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Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

Site CfS:141

Final Draft Report

Prepared for

Huntingdonshire District Council

Date

November 2025

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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. Mike Williamson 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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Contents

List of Figures

List of Tables

1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan Site CfS:141. 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 CfS:141

- Location: Bury Industrial Estate, Old Station Road, Bury
- Existing site use: industrial estate
- Existing site use vulnerability: less vulnerable
- Proposed site use: residential
- Proposed site use vulnerability: more vulnerable
- Site area (ha): 0.96
- Proposed development impermeable area: unknown
- Watercourse: High Lode (main river), ordinary watercourses
- Environment Agency (EA) model: Fenland Bury Brook 2016 model
- 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

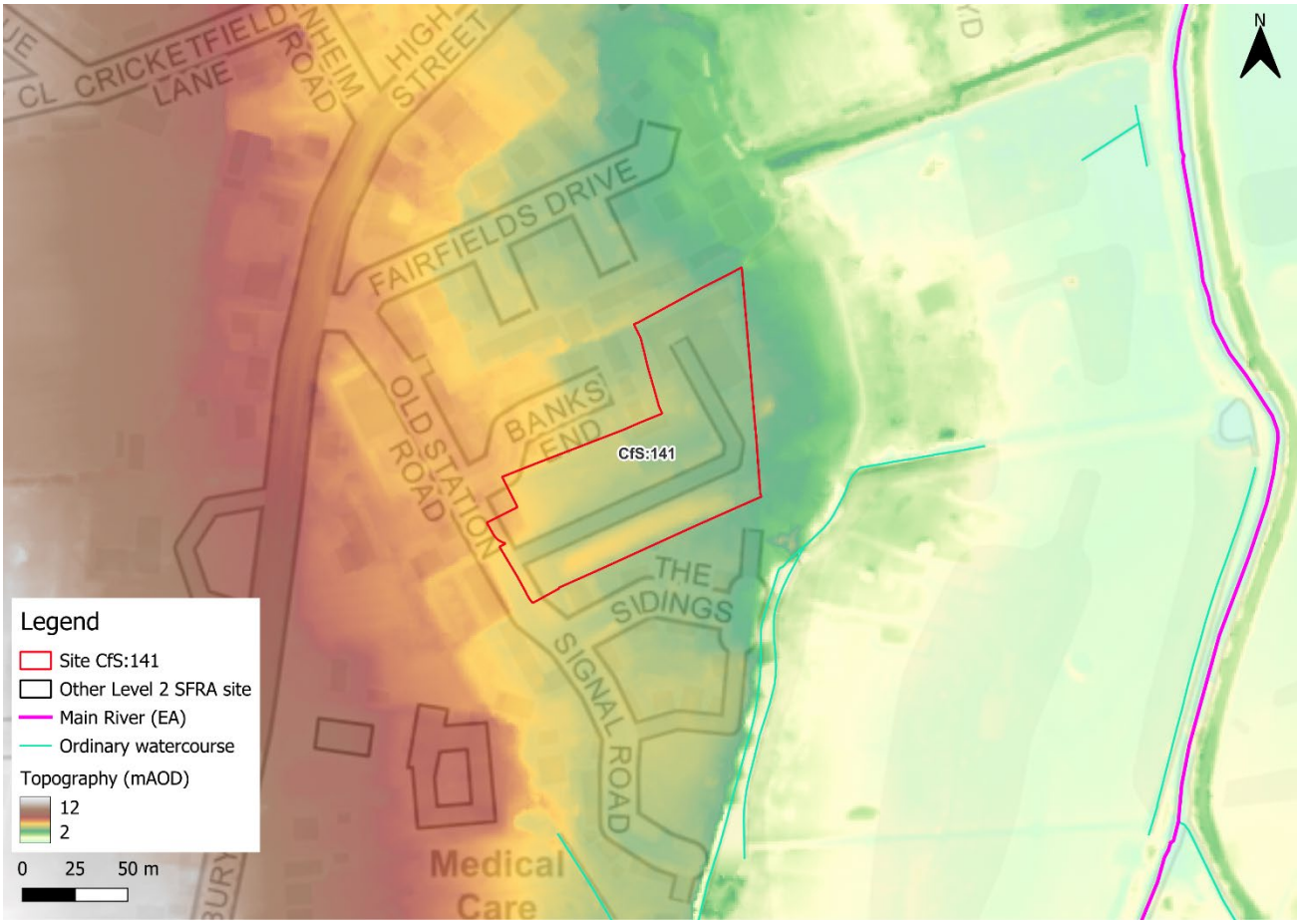

Figure 1-3: Topography

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 2.2.1) or the impacts of climate change (Section 2.3).

The site is wholly within Flood Zone 1 and therefore at low risk from rivers and the sea. Although the site is in Flood Zone 1, the flood zones to the east are in close proximity to the site. The site is within the Fenland Bury Brook 2016 model domain and the Flood Map for Planning 3.3% AEP defended scenario has been used to define Flood Zone 3b in this area. It is clear from Figure 2-1 that Flood Zone 3b is not from the same source as Flood Zones 3a and 2. Flood Zones 3a and 2 are likely based on the EA's New National Model rather than the Fenland Bury Brook 2016 model, for reasons unknown at this stage.

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. However, there is a flood defence on the right bank of the High Lode river and off the left bank to the north of the site which appears to offer protection to the centre of Ramsey. This embankment is called Ramsey Cross Bank and is privately owned with a design standard of protection of 75 years. Current condition is unknown.

