



Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

Site CfS23-2414

Final Draft Report

Prepared for
Huntingdonshire District
Council

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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. Amy Ewens 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

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1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan Site CfS23-2414. 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 CfS23-2414

- Location: Chesterton Garden Village
- Existing site use: Agricultural, the site is split into two sections (north and south) and is divided by Oundle Road.
- Existing site use vulnerability: Less vulnerable
- Proposed site use: Mixed Use
- Proposed site use vulnerability: More vulnerable
- Site area (ha): 128.19
- Watercourse: Billing Brook (main river), no detailed model available. Unnamed and unmodelled ordinary watercourses in the northeast of the site
- Environment Agency (EA) model: N/A
- Summary of requirements from Level 2 SFRA scoping stage:
 - Subject to the Exception Test as more vulnerable development proposed in Flood Zone 3a
 - Assessment of fluvial flood depths, velocities and hazards
 - Assessment of surface water flood extent, depths and hazards
 - Assessment of all other sources of flood risk

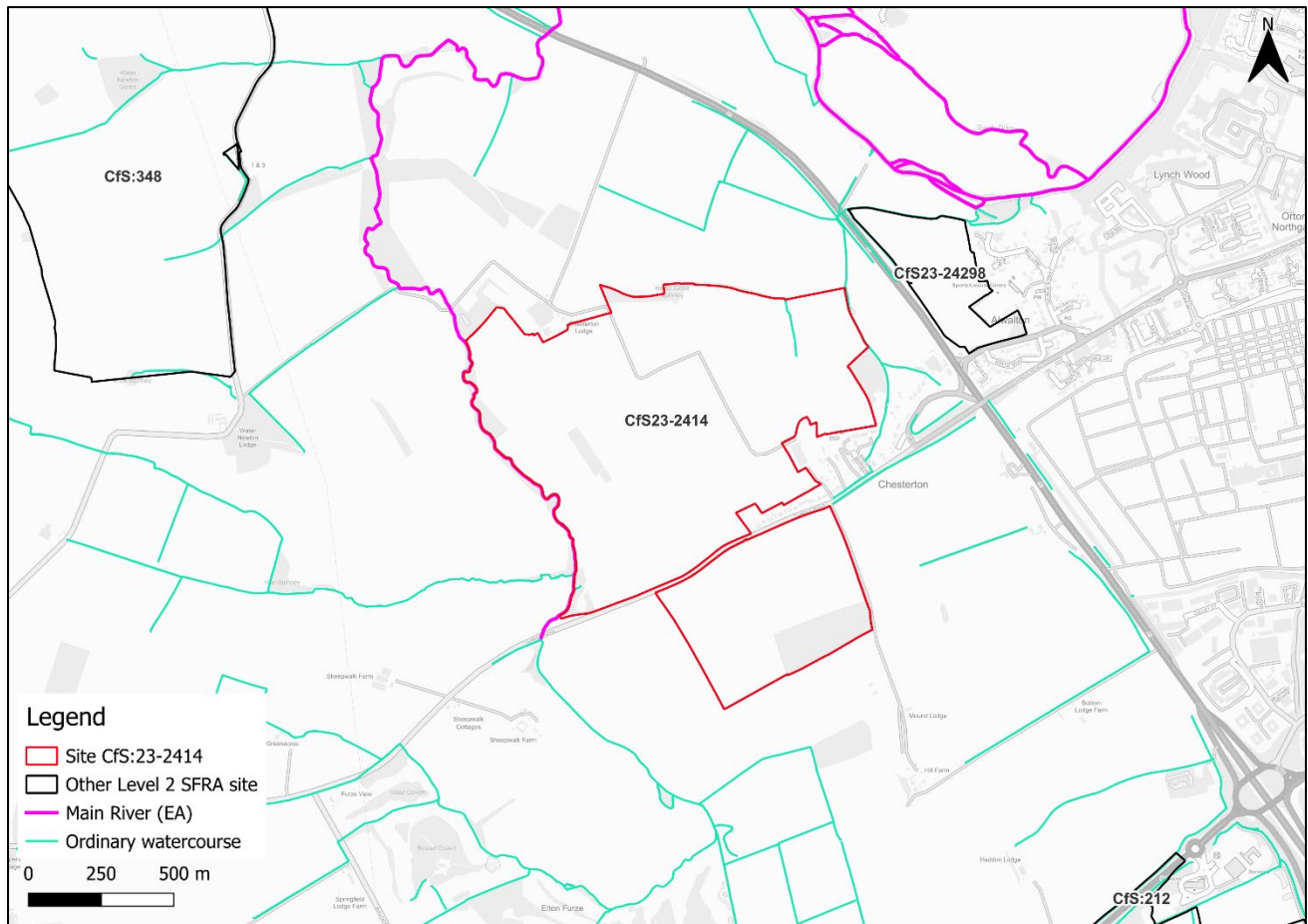


Figure 1-1: Existing site location boundary



Figure 1-2: Aerial photography

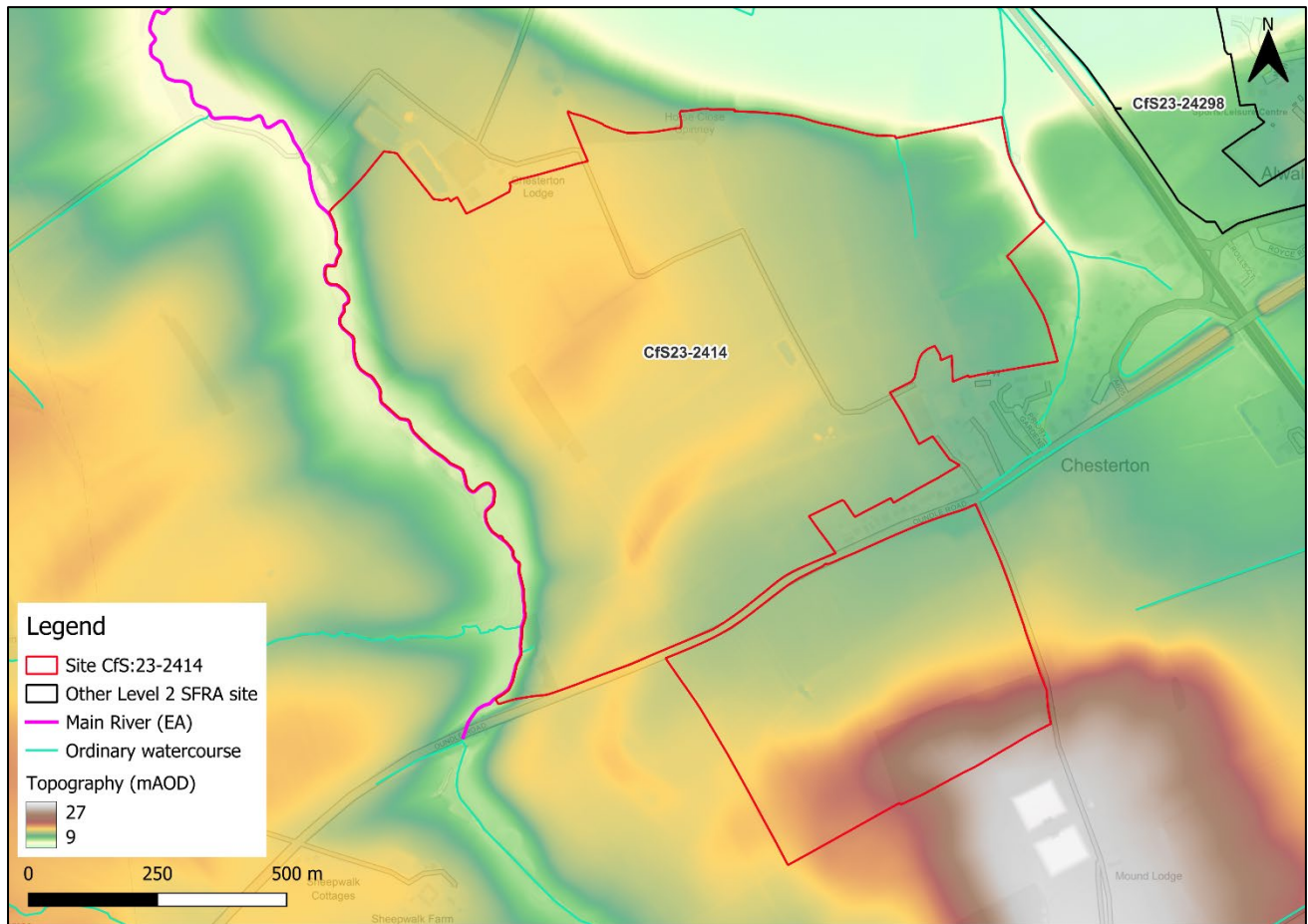


Figure 1-3: Topography

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 mostly within Flood Zone 1 and therefore at low risk from rivers and the sea. However, 1% of the site, along Billing Brook at the western site boundary, is located within Flood Zone 3b. Flood Zone 3b in this location is based on the Flood Map for Planning 3.3% AEP defended fluvial event. The flood zones are based on the EA's New National Model for which depth and hazard information is unavailable. The risk is fluvial.

