ODYSSEY

DEVELOPING JOURNEYS

LAND OFF REEDS LANE, SAYERS COMMON

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY

LAND OFF REEDS LANE, SAYERS COMMON

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY
ON BEHALF OF ANTLER HOMES

Prepared by
Odyssey
Tuscany House
White Hart Lane
Basingstoke
Hampshire
RG21 4AF

Tel: 01256 331144

November 2023

DOCUMENT CONTROL SHEET

Project Name Land off Reeds Lane, Sayers Common

Project No. 22-258

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	For Submission	HM	NM	GG	GG	10/11/2023

CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 General

1.1.1 Odyssey has been commissioned by Antler Homes to provide flood risk and drainage advice, in support of Local Plan Representations for residential development at Land off Reeds Lane, Sayers Common.

1.1.2 The development comprises a draft allocation of 33 dwellings. The concept plan is presented in **Appendix A**.

1.1.3 This report sets out the main flood risks to the Site and those that may arise as a result of the development. It also demonstrates the principles of surface water management at the Site.

1.1.4 This report comprises the following elements:

- A review of the existing Site conditions including the geology, hydrology and existing drainage regime of the Site;
- A summary of relevant planning policy;
- An assessment of the existing flood risk to the Site; and
- The proposed surface water and foul drainage strategy.

2.0 EXISTING SITE CONDITIONS

2.1 Location

2.1.1 The Site is located south of Reeds Lane, which runs from Sayers Common to the east to the hamlet of High Cross to the west. The Site currently comprises mostly undeveloped greenfield land. There are existing buildings and hardstanding on the western part of the Site. The Site is bounded by residential units and Reeds Lane to the north, residential and commercial units to the north-west and east, and greenfield land to the south and south-west.

2.1.2 The Ordnance Survey (OS) grid reference for the centre of the Site is 526501E, 118019N, and the nearest postcode for the Site is BN6 9GB. A Site location plan is presented in **Appendix A** alongside the proposed development concept plan.

2.2 Topography

2.2.1 A topographical survey was completed in April 2021 by Sunshine Survey Limited. The highest point of the Site is located in the east with an elevation of 20.17 metres Above Ordnance Datum (m AOD). The Site falls to the south-west and north-west with the lowest elevation of 17.12m AOD recorded at the northern boundary of the Site. The topographical survey is presented in **Appendix B**.

2.3 Geology and Hydrogeology

2.3.1 British Geological Survey (BGS) online mapping (accessed November 2023) indicates the Site is underlain by a bedrock of Weald Clay Formation (mudstone) with no superficial deposits recorded. The BGS online mapping is presented in **Appendix C**.

2.3.2 Environment Agency (EA) online mapping indicates the nearest 'Main River' is the Herrings Stream, situated approximately 1.2km north-east of the Site boundary at its nearest point. It is noted there is an ordinary watercourse flowing across the southern section of the Site.

2.3.3 BGS hydrogeology mapping shows the Site lies within the Wealden Group, described as "*rocks with essentially no groundwater*", and summarised as "*very small yields of often poor quality water have been obtained from subordinate sandstones and limestones*".

2.3.4 Groundwater mapping published by the EA indicates the Site is not located within a Groundwater Source Protection Zone (SPZ). Nevertheless, the development would adhere to the

EA's *"Approach to Groundwater Protection"* to ensure that groundwater quality is maintained and improved where possible across the Site.

2.4 Existing Drainage Regime

2.4.1 According to Southern Water sewer records, a public surface water sewer network is present 250m north-east of the Site, serving the residential area of Berrylands Farm. A short network is also present within the rear gardens of properties on Osborn Close to the north of the Site. The Southern Water sewer records are presented in **Appendix D**. It has also been confirmed that there is a highway drain along Reeds Lane.

2.4.2 The Southern Water sewer records show the presence of a public foul water sewer network along Reeds Lane to the north of the Site and the B2118 London Road to the east of the Site, serving the neighbouring residential units. A foul pumping station is also present north-east of the Site at the junction between Reeds Lane and the B2118.

2.4.3 As the developable area for this Site is less than 50ha, the Institute of Hydrology (IoH) 'Report 124 Flood Estimation for Smaller Catchments' (1994) method is suitable to estimate greenfield peak flow rates (50ha is used in the formula and the flow rate is linearly interpolated based on the ratio of the development area). This methodology is approved in the Construction Industry Research and Information Association (CIRIA) 'C753 The SuDS Manual'; the parameters used are presented in **Table 2.1**.

Table 2.1: SuDS Parameters

Parameter	Value	Unit
SAAR	800	Millimetres (mm)
Soil Index	0.450	-
Region	7	-
Urban	0.000	-

2.4.4 **Table 2.2** summarises the greenfield discharge rates for the total proposed impermeable area (0.634ha). Supporting calculations are provided in **Appendix E**.

Table 2.2: Greenfield Surface Water Discharge Rates

Return Period	Existing Greenfield Discharge Rates from Site (litres per second (l/s))	Existing Greenfield Discharge Rates per Hectare (l/s/ha)
QBAR	3.3	5.2
Q1	2.8	4.4
Q30	7.4	11.7
Q100	10.4	16.4

3.0 PROPOSED DEVELOPMENT

3.1.1 The development comprises an initial proposal of 33 dwellings. The proposed development concept plan is presented in **Appendix A**.

4.0 PLANNING POLICY

4.1 Flood and Water Management Act (2010)

4.1.1 The Flood and Water Management Act (FWMA) received royal assent on 8th April 2010. It was intended to implement Sir Michael Pitt's recommendations following the widespread summer floods of 2007. Guidance and information notes are published online by the Department for Environment, Food and Rural Affairs (Defra) to address a range of aspects concerning the Act.

4.1.2 The FWMA encourages the use of Sustainable Drainage Systems (SuDS) on development sites by removing the automatic right to connect to sewers.

4.1.3 The development proposals for the Site considered by this report should adhere to the FWMA through the provision of SuDS as a fundamental component of the surface water drainage strategy.

4.2 National Planning Policy Framework (2023)

4.2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies, and how these policies should be applied. Planning Practice Guidance (PPG) is available online and provides additional guidance to the NPPF, as well as providing links to relevant detailed documents. **Section 4.3** provides further detail on the PPG.

4.2.2 Paragraph 159 of the NPPF states *"inappropriate development in areas at risk of flooding should be avoided by directing development away from areas of highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere."*

4.2.3 Paragraph 167 of the NPPF states *"when determining planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

- *Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location.*
- *The development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment.*

- *It incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate.*
- *Any residual risk can be safely managed, and*
- *Safe access and escape routes are included where appropriate, as part of an agreed emergency plan."*

4.2.4 In accordance with the NPPF, a site-specific FRA is required for sites within the following categories:

- In Flood Zone 1, all proposals involving:
  - Sites of one hectare or more.
  - Land which has been identified by the EA as having critical drainage problems.
  - Land identified in a strategic flood risk assessment (SFRA) as being at increased flood risk in the future.
  - Land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.
- All proposals for development in Flood Zone 2 and 3.

4.3 Planning Practice Guidance (2022)

4.3.1 The PPG provides additional direction to the NPPF, with details provided in each section of the document on how to conform to the NPPF.

4.3.2 All land in England is classified as falling into one of three main flood zones, with the zones referring to the probability of river or sea flooding, ignoring the existence of defences. The PPG identifies and describes the EA flood zones as:

- Flood Zone 1: Low probability – land assessed as having less than a 1 in 1,000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability (AEP)).
- Flood Zone 2: Medium probability – land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river or sea flooding (1% - 0.1% AEP).
- Flood Zone 3: High probability – land assessed as having a 1 in 100 or greater annual probability of river flooding (≥1% AEP), or a 1 in 200 or greater annual probability of sea flooding (≥0.5% AEP).
- Flood Zone 3b: The Functional Floodplain – land where water has to flow or be stored in times of flood (as identified by the Local Planning Authority (LPA) in the SFRA).

4.3.3 The current PPG sets out the following drainage hierarchy that the discharge of surface water run-off should adhere to:

- Into the ground (infiltration).
- To a surface water body.
- To a surface water sewer, highway drain, or another drainage system.
- To a combined sewer.

4.4 West Sussex County Council Lead Local Flood Authority Policy for the Management of Surface Water

4.4.1 The West Sussex County Council Lead Local Flood Authority (LLFA) Policy for the Management of Surface Water sets out ten SuDS policies.

4.4.2 LLFA Policy one requires adherence to the drainage hierarchy and states:

1. *"Surface runoff not collected for use must be discharged according to the following discharge hierarchy:*
   - *to ground,*
   - *to a surface water body,*
   - *to a surface water sewer, highway drain, or another drainage system, or*
   - *to a combined sewer where there are absolutely no other options, and only where agreed in advance with the relevant sewerage undertaker.*
2. *The selection of a discharge point should be clearly demonstrated and evidenced."*

4.4.3 LLFA Policy two requires the management of flood risk through design and states:

1. *"The drainage scheme proposed is to:*
   a. *protect people and property on the development site from flooding; and,*
   b. *avoid creating any additional flood risk outside of the development in any part of the catchment, either upstream or downstream.*
2. *Any drainage scheme must manage all sources of surface water, including exceedance flows and surface flows from offsite, provide for emergency ingress and egress and ensure adequate connectivity.*
3. *For large sites where development is to be phased, there will need to be a strategic site surface water management system that allows different parts of the site to be developed at different times while ensuring that each of the design criteria can be met."*

4.4.4 LLFA Policy three relates to managing and mimicking natural flows and drainage flow paths and states:

1. *"Drainage schemes should be designed to match greenfield discharge rates and follow natural drainage routes as far as possible; pumps should therefore not form part of drainage schemes.*
2. *Greenfield runoff should be calculated from FEH or a similar approved method. SAAR and any other rainfall data used in run-off storage calculations should be based upon FEH rainfall values."*

4.4.5 LLFA Policy four requires the reduction of existing flood risk and states:

1. *"New development should be designed to take full account of any existing flood risk, irrespective of the source of flooding.*
2. *Where a site or its immediate surroundings have been identified to be at flood risk, all opportunities to reduce the identified risk should be investigated at an early stage and subsequently incorporated at the detailed design stage"*

4.4.6 LLFA Policy five requires the maximisation of resilience and states:

1. *"The design of the drainage system must account for the likely impacts of climate change and changes in impermeable area over the design life of the development. Appropriate allowances should be applied in each case.*
2. *A sustainable drainage approach which considers control of surface runoff at the surface and at source is preferred and should be explored prior to other design solutions.*
3. *Culverting an existing watercourse should only be considered if there is no feasible alternative."*

4.4.7 LLFA Policy six requires designs to be maintainable and states:

1. *"No building is to be occupied until a Verification Report pertaining to the surface water drainage system, carried out by a Chartered Engineer, has been submitted to the Local Planning Authority which demonstrates the suitable operation of the drainage system such that flood risk is appropriately managed, as approved by the Lead Local Flood Authority. The Report shall contain information and evidence (including photographs) of earthworks; details and locations of inlets, outlets and control structures; extent of planting; details of materials utilised in construction including subsoil, topsoil, aggregate and membrane liners; full as built drawings; and topographical survey of 'as constructed' features.*

2. *The Verification Report should also include an indication of the adopting or maintaining authority or organisation and may require inclusion within a register of drainage features."*

4.4.8 LLFA Policy seven requires the safeguarding of water quality and states:

1. *"When designing a surface water management scheme, full consideration should be given to the system's capacity to remove pollutants and to the cleanliness of the water being discharged from the site, irrespective of the receiving system.*
2. *Interception of small rainfall events should be incorporated into the design of the drainage system."*

4.4.9 LLFA Policy eight relates to design for amenity and multifunctionality and states:

"Drainage design should from the outset consider opportunities for inclusion of amenity and biodiversity objectives and thus provide multi-functional use of open space with appropriate design for drainage measures within the public realm."

