



PROPOSED CHANGE OF USE AT BARN A, CORNER FARM, HOXNE, SUFFOLK

FLOOD RISK ASSESSMENT

OCTOBER 2023

REPORT REF: 3302/RE/10-23/01

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CONTRACT

Evans Rivers and Coastal Ltd has been commissioned by Temple Property and Construction Ltd to carry out a Flood Risk Assessment for a proposed change of use at Barn A, Corner Farm, Hoxne, Suffolk.

QUALITY ASSURANCE, ENVIRONMENT AND HEALTH AND SAFETY

Evans Rivers and Coastal Ltd operates a Quality Assurance, Environmental, and Health and Safety Policy.

This project comprises various stages including data collection; hydrological and hydrogeological assessments; surface water drainage designs; and reporting. Quality will be maintained throughout the project by producing specific methodologies for each work stage. Quality will also be maintained by initiating internal quality procedures including the validation of third party deliverables; creation of an audit trail to record any changes made; and document control using a database and correspondence log file system.

To adhere to the Environmental Policy, data will be obtained and issued in electronic format and alternatively by post. Paper use will also be minimised by communicating via email or telephone where possible. Documents and drawings will be transferred in electronic format where possible and all waste paper will be recycled. Meetings away from the office of Evans Rivers and Coastal Ltd will be minimised to prevent unnecessary travel, however for those meetings deemed essential, public transport will be used in preference to car journeys.

The project will follow the commitment and objectives outlined in the Health and Safety Policy operated by Evans Rivers and Coastal Ltd. All employees will be equipped with suitable personal protective equipment prior to any site visits and a risk assessment will be completed and checked before any site visit. Other factors which have been taken into consideration are the wider safety of the public whilst operating on site, and the importance of safety when working close to a water source and highway. Any designs resulting from this project and directly created by Evans Rivers and Coastal Ltd will also take into account safety measures within a "designers risk assessment".

Report carried out by:

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1. INTRODUCTION

1.1 Project Scope

1.1.1 Evans Rivers and Coastal Ltd has been commissioned by Temple Property and Construction Ltd to carry out a Flood Risk Assessment for a proposed change of use at Barn A, Corner Farm, Hoxne, Suffolk.

1.1.2 It is understood that this assessment will be submitted to the Local Planning Authority as part of a planning application. Specifically, this assessment intends to:

- 1) Review any literature and guidance specific to this area such as the SFRA;
- 2) Assess the flood risk from all sources to people and property and propose mitigation measures accordingly;
- 3) Review existing evacuation and warning procedures for the area;
- 4) Report findings and recommendations.

1.1.3 This assessment is carried out in accordance with the requirements of the National Planning Policy Framework (NPPF) dated 2021. Other documents which have been consulted include:

- DEFRA/EA document entitled *Framework and guidance for assessing and managing flood risk for new development Phase 2 (FD2320/TR2)*, 2005;
- Communities and Local Government 2007. *Improving the Flood Performance of New Buildings*. HMSO.
- DEFRA/EA document entitled *The flood risks to people methodology (FD2321/TR1)*, 2006;
- EA *Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purpose*, 2008;
- National Planning Practice Guidance – Flood Risk and Coastal Change.
- UK Government’s climate change allowances guidance.
- Suffolk Local Flood Risk Management Plan dated 2012.
- Suffolk County Council Preliminary Flood Risk Assessment dated 2011.
- Babergh and Mid Suffolk Level 1 Strategic Flood Risk Assessment (SFRA) dated 2020.

2. DATA COLLECTION

2.1 To assist with this report, the data collected included:

- Ordnance Survey 1:10,000 street view map obtained via Promap (Evans Rivers and Coastal Ltd OS licence number 100049458).
- British Geological Survey, *Online Geology of Britain Viewer*.
- Filtered LIDAR data at 1m resolution covering the site and surrounding area.
- 1:625,000 *Hydrogeological Map of England and Wales*, published in 1977 by the Institute of Geological Sciences (now the British Geological Survey).
- Topographical survey data shown on Drawing Number 6424/37A.

3. SITE CHARACTERISTICS

3.1 Existing Site Characteristics and Location

3.1.1 The site is located at Barn A, Corner Farm, Hoxne, Suffolk. The approximate Ordnance Survey (OS) grid reference for the site is 619144 277266 and the location of the site is shown on Figure 1.

