vulnerable' Classification, exception test is not required as per Table 2: Flood risk vulnerability and flood zone 'incompatibility'.
10. Residual Risk
  - 10.1. The residual risks of flooding at the site include:
    - Fluvial flooding from the River Gipping;
    - Extreme rainfall events that exceed the capacity of the drainage systems;
    - Failure of water mains or sewer infrastructure;
    - Failure of existing flood defences and tidal flooding.

Appendix A

Site Location Plan





REPRODUCED FROM ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE, © CROWN COPYRIGHT RICHARD JACKSON LTD – ACC No. 100002572

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Engineering Consultants

Consulting Civil & Structural Engineers  
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1-4 Church Close, Church Lane,  
Sproughton, Suffolk, IP8 3BA

**SITE LOCATION PLAN**

FIGURE 1

SCALE: N.T.S.

JOB NO: 62146

Appendix B

Topographical Survey

# Flood map for planning

Your reference  
**Sproughton**

Location (easting/northing)  
**612455/245010**

Created  
**11 Oct 2022 17:35**

**Your selected location is in flood zone 1, an area with a low probability of flooding.**

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

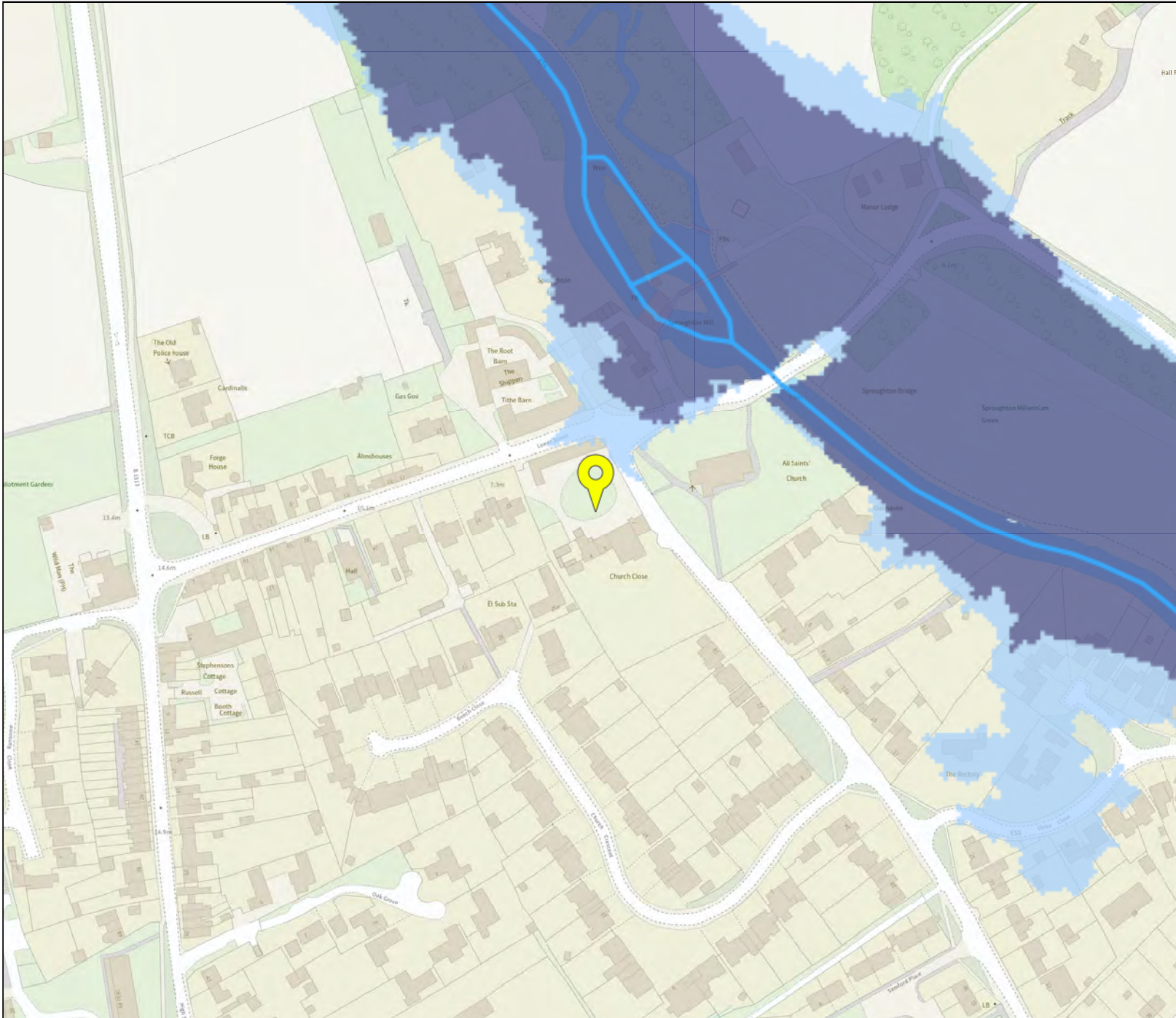
## Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>




