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# Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

## Site CfS23:24234

## Final Draft Report

**Prepared for**

Huntingdonshire District Council

**Date**

August 2025

Huntingdonshire DISTRICT COUNCIL

# Document Status

| | |
|---|---|
| Issue date | 6 November 2025 |
| Issued to | Frances Schulz |
| BIM reference | JFI-JBA-XX-XX-RP-EN-0062 |
| Revision | P03 |
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# Contract

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This report describes work commissioned by Huntingdonshire District Council by an instruction via email dated 21 July 2025. The Client's representative for the contract was Frances Schulz of Huntingdonshire District Council. Kira Khangura of JBA Consulting carried out this work.

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between 21 July 2025 and 6 November 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate.


## Acknowledgements

We would like to thank the Environment Agency, Cambridgeshire County Council for their assistance with this work.

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# 1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan Site CfS23-24288. The content of this report assumes the reader has already consulted the 'HDC Level 1 SFRA' (2024) and read the 'HDC Level 2 SFRA Main Report' (2025) and is therefore familiar with the terminology used in this report.

## 1.1 Site CfS23-24234

- Location: Land adjacent to Meadow Road and Hall Farm Road, Great Gransden
- Existing site use: Agricultural
- Existing site use vulnerability: Less vulnerable
- Proposed site use: Residential
- Proposed site use vulnerability: More vulnerable
- Site area (ha): 1.9
- Watercourse:  Unnamed ordinary watercourse and Gransden Brook
- Environment Agency (EA) model: N/A
- Summary of requirements from Level 2 SFRA scoping stage:
    - Assessment of surface water flood extent, depths and hazards
    - Assessment of all other sources of flood risk


Figure 1-1: Existing site location boundary


Figure 1-2: Aerial photography

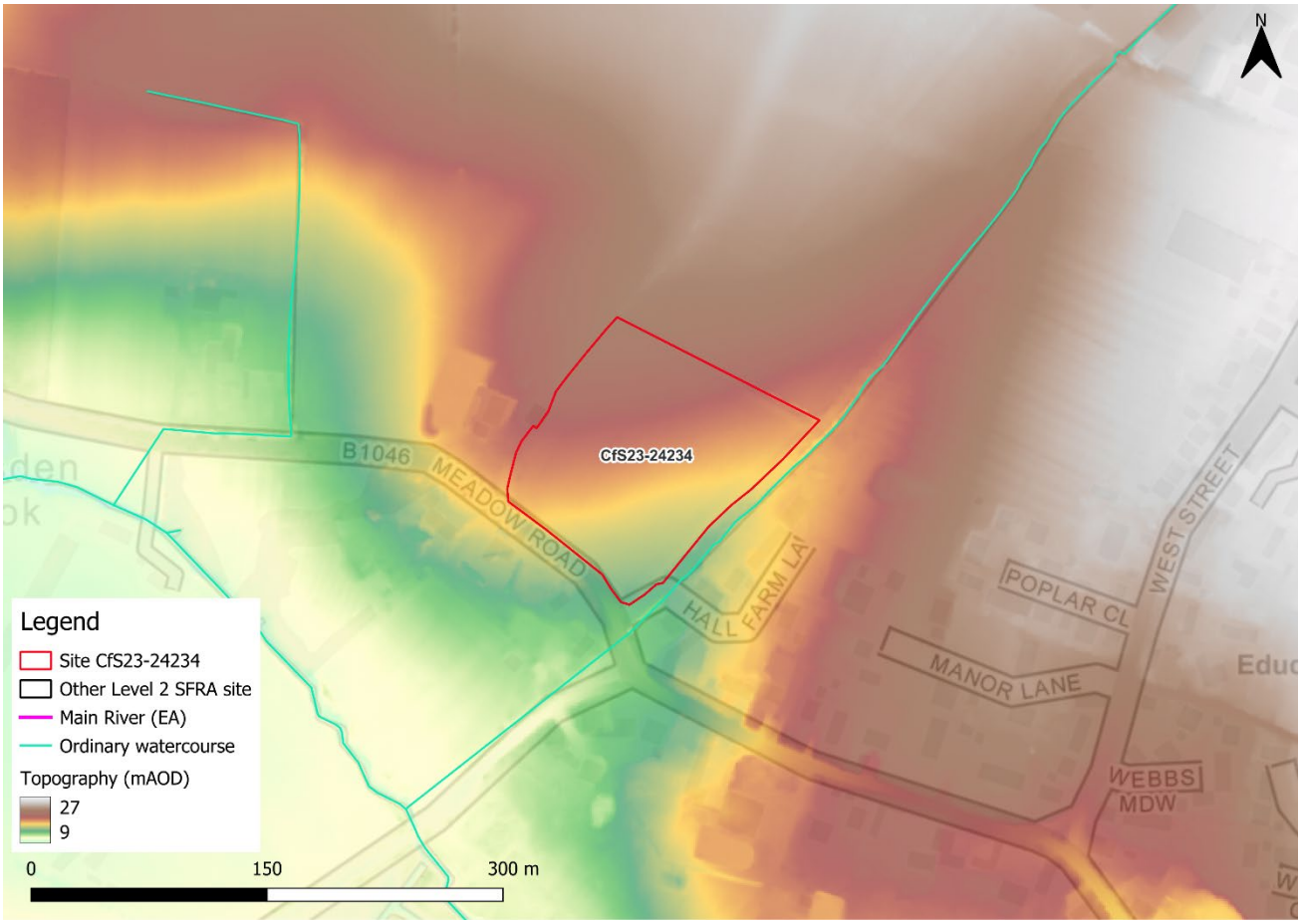


Figure 1-3: Topography

# 2 Flood risk from rivers and sea

## 2.1 Existing risk

### 2.1.1 Flood Map for Planning and functional floodplain

Based on the EA's Flood Map for Planning (accessed July 2025) and Flood Zone 3b (functional floodplain), as updated in this Level 2 SFRA, the percentage areas of the site within each flood zone are stated in Table 2-1 and can be viewed on Figure 2-1. This version of the Flood Map for Planning does not consider flood defence infrastructure (Section 2.2) or the impacts of climate change (Section 2.3).

The site is located wholly within Flood Zone 1 and therefore at low risk from rivers and the sea.

Table 2-1: Existing flood risk based on percentage area of site at risk

| Flood Zone 1 (% area) | Flood Zone 2 (% area) | Flood Zone 3a (% area) | Flood Zone 3b (% area) |
|---|---|---|---|
| 100 | 0 | 0 | 0 |