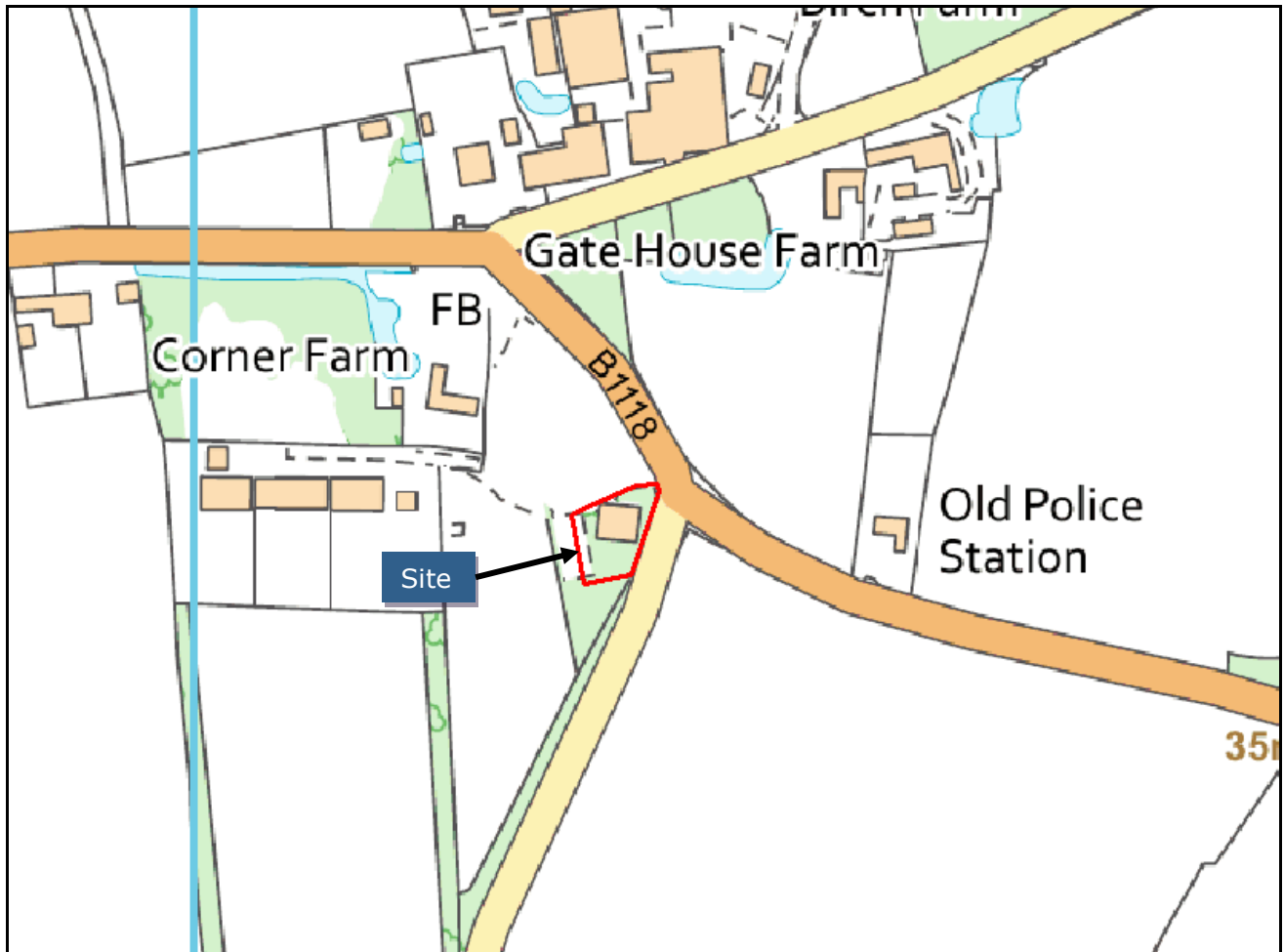


Figure 1: Site location plan (Source: Ordnance Survey)

3.1.2 The site comprises an existing agricultural barn which is accessed from Chickering Road via a shared access adjacent to the northern frontage of the site.