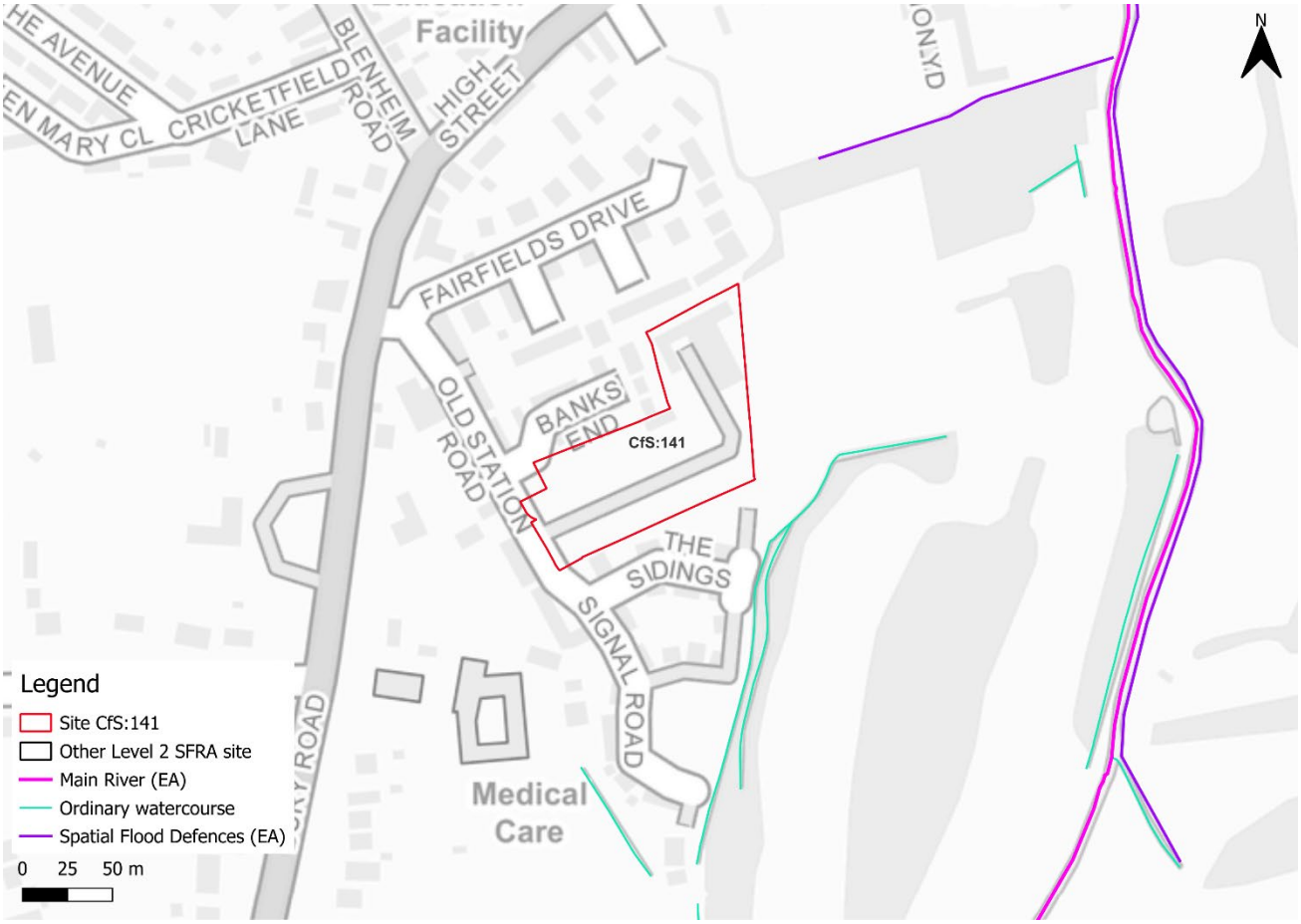

Figure 2-2: EA Spatial Flood Defences dataset

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. There are no potential areas within the vicinity of the site.

2.3 Impacts from climate change

2.3.1 Fluvial

The EA's SFRA guidance states that SFRAs should assess the central allowance for less, more, highly vulnerable, and water compatible development. The higher central allowance should be assessed for essential infrastructure. However, as there is no existing detailed model of this upper reach of the High Lode watercourse, modelling of climate change has not been possible.

Climate change data in this area is unavailable from the EA's Flood Map for Planning plus climate change (2070-2125) dataset, as shown in Figure 2-3. Therefore, in the absence of modelled climate change information, Flood Zone 2 of the Flood Map for Planning (based on the 0.1% AEP undefended event) can be used as a precautionary proxy for Flood Zone

3 plus climate change. Based on this approach, fluvial risk is modelled to not impact the site, as shown in Figure 2-1.

The impacts of climate change must be modelled using the EA's latest allowances for peak river flows to inform whether the site can be safe for its lifetime. Any FRA should produce a detailed model of the High Lode watercourse and include for the most up to date climate change allowances (Table 2-2).

Table 2-2: Modelled climate change allowances for peak river flows for the Old Bedford and Middle Level management catchment

Return period (AEP event)	Central allowance 2080s (% increase)	Higher central allowance 2080s (% increase)
3.3% (functional floodplain)	6%	15%
1%	6%	15%
0.1%	6%	15%

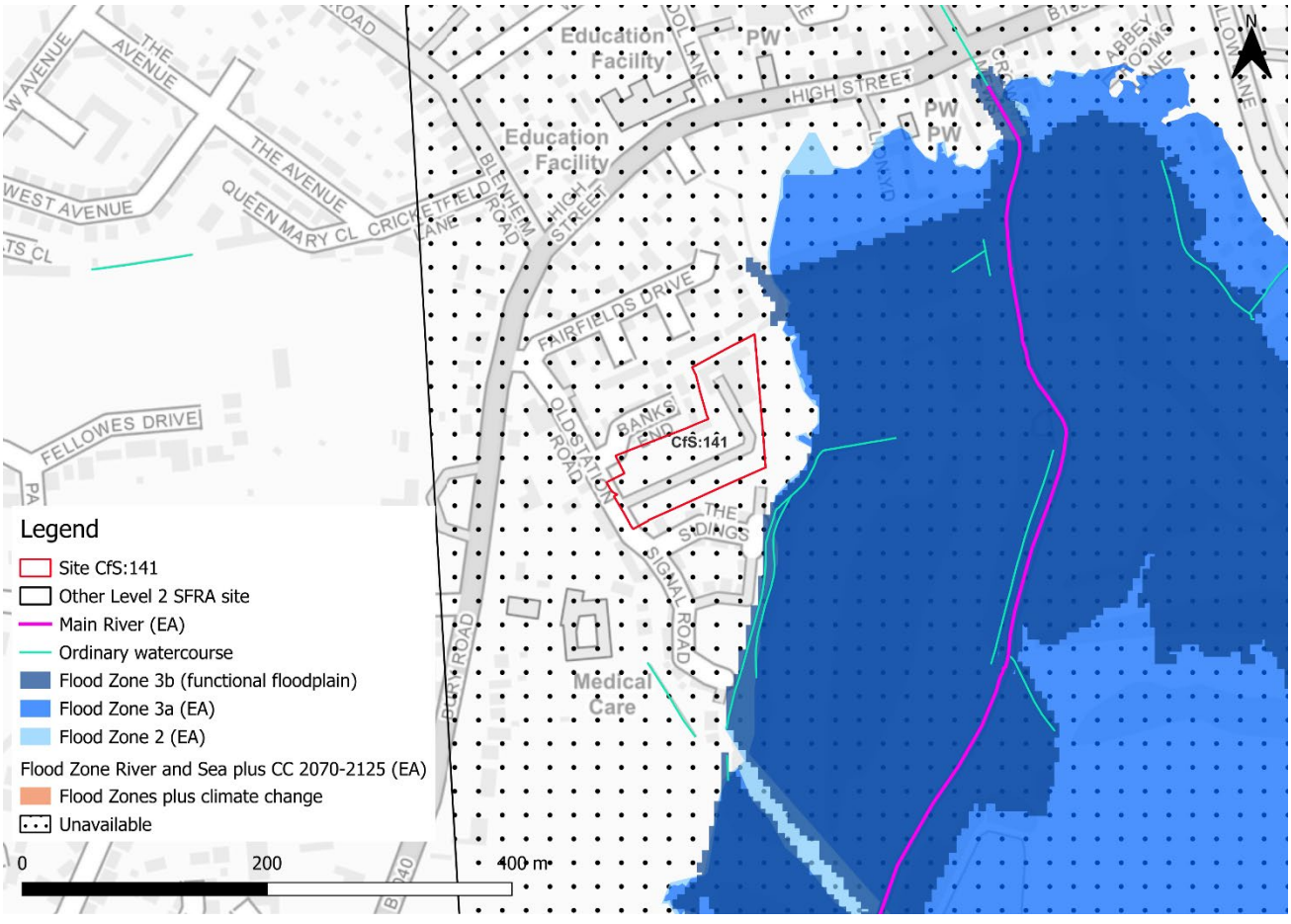

Figure 2-3: Flood Map for Planning - Climate Change 2070-2125 outputs

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. There are no recorded historic flood events within the vicinity of the site, according to these datasets.