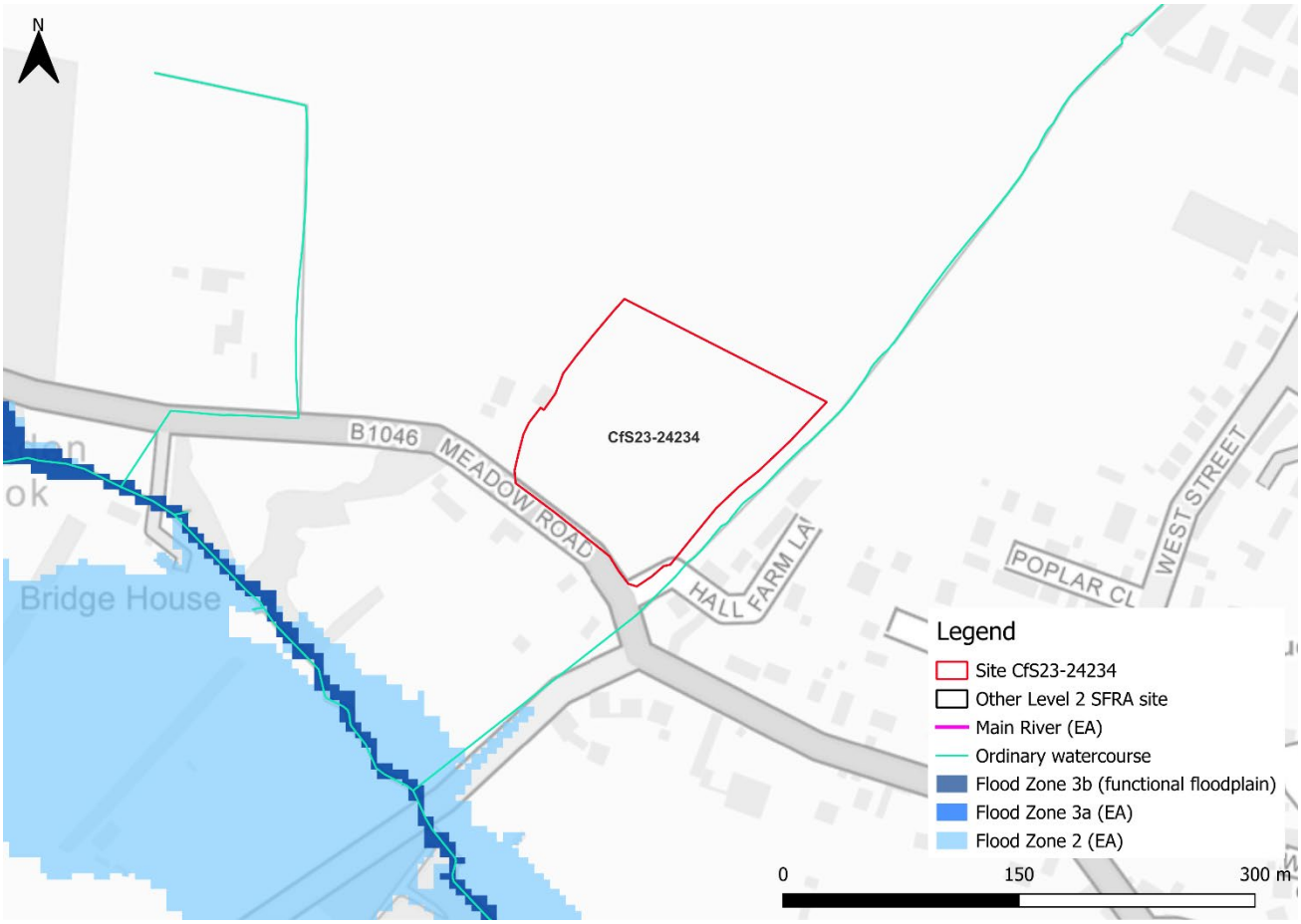


Figure 2-1: Existing risk

## 2.2 Flood risk management

### 2.2.1 Flood defences

There are no engineered flood defences within the vicinity of the site that are likely to impact fluvial flood risk.

### 2.2.2 Working with Natural Processes

The EA's Working with Natural Processes (WwNP) dataset has been interrogated to identify opportunities for Natural Flood Management (NFM) to reduce flood risk to the site and surrounding areas. These areas are shown in 2-2. Note, the WwNP mapping is broadscale and indicative, therefore further investigation will be required for any land shown to have potential for WwNP. Within the site and surrounding area, there is potential for woodland tree planting to intercept, slow, store and filter water. There is a small area of potential for riparian tree planting which can slow flows, reduce sediment delivery to the watercourse and reduce bankside erosion.

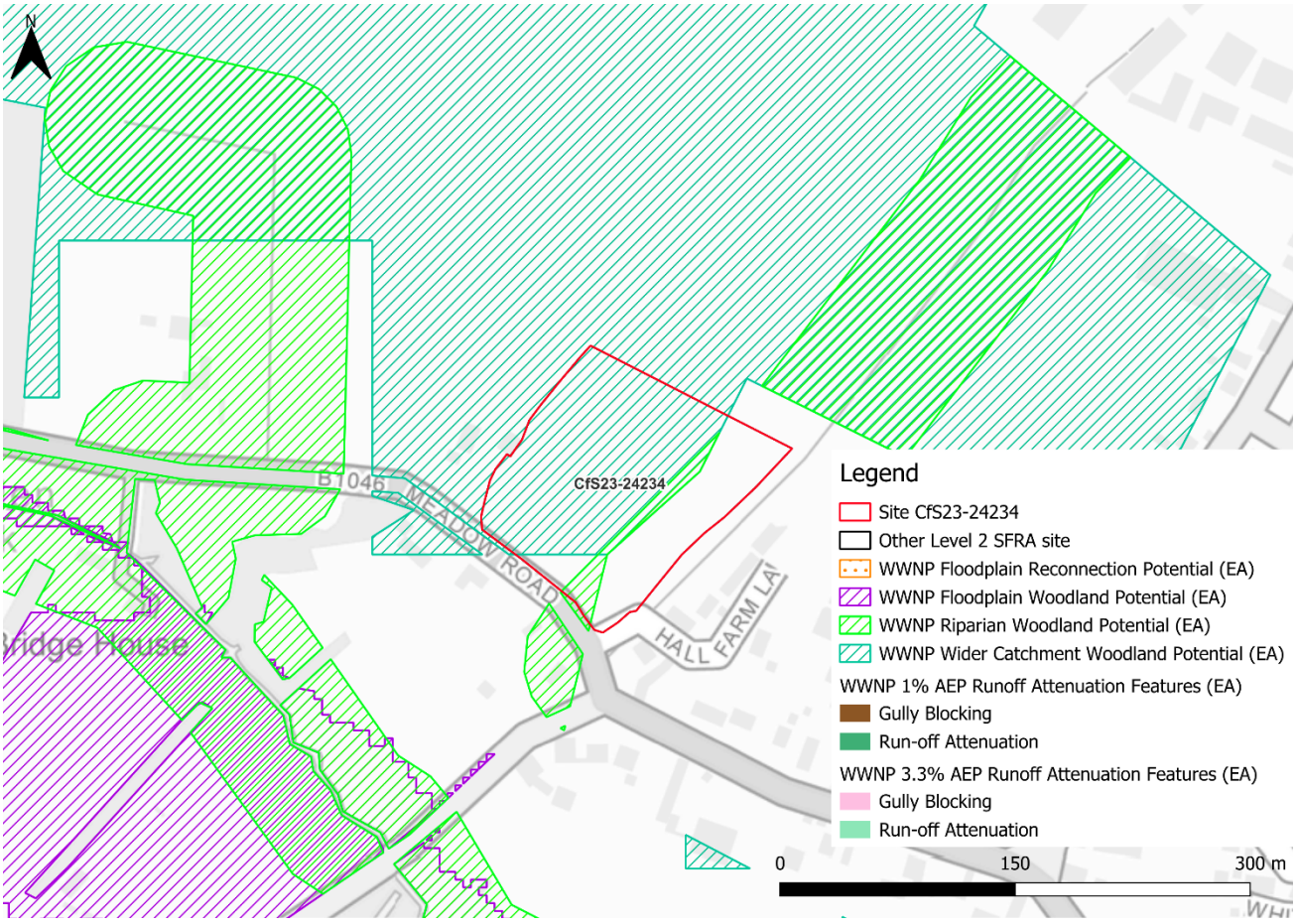


Figure 2-2: Natural Flood Management (NFM) potential mapping

## 2.3 Impacts from climate change

### 2.3.1 Fluvial

The EA's Flood Map for Planning shows the site is not at risk from fluvial climate change.