4.4.10 LLFA Policy nine requires the enhancement of biodiversity and states:

"Drainage design should from the outset consider opportunities for biodiversity enhancement, through optimising the scope for surface systems, consideration of connectivity to adjacent water bodies or natural habitats, and appropriate planting specification."

4.4.11 LLFA Policy ten sets out links to wider landscape objectives and states:

"Drainage design should from the outset consider opportunities to contribute to the wider landscape and ensure proposals are coherent with the surrounding landscape character area."

4.5 Mid-Sussex District Plan (2014-2031)

4.5.1 Policy DP41 of the Mid-Sussex District Plan states *"Proposals for development will need to follow a sequential risk-based approach, ensure development is safe across its lifetime and not increase the risk of flooding elsewhere."*

4.5.2 Policy DP41 states:

1. *"Proposals for development should seek to reduce the risk of flooding by achieving a reduction from existing run-off rates.*
2. *Sustainable Drainage Systems (SuDS) should be implemented in all new developments of 10 dwellings or more, or equivalent non-residential or mixed development unless demonstrated to be inappropriate, to avoid any increase in flood risk and protect surface and ground water quality. Arrangements for the long term maintenance and management of SuDS should also be identified.*
3. *SuDS should be sensitively designed and located to promote improved biodiversity, an enhanced landscape and good quality spaces that improve public amenities in the area, where possible.*
4. *The preferred hierarchy of managing surface water drainage from any development is:*
   1) *"Infiltration Measures*
   2) *Attenuation and discharge to watercourses; and if these cannot be met,*
   3) *Discharge to surface water only sewers."*

5.0 SOURCES OF FLOOD RISK

5.1 Fluvial Flooding

5.1.1 Fluvial flooding is caused by flows in rivers or streams exceeding the capacity of the river channel and spilling into the floodplain. Fluvial flooding can also occur on designated floodplain land after a period of heavy rainfall.

5.1.2 The EA Flood Map for Planning (accessed November 2023) shows the Site is entirely located within Flood Zone 1; land assessed as having *"less than a 1 in 1,000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability (AEP))"*. The flood risk vulnerability classification of residential dwellings is deemed as 'more vulnerable'. In accordance with the PPG, development of this nature in Flood Zone 1 is acceptable. The EA Flood Map for Planning mapping is presented in **Appendix F**.

5.1.3 The risk of flooding from fluvial sources is considered to be very low.

5.2 Surface Water Flooding

5.2.1 Surface water (pluvial) flooding is caused by rainfall levels exceeding the natural infiltration properties of the surrounding soils. Flooding can occur where there is a lack of a formalised drainage system, or as a result of a poorly designed or maintained sewer system. Flooding can also occur owing to the absence of a natural method of drainage such as watercourses or ditches, or where soil infiltration rates are low. Flooding often results in ponding of water at low points or when surface water flow routes are blocked by an obstruction.

5.2.2 The EA Risk of Flooding from Surface Water (RoFSW) mapping shows the Site is at 'very low', 'low', 'medium', and 'high' risk of surface water flooding, in association with the ordinary watercourse to the south of the Site. Built development would only be proposed in areas with very low risk of surface water flooding. The development would therefore be made safe from surface water flood risk, in accordance with the PPG. The EA RoFSW mapping is presented in **Appendix F**.

5.2.3 The risk of flooding from surface water is considered to be very low.

5.3 Groundwater Flooding

5.3.1 Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata. A groundwater flood event results from a rise in groundwater level sufficient for

the water table to intersect the ground surface and inundate low lying land. Periods of prolonged rainfall may also be a cause of groundwater flooding, with aquifers and soils becoming saturated.

5.3.2 The West Sussex LLFA 'Draft Local Flood Risk Management Strategy' (LFRMS) (2021 – 2026) Groundwater Flood Risk Map shows the Site is within an area of 'very low' groundwater flood risk in the 1 in 100-year (1% AEP) event. The Groundwater Flood Risk Map is presented in **Appendix F**.

5.3.3 The risk of flooding from groundwater is considered to be very low.

5.4 Sewer Flooding

5.4.1 Sewer flooding can occur owing to the failure of existing foul or surface water drainage infrastructure. If flows within the sewage system exceed the designed capacity or foreign matter causes blockages, overflow to the surface can occur, leading to flooding.

5.4.2 The West Sussex LFRMS and Mid Sussex District Council Level 1 SFRA do not mention Sayers Common as an area known to experience sewer flooding and no sewer flooding mapping is available.

5.4.3 The risk of sewer flooding is considered to be low.

5.5 Flooding from Artificial Sources

5.5.1 Failure and overtopping of reservoirs and navigable water bodies, and failure of water mains, constitute the primary means of flooding from artificial sources.

5.5.2 The EA Flood Risk from Reservoirs mapping indicates the Site is not located within the maximum extent of flooding form reservoirs. The EA Flood Risk from Reservoirs mapping is presented in **Appendix F.**

5.5.3 The risk of flooding from artificial sources is considered to be very low.

6.0 THE SEQUENTIAL AND EXCEPTION TEST

6.1 The Sequential Test

6.1.1 The EA's flood zones are the starting point for the Sequential approach promoted by the NPPF and are shown on the EA flood mapping. The PPG identifies that the overall aim of the Sequential Test is to steer new developments to Flood Zone 1.

6.1.2 As stated by the NPPF, development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with lower probability of flooding. The SFRA will provide the basis for applying this test.

6.1.3 Following application of the Sequential Test, if it is not possible for the development to be located in zones with lower probability of flooding (Flood Zone 1), proposed sites should take into account the flood risk vulnerability of land uses (Table 2, PPG) and consider reasonable sites in Flood Zone 2, and apply the Exception Test if required (Table 3, PPG). Only where there are no reasonably available sites in Flood Zone 1 and Flood Zone 2 should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

6.1.4 The entire site is located within Flood Zone 1, and therefore the Sequential Test is passed.

6.2 The Exception Test

6.2.1 For the Exception Test to be passed, it should be demonstrated:

- the development provides wider sustainability benefits to the community that outweigh flood risk, informed by an SFRA;
- the development should be on developable brownfield land or, if not, it must be demonstrated that there is no such alternative land available; and
- the development will be safe for its lifetime taking into account the vulnerability of its users, without increasing flood risk elsewhere, and where possible, reducing flood risk overall.

6.2.2 The entire site is located within Flood Zone 1, and therefore an Exception Test is not required.

7.0 SURFACE WATER DRAINAGE STRATEGY

7.1 Surface Water Drainage Strategy Requirements

7.1.1 Any surface water drainage strategy must demonstrate the proposed development would be drained in a sustainable manner, commensurate with local and national policy. The NPPF requires that flood risk to land and property is not increased as a result of new development.

7.2 Proposed Surface Water Drainage Strategy

7.2.1 The indicative surface water drainage strategy is described below.

7.2.2 As set out in **Section 4.3**, the drainage hierarchy states the most-preferred option for discharging surface water is *"into the ground (infiltration)"*. According to BGS maps, the underlying clay geology may not be suitable for infiltrating SuDS features, such as soakaways and infiltrating basins, unless on-site soakage testing confirms otherwise. Infiltration testing and groundwater monitoring would be carried out during a later stage of the planning process to determine the viability of infiltration, and the drainage design would be updated accordingly.

7.2.3 The second most-preferred option in the drainage hierarchy is *"to a surface water body"*. An ordinary watercourse runs through the south of the Site.

7.2.4 It is proposed that surface water generated by the proposed development would be attenuated using SuDS such as basins, permeable paving, and tanks prior to discharging into the ordinary watercourse on Site or to the highway drain along Reeds Lane.

7.2.5 The attenuation features would be designed to attenuate surface water flows from all rainfall events up to and including the 1 in 100 year plus 45% climate change design storm, in line with the latest guidance.

7.2.6 Surface water discharge from the Site would be controlled through the use of vortex control devices and would be restricted to the Qbar rate for all events up to and including the 1 in 100 year plus 45% climate change design storm.

7.2.7 Exceedance flows would also be considered. The exceedance flows would be routed within the roads, and the proposed Site levels would be designed to ensure any flows would be diverted around the new dwellings.

7.3 Water Quality

7.3.1 The drainage strategy would be designed to provide water quality treatment in line with the CIRIA 'C753 The SuDS Manual' guidance and would demonstrate that sufficient water quality treatment would be provided on-site in order to mitigate pollution prior to discharging to an ordinary watercourse.

7.4 SuDS Maintenance Requirements

7.4.1 Maintenance of the drainage system and SuDS features would be carried out in accordance with the manufacturer guidance and through an approved maintenance management plan to minimise the residual flood risk of drainage system blockage.

7.4.2 The management and maintenance responsibilities would be covered with the responsibilities of the eventual licence holder for the Site within their management company responsibilities.