## Flood map for planning

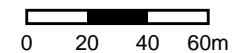
Your reference  
**Sproughton**

Location (easting/northing)  
**612455/245010**

Scale  
**1:2500**

Created  
**11 Oct 2022 17:35**

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



Appendix C

Flood Map for Planning

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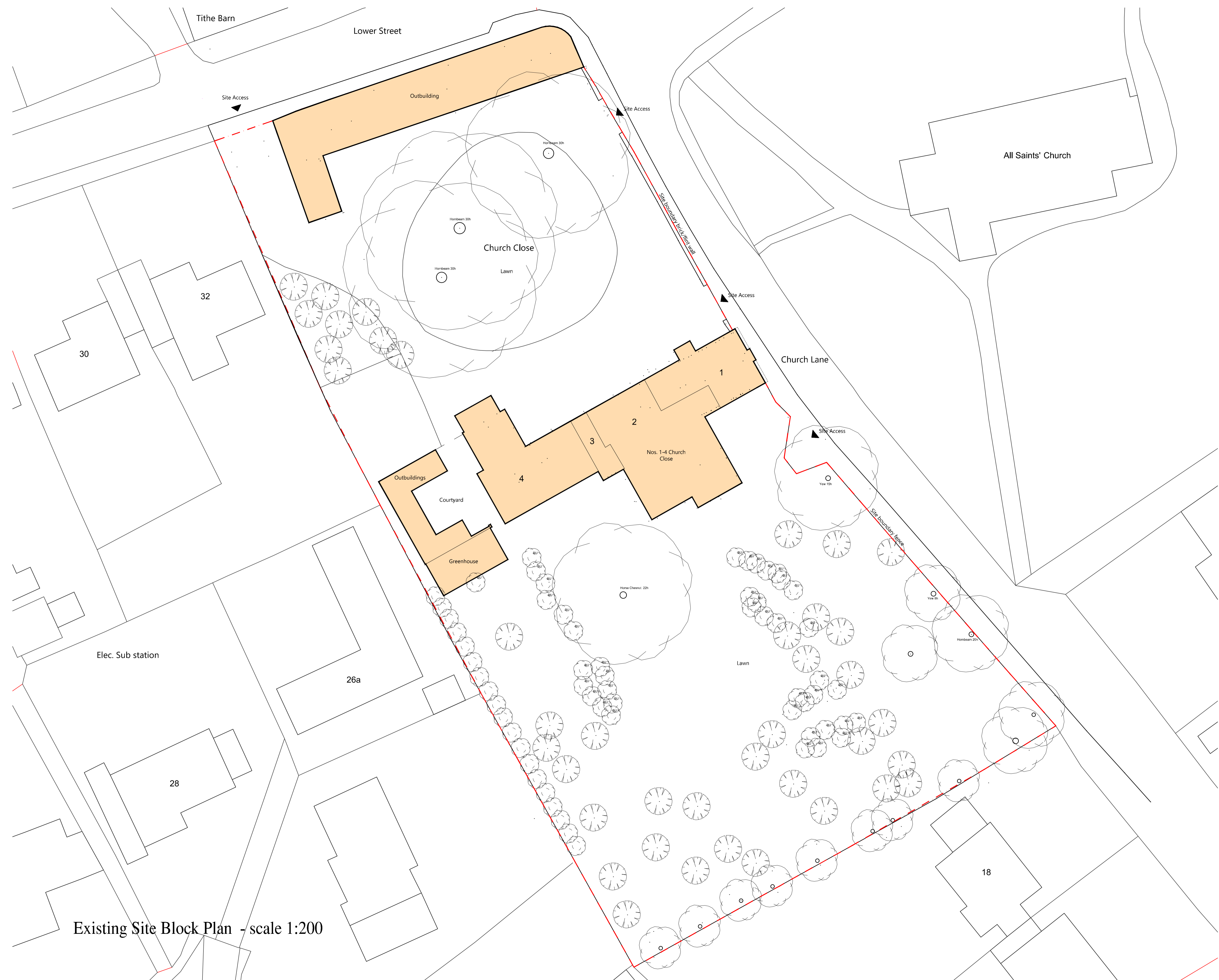
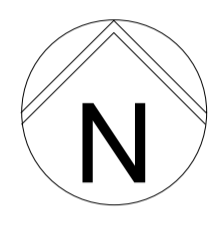
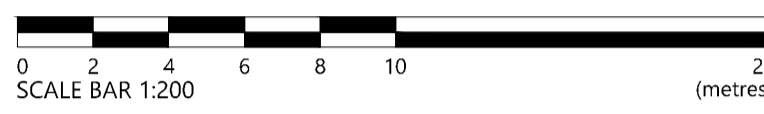
Title: FLOOD RISK ASSESSMENT  
Project: 1-4 Church Close, Sproughton  
Client: Church Close Property Group  
Project No.: 62146

IF IN DOUBT ABOUT ANY INFORMATION CONTAINED IN THIS DRAWING ASK. DO NOT SCALE. CHECK ALL DIMENSIONS ON SITE AND REPORT DISCREPANCIES.

CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015  
DESIGNERS HAZARD INFORMATION FOR CONSTRUCTION

1. If you do not fully understand the risks involved during the construction of the items indicated on this drawing ask your manager, health & safety advisor or a member of the design team before proceeding.
2. Scaffold protection to be provided during roof works with internal fall protection.
3. Any manual handling risks to be identified and design team notified in advance of commencement of works.
4. The contractor should be aware that there may be buried or covered services such as electric, gas or BT not identified on drawings.
5. The contractor should be aware of the general condition and stability of building fabric- particularly during demolition and alteration work.
6. When working with lime products which are corrosive to skin and eyes, suitable protection is required.

THIS INFORMATION MUST BE CHECKED ON SITE AND ANY RISKS IDENTIFIED BY OTHER PARTIES REPORTED TO THE PRINCIPAL DESIGNER.



Existing Site Block Plan - scale 1:200

Crop marks are visible when the full extent of this drawing is plotted. Reference dimensions: 820mm from the crop mark to right of the block & 570mm between crop marks vertically.

PL1 15.09.22 PLANNING SJ SS

Rev.	Date	Details	Drawn	Checked

**Nicholas Jacob Architects**  
 Architecture • Conservation • Interiors

The Church of Wharfedale, Leeds, IP4 1AS  
 01473 221153

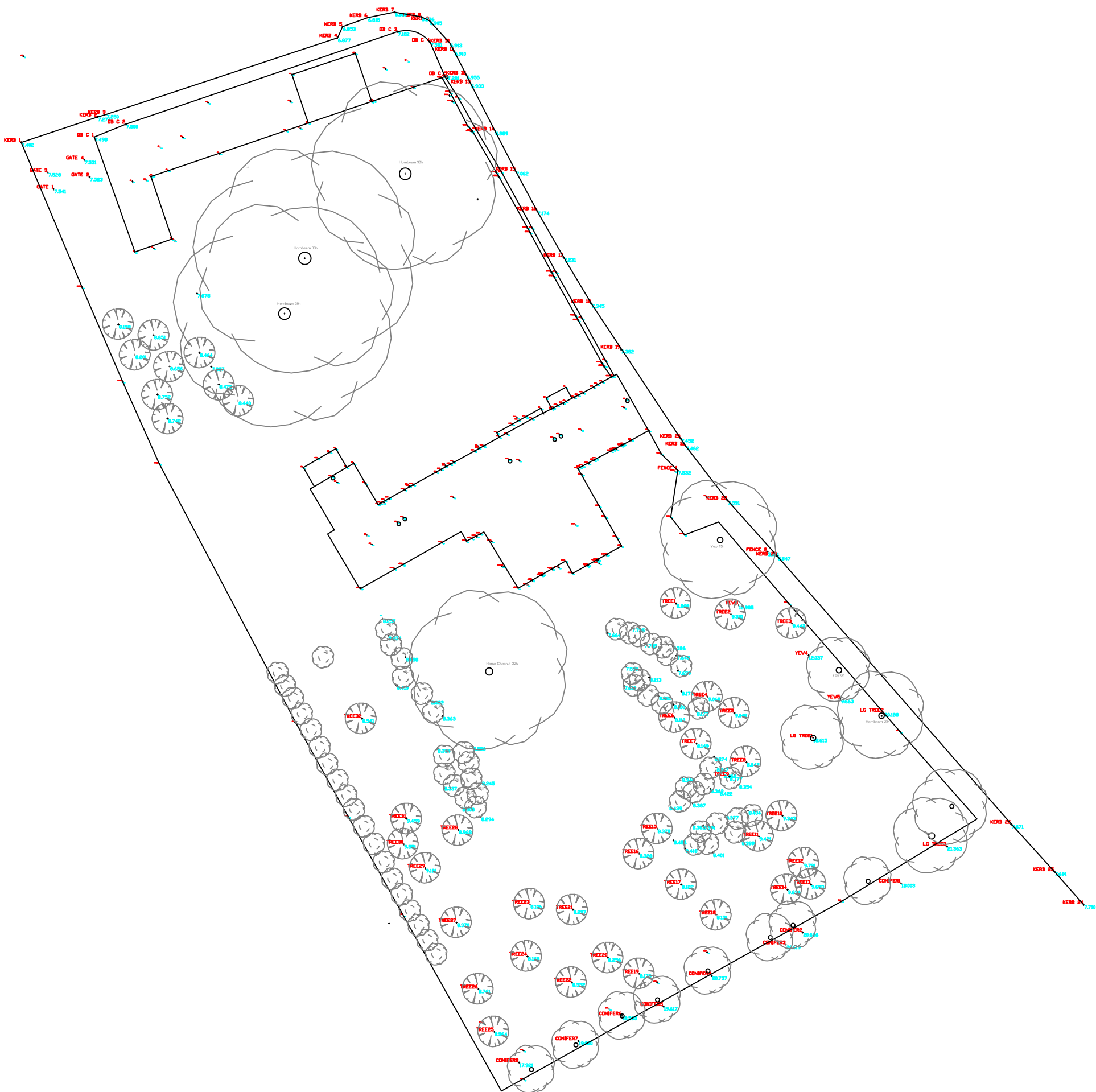
Issued for: **PLANNING**

Client/Project:  
**Cardinal Loft (Mill) Ltd**  
**1-4 Church Close, Church Lane, Sproighton IP8 3BE**