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. As shown in Figure 2-4, this site is not located within a FWA, though the is a large FWA covering the flood zones to the east.

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. As shown in Figure 2-4, this site is not located within a FAA, though the is a large FAA covering the flood zones to the east.

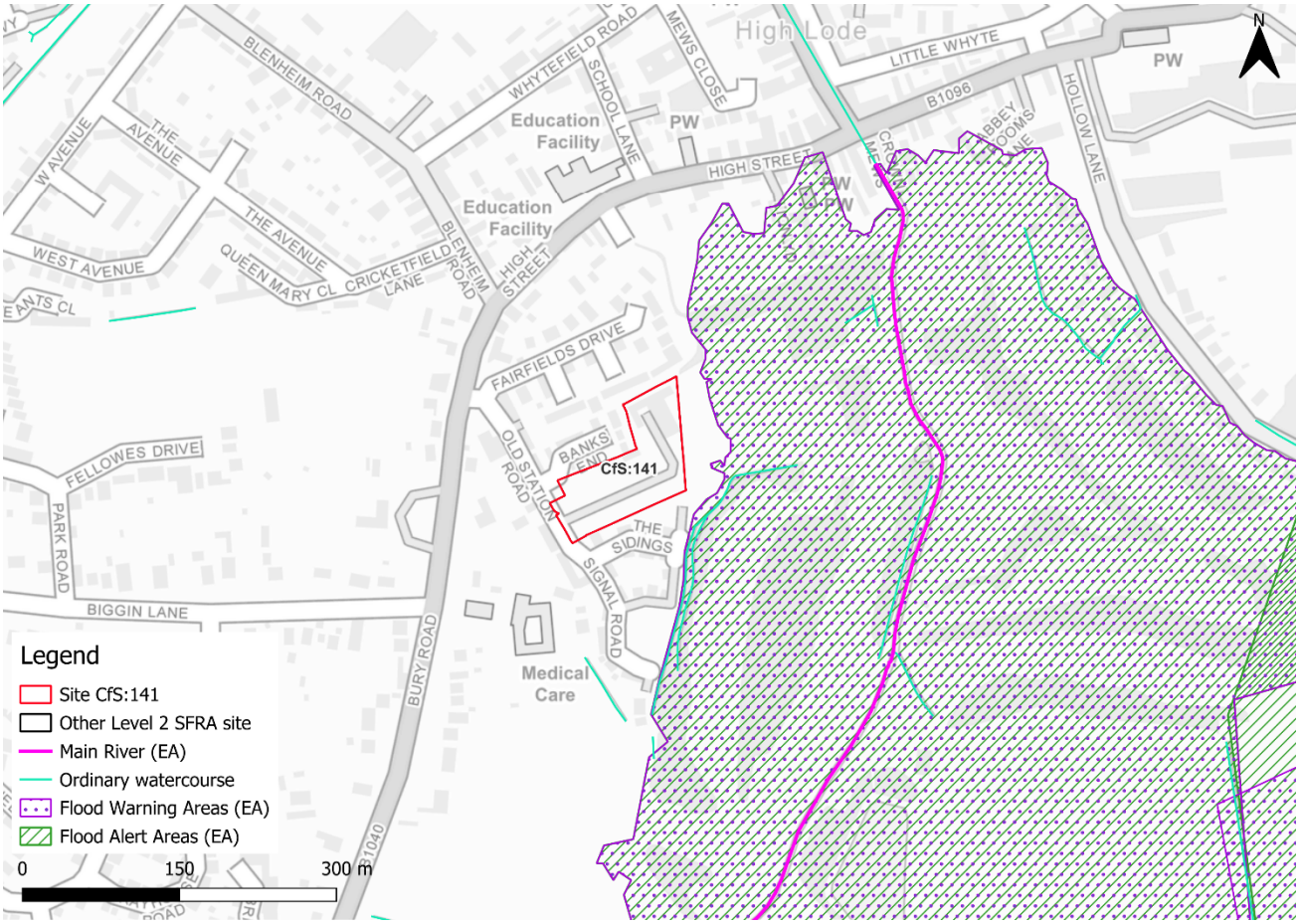

Figure 2-4: EA Flood Warning Areas and Flood Alert Areas

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 Old Station Road, as indicated by the orange circle in Figure 2-5 below.

Figure 2-5: Potential access and escape routes

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

- Observations:
  - 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 site is wholly located within Flood Zone 1 and therefore at low risk from rivers and the sea.
  - There is no climate change data available for the wider area therefore potential future risk is unknown.
  - Flood Zone 3b is not from the same source as Flood Zones 3a and 2 of the Flood Map for Planning. Flood Zones 3a and 2 are likely based on the EA's New National Model rather than the Fenland Bury Brook 2016 model. The EA should be consulted on the discrepancies in the flood zones in this location.

- Defences:
  - The site is not shown to benefit from any flood defences.
- Mitigation:
  - A detailed model of the High Lode watercourse should be developed, or the current Fenland Bury Brook 2016 model should be updated and extended upstream to the east of the site. Modelling should include for the latest climate change allowances.
- Access and escape:
  - Safe access and egress are not considered to be achievable via Old Station Road.
  - EA flood warnings and alerts should continue to be in place to the east of the site.

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, 81% of the site is at very low risk of flooding from surface water. However, there is a flow path present in all events, as shown in Figure 3-1, though it is isolated to the existing road.