### 2.3.2 Tidal

The EA's Flood Map for Planning shows the site is not at risk from tidal climate change.

## 2.4 Historic flood incidents

The EA's Historic Flood Map (HFM) and Recorded Flood Outlines (RFO) datasets have been considered. No historic events have been recorded on or near the site.

## 2.5 Emergency planning

### 2.5.1 Flood warning

The EA operates a Flood Warning Service for properties located within a Flood Warning Area (FWA) for when a flood event is expected to occur. This site is not located within a FWA.

Flood alerts may be issued before a flood warning for properties located within a Flood Alert Area (FAA) to provide advance notice of the possibility of flooding. A flood alert may be issued when there is less confidence that flooding will occur in a FWA. This site is not located within a FAA.

### 2.5.2 Access and escape routes

Based on available information, safe access and escape routes could likely be achieved during a flood event via Meadow Road to the southeast, as shown in Figure 2-3. However, where the ordinary watercourse is culverted under Meadow Road to the southeast, flooding is modelled to the road. This risk should be investigated at the FRA stage where it must be proven that safe access to and escape from the site can be achieved at times of flood. Access to the west appears achievable based on surface water depths and hazards.


Figure 2-3: Potential access and escape routes

## 2.6 Observations, mitigation options, site suitability, sequential approach to development management - fluvial

- Observations:
  - The site is located wholly within fluvial Flood Zone 1 and is not shown to be at additional risk from climate change.
  - The proposed development of the site would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
  - The extent of fluvial risk from the ordinary watercourse is currently unknown. Using the 0.1% AEP surface water event as a proxy, risk is modelled to remain largely confined to the areas immediately surrounding the watercourse.
- Defences:
  - There are no engineered flood defences within the vicinity of the site that are likely to impact fluvial flood risk.
- Mitigation:

- The site-specific FRA should investigate risk from the ordinary watercourse to understand potential fluvial risk to the site and the option of including the channel and risk areas within a blue green corridor should be considered.

- Access and escape:
  - Safe access and escape routes must be available at times of flood and appear to be available from the southeast of the site, via Meadow Road. However, risk along this road should be investigated at the FRA stage.

# 3 Flood risk from surface water

## 3.1 Existing risk

The NaFRA2 Risk of Flooding from Surface Water (RoFSW) mapping received a significant update and was published January 2025, including for surface water flood extents and depths. However, at the time of writing, the EA has confirmed that the depth information available is not structured in a way that is suitable for planning purposes. Therefore, this Level 2 SFRA considers the third generation RoFSW depth and hazard mapping in addition to the NaFRA2 extents, as agreed with the EA. Surface water depth and hazard should be modelled at the site-specific FRA stage.

### 3.1.1 Risk of Flooding from Surface Water - NaFRA2 extents

Based on the EA's national scale RoFSW map, as updated in January 2025, surface water risk to the site is predominantly very low. Approximately 1% of the site is at high surface water risk, 1% is at medium surface water risk and 1% is at low surface water risk.

Table 3-1: Existing surface water flood risk based on percentage area at risk using the NaFRA2 RoFSW map

| Very low risk (% area) | Low risk (% area) | Medium risk (% area) | High risk (% area) |
|---|---|---|---|
| 97 | 1 | 1 | 1 |

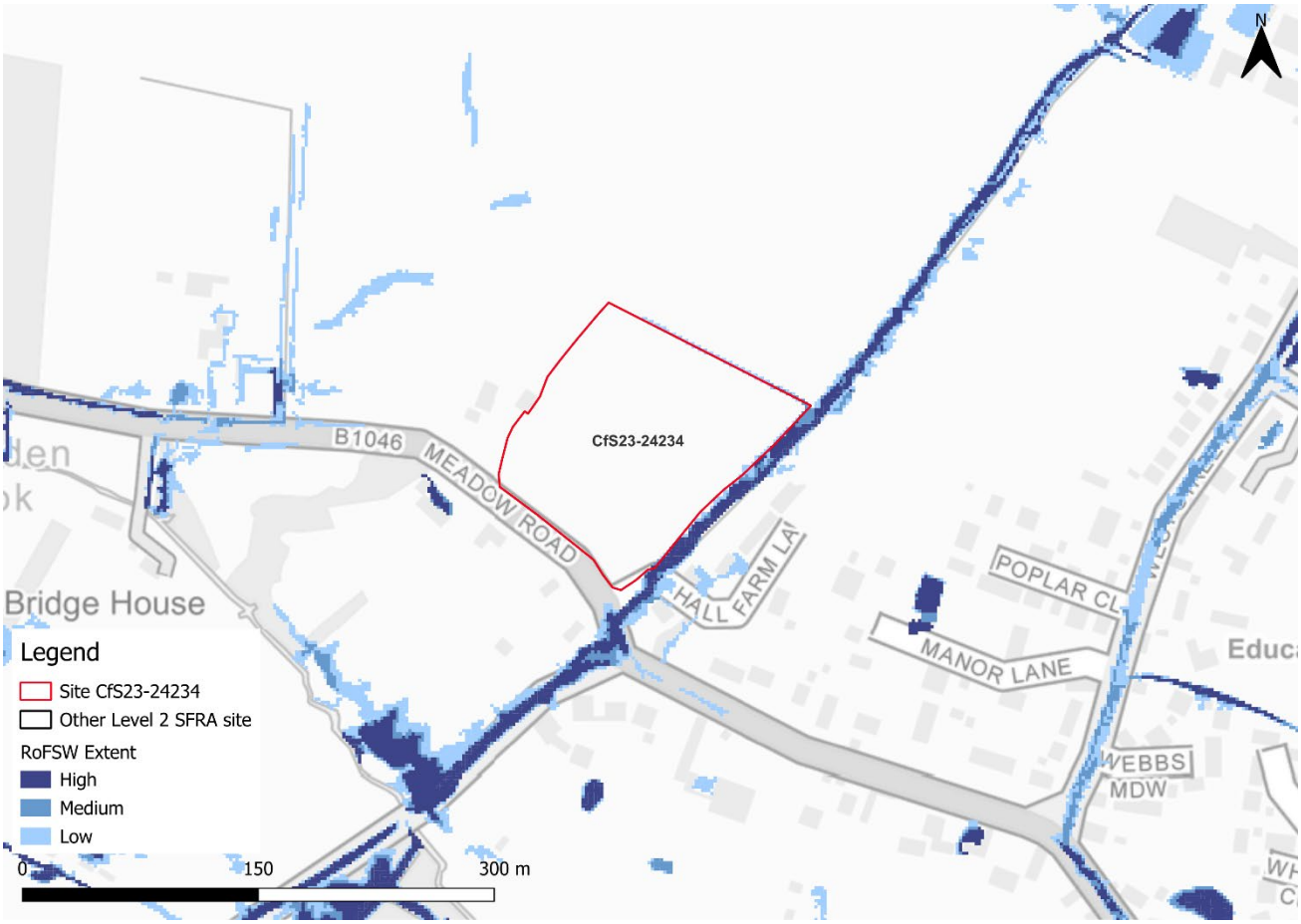


Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

### 3.1.2 Risk of Flooding from Surface Water - third generation depths and hazard

Based on the EA's national scale third generation RoFSW map, flow paths largely remain within the channels of the ordinary watercourse along the site boundary. The third generation mapping is similar to the NaFRA2 RoFSW mapping.