Drawing title:  
**Existing Site Block Plan**

Project number: <b>21106</b>	Drawing number: <b>001</b>	Revision: <b>PL1</b>
Scale: <b>1:200</b>	Drawn By: <b>@A1 SJ</b>	Checked By: <b>Date:</b> <b>March 2022</b>





Appendix D

Plan of Proposals

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Title:	FLOOD RISK ASSESSMENT
Project:	1-4 Church Close, Sproughton
Client:	Church Close Property Group
Project No.:	62146





Proposed Site Block Plan - scale 1:200

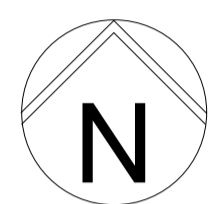
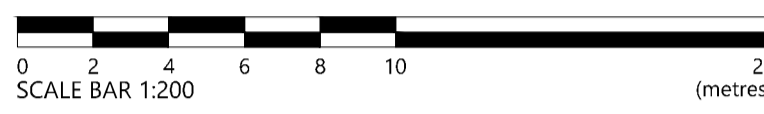
**DRAWING DISCLAIMERS AND GENERAL INFORMATION**

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**CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015**  
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Crop marks are visible when the full extent of this drawing is plotted. Reference dimensions: 820mm from the crop mark to right of the block & 570mm between crop marks vertically.

PL1 15.09.22 PLANNING SJ SS

Rev.	Date	Details	Drawn	Checked

**Nicholas Jacob Architects**  
Architecture • Conservation • Interiors

The Church Close, Wharfedale, Leeds, LS14 7JG  
01473 221153

Issued for:  
**PLANNING**

Client/Project:  
**Cardinal Loft (Mill) Ltd**  
1-4 Church Close, Church Lane, Sproyhton IP8 3BE

Drawing title:  
**Proposed Site Block Plan**

Project number: <b>21106</b>	Drawing number: <b>002</b>	Revision: <b>PL1</b>
Scale: <b>1:200</b>	Drawn By: <b>@A1 SJ</b>	Checked By: <b>SS</b>
		Date: <b>March 2022</b>

**Design Settings**

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

**Nodes**

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Width (mm)	Depth (m)
Depth/Area 1	0.166	1.000	30	20	0.650

**Simulation Settings**

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m <sup>3</sup> /ha)	20.0
M5-60 (mm)	20.000	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.400	Skip Steady State	x	Check Discharge Volume	x

**Storm Durations**

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 | 10080

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	0	0	0				

**Node Depth/Area 1 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.03600	Invert Level (m)	0.350	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	1167	Depth (m)	0.550
Safety Factor	10.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.40	Length (m)	30.000		

**Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%**

<b>Node Event</b>	<b>US Node</b>	<b>Peak (mins)</b>	<b>Level (m)</b>	<b>Depth (m)</b>	<b>Inflow (l/s)</b>	<b>Node Vol (m<sup>3</sup>)</b>	<b>Flood (m<sup>3</sup>)</b>	<b>Status</b>
240 minute winter	Depth/Area 1	232	0.464	0.114	4.8	20.6656	0.0000	OK
<b>Link Event (Upstream Depth)</b>	<b>US Node</b>	<b>Link</b>	<b>Outflow (l/s)</b>					
240 minute winter	Depth/Area 1	Infiltration	0.6					

**Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%**

<b>Node Event</b>	<b>US Node</b>	<b>Peak (mins)</b>	<b>Level (m)</b>	<b>Depth (m)</b>	<b>Inflow (l/s)</b>	<b>Node Vol (m<sup>3</sup>)</b>	<b>Flood (m<sup>3</sup>)</b>	<b>Status</b>
600 minute winter	Depth/Area 1	585	0.612	0.262	5.2	56.9485	0.0000	OK
<b>Link Event (Upstream Depth)</b>	<b>US Node</b>	<b>Link</b>	<b>Outflow (l/s)</b>					
600 minute winter	Depth/Area 1	Infiltration	0.6					

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
960 minute winter	Depth/Area 1	945	0.861	0.511	6.5	118.0198	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
960 minute winter	Depth/Area 1	Infiltration	0.6

**Design Settings**

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

**Nodes**

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Width (mm)	Depth (m)
Depth/Area 1	0.036	1.000	30	20	0.700

**Simulation Settings**

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m <sup>3</sup> /ha)	20.0
M5-60 (mm)	20.000	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.400	Skip Steady State	x	Check Discharge Volume	x