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)
81	6	8	5

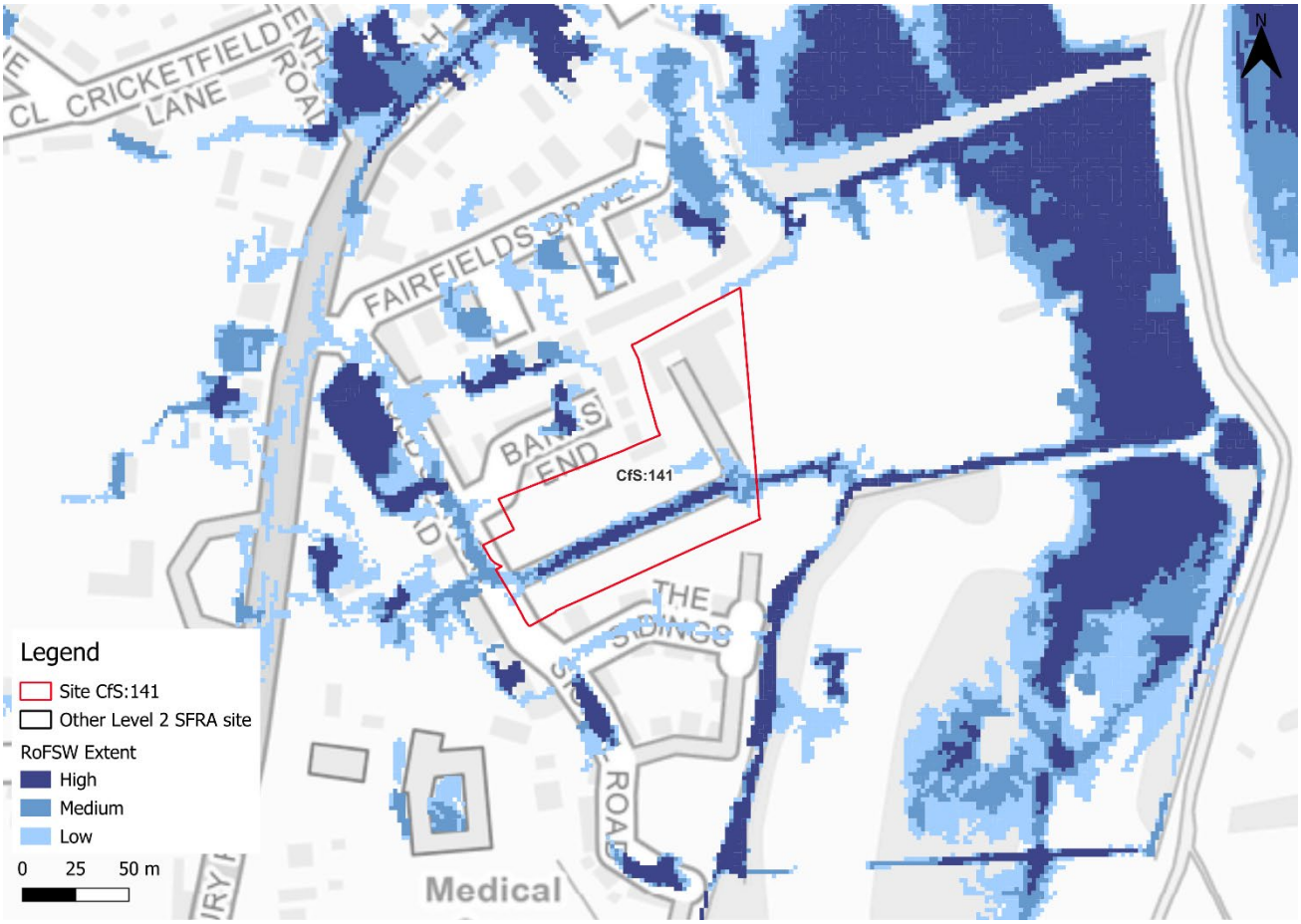

Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

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

The NaFRA2 RoFSW is similar in extent to the third generation mapping. Based on the EA's national scale third generation RoFSW map, flood depths are shallow (Figure 3-2) with a predominantly low flood hazard rating (Figure 3-3).