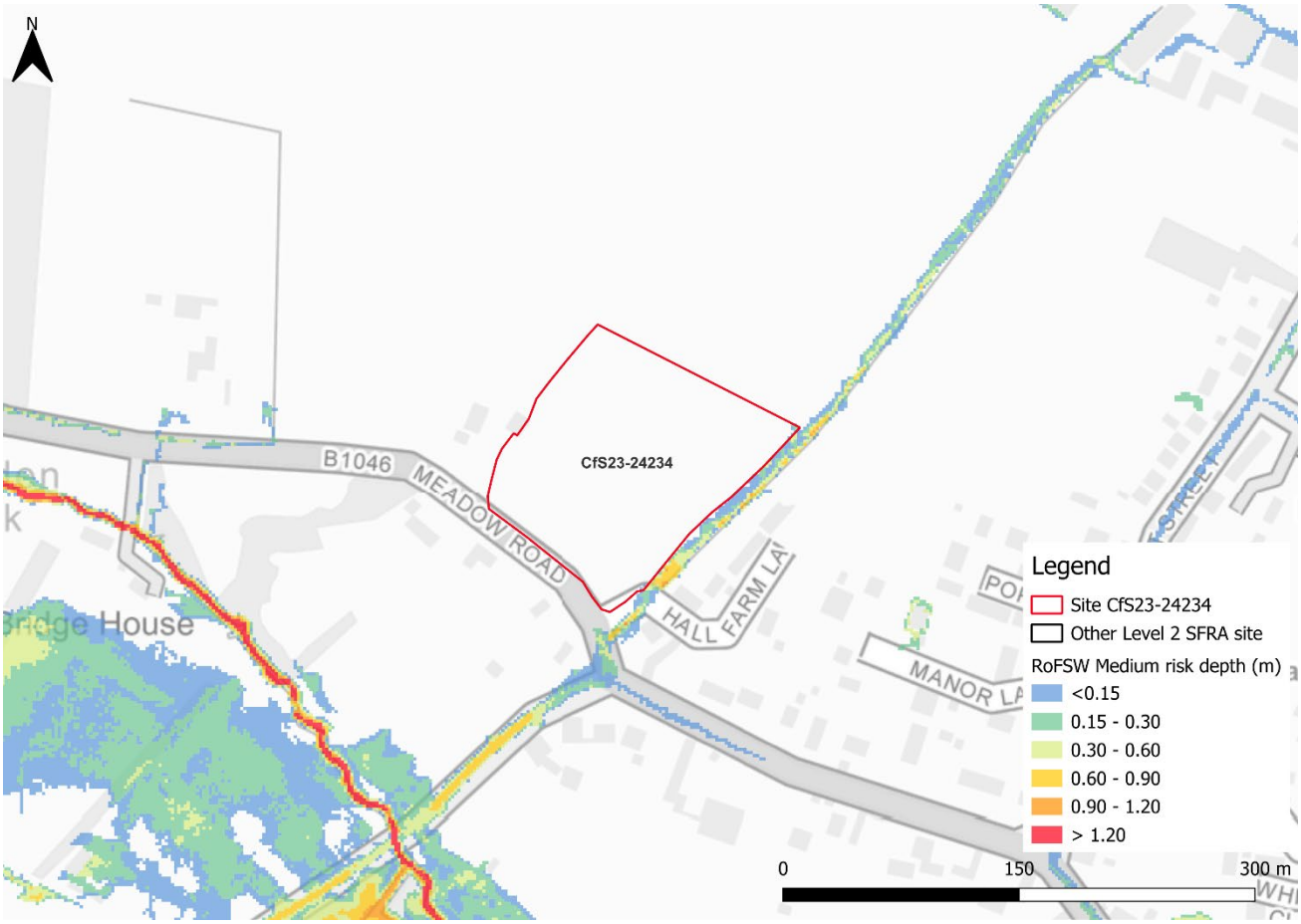


Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

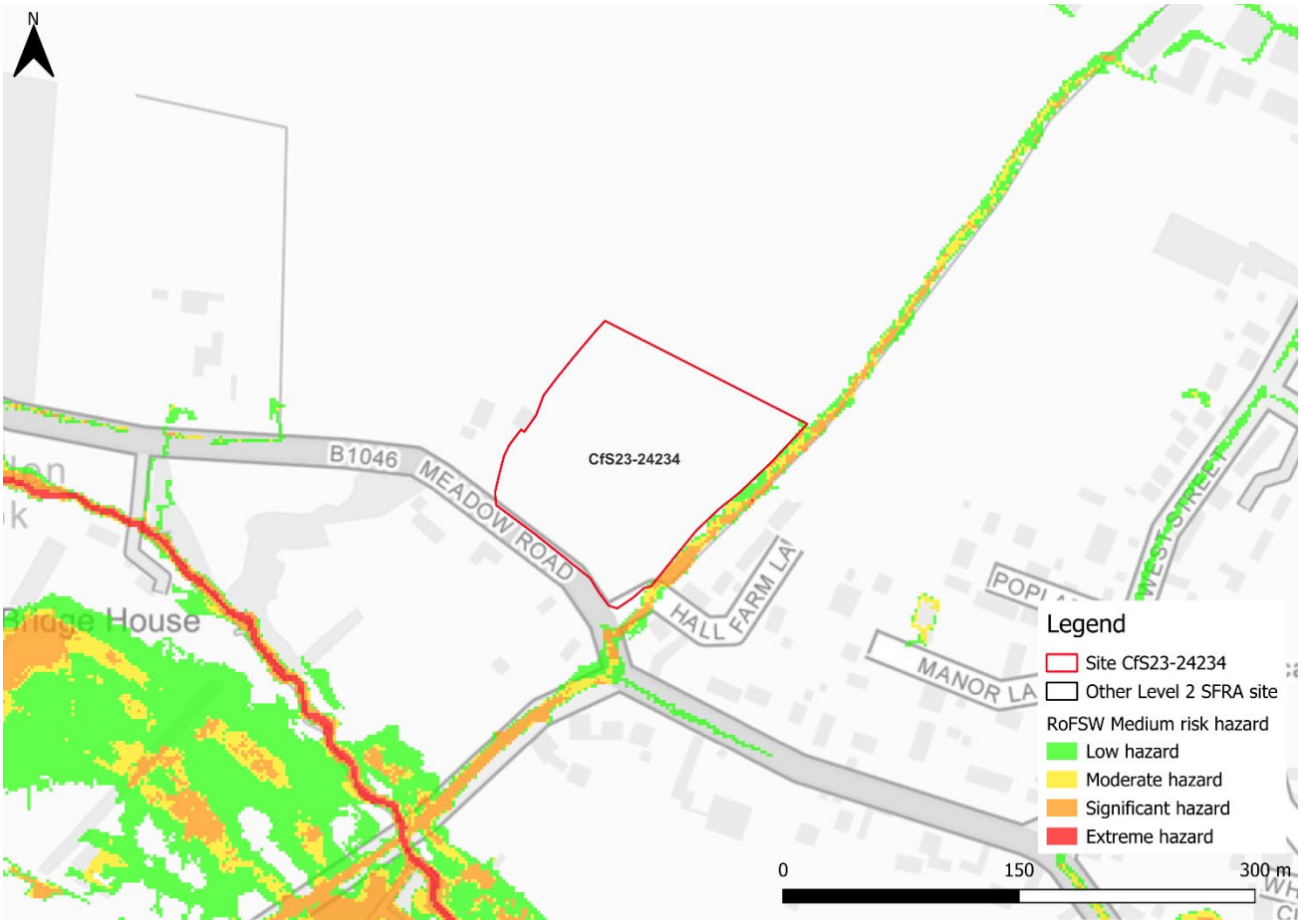


Figure 3-3: Medium risk event surface water flood hazard[1] (Third generation - Risk of Flooding from Surface Water map)

## 3.2 Impacts from climate change

The NaFRA2 RoFSW mapping now includes one modelled climate change scenario, the 2050s central allowance for the high, medium and low risk events. However, the upper end allowance on peak rainfall for the 2070s should be assessed in SFRAs.