3.1.3 A topographical survey can be seen on Drawing Number 6424/37A. Filtered LIDAR data at 1m resolution has also been obtained to determine and illustrate the topography of the site and surrounding area (Figure 2).

3.1.4 It can be seen from the survey data that there is little variation in ground levels across the site.

3.1.5 The site is set up to 1m higher than Wittons Lane adjacent to the eastern frontage of the site and 0.5m higher than Chickering Road at the north eastern frontage of the site.



Figure 2: Filtered LIDAR survey data at 1m resolution where higher ground is denoted by red and orange colours and lower ground is denoted by blue colours

3.2 Site Proposals

- 3.2.1 It is the Client's intention to change the use of the barn to a residential use. A cart lodge will also be constructed.
- 3.2.2 The proposed site layout can be seen on Drawing Number 6424/37A and 6424/38.

4. SOURCES OF FLOODING

4.1 Fluvial

- 4.1.1 The Environment Agency Flood Map (Figure 3) and Appendix B of the SFRA (Hoxne Ward) shows that the site is located within the NPPF Flood Zone 1, 'Low Probability' which comprises land as having less than a 1 in 1000 year annual probability of fluvial or tidal flooding (i.e. an event more severe than the extreme 1 in 1000 year event). NPPF states that all uses of land are appropriate in this zone.

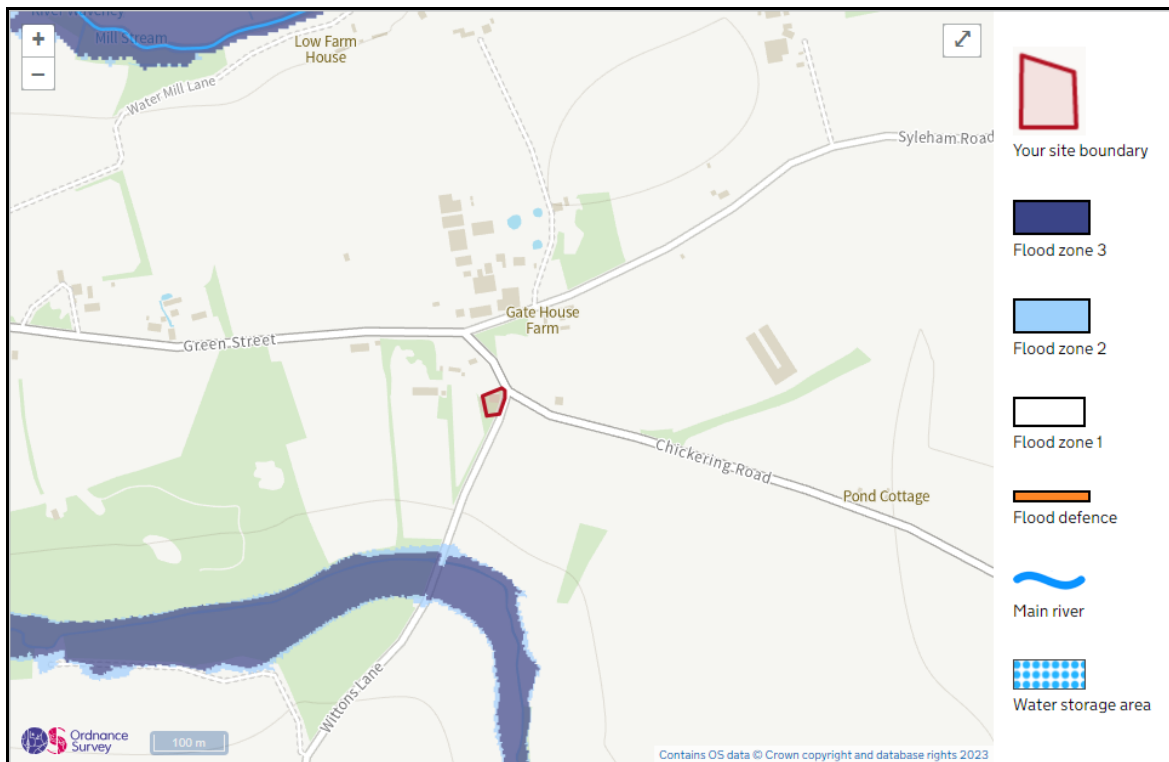


Figure 3: Environment Agency Flood Zone Map (Source: Environment Agency)

4.2 Groundwater Flooding

- 4.2.1 In order to assess the potential for groundwater flooding during higher return period rainfall events, the Jacobs/DEFRA report entitled *Strategy for Flood and Coastal Erosion Risk Management: Groundwater Flooding Scoping Study*, published in May 2004, was consulted, together with the guidance offered within the document entitled *Groundwater flooding records collation, monitoring and risk assessment (ref HA5)*, commissioned by DEFRA and carried out by Jacobs in 2006.