8.0 FOUL DRAINAGE STRATEGY

8.1 General

8.1.1 Peak design discharges for the development would be calculated based on Sewerage Sector Guidance:

Residential domestic flow = 4,000 litres per dwelling per day (peak)

8.1.2 The foul drainage strategy would be designed to connect by gravity into a private foul pumping station located in the south-east corner of the Site. The foul flows (1.53l/s) would be pumped and discharged into the public foul sewer on Reeds Lane to the north of the Site. The new connection would be subject to approval by Southern Water.

8.1.3 Southern Water has a duty to improve its network to cater for proposed developments. This is funded via increased infrastructure charges to developers. Should there be a requirement for off-site improvement works, Southern Water would programme these works with due regard to the build programme of the proposed development.

9.0 SUMMARY AND CONCLUSIONS

9.1 General

9.1.1 Odyssey has been commissioned by Antler Homes to provide flood risk advice in support of Local Plan Representations for residential development at Land off Reeds Lane, Sayers Common.

9.1.2 According to EA records, the Site lies within Flood Zone 1 for fluvial flooding. The Site is mostly at 'very low' risk of surface water flooding, although there is a section along the southern boundary at 'low', 'medium' and 'high' risk associated with the ordinary watercourse. Risks of flooding from groundwater, sewers and artificial sources are considered to be very low.

9.1.3 It is proposed that surface water generated by the proposed development would be attenuated in SuDS such as basins, permeable paving and tanks prior to discharging to the ordinary watercourse on site. The discharge rate from Site would be controlled using a vortex control device to restrict the surface water discharge to Qbar. The attenuation storage would be designed to accommodate a 1 in 100 year storm plus 45% to account for climate change in line with the latest guidance.

9.1.4 The foul drainage strategy would be designed to connect by gravity into a private foul pumping station located at the topographical low point of the Site. The foul flows would be pumped and discharged into the public foul sewer on Reeds Lane to the north of the Site. The new connection would be subject to approval by Southern Water.

9.1.5 In conclusion, this report demonstrates that there are no significant flood risks to the development. The proposed development would not be located within the existing surface water flood risk extents and would not exacerbate the existing scenario. The development could also be drained in a sustainable manner, commensurate with local and national policy.

APPENDIX A

Site Location Plan and Proposed Development Concept Plan

REED'S LANE

MEADOW VIEW

OSBORN CLOSE

Hunters Moon

Hramsa

La Massana

The Hawthorns

The Nook

Meadow View

Homelands

Buff Cottage

Chesapeake

LEGEND :

- SITE BOUNDARY
- EXISTING TREES
- INFORMAL GREEN SPACE
- SEMI - FORMAL GREEN SPACE
- PRIMARY ACCESS ROAD
- SECONDARY / TERTIARY ACCESS ROAD
- BUILT FORM / ACTIVE FRONTAGE
- HOUSING
- SUSTAINABLE DRAINAGE SOLUTION
- EXISTING WATERCOURSE
- PEDESTRIAN LINKS
- VEHICULAR / PEDESTRIAN ACCESS

0 1 5 10 20 50m

key plan (if applicable)

notes

revision	date	prepared	description

ANTLER HOMES

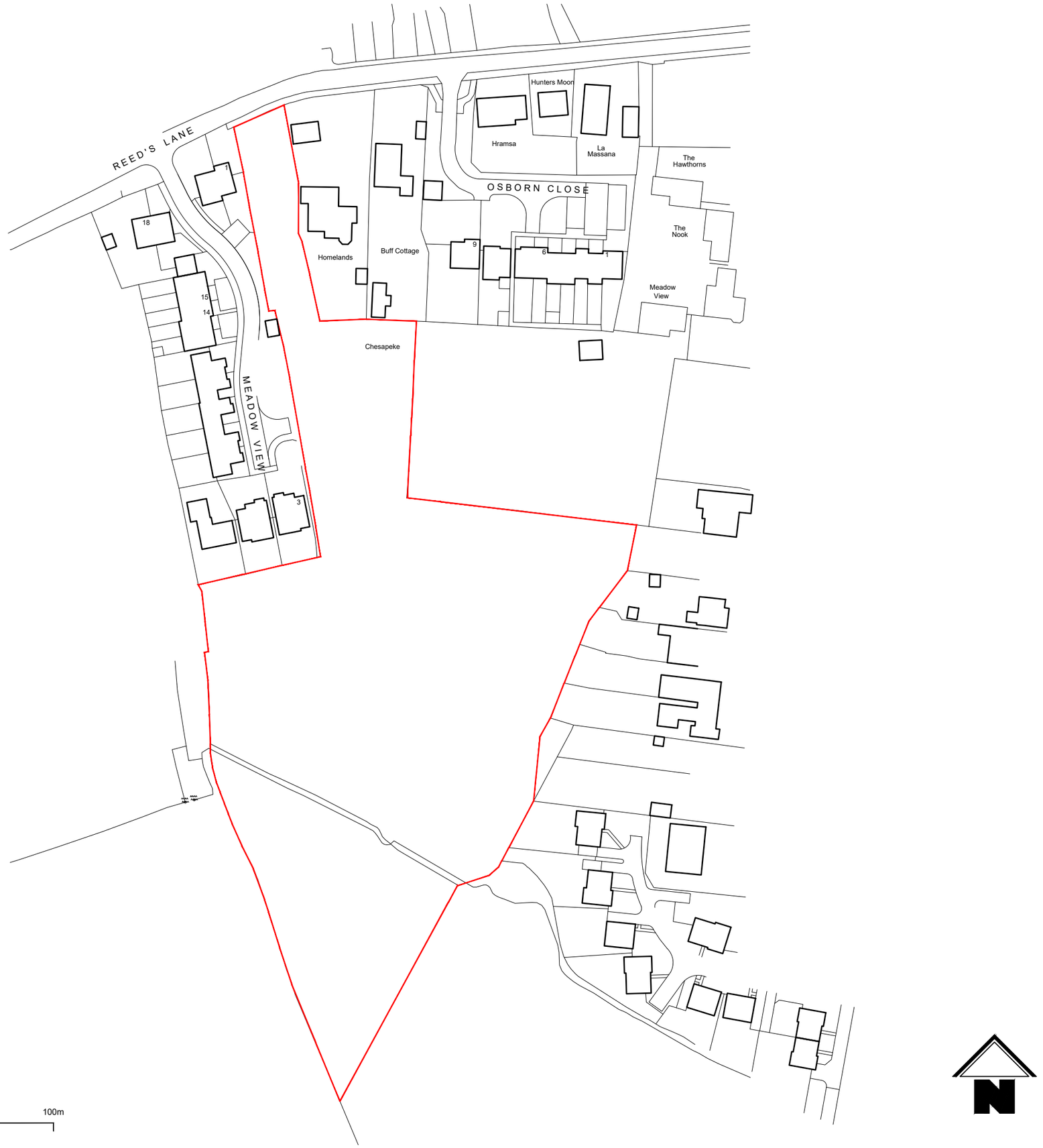
Knightway House
Park Street
Bagshot
Surrey
GU19 5AQ
T : 01276 538941
www.antlerhomes.co.uk

project
CHESEPEAKE, REEDS LANE, SAYERS COMMON, WEST SUSSEX. BN6 9GB

drawing
CONCEPT PLAN

date	scale	drawn
25.10.23	1:500 @ A1	MJ

drawing number	revision
CONCEPT - 01	-



key plan (if applicable)

notes

- - - -

revision	date	prepared	description

ANTLER HOMES
Knightway House
Park Street
Bagshot
Surrey
GU19 5AQ
T : 01276 538941
www.antlerhomes.co.uk

project
CHESEPEAKE, REEDS LANE, SAYERS COMMON, WEST SUSSEX. BN6 9GB

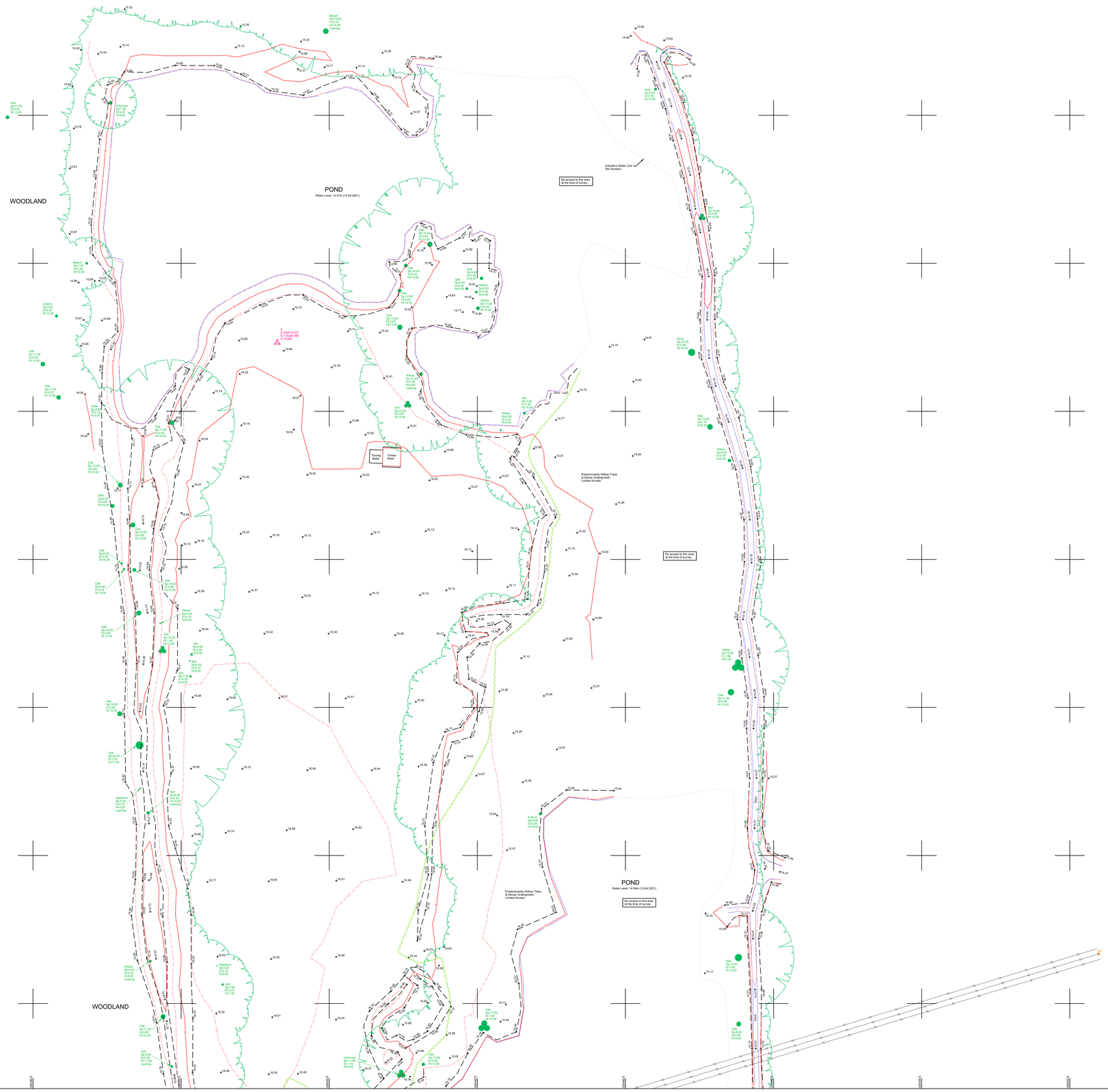
drawing
SITE LOCATION PLAN

date	scale	drawn
21.08.23	1:1250 @ A3	MJ

drawing number	revision
AH291 - PL.01	-

APPENDIX B

Topographical Survey



Sheet Location Diagram:

LEGEND

General Abbreviations

AV	Air Valve	MS	Mile Stone	VTG	Vent Grill
ACP	Air Conditioning Plant	NB	Notice Board	VTP	Vent Pipe
BB	Belishia Beacon	NP	Name Plate	WC	Water Cover
BD	Bollard	OH	Over Head	WM	Water Meter
BIG	Building Inlet Gully	PE	Pipe	WN	Window
BL	Bed Level	PB	Pedestrian Barrier	WTL	Water Level
BM	Bench Mark	PM	Parking Meter	WO	Wash Out
BN	Bin	PT	Post	Av.	Average
BP	Boundary Peg	PTM	Parking Ticket Machine	Ht.	Height
BS	Bus Stop	PWL	Parapet Wall Level	(BD)	Back Drop
CRB	Crash Barrier	RE	Rodding Eye	Ø	Diameter(mm)
CCTV	Close Circuit T.V	RFL	Roof level		
CL	Cover Level	RGL	Ridge		
Col.	Column	RP	Reflective Post		
CP	Control Post	RS	Road Sign		
CV	Unidentified Cover	RSD	Roller Shutter Door		
DP	Down Pipe	RWL	Retaining Wall		
DPC	Damp Proof Course	RWP	Rain Water Down Pipe		
DC	Drainage Channel	SA	Soakaway		
DK	Drop Kerb	Sap.	Tree Sapling		
EC	Electricity Cover	SEP	Service Entry Point		
ECP	Electricity Pillar	SC	Stop Cock		
EP	Electricity Pole	SFL	Soffit Level		
EPL	Electric Power Line	SGL	Cable Sag Level		
ER	Earth Rod	SL	Sill Level		
Est.	Estimated	SN	Sign		
EVL	Eaves Level	SP	Service Pillar		
FDP	Feeder Pillar	SV	Stop Valve		
FH	Fire Hydrant	SVP	Soil & Vent Pipe		
FL	Floor Level	SW	Surface Water		
FS	Flag Staff	TB	Traffic Bollard		
FW	Foul Water	TCB	Telephone Call Box		
GP	Gate Post	TC	Telecom Cover		
GV	Gas Valve	TCP	Telecom Pillar		
G	Gully	TF	Traffic Lights		
HL	Head Level	THL	Thresh Hold Level		
IC	Inspection Cover	ToF	Top of Fence		
IL	Invert Level	ToP	Top of Pipe		
KO	Kerb Outlet	ToW	Top of Wall		
LB	Letter Box	TM	Ticket Machine		
LG	Light	TP	Telephone Pole		
LH	Lamp Hole	UTL	Unable to Lift		
LP	Lamp Post	UG	Underground		
MH	Manhole	VC	Valve Chamber		
MP	Marker Post	VT	Vent		

Fence Types

BWF	Barbed Wire
CBF	Close Boarded
CLF	Chain Link
CLF	Chain Link
CMF	Corrugated Metal
CPF	Chestnut Paling
HRF	Hitching Rail
HMF	Hit & Miss
IRF	Iron Railing
MRF	Metal Railing
PLF	Panel Fence
PRF	Post & Rail
PKF	Picket
PWF	Post & Wire
SSF	Steel Security
WMF	Wire Mesh
(CEP)	Concrete Posts
(MTP)	Metal Posts

Surfaces & Materials

Blkp.	Block Paving
Blk.	Block
Brk.	Brick
Conc.	Concrete
Slb.	Slab
Gran.	Granular Surface
Gblk.	Granite Block
Gr.	Grass
Tac.	Tactile Paving
Tar.	Tarmac

Scale Bar @ 1/200 Metres

0 2 4 6 8 10 12 14 16 18 20

Rev.	Date	Revisions

Notes:

The accuracy and detail shown in this drawing is dependant on the original specification. Sunshine Survey Ltd. should be consulted before use of scales other than those stated.

This drawing provides position and description of features on the ground at the time the survey was undertaken and in no way implies legal title or boundary ownership.

Where boundary alignment lines are added to the survey drawing and are taken from legal documents or other information supplied they are done so within the constraints of drawing quality and scale. They are provided on the basis of opinion and do not imply legal contract.

Detail required outside of site boundaries with no permission for access or public right of way will be surveyed by remote measurement where possible, the detail shown is indicative. This also applies to areas within the site with limited or no access or an unsafe working environment.

Tree species have been identified as accurately as possible, for clarification checks should be carried out by a tree specialist.

Underground drainage and service information shown has been measured within the chamber without entry. Connections and alignments of pipe/duct runs outside of the chamber are indicative. Whilst every effort has been made to correctly identify this information the user should satisfy themselves of the completeness and accuracy before undertaking any works especially in critical areas.

All care has been taken in the preparation of this drawing any discrepancies found should be reported to Sunshine Survey Ltd. immediately.

Plan Coordinate Control:
Plan co-ordinates relate to a local survey grid coincident with OS National Grid using OSTN15 transformation at Control Station A. Scale factor 1.00 applied.

Level Datum:
All levels relate to OS Newlyn datum using geoid model OSGM15 at Control Station A

SUNSHINE SURVEY LTD.
LAND & MEASURED BUILDING SURVEYORS
Business Reply Address:
28 Cadogan Road, Bury St Edmunds, IP33 3QJ
Tel: 01284 766720
Email: info@sunshinesurvey.co.uk
Web: www.sunshinesurvey.co.uk

Project Title:
THE OLD BRICKWORKS, REED LANE,
SAYERS COMMON

Client:
RESIDE DEVELOPMENTS LTD.

Description:
TOPOGRAPHICAL (Sheet 1 of 3)

Date	16.04.2021	Scale	1/200 @ A0
Job No.	GY\5194	Surveyor	GARY
Drg No.	1\001	Drawn	HR

Sheet Location Diagram:

LEGEND

General Abbreviations

AV	Air Valve	MS	Mile Stone	VTG	Vent Grill
ACP	Air Conditioning Plant	NB	Notice Board	VTP	Vent Pipe
BB	Belishia Beacon	NP	Name Plate	WC	Water Cover
BD	Bollard	OH	Over Head	WM	Water Meter
BIG	Building Inlet Gully	PE	Pipe	WN	Window
BL	Bed Level	PB	Pedestrian Barrier	WTL	Water Level
BM	Bench Mark	PM	Parking Meter	WO	Wash Out
BN	Bin	PT	Post	Av.	Average
BP	Boundary Peg	PTM	Parking Ticket Machine	Ht.	Height
BS	Bus Stop	PWL	Parapet Wall Level	(BD)	Back Drop
CRB	Crash Barrier	RE	Rodding Eye	Ø	Diameter(mm)
CCTV	Close Circuit T.V	RFL	Roof level		
CL	Cover Level	RGL	Ridge		
Col.	Column	RP	Reflective Post		
CP	Control Post	RS	Road Sign		
CV	Unidentified Cover	RSD	Roller Shutter Door		
DP	Down Pipe	RWL	Retaining Wall		
DPC	Damp Proof Course	RWP	Rain Water Down Pipe		
DC	Drainage Channel	SA	Soakaway		
DK	Drop Kerb	Sap.	Tree Sapling		
EC	Electricity Cover	SEP	Service Entry Point		
ECP	Electricity Pillar	SC	Stop Cock		
EP	Electricity Pole	SFL	Soffit Level		
EPL	Electric Power Line	SGL	Cable Sag Level		
ER	Earth Rod	SL	Sill Level		
Est.	Estimated	SN	Sign		
EVL	Eaves Level	SP	Service Pillar		
FDP	Feeder Pillar	SV	Stop Valve		
FH	Fire Hydrant	SVP	Soil & Vent Pipe		
FL	Floor Level	SW	Surface Water		
FS	Flag Staff	TB	Traffic Bollard		
FW	Foul Water	TCB	Telephone Call Box		
GP	Gate Post	TC	Telecom Cover		
GV	Gas Valve	TCP	Telecom Pillar		
G	Gully	TF	Traffic Lights		
HL	Head Level	THL	Thresh Hold Level		
IC	Inspection Cover	ToF	Top of Fence		
IL	Invert Level	ToP	Top of Pipe		
KO	Kerb Outlet	ToW	Top of Wall		
LB	Letter Box	TM	Ticket Machine		
LG	Light	TP	Telephone Pole		
LH	Lamp Hole	UTL	Unable to Lift		
LP	Lamp Post	UG	Underground		
MH	Manhole	VC	Valve Chamber		
MP	Marker Post	VT	Vent		

Fence Types

BWF	Barbed Wire
CBF	Close Boarded
CLF	Chain Link
CLF	Chain Link
CMF	Corrugated Metal
CPF	Chestnut Paling
HRF	Hitching Rail
HMF	Hit & Miss
IRF	Iron Railing
MRF	Metal Railing
PLF	Panel Fence
PRF	Post & Rail
PKF	Picket
PWF	Post & Wire
SSF	Steel Security
WMF	Wire Mesh
(CEP)	Concrete Posts
(MTP)	Metal Posts

Surfaces & Materials

Blkp.	Block Paving
Blk.	Block
Brk.	Brick
Conc.	Concrete
Slb.	Slab
Gran.	Granular Surface
Gblk.	Granite Block
Gr.	Grass
Tac.	Tactile Paving
Tar.	Tarmac

Scale Bar @ 1/200 Metres

Rev.	Date	Revisions

Notes:

The accuracy and detail shown in this drawing is dependant on the original specification. Sunshine Survey Ltd. should be consulted before use of scales other than those stated.