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)
99	0	0	1

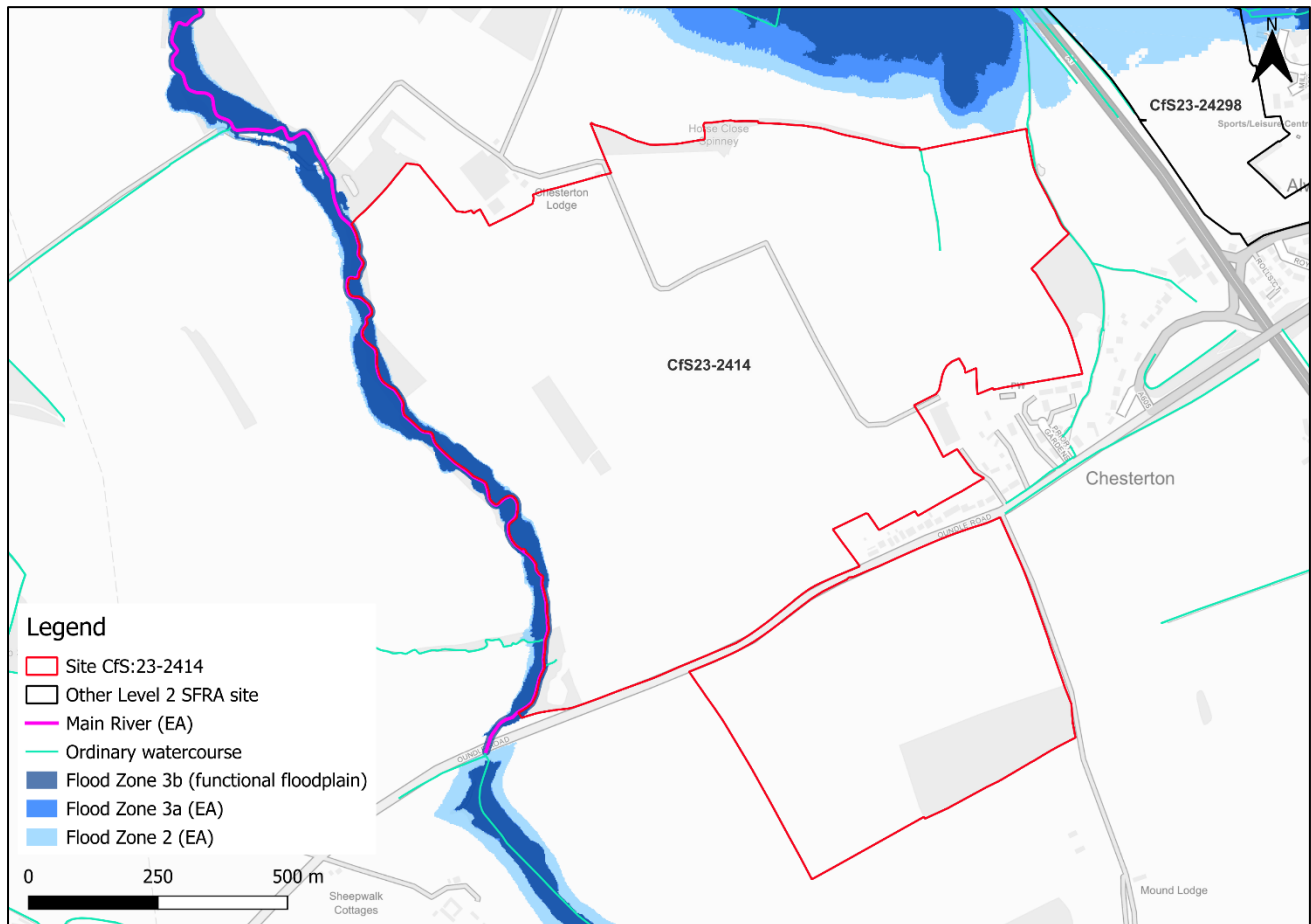


Figure 2-1: Existing risk

2.2 Flood risk management

2.2.1 Flood defences

The site doesn't benefit from any formal engineered flood defences, according to the EA's 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. These areas are shown in Figure 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. There is potential for tree planting along the watercourses to reduce flood risk. There is significantly more potential for attenuation to the north and south of the site.