Soil and Geology at the Site

- 4.2.2 The British Geological Survey's *Online Geology of Britain Viewer*, indicates that the soils beneath the site comprise clay deposits.

Groundwater Flooding Potential at the Site

- 4.2.3 There have been no recorded groundwater flood events across the area between 2000 and 2003, as indicated by the Jacobs study. Appendix G of the SFRA indicates that this

area is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.

4.3 Surface Water Flooding and Sewer Flooding

- 4.3.1 Surface water and sewer flooding across urban areas is often a result of high intensity storm events which exceed the capacity of the sewers thus causing them to surcharge and flood. Poorly maintained sewer networks and blockages can also exacerbate the potential for sewer flooding. Surface water flooding can also occur as a result of overland flow across poorly drained rural areas.
- 4.3.2 Appendix E of the SFRA shows that there have been no recorded sewer flood incidents in this postcode area. Appendix D of the SFRA indicates that there have been no recorded flood incidents at the site and no flood incidents have been investigated at this location by Suffolk County Council.
- 4.3.3 The Environment Agency’s Surface Water Flooding Map (Figure 4 and 5) together with Appendix A of the SFRA indicates that there is a very low surface water flood risk across the site (i.e. less than a 1 in 1000 year chance).
- 4.3.4 Further more detailed data has been obtained via the Data.gov.uk site (<https://environment.data.gov.uk/DefraDataDownload/?Mode=rofsw>). The flood extent, depth and hazard GIS *shape file* was downloaded from Data.gov.uk (for tile TM_17).
- 4.3.5 It is generally accepted that the low risk flood event (i.e. between 1 in 1000 years and 1 in 100 years) on the Agency’s map is used as a substitute for the climate change 1 in 100 year event to provide a worst-case scenario. There is no policy requirement to apply climate change onto the 1 in 1000 year event, as climate change is applied up to the 1 in 100 year event as confirmed at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#when-to-use-climate-change-allowance>.



Figure 4: Environment Agency Surface Water Flooding Map (Source: Environment Agency, 2023)