This drawing provides position and description of features on the ground at the time the survey was undertaken and in no way implies legal title or boundary ownership.

Where boundary alignment lines are added to the survey drawing and are taken from legal documents or other information supplied they are done so within the constraints of drawing quality and scale. They are provided on the basis of opinion and do not imply legal contract.

Detail required outside of site boundaries with no permission for access or public right of way will be surveyed by remote measurement where possible, the detail shown is indicative. This also applies to areas within the site with limited or no access or an unsafe working environment.

Tree species have been identified as accurately as possible, for clarification checks should be carried out by a tree specialist.

Underground drainage and service information shown has been measured within the chamber without entry. Connections and alignments of pipe/duct runs outside of the chamber are indicative. Whilst every effort has been made to correctly identify this information the user should satisfy themselves of the completeness and accuracy before undertaking any works especially in critical areas.

All care has been taken in the preparation of this drawing any discrepancies found should be reported to Sunshine Survey Ltd. immediately.

Plan Coordinate Control:
Plan co-ordinates relate to a local survey grid coincident with OS National Grid using OSTN15 transformation at Control Station A. Scale factor 1.00 applied.

Level Datum:
All levels relate to OS Newlyn datum using geoid model OSGM15 at Control Station A

SUNSHINE SURVEY LTD.
LAND & MEASURED BUILDING SURVEYORS
Business Reply Address:
28 Cadogan Road, Bury St Edmunds, IP33 3QJ
Tel: 01284 766720
Email: info@sunshinesurvey.co.uk
Web: www.sunshinesurvey.co.uk

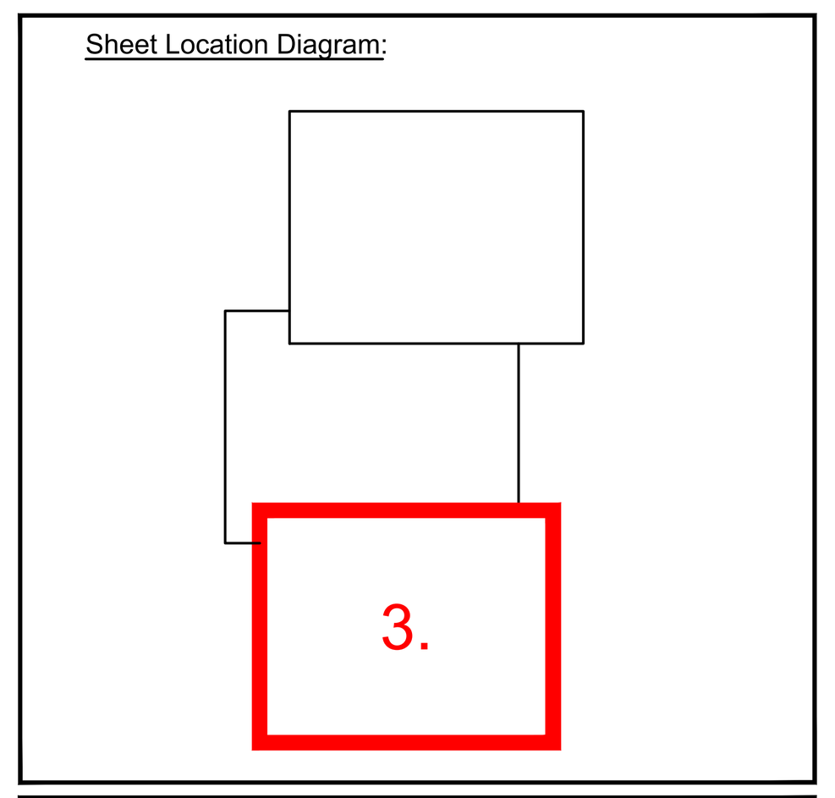
Project Title:
THE OLD BRICKWORKS, REED LANE,
SAYERS COMMON

Client:
RESIDE DEVELOPMENTS LTD.

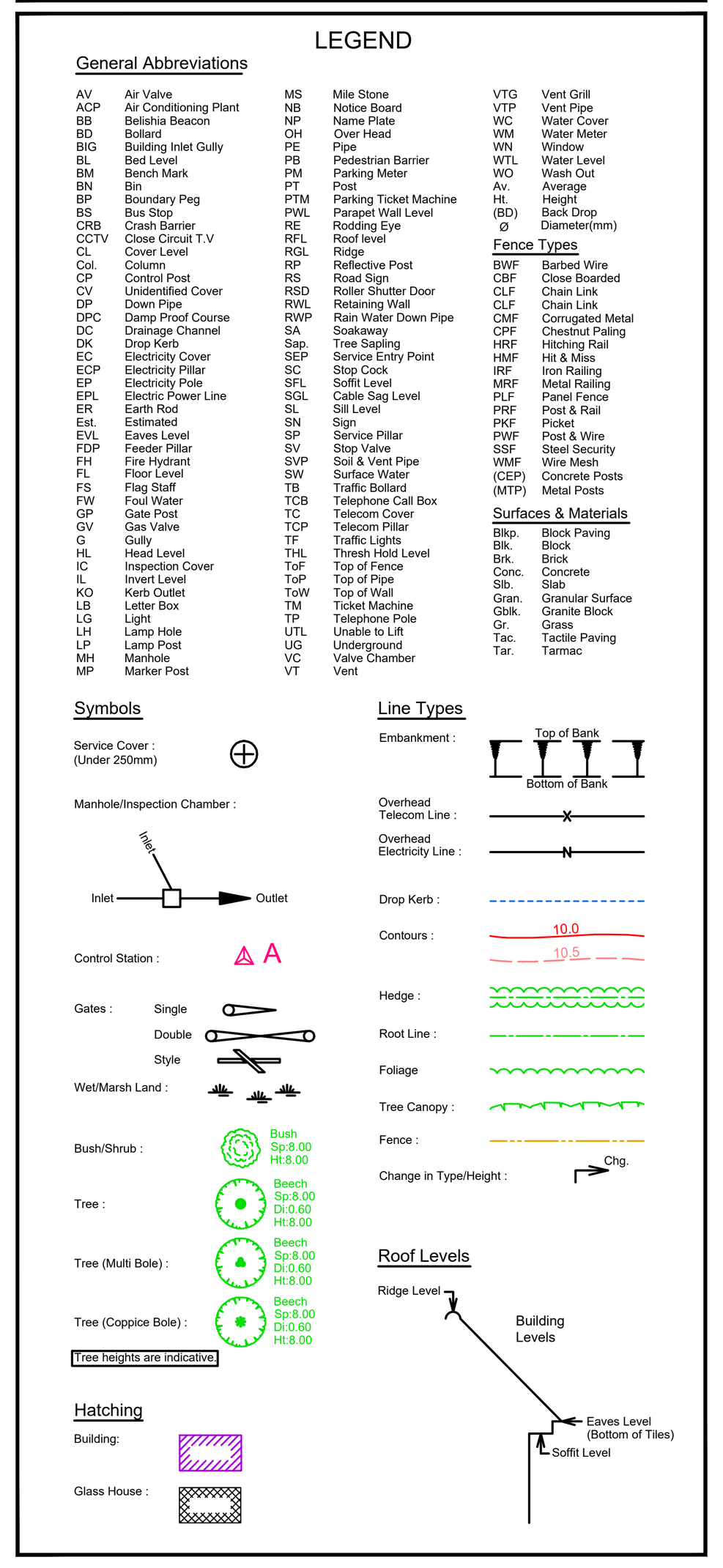
Description:
TOPOGRAPHICAL (Sheet 2 of 3)

Date	16.04.2021	Scale	1/200 @ A0
Job No.	GY\5194	Surveyor	GARY
Drg No.	1\002	Drawn	HR

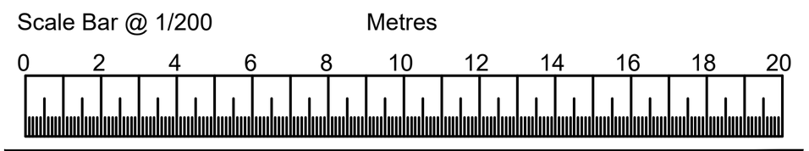
Sheet Location Diagram:



LEGEND



Scale Bar @ 1/200 Metres



Rev.	Date	Revisions

Notes:

The accuracy and detail shown in this drawing is dependant on the original specification. Sunshine Survey Ltd. should be consulted before use of scales other than those stated.

This drawing provides position and description of features on the ground at the time the survey was undertaken and in no way implies legal title or boundary ownership.

Where boundary alignment lines are added to the survey drawing and are taken from legal documents or other information supplied they are done so within the constraints of drawing quality and scale. They are provided on the basis of opinion and do not imply legal contract.

Detail required outside of site boundaries with no permission for access or public right of way will be surveyed by remote measurement where possible, the detail shown is indicative. This also applies to areas within the site with limited or no access or an unsafe working environment.

Tree species have been identified as accurately as possible, for clarification checks should be carried out by a tree specialist.

Underground drainage and service information shown has been measured within the chamber without entry. Connections and alignments of pipe/duct runs outside of the chamber are indicative. Whilst every effort has been made to correctly identify this information the user should satisfy themselves of the completeness and accuracy before undertaking any works especially in critical areas.

All care has been taken in the preparation of this drawing any discrepancies found should be reported to Sunshine Survey Ltd. immediately.

Plan Coordinate Control:
Plan co-ordinates relate to a local survey grid coincident with OS National Grid using OSTN15 transformation at Control Station A. Scale factor 1.00 applied.

Level Datum:
All levels relate to OS Newlyn datum using geoid model OSGM15 at Control Station A

SUNSHINE SURVEY LTD.
LAND & MEASURED BUILDING SURVEYORS
Business Reply Address:
28 Cadogan Road, Bury St Edmunds, IP33 3QJ
Tel: 01284 766720
Email: info@sunshinesurvey.co.uk
Web: www.sunshinesurvey.co.uk

Project Title: THE OLD BRICKWORKS, REED LANE, SAYERS COMMON

Client: RESIDE DEVELOPMENTS LTD.