Therefore, at the time of writing, the available national surface water climate change mapping is unsuitable for consideration in development planning. This Level 2 SFRA considers the low risk surface water event as a conservative proxy for the medium risk event plus climate change, as agreed with the EA. The impact of climate change on surface water flood risk should be fully accounted for at the site-specific FRA stage.

Based on the information available, during the low risk surface water event, risk is largely confined to the channels of the watercourse along the site boundary, However Figure 3-4 shows a smaller, new channel on the northeast site boundary.

1 Based on Section 7.5 Hazard rating. What is the Risk of Flooding from Surface Water map? Report version 2.0. April 2019. Environment Agency

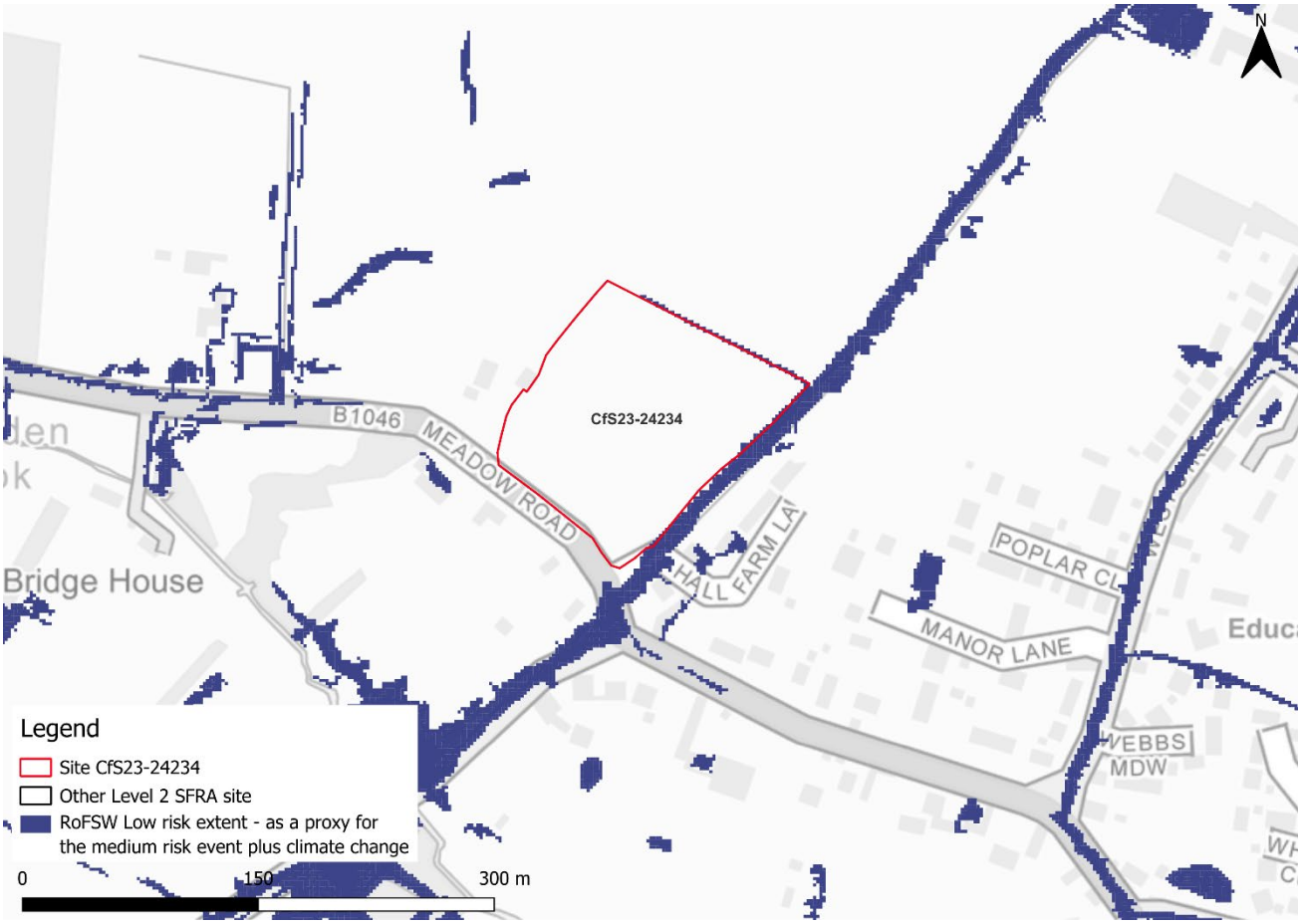


Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

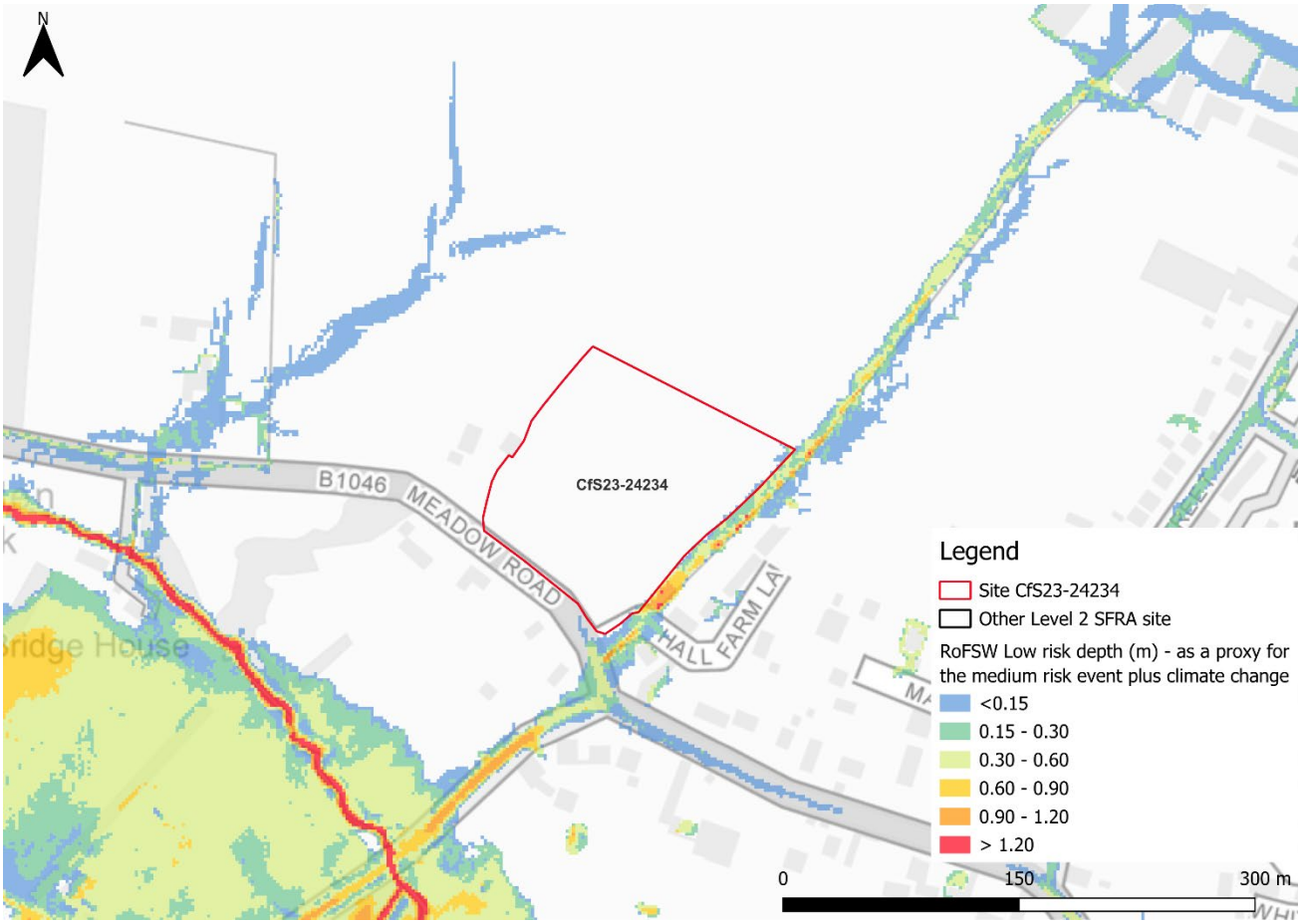


Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

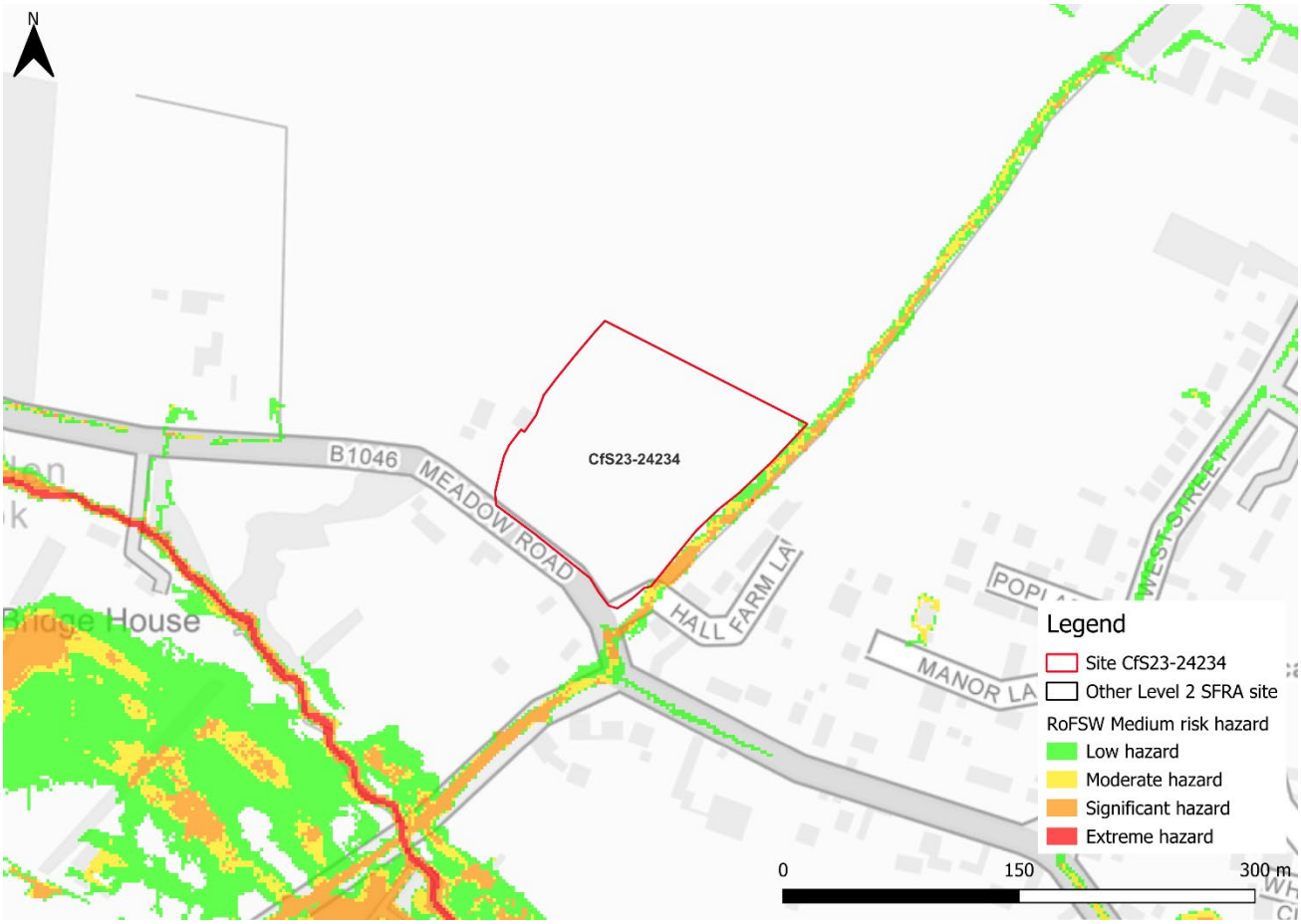


Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

## 3.3 Observations, mitigation options, site suitability, sequential approach to development management - surface water

- Current risk to the site is predominantly very low, with 97% of the site being at very low surface water flood risk. Surface water risk in the high, medium and low risk events is largely confined to the channel of the ordinary watercourse.
- The effects of climate change on surface water have not been modelled for this SFRA, however the low risk surface water event has been used as a proxy for the medium risk event plus climate change. Risk is largely similar to the medium risk event, with an additional flow path along the northeastern site boundary.