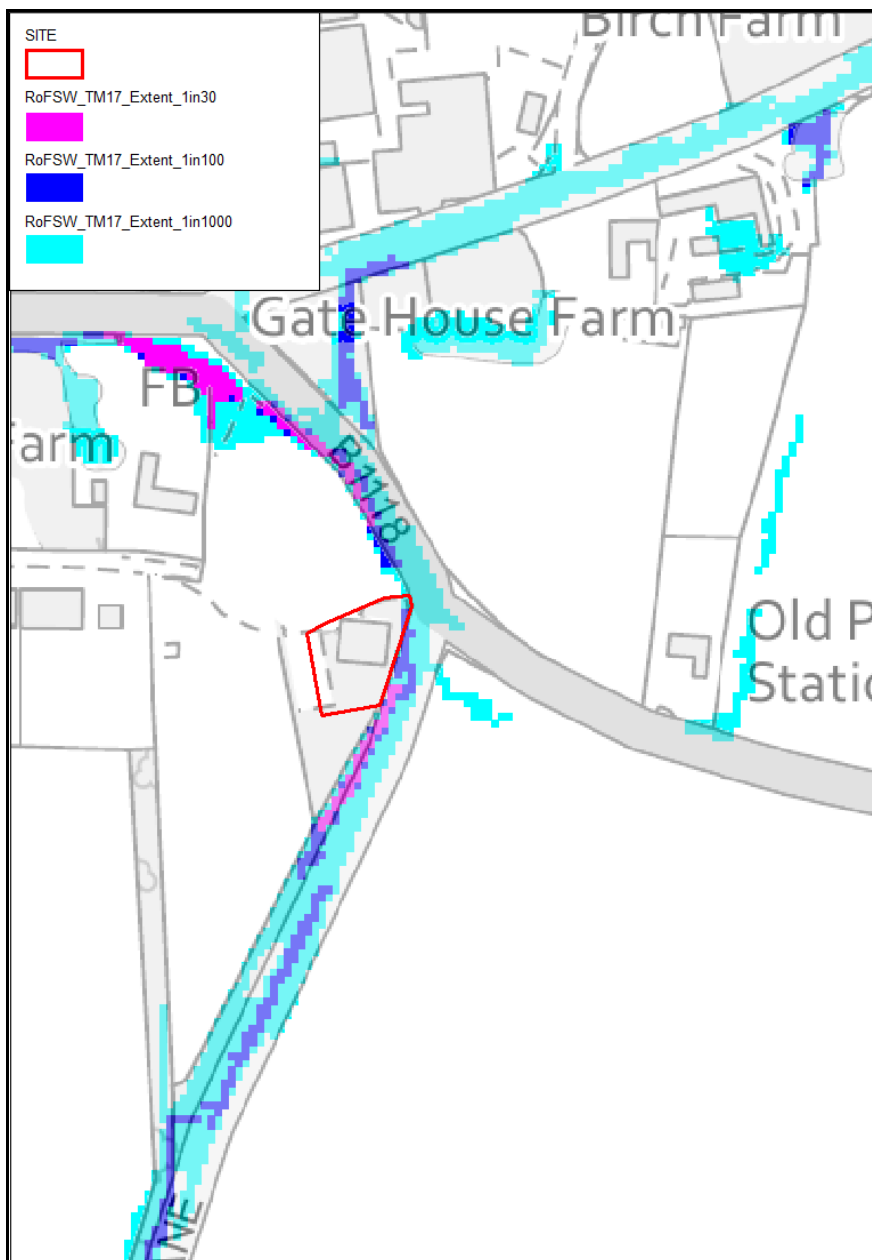


Figure 5: Environment Agency Surface Water Flooding Map (Source: Environment Agency, 2023)

Safe Access/Egress

- 4.3.6 The Agency’s map shows that there is a low risk along Chickering Road adjacent to the shared site entrance.
- 4.3.7 The flood hazard to people accessing or leaving the site can be calculated based on the numerical hazard rating extracted from the model which is then categorised into four degrees of flood hazard (Table 1) in accordance with Table 3.2 of *FD2321/TR1* and Table 4.2 of *FD2321/TR2*.

Table 1: Hazard to people categories (taken from Table 3.2 of FD2321/TR1 and Table 4.2 of FD2321/TR2)

Hazard Rating	Degree of Flood Hazard	Description
< 0.75	Very low hazard	Caution "Flood zone with shallow flowing water or deep standing water"
0.75 – 1.25	Danger for Some	Dangerous for some (i.e. children) "Danger: Flood zone with deep or fast flowing water"
1.25 – 2.0	Danger for Most	Dangerous for most people (i.e. general public) "Danger: Flood zone with deep fast flowing water"
> 2.0	Danger for All	Dangerous for all "Extreme danger: flood zone with deep fast flowing water"

4.3.8 By reviewing the flood hazard GIS *shape file* downloaded from Data.gov.uk (<https://environment.data.gov.uk/DefraDataDownload/?Mode=rofsw>) it can be seen that the hazard to people leaving the site during low risk events would largely be *Very low* as shown on Figure 6 (apart from 9m along Chickering Road which would be *Dangerous for Most/Dangerous for Some*).