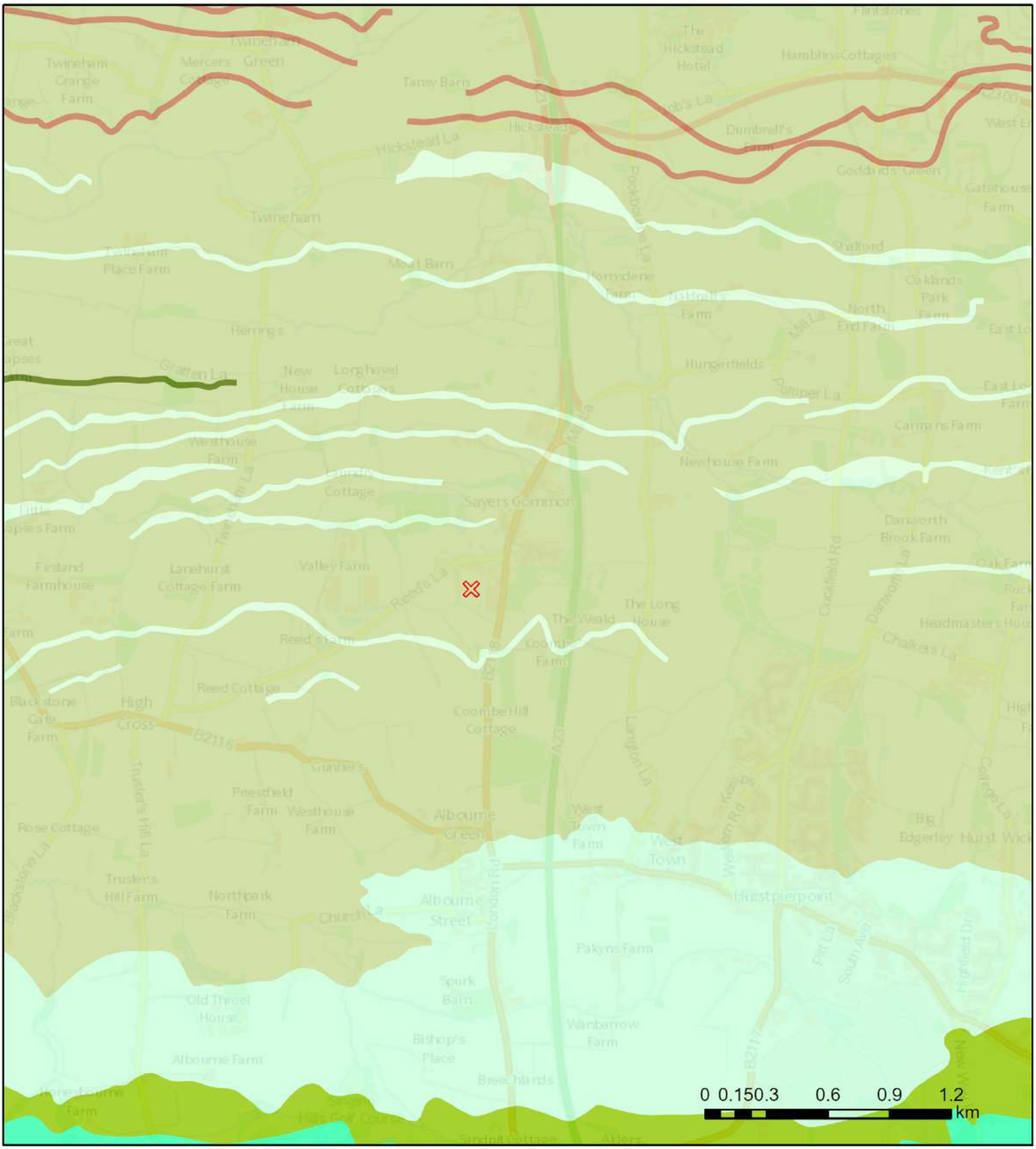
Description: TOPOGRAPHICAL (Sheet 3 of 3)

Date	16.04.2021	Scale	1/200 @ A0
Job No.	GY\5194	Surveyor	GARY
Drg No.	1\003	Drawn	HR

APPENDIX C

British Geological Survey Mapping

Bedrock



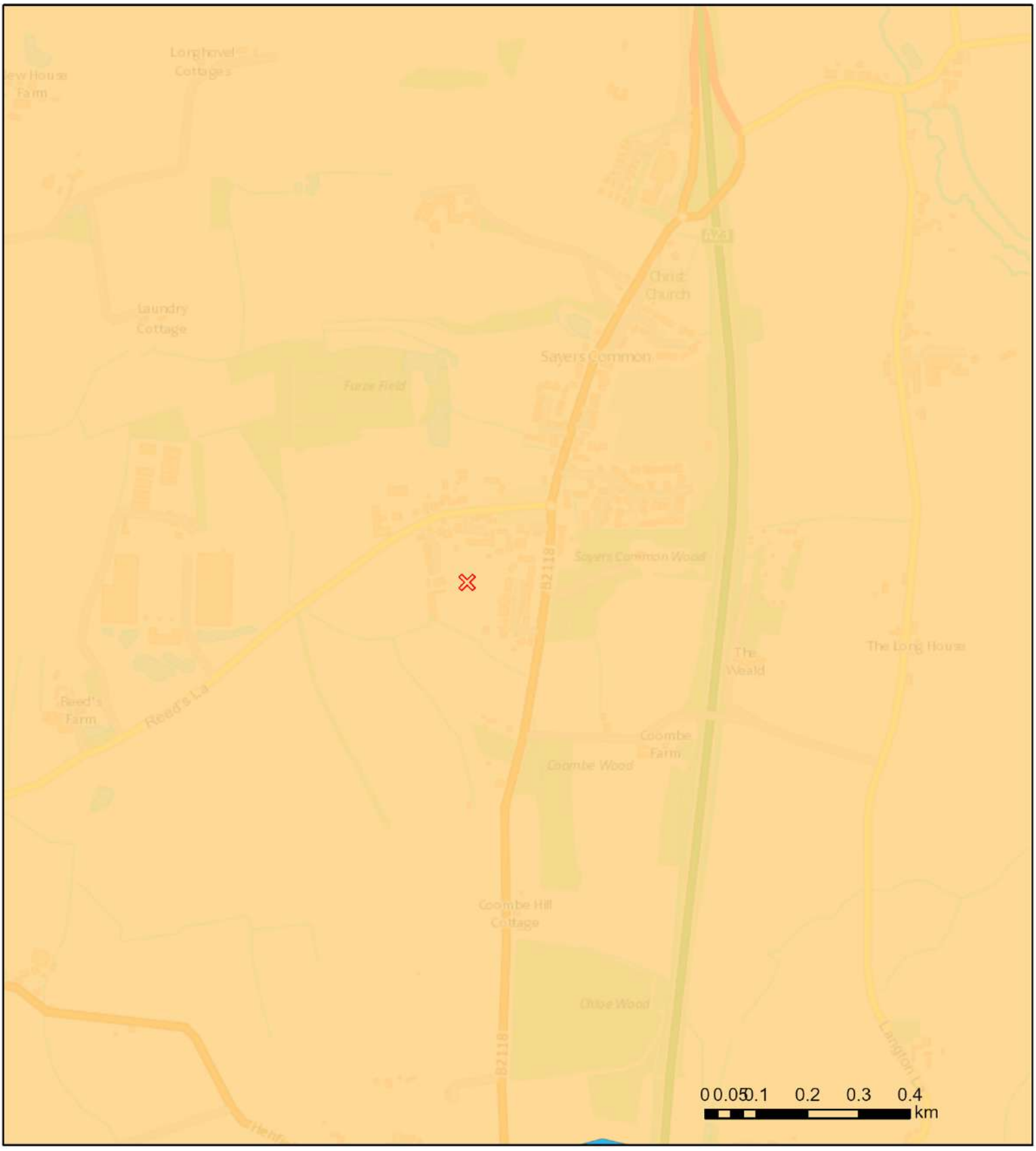
Map Key

Bedrock geology 1:50,000 scale

- HORSHAM STONE MEMBER - SANDSTONE
- WEALD CLAY FORMATION - SANDSTONE
- LOWER GREENSAND GROUP - SANDSTONE, SILTY
- GAULT FORMATION - MUDSTONE
- WEALD CLAY FORMATION - MUDSTONE
- WEALD CLAY FORMATION - CLAY-IRONSTONE
- FOLKESTONE FORMATION - SANDSTONE
- WEALD CLAY FORMATION - LIMESTONE

Hydrogeology

British Geological Survey



Map Key

Hydrogeology 1:625,000 scale

Aquifers with significant intergranular flow

Highly productive aquifer

Moderately productive aquifer

Low productivity aquifer

Aquifers in which flow is virtually all through fractures and other discontinuities