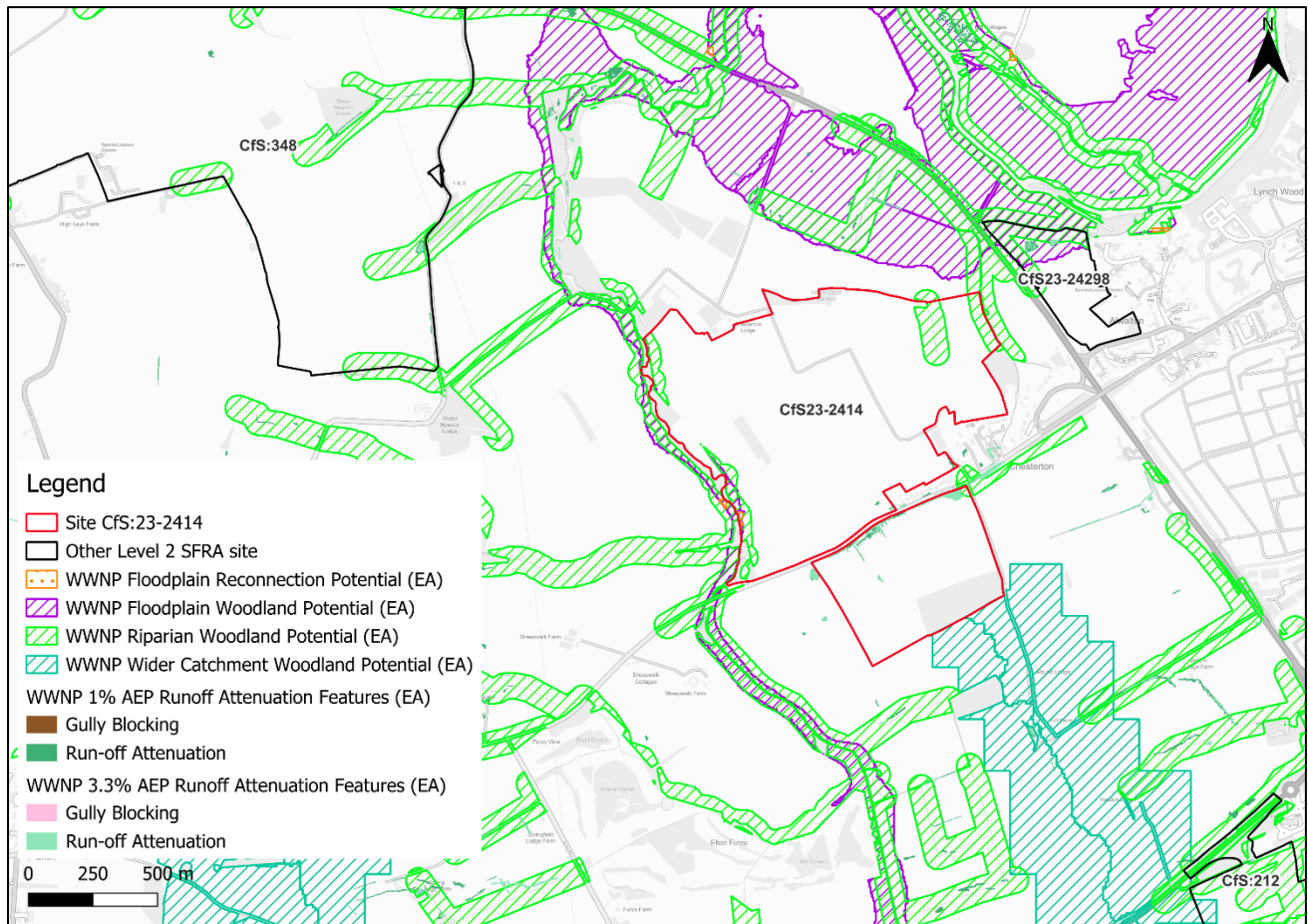


Figure 2-2: Natural Flood Management (NFM) potential mapping

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, there is no existing detailed model of the Billing Brook.