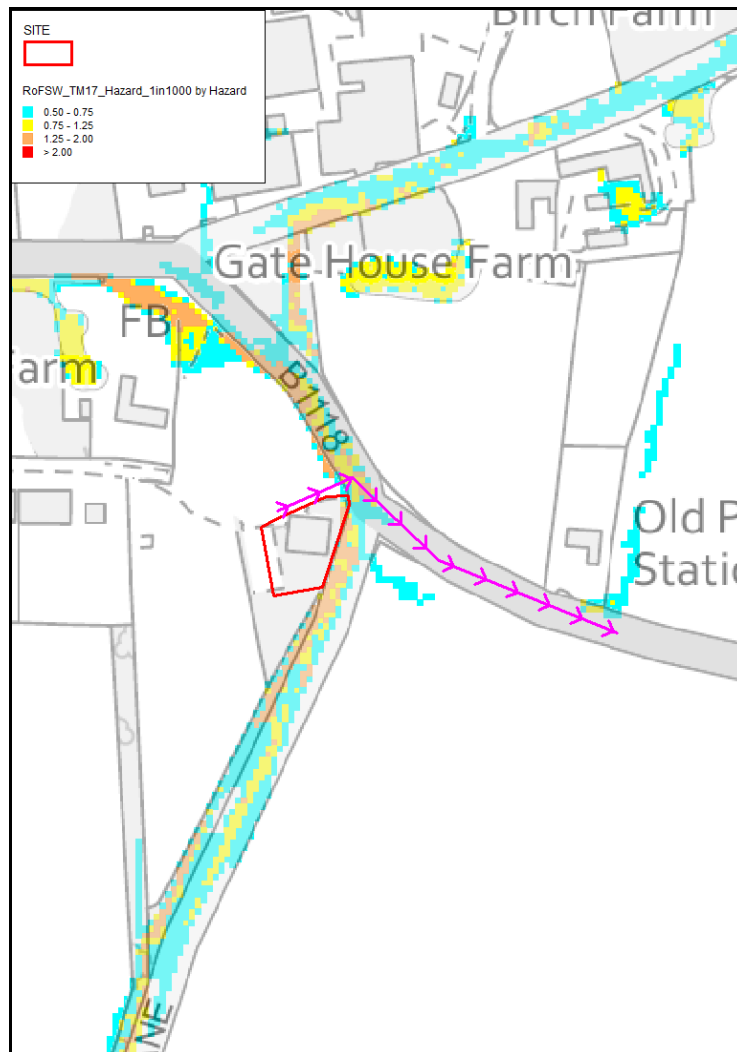


Figure 6: Preferred evacuation route and hazard (see Table 1 for hazard classification)

4.4 Reservoirs, Canals And Other Artificial Sources

- 4.4.1 The failure of man-made infrastructure such as flood defences and other structures can result in unexpected flooding. Flooding from artificial sources such as reservoirs, canals and lakes can occur suddenly and without warning, leading to high depths and velocities of flood water which pose a safety risk to people and property.
- 4.4.2 The Environment Agency’s “Risk of flooding from reservoirs” map suggests that the site is not at risk from reservoirs.

5. CONCLUSIONS

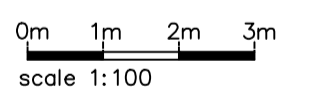
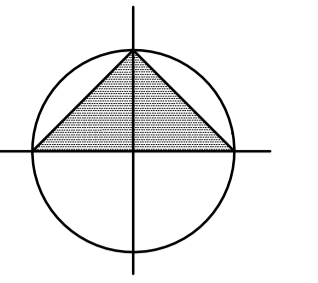
- The site is located within Flood Zone 1.
- There is a low groundwater flood risk and low risk from reservoirs.
- There is a very low surface water flood risk across the site. A more detailed analysis of the flood risk has been undertaken using the Data.gov.uk GIS data.
- The mapping shows that the site is located across very low surface water flood risk areas (i.e. chance less than 1 in 1000 years) thus providing safe dry refuge and no increase in flood risk elsewhere.
- It is generally accepted that the low risk flood event (i.e. between 1 in 1000 years and 1 in 100 years) on the Agency's map is used as a substitute for the climate change 1 in 100 year event to provide a worst-case scenario. There is no policy requirement to apply climate change onto the 1 in 1000 year event, as climate change is applied up to the 1 in 100 year event as confirmed at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#when-to-use-climate-change-allowance>.
- The site is therefore located outside of the low risk (1000yr/100yr plus climate change) flood extent.
- Safe access/egress is largely available at all times.