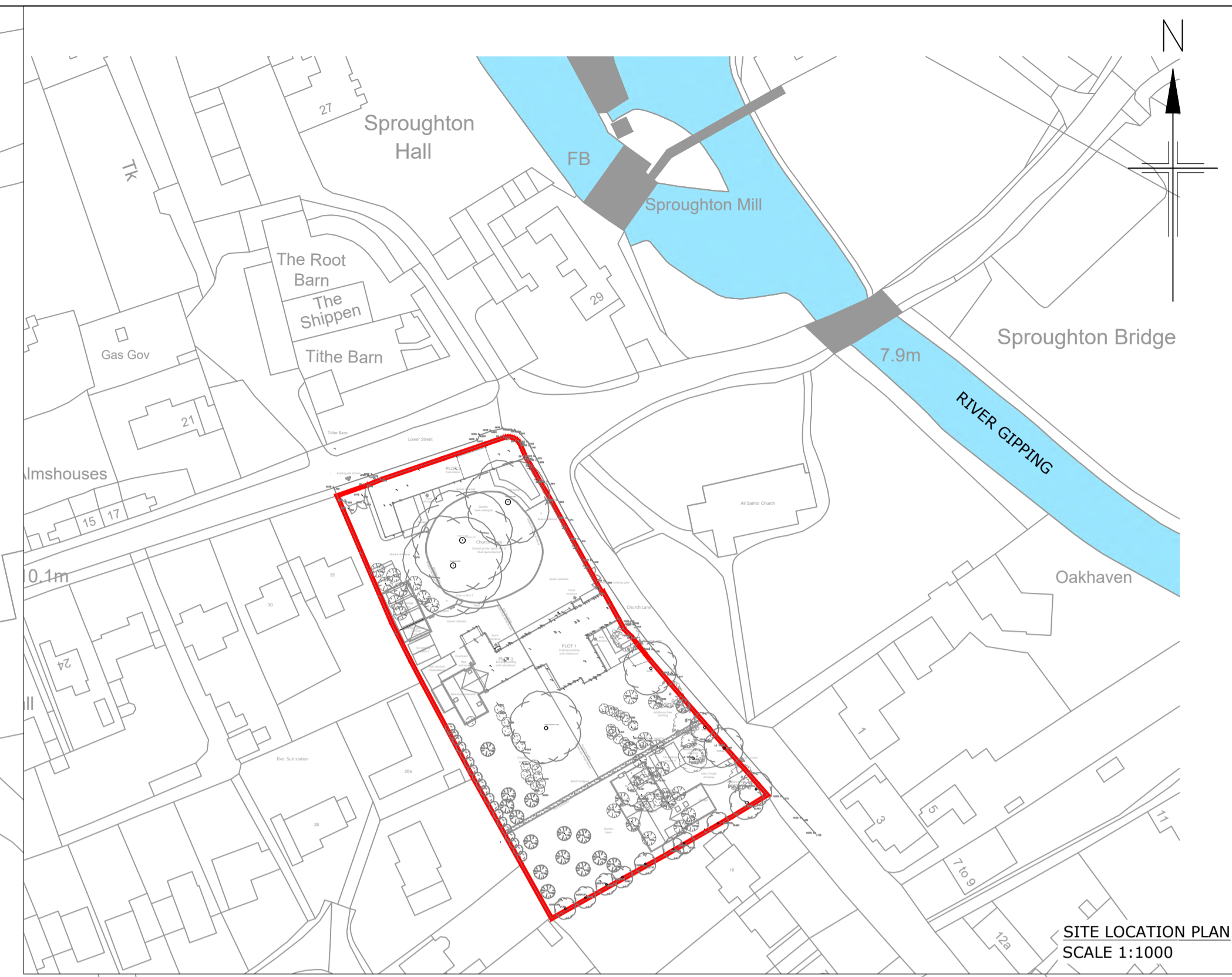
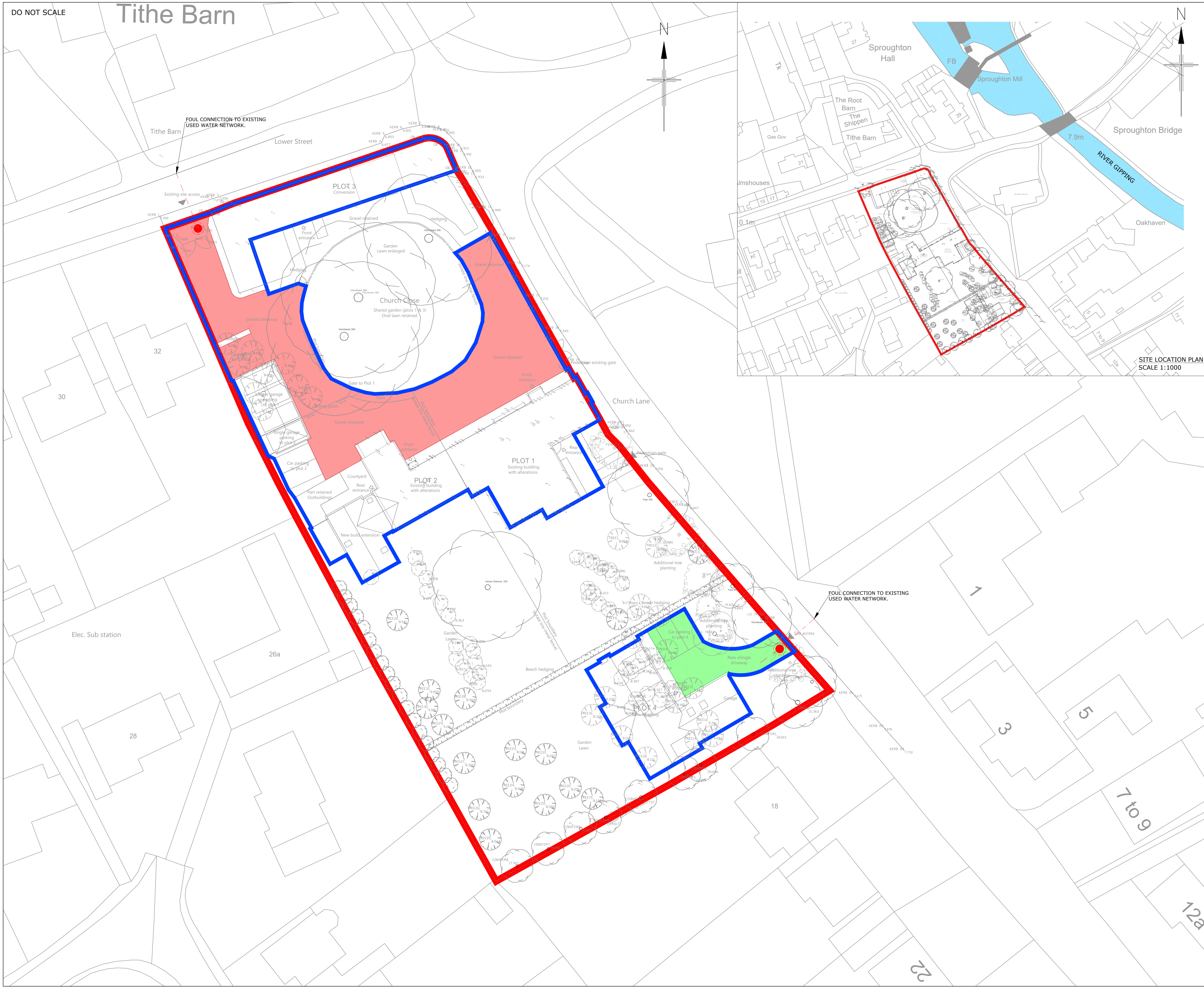
**Storm Durations**

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 | 10080

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	0	0	0				

DO NOT SCALE

# Tithe Barn



- NOTES**
- DO NOT SCALE FROM THIS DRAWING.
  - ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELATED RICHARD JACKSON LTD, ARCHITECTS & SUB-CONTRACTORS DRAWINGS. IN THE CASE OF DISCREPANCIES BETWEEN DRAWINGS REFER TO RJD FOR CLARIFICATION.
  - BASED UPON ARCHITECTURAL LAYOUT UNDERTAKEN BY NICHOLAS JACOB ARCHITECTS, PROJECT NUMBER 21106, DRAWING NUMBER 002 REV PL2, DATED MARCH 2022.
  - THE CONTRACTOR SHALL, BEFORE COMMENCING THE WORKS, VERIFY ALL SITE AND SETTING OUT DIMENSIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRUE AND PROPER SETTING OUT OF THE WORKS AND FOR THE CORRECTNESS OF THE POSITION, LEVELS, DIMENSIONS, AND ALIGNMENT OF ALL PARTS OF THE WORKS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING SERVICES, EXISTING BURIED PIPES (PARTICULARLY SHALLOW PIPES) AND TREE ROOTS FROM DAMAGE IMPOSED BY LOADS AND CONSTRUCTION PLANT

**KEY**

- PERMEABLE PAVING  
AREA A=688.7m<sup>2</sup>
- PERMEABLE PAVING  
AREA B =114.7m<sup>2</sup>
- IMPERMEABLE AREA  
A=1655.5m<sup>2</sup>  
B=362.8m<sup>2</sup>
- FOUL WATER DRAINAGE

DRAINAGE CALCULATION BASED ON AN INFILTRATION RATE OF 1.0x10<sup>-5</sup>m/s. REFER TO CALCULATIONS FOR FURTHER DETAILS OF STORAGE STRUCTURES.