- Surface water flood depths, hazards, including for the impact of climate change should be considered further through the site-specific FRA and drainage strategy. Any surface water modelling at the FRA stage should consider flood depths and hazards.
- The drainage strategy must ensure there is no increase in surface water flood risk elsewhere as a result of new development. Greenfield rates will apply, and the developer should follow the National SuDS guidance and any local guidance available from the LLFA.

- The ordinary watercourse should be considered in site design with the option of a blue green corridor explored.
- The RoFSW map is not suitable for identifying whether an individual property will flood and is therefore indicative. The RoFSW map is not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies, modelling, or evidence.

# 4 Cumulative impacts assessment and high risk catchments

## 4.1 Level 1 cumulative impacts assessment

A cumulative impact assessment was completed through the Huntingdonshire Level 1 SFRA (2024), which aimed to identify catchments sensitive to the cumulative impact of new development. This site is located within one catchment, namely the Abbotsley and Hen Brooks catchment. This catchment is ranked as a high sensitivity catchment. Planning considerations for sites at high sensitivity to the cumulative impacts of development can be found in Appendix G of the Level 1 SFRA. Cumulative impacts of development should also be considered as part of a site-specific FRA.

# 5 Groundwater, geology, soils, SuDS suitability

Risk of groundwater emergence is assessed in this SFRA using JBA's 5m Groundwater Emergence Map. This dataset is recommended for use by the EA in the SFRA Good Practice Guide[2]. Figure 5-1 shows the map covering this site and the surrounding areas. Table 5-1 explains the risk classifications.