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DRAWINGS



revision	description	date
Rev A	General amendments	Sept 2023

Client: Naomi Hull

Job Title: Corner Farm, Hoxne

Drawing Title: Barn A - Site Plan

Scale: 1:100 Drawn By: LS Date: Aug 2023

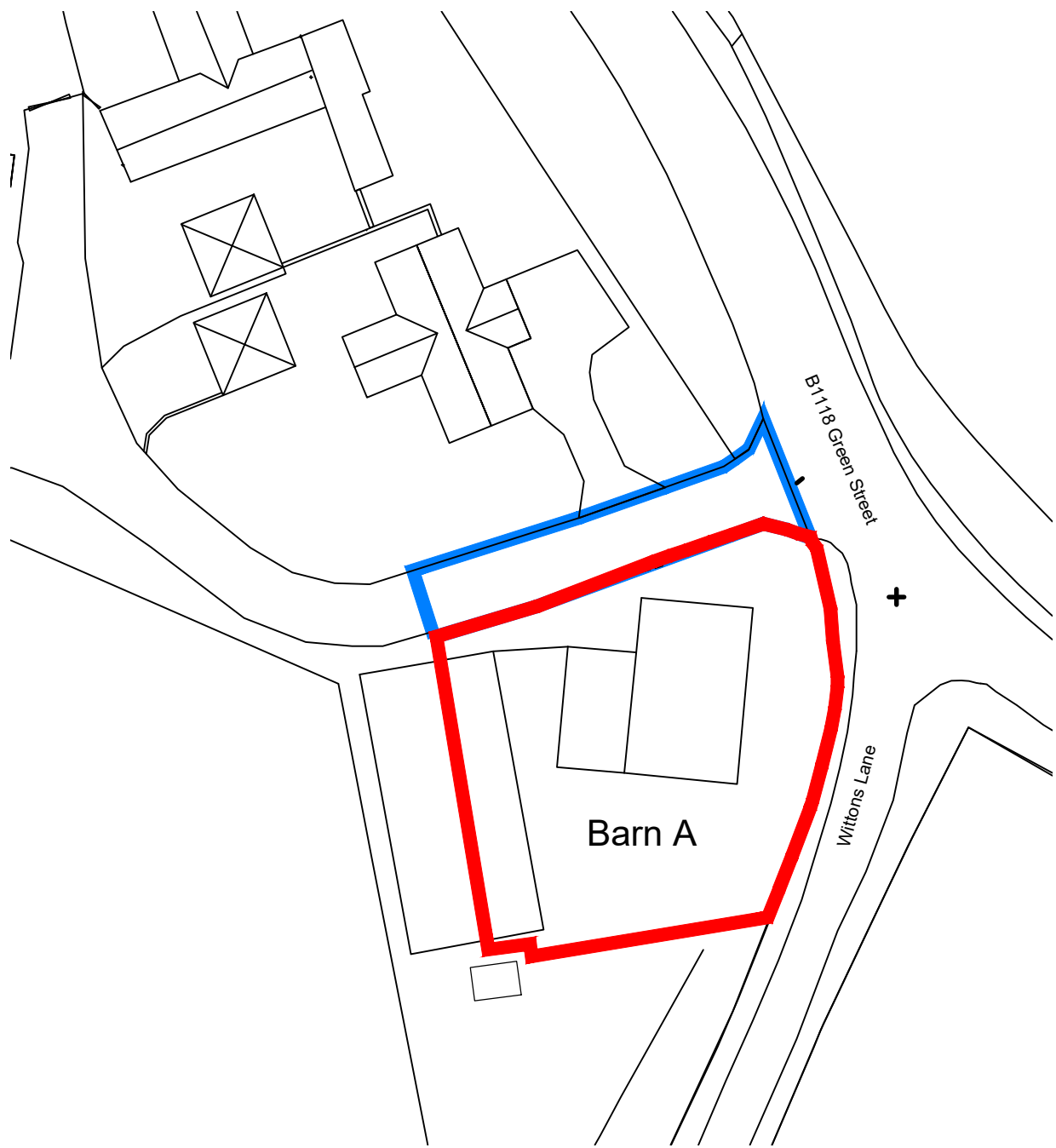
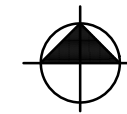
Job Number: 6424 Drawing Number: 37A Status: Preliminary