REV	DATE	DESCRIPTION	DRAWN	CHKD
P1	24.02.23	PRELIMINARY ISSUE	SLS	JJT

**REVISIONS**

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project

**1-4 CHURCH CLOSE  
CHURCH LANE, SPROUGHTON**

Title

**OUTLINE DRAINAGE STRATEGY**

Client

**Richard Jackson  
Engineering Consultants**

847 The Crescent, Colchester, Essex CO4 9YQ Tel: 01206 228800  
6th Floor, 1 St. Katherine's Way, London, E1W 1UN Tel: 020 7448 9910  
5 Quern House, Mill Court, Great Shelford, Cambs CB32 3LD Tel: 01223 314794  
4 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240  
New World Business Centre, Station Rd, Warrimley, Bristol, BS30 8XG Tel: 01172 020070  
Email Address: mail@rj.uk.com Website: http://www.rj.uk.com

Scale 1:250 @ A1	Drawn S. STACEY	Date FEBRUARY 2023					
Project Manager R. MIALL	Checked J. TINKER	Approved R. MIALL					
Status S2	Suitability Description FOR INFORMATION	RJL Project No : 62146					
project	originator	zone	level	type	role	number	revision
62146	RJL	XX	XX	DR	C	0001	P1



**Node Depth/Area 1 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.03600	Invert Level (m)	0.300	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	1333	Depth (m)	0.600
Safety Factor	10.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.40	Length (m)	19.000		

**Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%**

<b>Node Event</b>	<b>US Node</b>	<b>Peak (mins)</b>	<b>Level (m)</b>	<b>Depth (m)</b>	<b>Inflow (l/s)</b>	<b>Node Vol (m<sup>3</sup>)</b>	<b>Flood (m<sup>3</sup>)</b>	<b>Status</b>
360 minute winter	Depth/Area 1	296	0.420	0.120	0.8	4.7232	0.0000	OK

<b>Link Event (Upstream Depth)</b>	<b>US Node</b>	<b>Link</b>	<b>Outflow (l/s)</b>
360 minute winter	Depth/Area 1	Infiltration	0.1

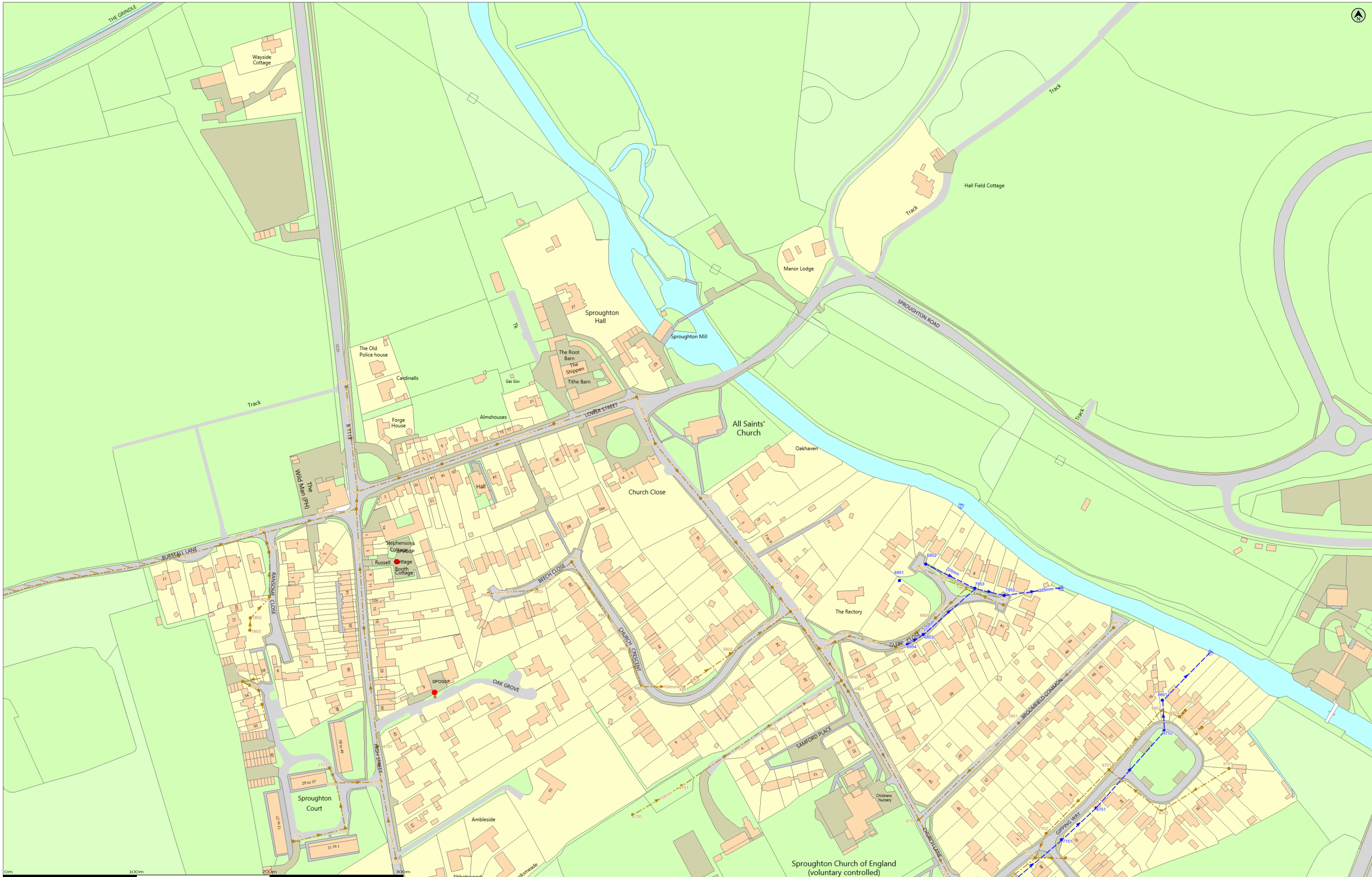
**Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%**

<b>Node Event</b>	<b>US Node</b>	<b>Peak (mins)</b>	<b>Level (m)</b>	<b>Depth (m)</b>	<b>Inflow (l/s)</b>	<b>Node Vol (m<sup>3</sup>)</b>	<b>Flood (m<sup>3</sup>)</b>	<b>Status</b>
600 minute winter	Depth/Area 1	585	0.600	0.300	1.1	13.1016	0.0000	OK
<b>Link Event (Upstream Depth)</b>	<b>US Node</b>	<b>Link</b>	<b>Outflow (l/s)</b>					
600 minute winter	Depth/Area 1	Infiltration	0.1					

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%**

<b>Node Event</b>	<b>US Node</b>	<b>Peak (mins)</b>	<b>Level (m)</b>	<b>Depth (m)</b>	<b>Inflow (l/s)</b>	<b>Node Vol (m<sup>3</sup>)</b>	<b>Flood (m<sup>3</sup>)</b>	<b>Status</b>
960 minute winter	Depth/Area 1	945	0.886	0.586	1.4	26.4616	0.0000	OK

<b>Link Event (Upstream Depth)</b>	<b>US Node</b>	<b>Link</b>	<b>Outflow (l/s)</b>
960 minute winter	Depth/Area 1	Infiltration	0.1



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This plan is provided by Anglian Water pursuant to its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2023 Ordnance Survey 100022432. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer	—	Outfall*	—
Surface Sewer	—	Sewage Treatment Works	⊕
Combined Sewer	—	Public Pumping Station	⊕
Final Effluent	—	Decommissioned Pumping Station	●
Rising Main*	—		
Private Sewer*	—		
Decommissioned Sewer*	—		
	—	Manhole*	●