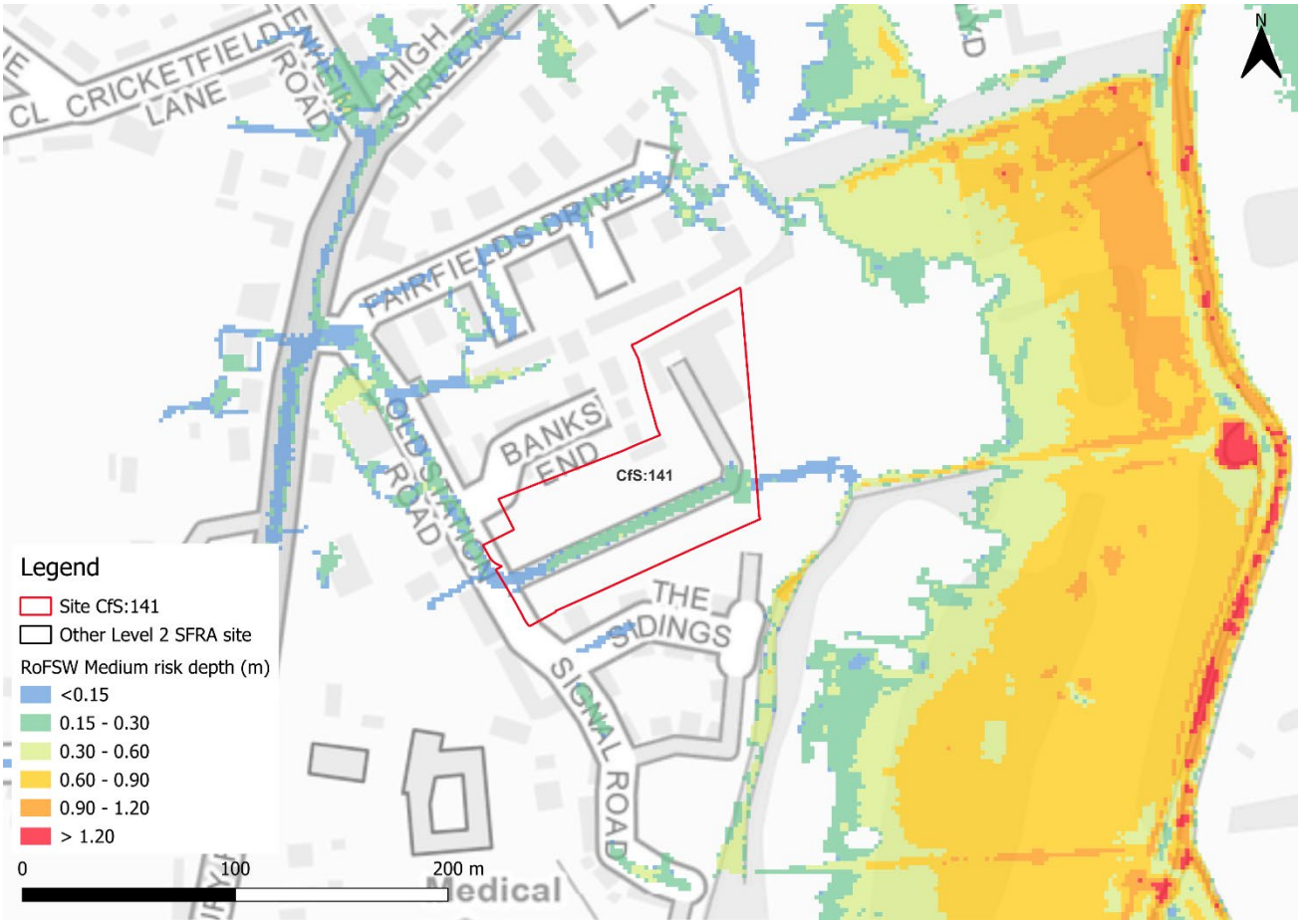

Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

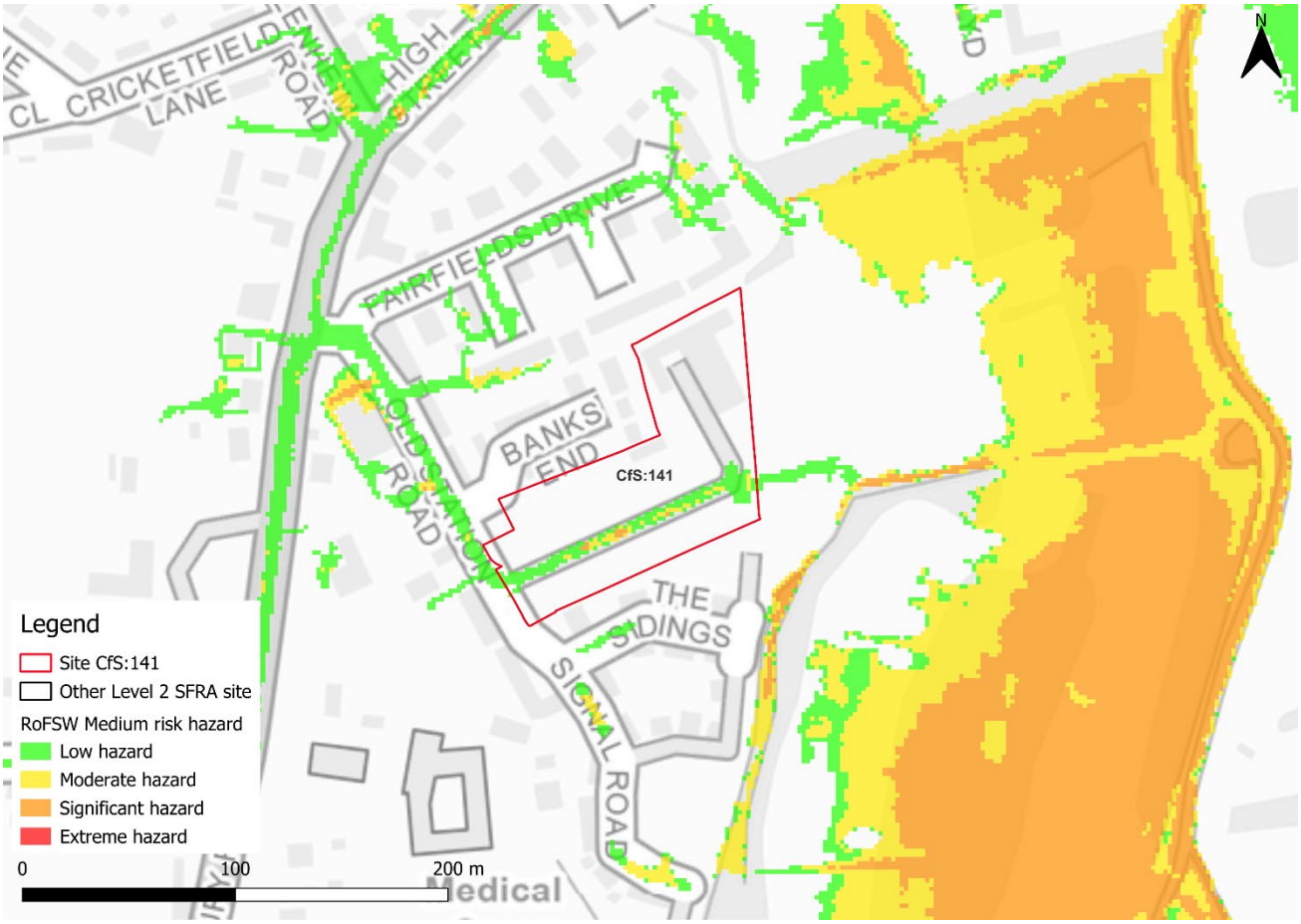

Figure 3-3: Medium risk event surface water flood hazard[1] (Third generation - Risk of Flooding from Surface Water map)

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, surface water flood risk to the site and the access road (Old Station Road) may increase with climate change. The flow path becomes deeper with flood depths greater than 0.3m and significant hazard. There is an additional area of ponding in the NaFRA2 mapping that is not present in the third generation map.