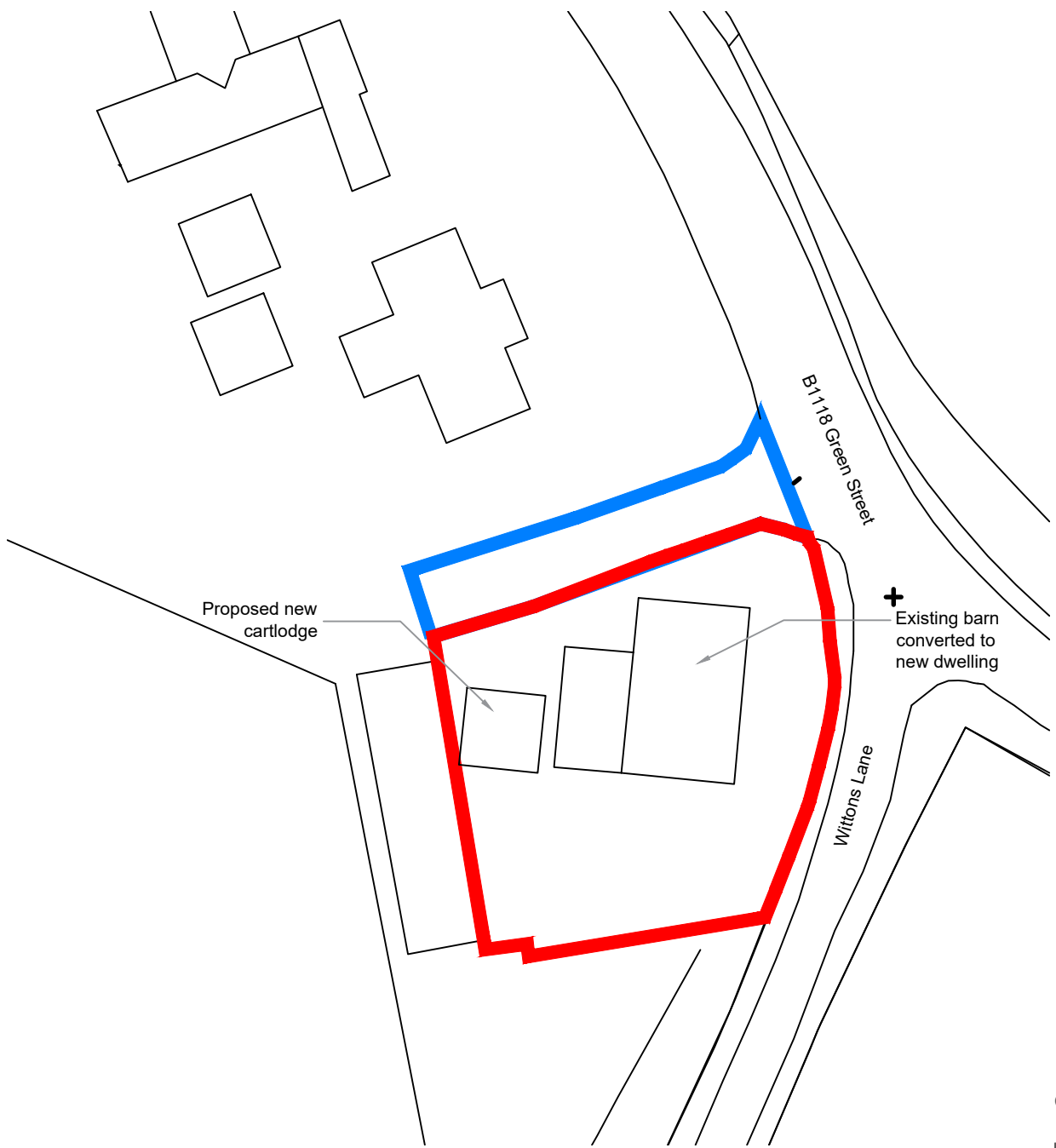
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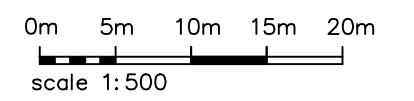
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Existing Block Plan



Proposed Block Plan



revision	description	date

Client: Naomi Hull
 Job Title:
 Drawing Title: Corner Farm, Hoxne
Barn A - Block Plan
 Scale: 1:500 Drawn By: LS Date: Aug 2023
 Job Number: 6424 Drawing Number: 38 Status: Preliminary



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