The impacts of climate change on flood risk from the Billing Brook have been modelled by the EA through the New National Model which models the central allowance (+4% on peak river flows for the Nene EA management catchment) for the 3.3% AEP defended, 1% AEP defended and undefended, and 0.1% AEP defended and undefended fluvial events.

Fluvial flood risk is not expected to significantly increase due to climate change (Figure 2-3).

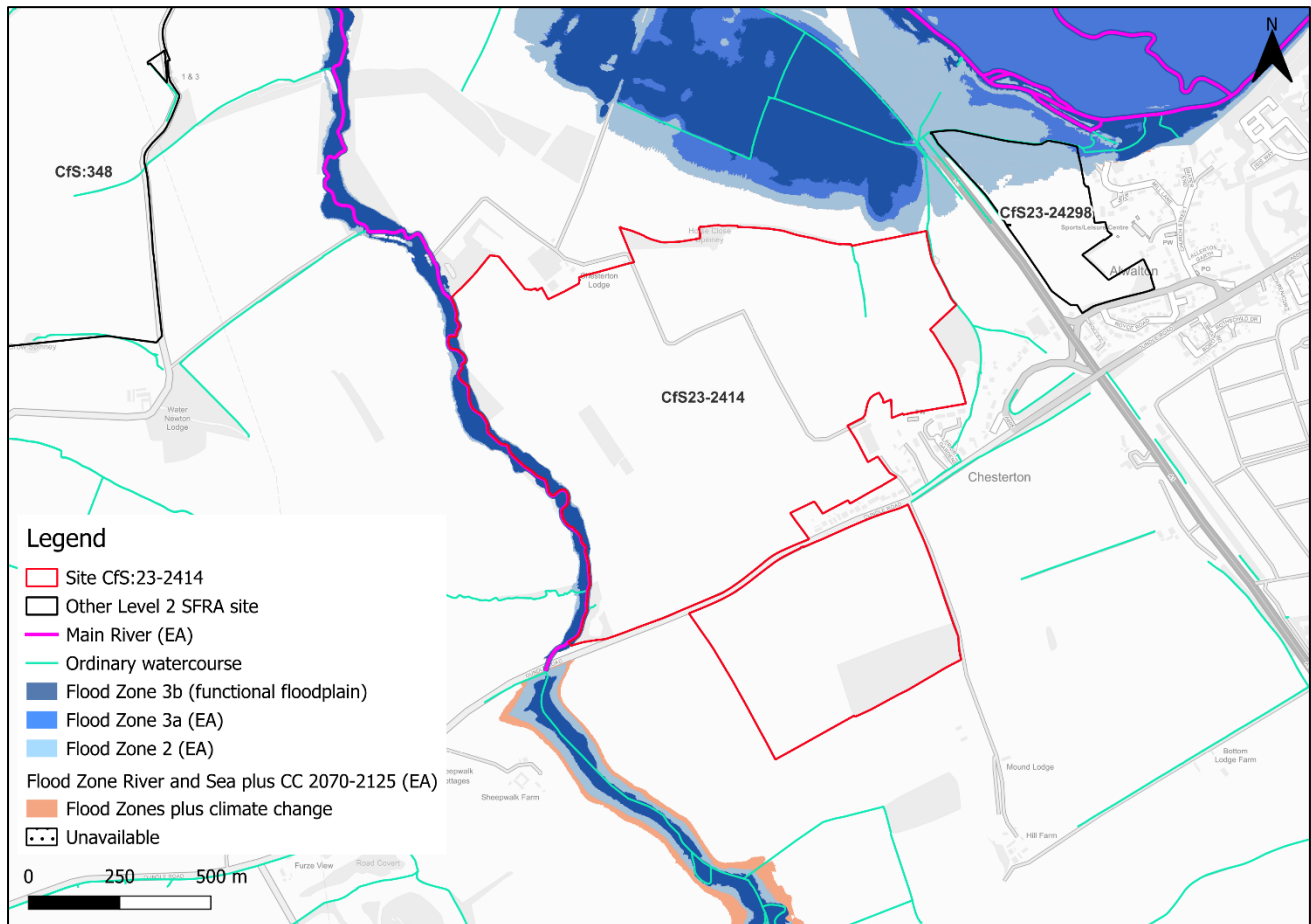


Figure 2-3 Flood Map for Planning 1% and 0.1% AEP undefended flood events +4% (central climate change allowance)

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 and mapped in Figure 2-4 which a recorded flood event in March 1947 which impact the area to the northeast of the site. The flood source is reported to be an operational failure/breach of defence on the River Nene.