Figure 5-1: JBA 5m Groundwater Emergence Map

The majority of the site is shown to have groundwater levels between 0.025m and 0.5m below the ground surface in the 100-year return period flood event. In a smaller area of the site, groundwater levels are very near (within 0.025 of) the surface. Within these zones there is a risk of groundwater emergence to surface and subsurface assets. Infiltration SuDS are therefore unlikely to be appropriate at this site. The site-specific FRA should further investigate groundwater levels through percolation testing in both wet and dry weather conditions across the site.

2 Strategic flood risk assessment good practice guide. ADEPT. December 2021.

Table 5-1: Groundwater Hazard Classification

| Groundwater head difference (m)* | Class label |
|---|---|
| 0 to 0.025 | Groundwater levels are either at very near (within 0.025m of) the ground surface in the 100-year return period flood event.<br>Within this zone there is a risk of groundwater flooding to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots. |
| 0.025 to 0.5 | Groundwater levels are between 0.025m and 0.5m below the ground surface in the 100-year return period flood event.<br>Within this zone there is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally. |
| 0.5 to 5 | Groundwater levels are between 0.5m and 5m below the ground surface in the 100-year return period flood event<br>There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely. |
| >5 | Groundwater levels are at least 5m below the ground surface in the 100-year return period flood event.<br>Flooding from groundwater is not likely. |
| N/A | No risk.<br>This zone is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits. |
| *Difference is defined as ground surface in mAOD minus modelled groundwater table in mAOD. | |

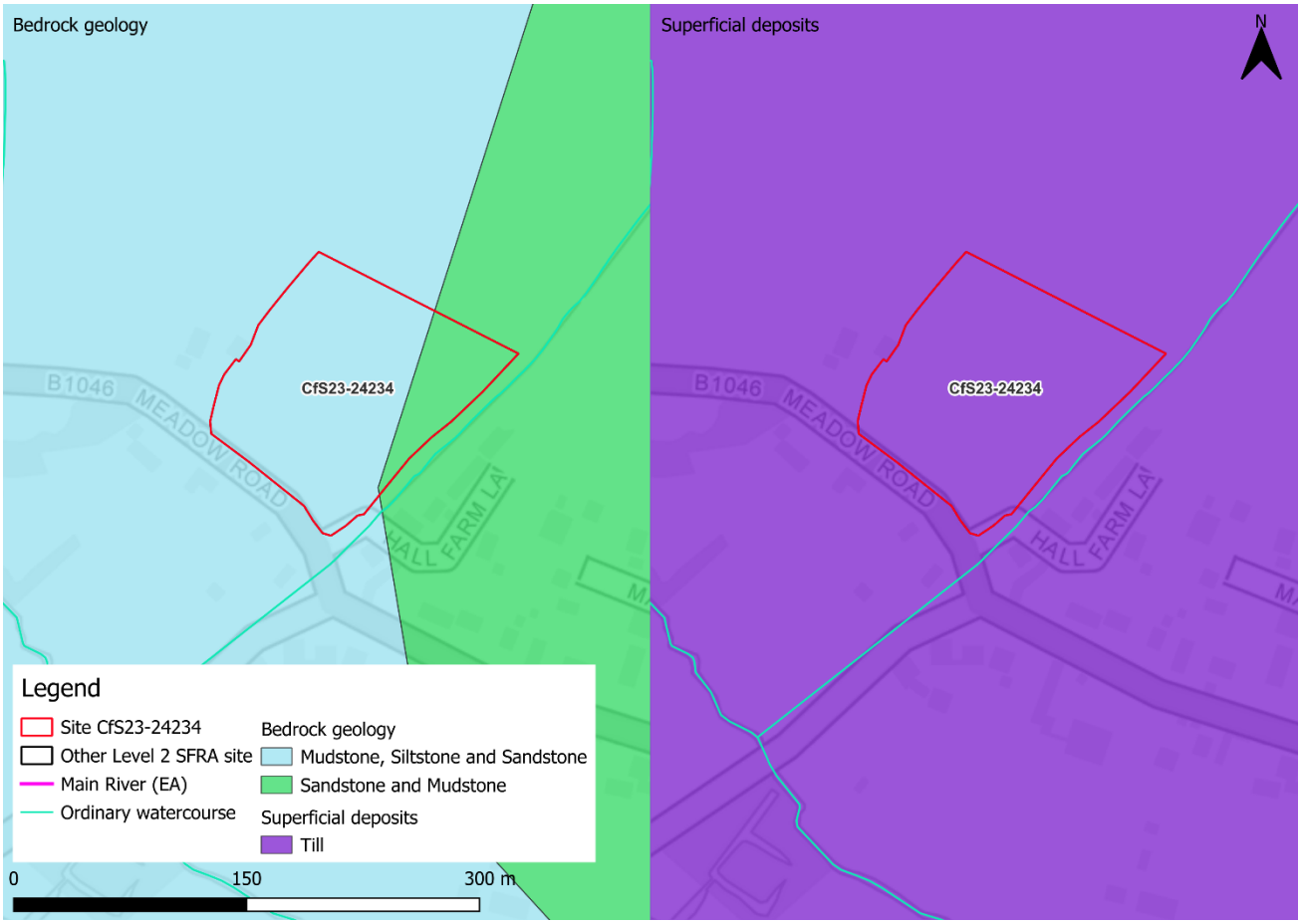


Figure 5-2: Soils and geology

# 6 Residual risk

Although a site may be afforded some protection from defences and / or drainage infrastructure, there is always a residual risk of flooding from asset failure i.e. breaching / overtopping of flood defences, blockages of culverts or drainage assets.

Residual risk at this site comes from the potential blockage of the culverts beneath Hall Farm Lane

## 6.1 Potential blockage

A blockage of the culverts beneath Hall Farm Lane (Figure 6-1) may cause flooding to the site, depending on the severity of the blockage and the magnitude of the flood event. Such a scenario should be investigated at the FRA stage. Culvert course and condition surveys may be required, including for consultation with the culvert owner.