\*Colour denotes effluent type

markgeddes@rj.uk.com	
62146	



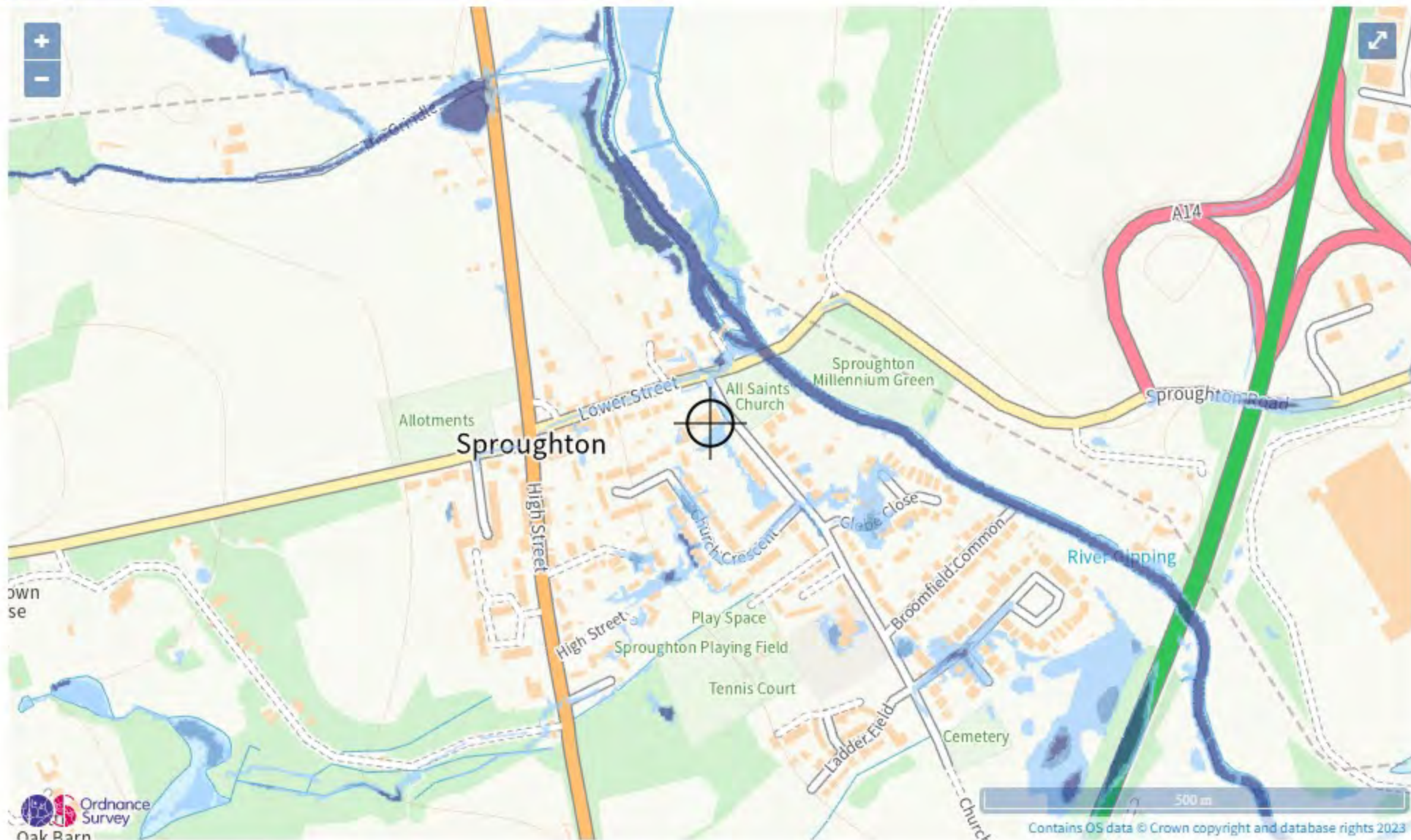


Appendix E1-E7

Surface Water Flood Risk Mapping

Extent of flooding

Enter a place or postcode



Extent of flooding from surface water

High
  Medium
  Low
  Very low
 
+
 Location you selected



Flood risk

High risk: depth

Location

Enter a place or postcode



Surface water flood risk: water depth in a high risk scenario

Flood depth (millimetres)

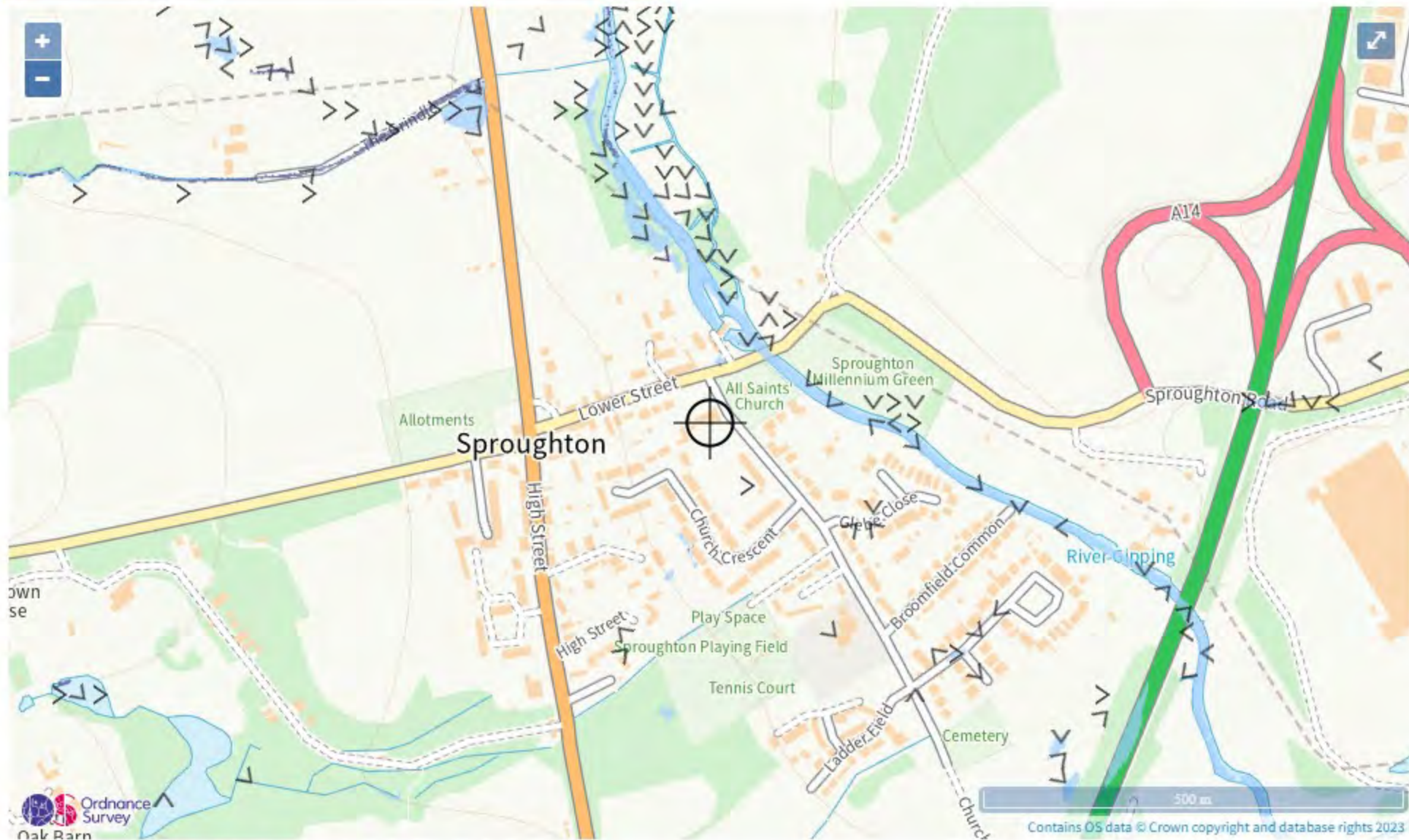
- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