Highly productive aquifer

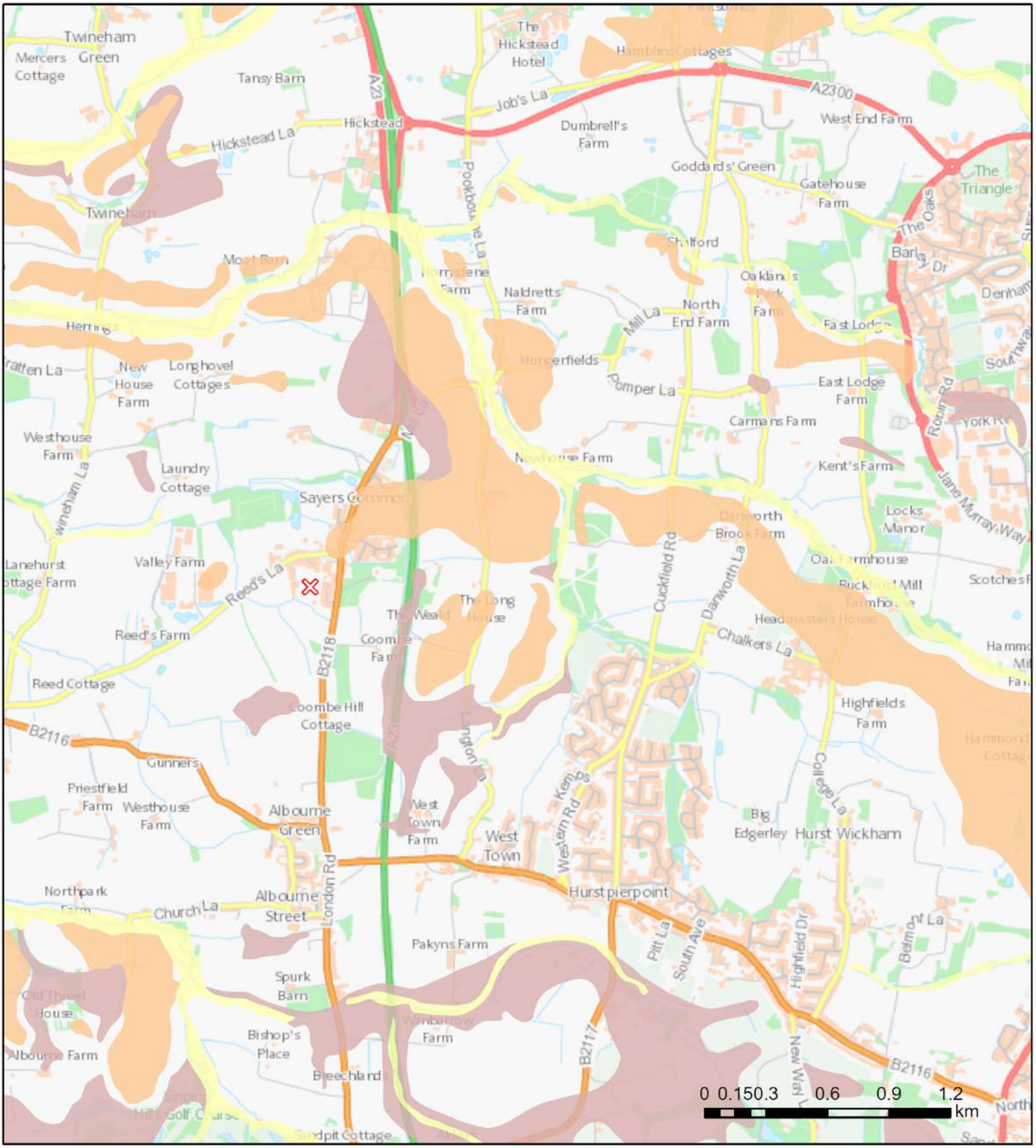
Moderately productive aquifer

Low productivity aquifer

Rocks with essentially no groundwater

Superficial Deposits

British Geological Survey



Map Key

Superficial deposits 1:50,000 scale

- ALLUVIUM - CLAY, SILT, SAND AND GRAVEL
- HEAD - CLAY, SILT, SAND AND GRAVEL
- RIVER TERRACE DEPOSITS, 2 (ADUR) - SAND AND GRAVEL
- RIVER TERRACE DEPOSITS, 2 TO 3 (ADUR) - SAND AND GRAVEL
- RIVER TERRACE DEPOSITS, 3 (ADUR) - SAND AND GRAVEL
- RIVER TERRACE DEPOSITS (UNDIFFERENTIATED) - SAND AND GRAVEL

APPENDIX D

Southern Water Sewer Records

(c) Crown copyright and database rights 2022 Ordnance Survey 100031673

Data updated: 27/10/22

Scale: 1:1250

Map Centre: 526537,117990

Date: 25/11/22

Our Ref: 1013417 - 1

Wastewater Plan A2

Powered by digdat

Foul Gravity Sewer
Combined Gravity Sewer
Culverted Water Course or Treated Effluent
Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon
Combined Outfall
Surface Water Outfall
Foul Outfall
Surface Water Inlet
Combined Pumping Station
Surface Water Pumping Station
Foul Pumping Station
WWTW Water Treatment Works
Section 104 Area
Building Over Agreement Area
Foul Manhole
Combined Manhole
Surface Water Manhole
Side Entry Manhole, Decarcation Chamber, Dummy Manhole or Surface Water Soakaway

szalaki@odysseyconsult.co.uk

22-258 Sayers Common

from Southern Water

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
4101	F	17.04	16.08	
5101	F	17.20	15.48	
5102	F	0.00	0.00	
5103	F	0.00	0.00	
5601	F	24.15	22.31	
6001	F	20.17	17.99	
6101	F	17.94	14.90	
6102	F	17.18	15.56	
6201	F	17.39	14.37	
6202	F	0.00	0.00	
6203	F	0.00	0.00	
6205	F	0.00	0.00	
6206	F	0.00	0.00	
6207	F	0.00	0.00	
6208	F	0.00	0.00	
6701	F	22.37	20.51	
6801	F	22.36	19.78	
6901	F	22.44	18.96	
7100	F	18.40	16.46	
7101	F	18.56	16.69	
7201	F	16.96	15.23	
7204	F	17.69	15.36	
7205	F	17.41	15.11	
7150	S	18.61	16.87	
7252	S	17.70	16.31	
7253	S	17.37	16.27	
7254	S	17.26	16.20	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

APPENDIX E

Greenfield Runoff Rates

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.634	Urban	0.000
SAAR (mm)	800	Region Number	Region 7

Results l/s

QBAR Rural	3.3
QBAR Urban	3.3
Q100 years	10.4
Q1 year	2.8
Q30 years	7.4
Q100 years	10.4

APPENDIX F

Flood Mapping

Flood map for planning

Your reference	Location (easting/northing)	Created
Flood Zone Mapping	**526502/118014**	**19 Dec 2022 12:11**

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

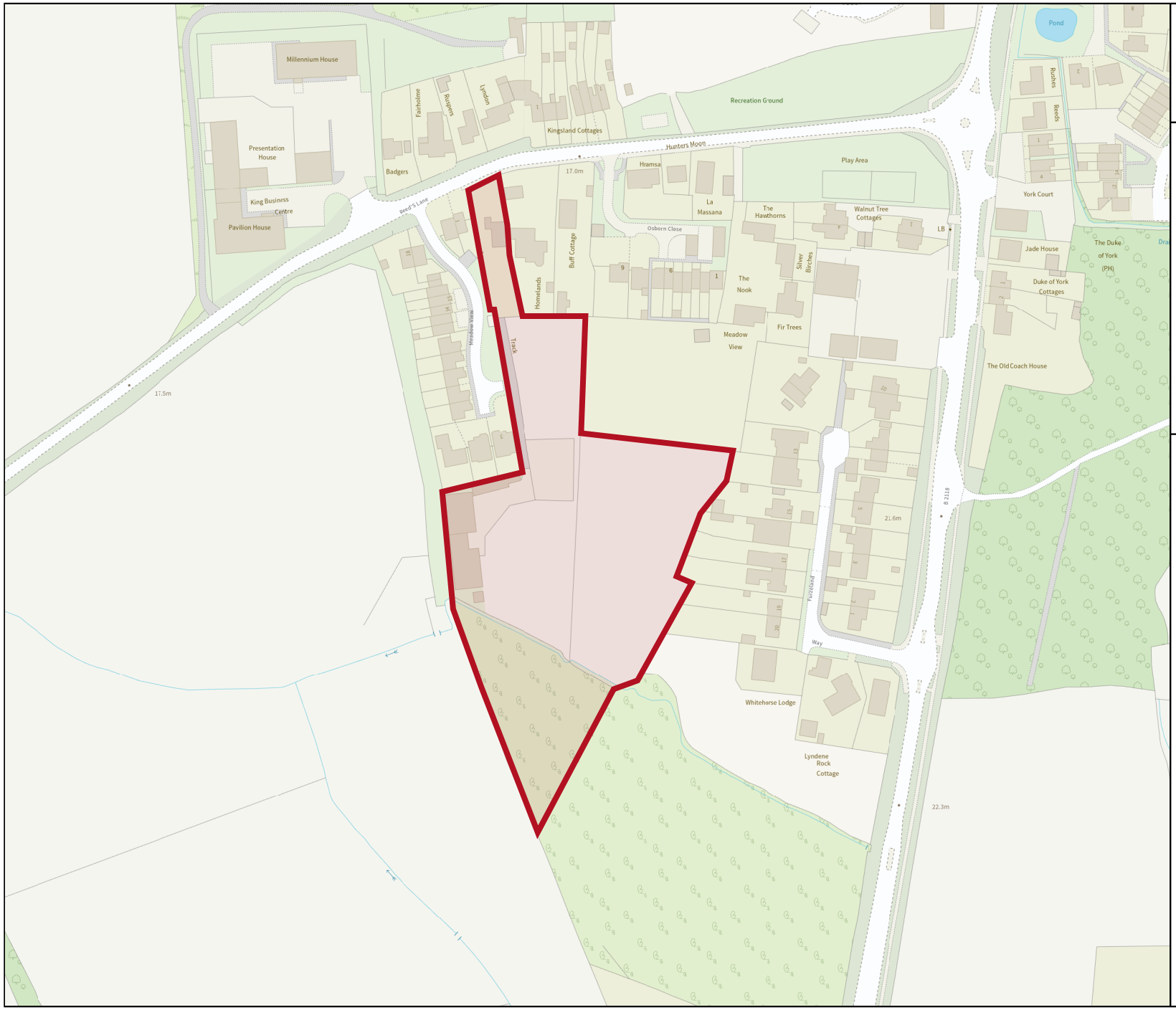
You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 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.