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

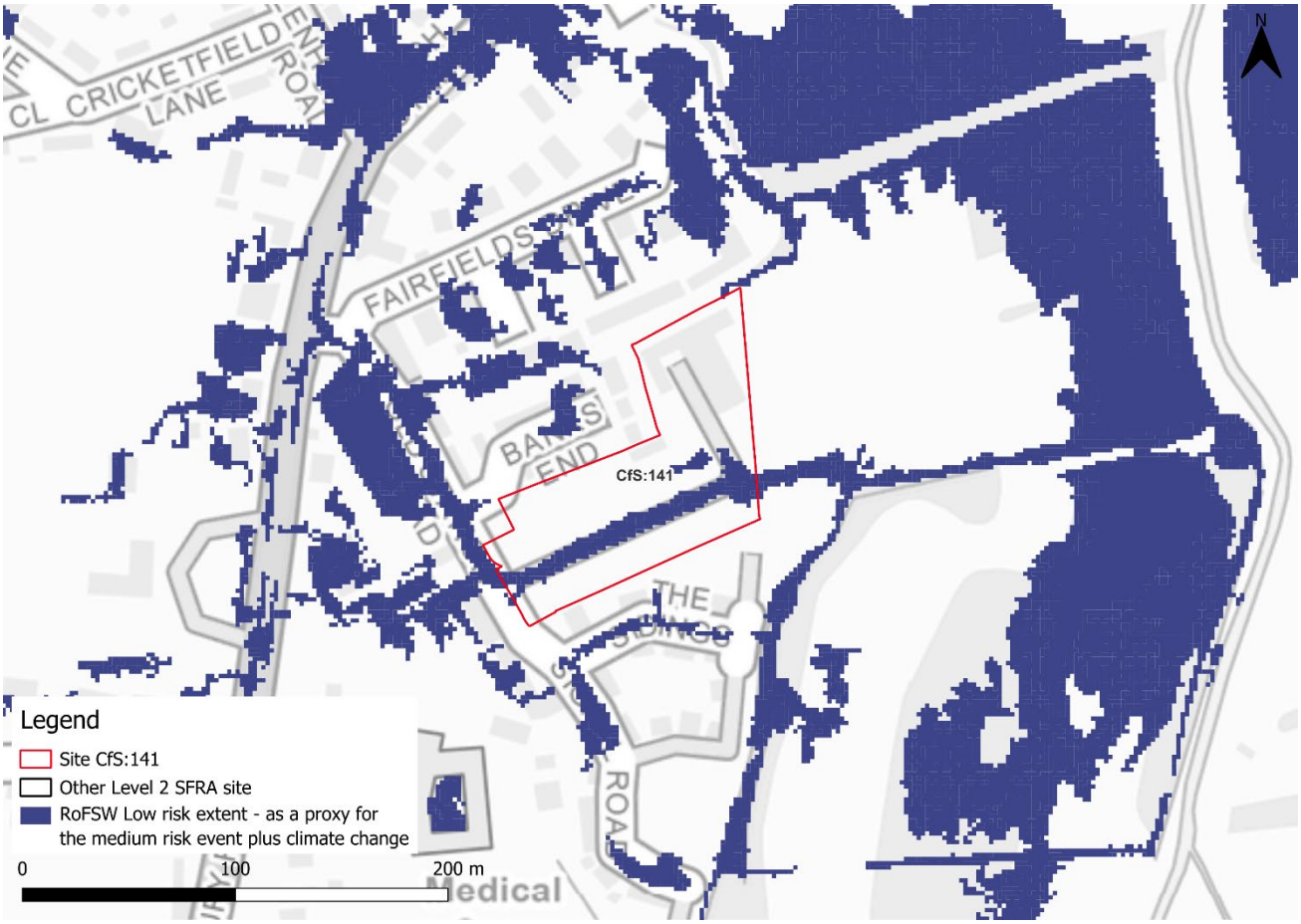

Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

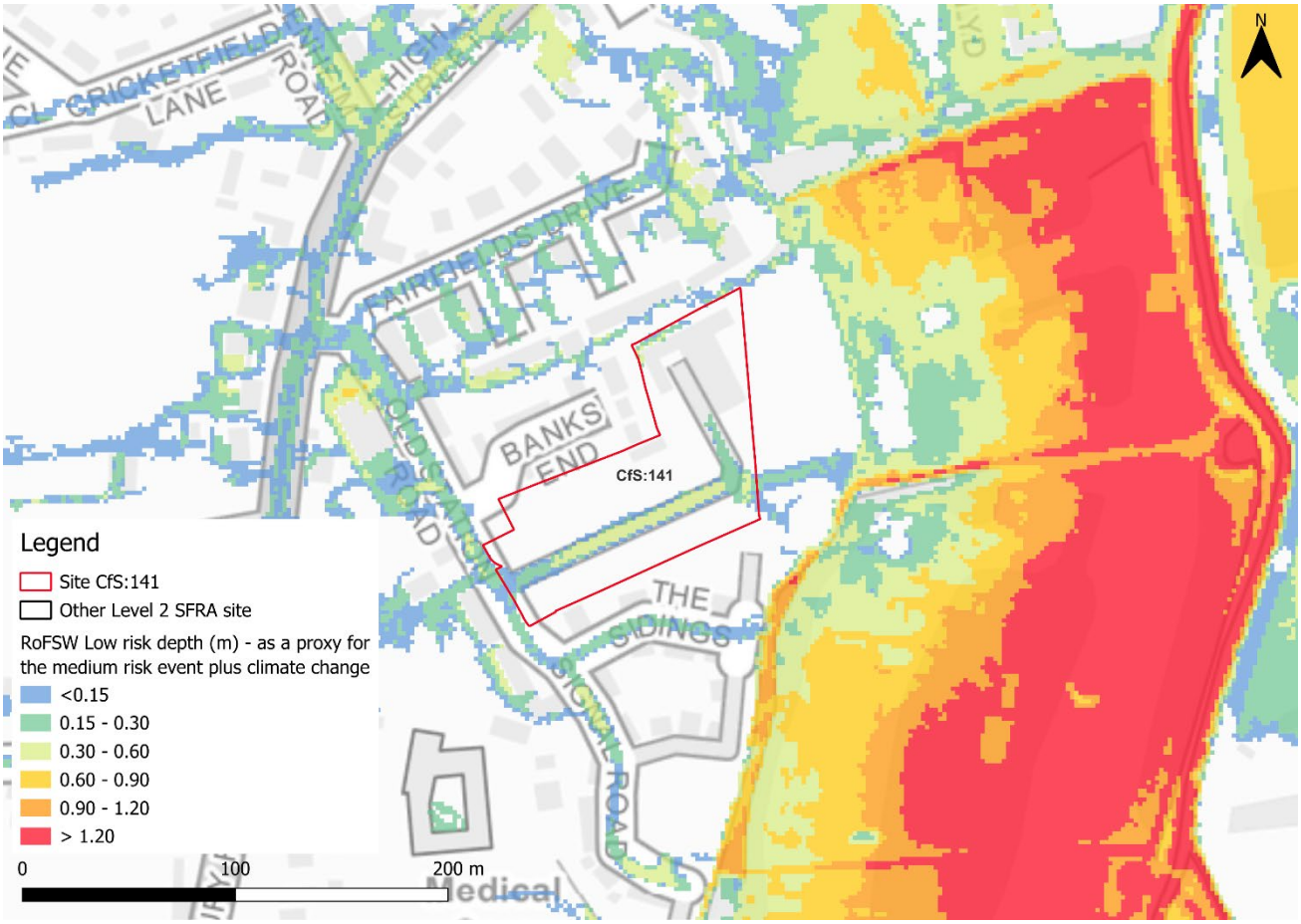

Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

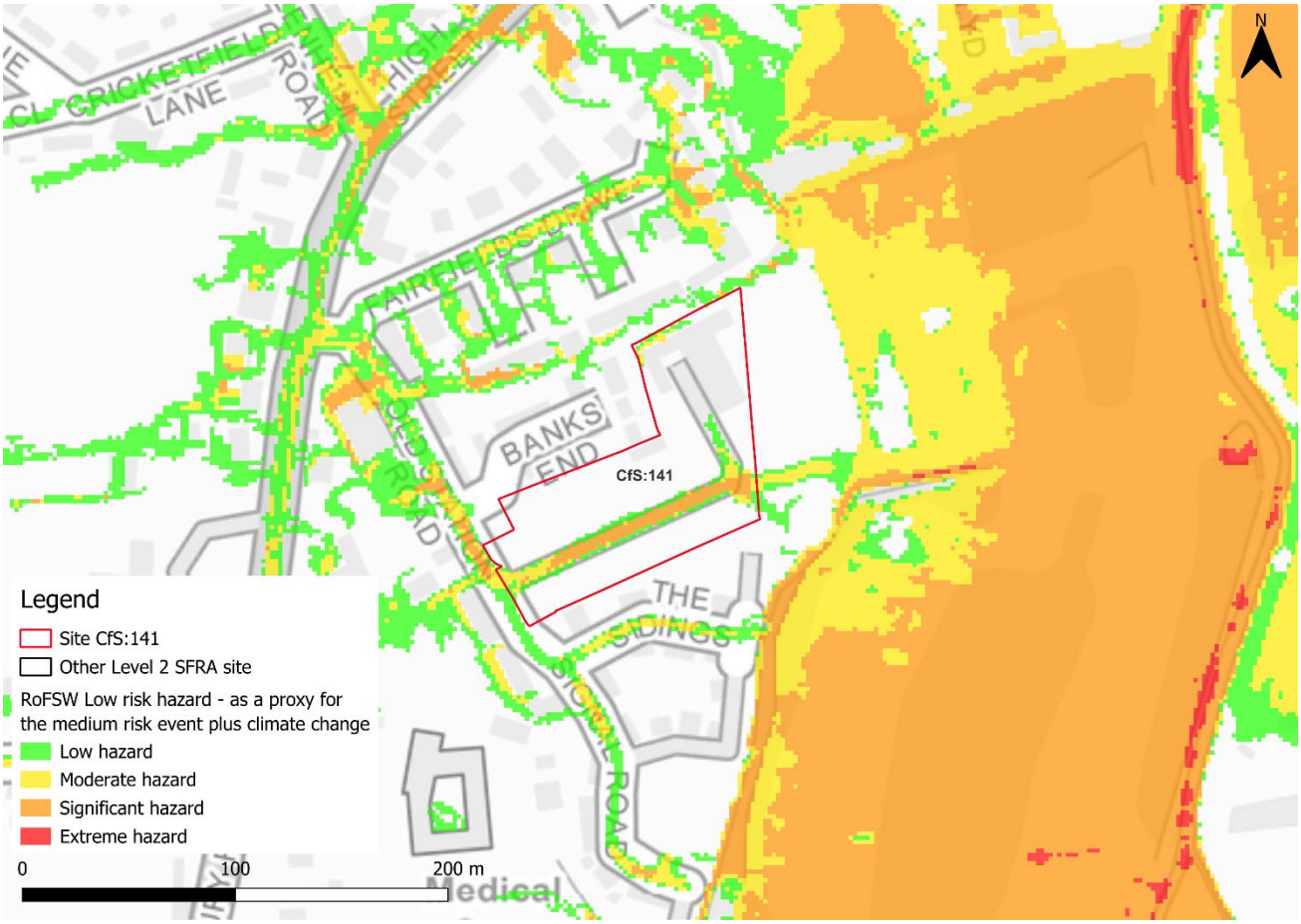

Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

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

- Current risk to the site is predominantly very low, with 81% of the site being at very low surface water flood risk. Surface water risk is confined to a flow path along the existing road.
- The flow path onsite should be retained in site design. However, this depends on whether the existing road is to remain as the main access route through the site. Any rerouting of the road or regrading of land should ensure any displaced runoff is retained onsite. Runoff modelling may be required.
- 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 though with the addition of an area of ponding in the centre of the site.
- 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. Brownfield or existing runoff rates will likely apply though potential betterment should be investigated. The developer should follow the National SuDS guidance and any local guidance available from the LLFA.
- Assessment of the current drainage system in place should be carried out to ascertain any current capacity issues and whether the current system could accommodate the proposed residential development or whether further capacity will be required.
- Safe access and escape routes may be challenging to achieve given the risk to Old Station Road. The drainage strategy must confirm safe routes during times of flood.