Flood risk

High risk: velocity

Location

Enter a place or postcode



Surface water flood risk: water velocity in a high risk scenario

Flood velocity (metres/second)

● Over 0.25 m/s   
 ● Less than 0.25 m/s   
 ↖ Direction of water flow   
 ⊕ Location you selected

Flood risk

Medium risk: depth

Location

Enter a place or postcode



Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

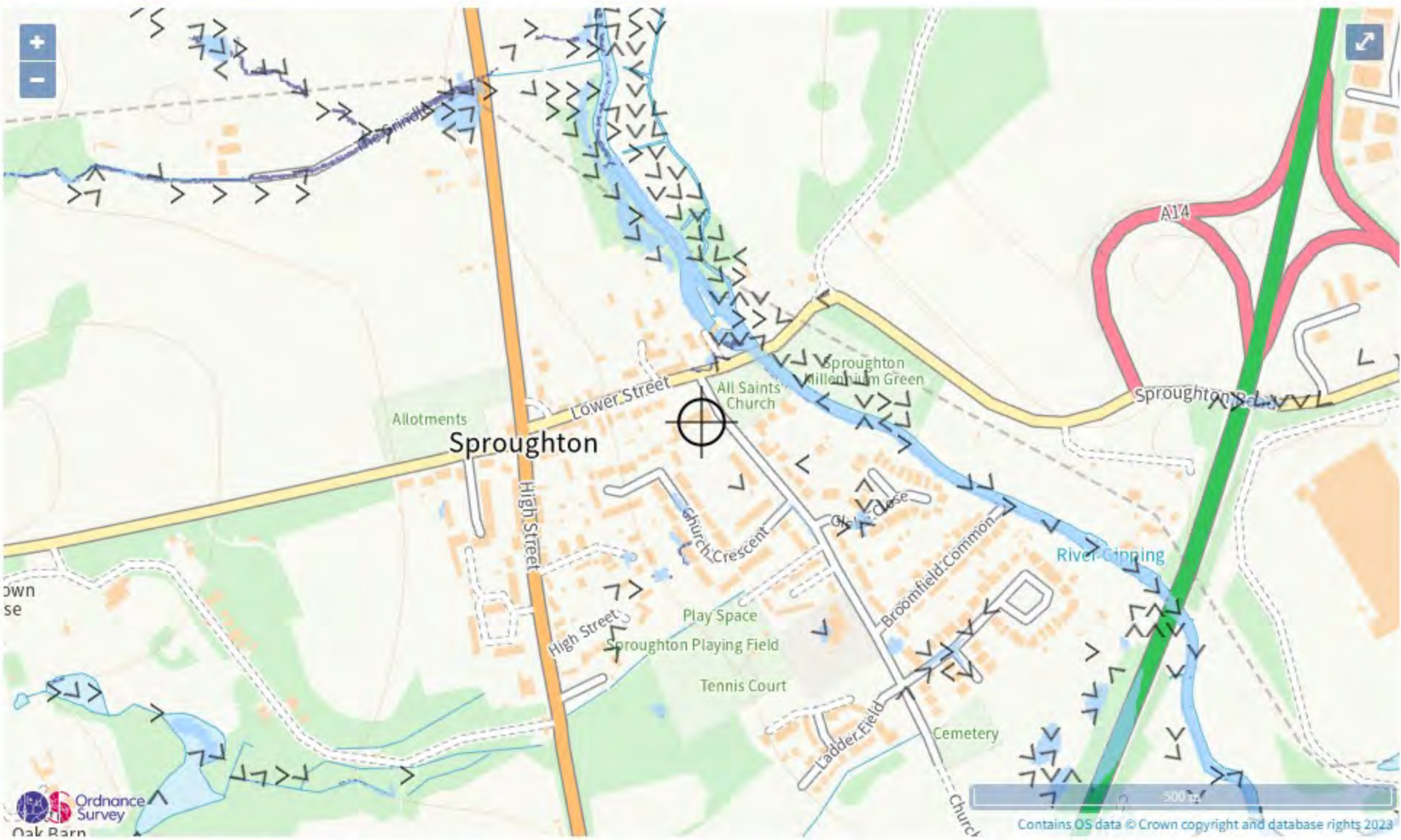
- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

Flood risk

Medium risk: velocity

Location

Enter a place or postcode



Surface water flood risk: water velocity in a medium risk scenario

Flood velocity (metres/second)

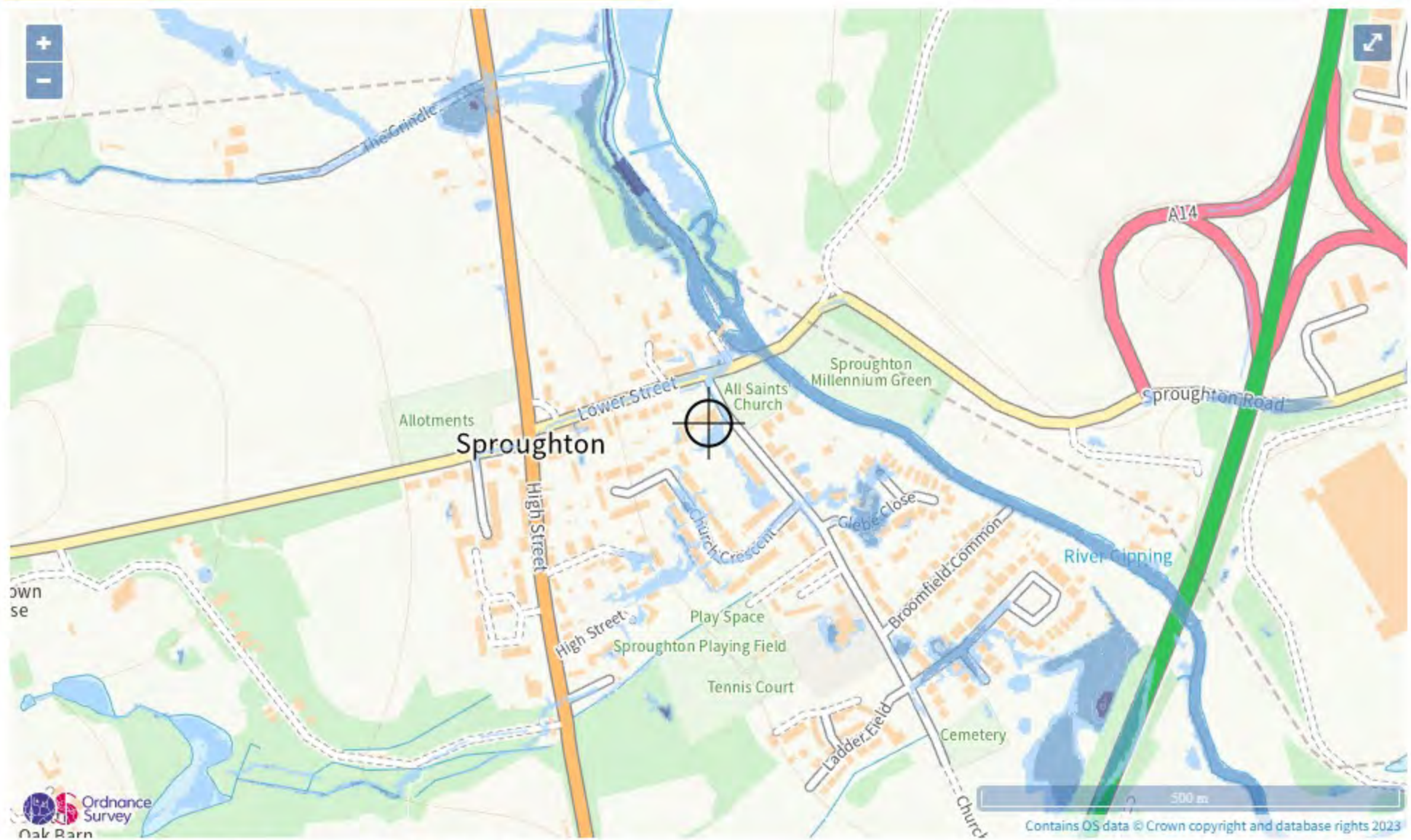
- Over 0.25 m/s
- Less than 0.25 m/s
- Direction of water flow
- Location you selected