Environment Agency

Flood map for planning

Your reference
Flood Zone Mapping

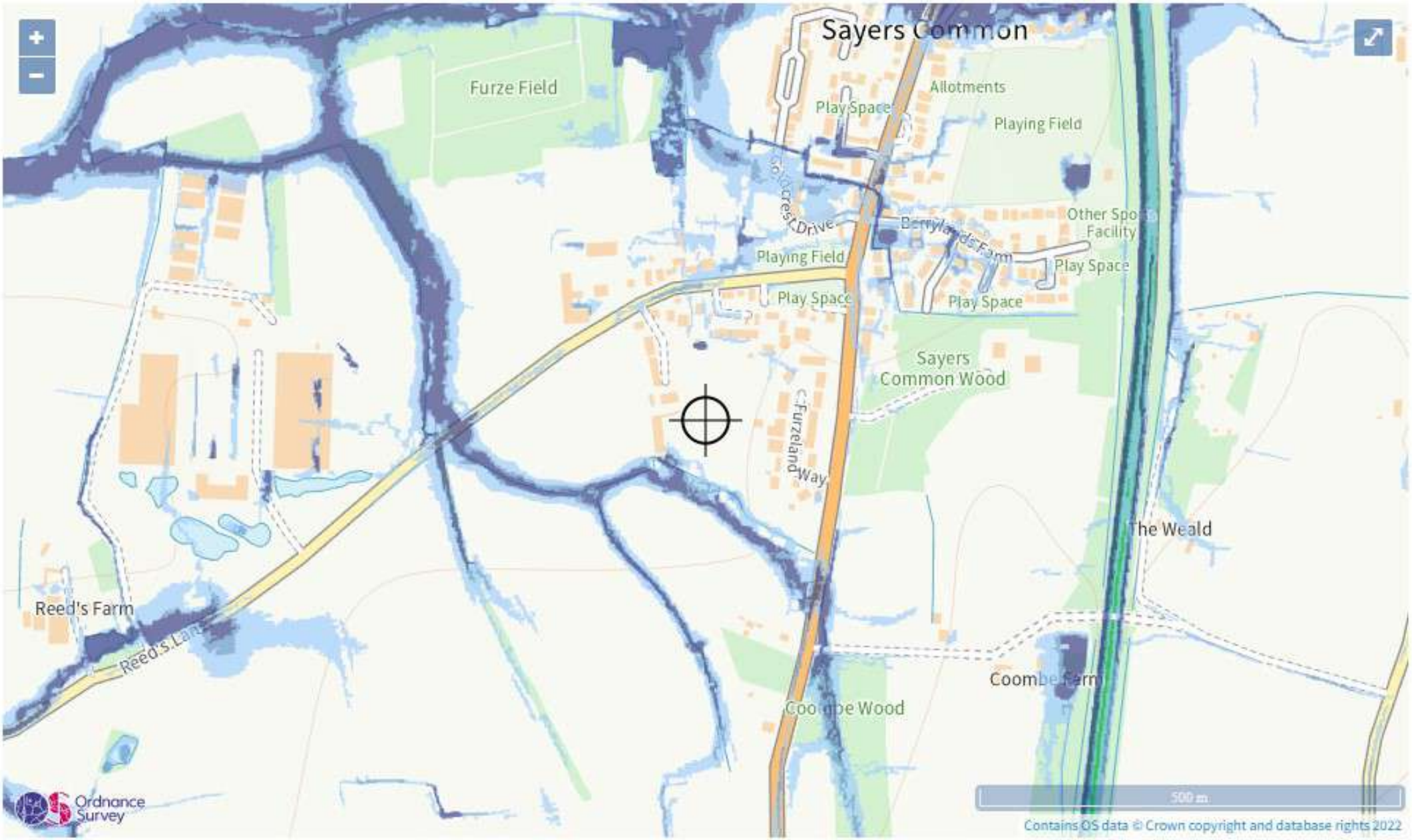
Location (easting/northing)
526502/118014

Scale
1:2500

Created
19 Dec 2022 12:11

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m



Extent of flooding from surface water

High Medium Low Very low Location you selected

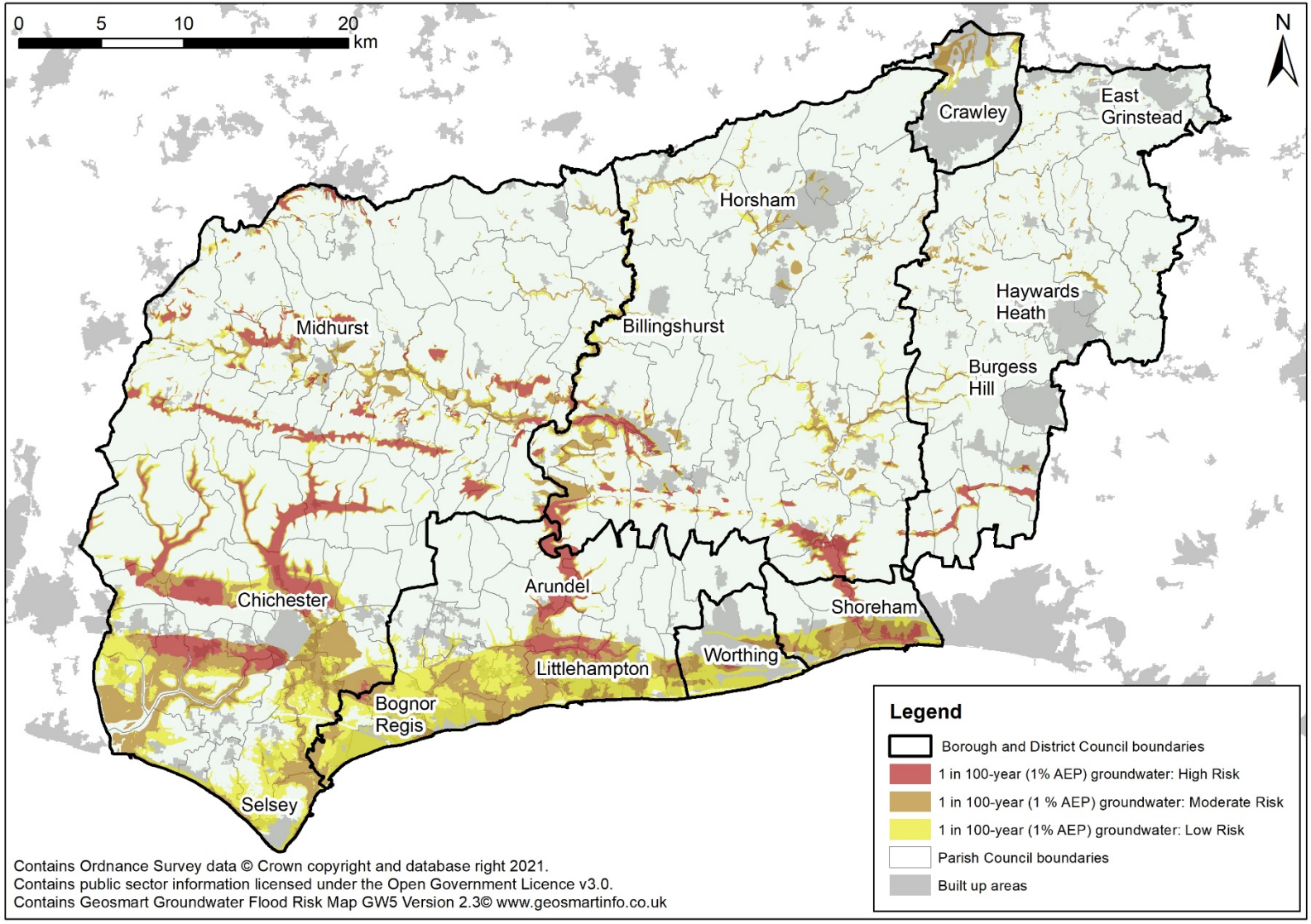
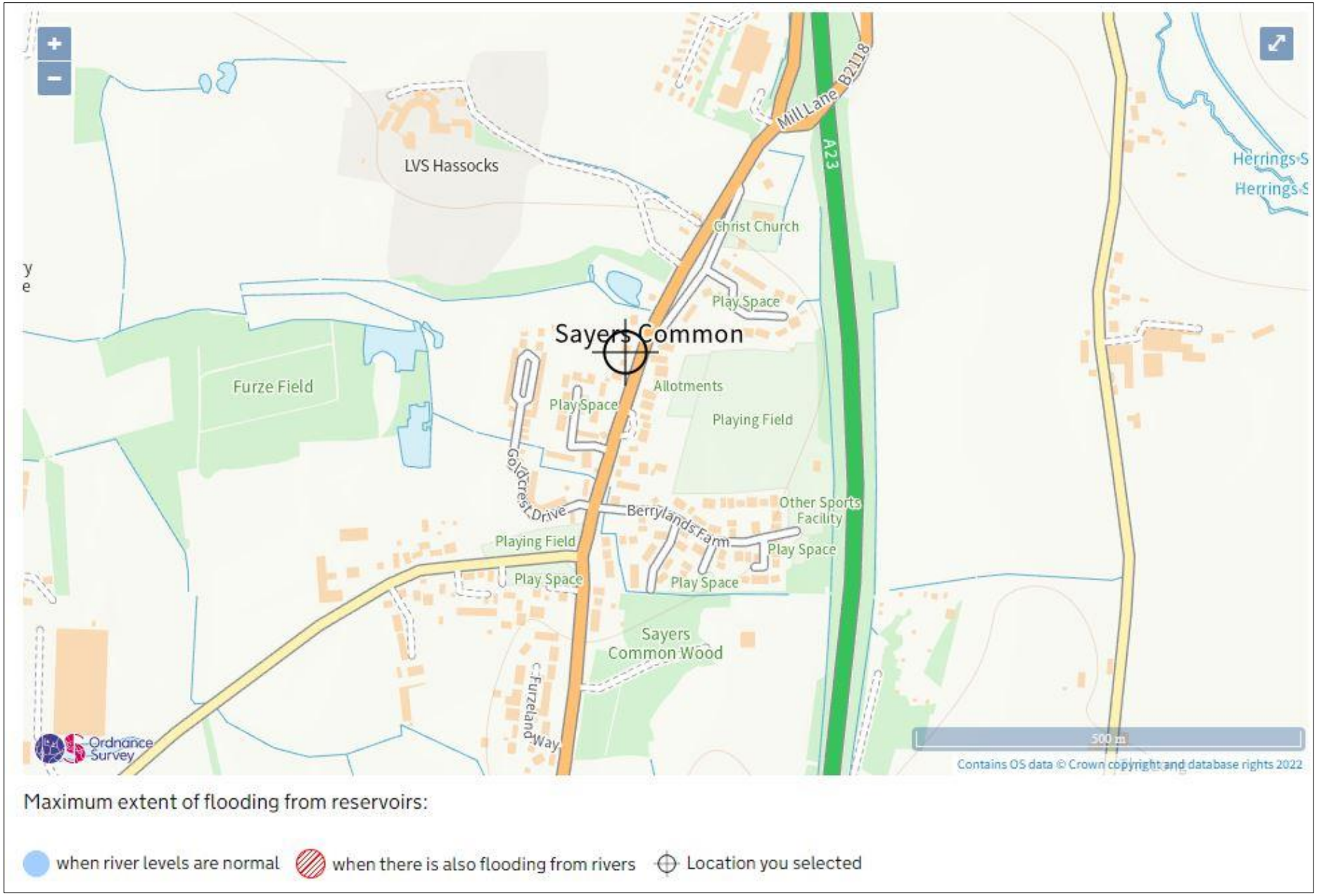


Figure 3-4: Flood risk from groundwater, based on the Groundwater Flood Risk Map



Maximum extent of flooding from reservoirs:

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