- 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 Bury Brook catchment. This catchment is ranked as a medium sensitivity catchment. Planning considerations for sites at medium 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.

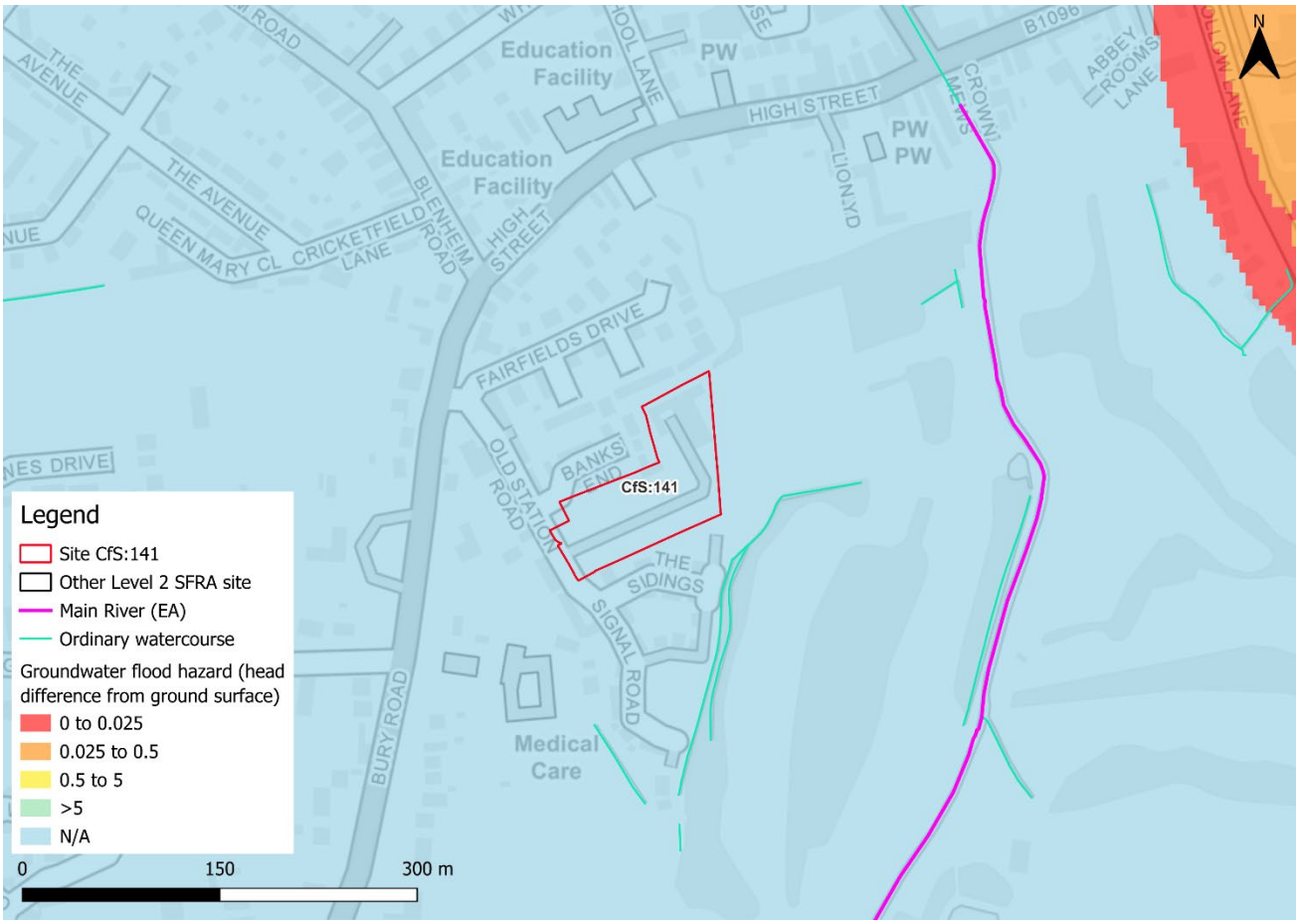

Figure 5-1: JBA 5m Groundwater Emergence Map

The whole of the site is classified as no risk from groundwater emergence. Infiltration SuDS should therefore be suitable at this 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. 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. 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 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. Flooding from groundwater is not likely.
N/A	No risk. 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.

6.1 Potential blockage / breach

There does not appear to be any residual risk to the site.

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. Figure 6-1 shows the RFM in a 'dry day' and 'wet day' scenario. 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 directly at risk from reservoir flooding, based on the RFM. However, the wet day risk area is close to the eastern boundary.

The EA's SFRA guidance states that where a proposed development site is shown to be at potential risk from reservoir failure, then an assessment into whether the reservoir design or maintenance schedule needs improving should be carried out. Expert advice may be required from an all-reservoirs panel engineer. The Council should consult the reservoir owner of undertaker to ascertain whether the proposed development could affect the reservoir's risk designation, it's design category or how it is operated. The Council, as category 1 responders, can access more detailed information about reservoir risk and reservoir owners using the Resilience Direct system.