Flood risk

Location

Low risk: depth

Enter a place or postcode



Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

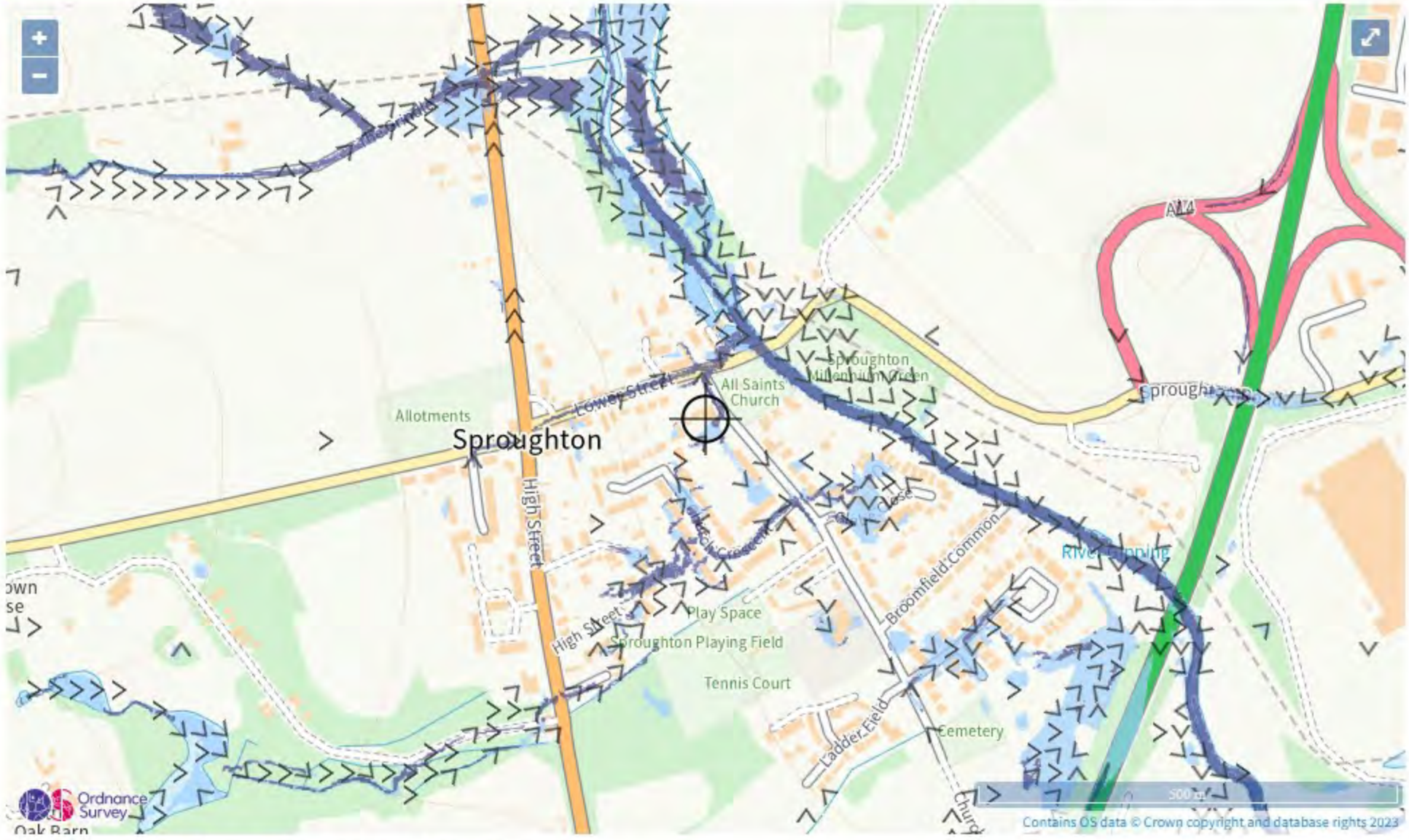
- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

Flood risk

Low risk: velocity

Location

Enter a place or postcode



Surface water flood risk: water velocity in a low risk scenario

Flood velocity (metres/second)

- Over 0.25 m/s
- Less than 0.25 m/s
- Direction of water flow
- Location you selected

Appendix E8

Tidal/Fluvial Flood Risk Mapping

Flood risk

Location

Extent of flooding

Enter a place or postcode



Extent of flooding from rivers or the sea

● High ● Medium ● Low ● Very low ⊕ Location you selected



Appendix E9

Reservoir Flood Risk Mapping

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Title: FLOOD RISK ASSESSMENT  
Project: 1-4 Church Close, Sproughton  
Client: Church Close Property Group  
Project No.: 62146

Extent of flooding

Enter a place or postcode



Maximum extent of flooding from reservoirs:

- when river levels are normal
- when there is also flooding from rivers
- ⊕ Location you selected

Appendix F

Maintenance Schedule

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Title: FLOOD RISK ASSESSMENT  
Project: 1-4 Church Close, Sproughton  
Client: Church Close Property Group  
Project No.: 62146

SUDS Feature	Regular Maintenance Activity	Frequency	Occasional Maintenance Activity	Frequency	Responsibility
Pipes and Manholes	<ul style="list-style-type: none"> <li>Visual inspection</li> </ul>	Monthly or as required	<ul style="list-style-type: none"> <li>Cleaning/jetting when silt accumulation occurs</li> </ul>	Annually or as required	Maintenance company/Householder.
Permeable Paving	<ul style="list-style-type: none"> <li>Visual Inspection</li> </ul>	Monthly or as required	<ul style="list-style-type: none"> <li>Remove debris and sweep</li> </ul>	Annually or as required	Maintenance Company / householder



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