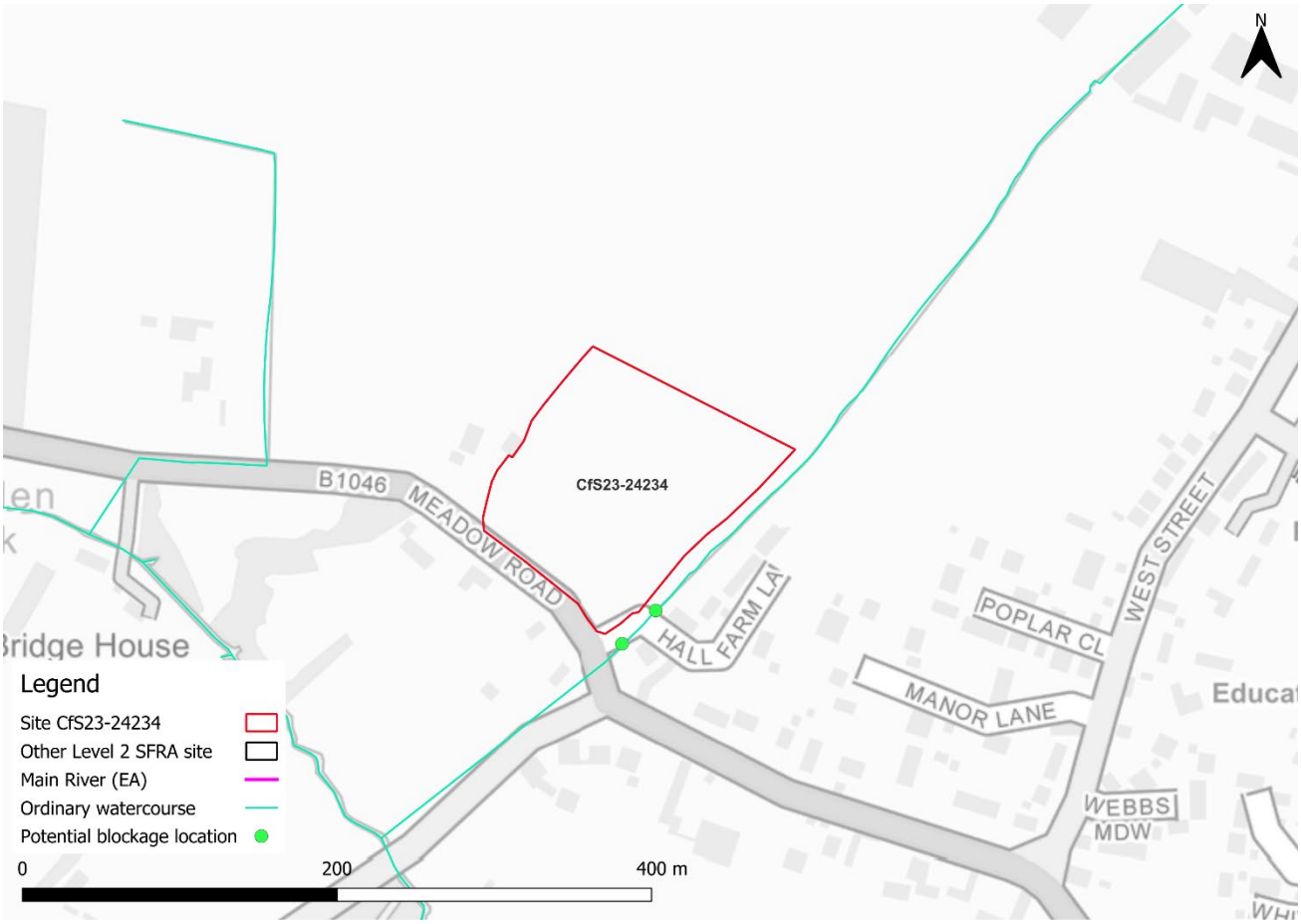


Figure 6-1: Potential blockage location

## 6.2 Flood risk from reservoirs

The EA's Reservoir Flood Maps (RFM) (2021) show where water may go in the unlikely event of a reservoir or dam failure. A 'dry day' scenario assumes that the water level in the

reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level. A 'wet day' scenario assumes a worst-case scenario where a reservoir releases water held on a 'wet day' when local rivers have already overflowed their banks.

The site is not modelled to be at risk from reservoir flooding.

# 7 Overall site assessment

## 7.1 Can part b) of the exception test be passed?

This site is not required to pass part b) of the exception test as it is not located within Flood Zone 3a, however it must still be proven that the development can be safe for its lifetime, which is 100 years for residential development.

## 7.2 Recommendations summary

Based on the evidence presented in the Level 1 SFRA (2024) and this Level 2 SFRA:

- It should be appropriate to develop this site for more vulnerable purposes given its location within Flood Zone 1 and nominal surface water flood risk.
- Risk from the ordinary watercourse should be investigated at the FRA stage. Modelling may be required.
- A detailed drainage strategy will be required for any new development, given the groundwater levels at the site and the fact the site is currently greenfield.
- There is potential residual risk to the site from a blockage of the culvert beneath the Hall Farm Lane
- Groundwater conditions must be investigated further through the site-specific FRA.
- Opportunities for NFM features to reduce flood risk to the site and surrounding areas should be explored at the site-specific FRA stage.
- Safe access and escape routes should be considered further to ensure safe evacuation of site users during a flood event.

## 7.3 Site-specific FRA requirements and further work

At the planning application stage, the following should be considered:

- Investigation into potential risk from the ordinary watercourse. Potential for inclusion in a blue green corridor.
- Investigation into groundwater conditions and the production of a drainage strategy.
- A condition and capacity assessment of the culverts under Hall Farm Lane and investigate the impact of a potential blockage of the structures.
- FRA should be carried out in line with the latest versions of the NPPF; FRCC-PPG; EA online guidance; the HDC Local Plan, and national and local SuDS policy and guidelines.
- Throughout the FRA process, consultation should be carried out with, where applicable, the local planning authority; the lead local flood authority; emergency planning officers; the Environment Agency; Anglian Water; the highways authorities; and the emergency services.

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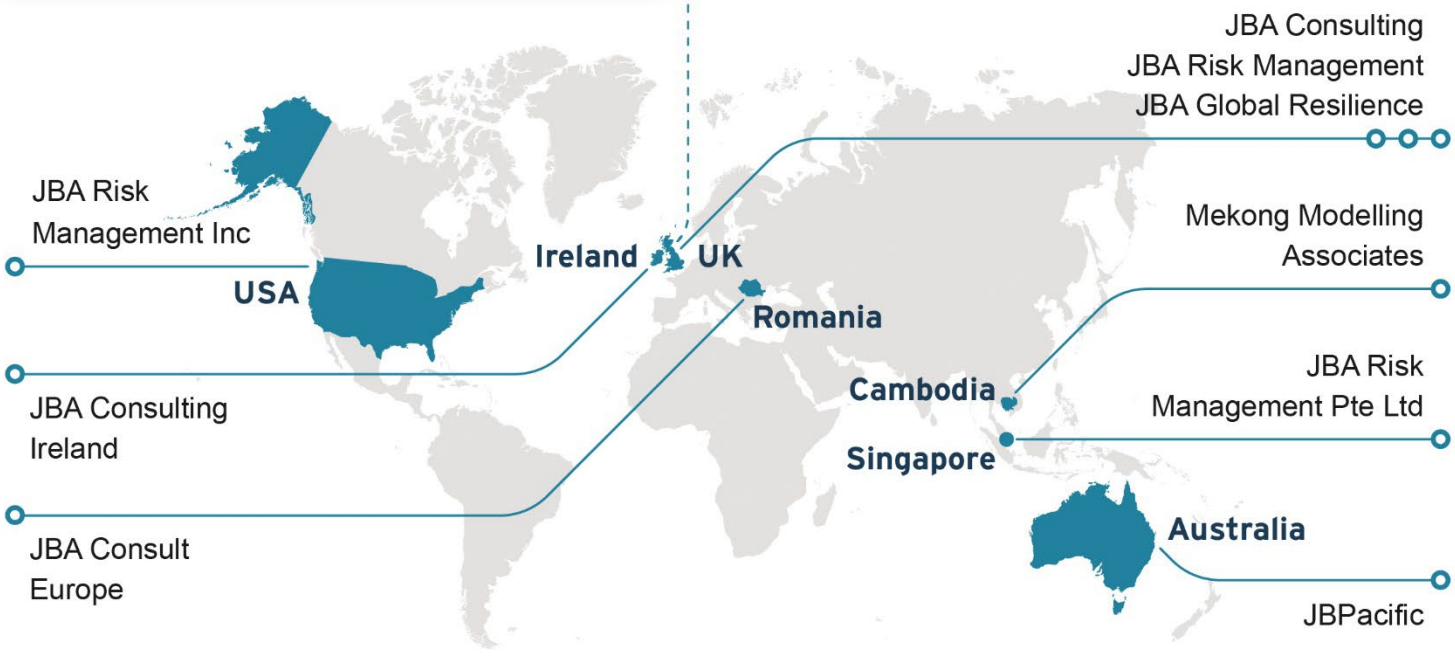


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