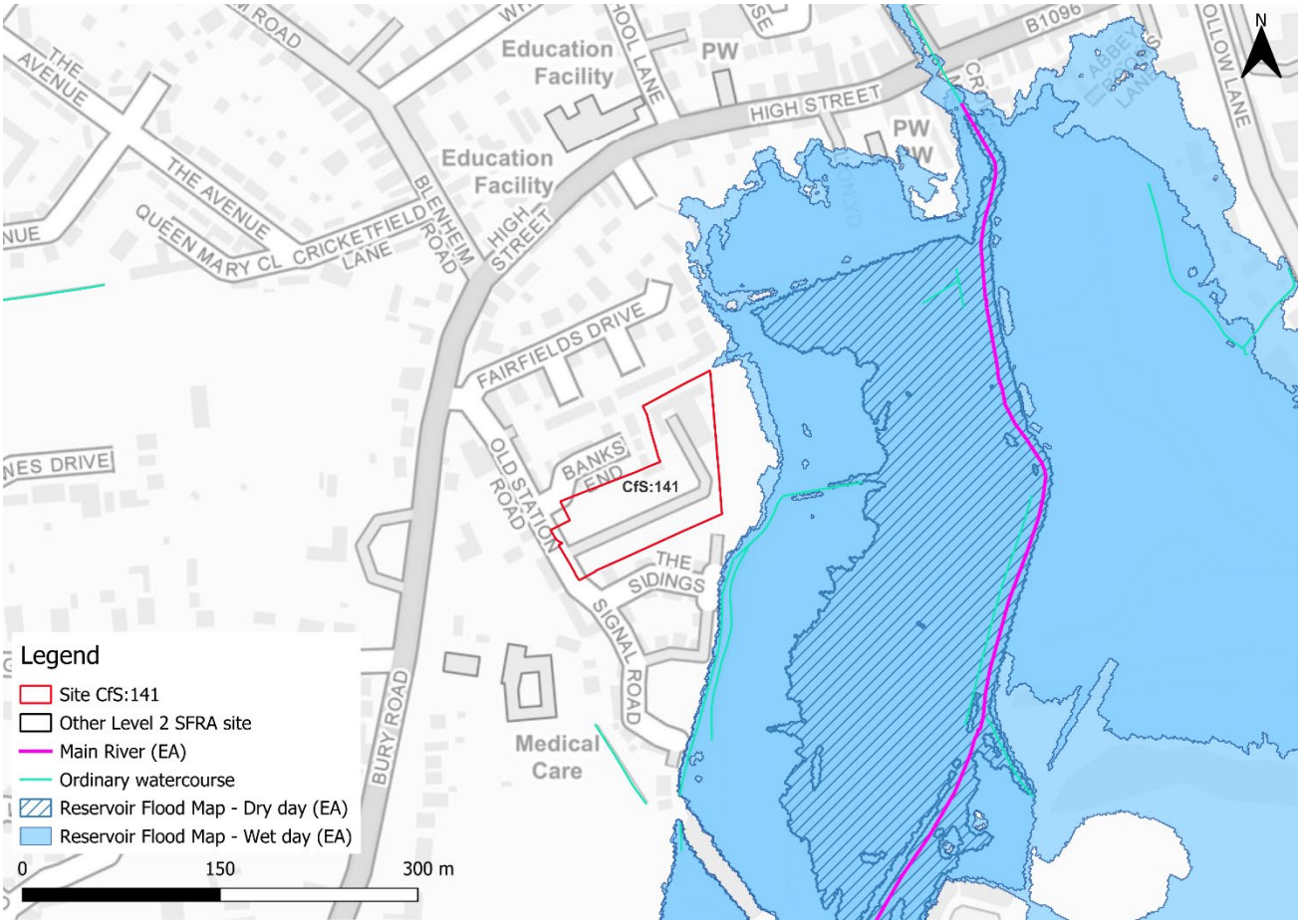

Figure 6-1: EA Reservoir Flood Map

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.
- Flood Zone 3b is not from the same source as Flood Zones 3a and 2 of the Flood Map for Planning. Flood Zones 3a and 2 are likely based on the EA's New National Model rather than the Fenland Bury Brook 2016 model. The EA should be consulted on the discrepancies in the flood zones in this location.
- Updated present day and climate change modelling of the High Lode watercourse should be carried out to understand potential risk from this watercourse.
- A drainage strategy will be required given the surface water risk on and around the site.
- Safe access and escape routes should be considered further to ensure safe evacuation of site users during a surface water flood event.

7.3 Site-specific FRA requirements and further work

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

- Detailed flood modelling of the High Lode watercourse.
- A drainage strategy should consider surface water flood risk and ensure discharge rates remain as existing. Potential betterment on existing should be assessed. There should also be an investigation into the existing onsite drainage network and whether this will need expanding.
- The drainage strategy must confirm safe routes during times of flood.
- 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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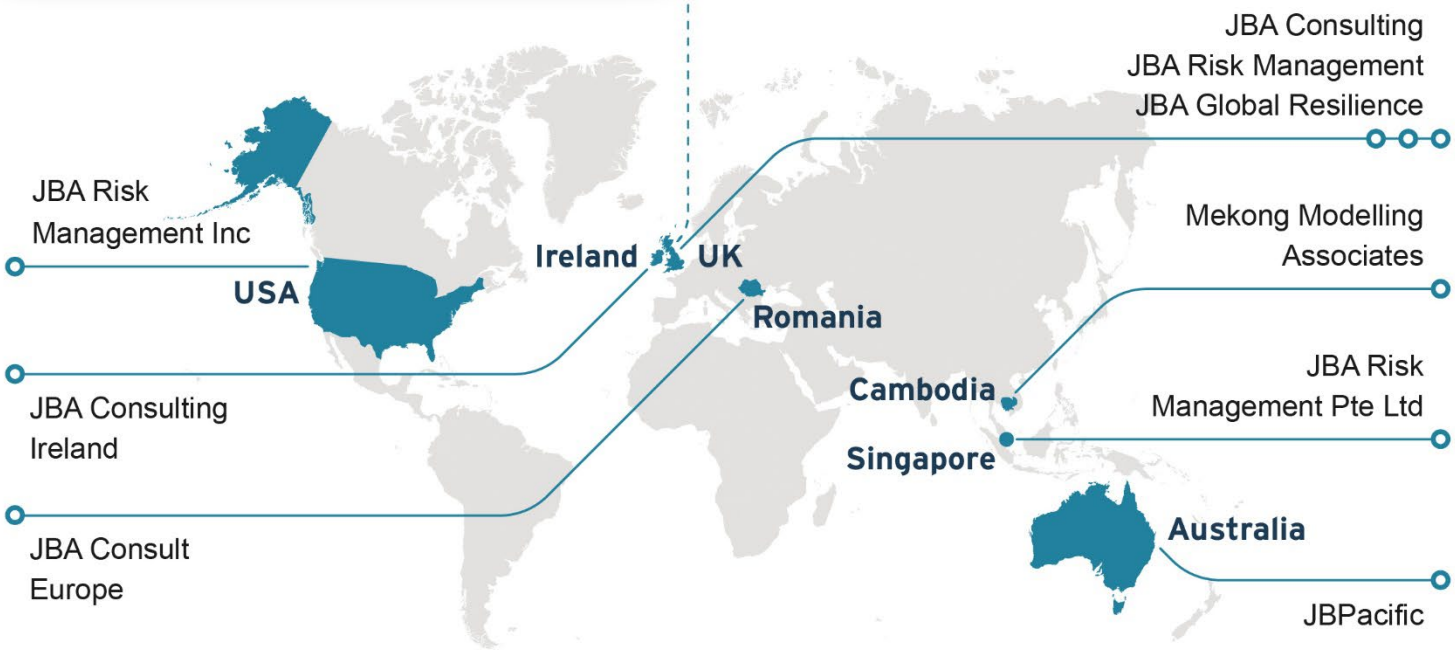

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