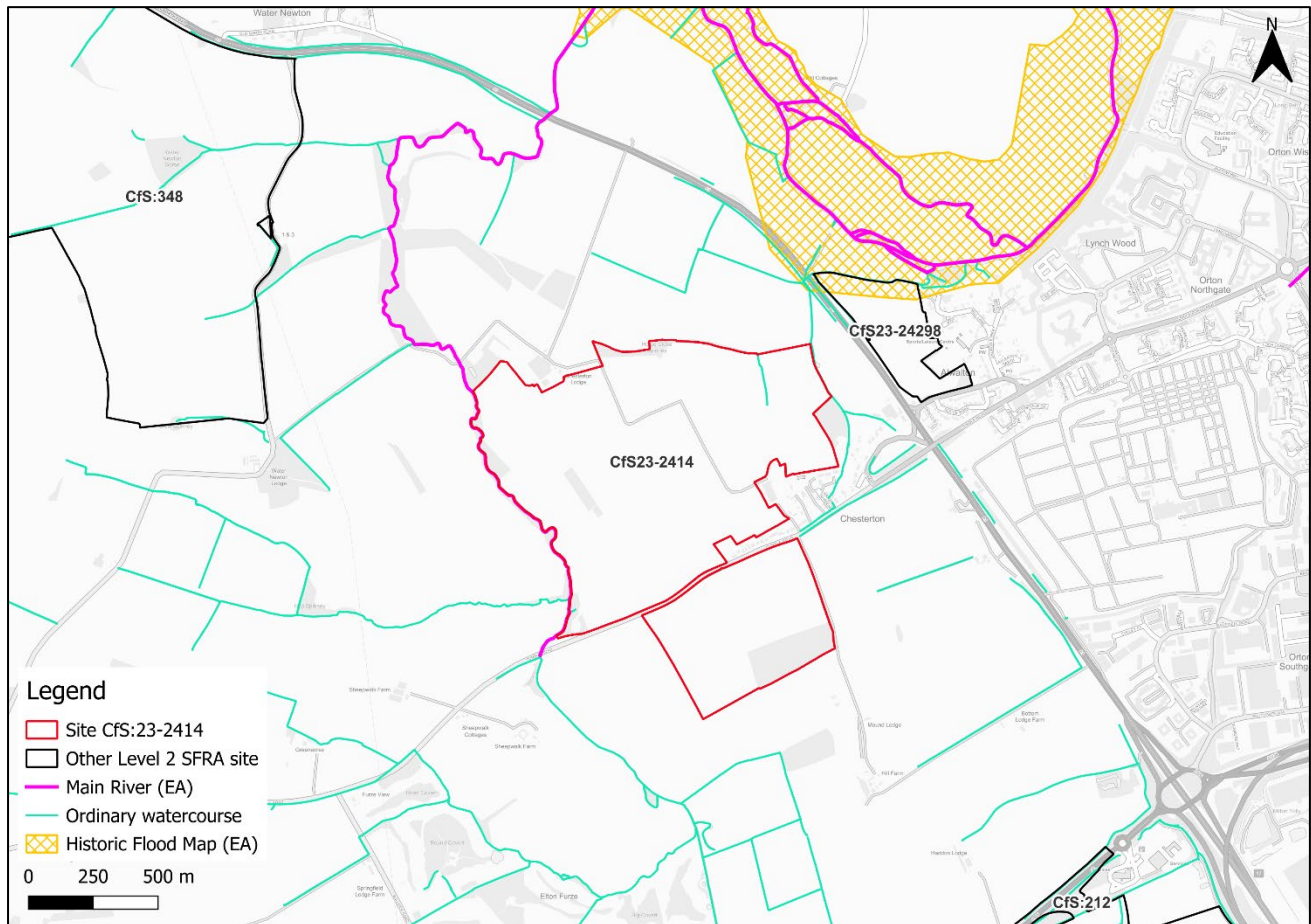


Figure 2-4: Recorded historic flood events onsite and around the site

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. The 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. As shown in Figure 2-5, this site is located within a FAA, namely Minor Tributaries of the Nene in Northamptonshire.

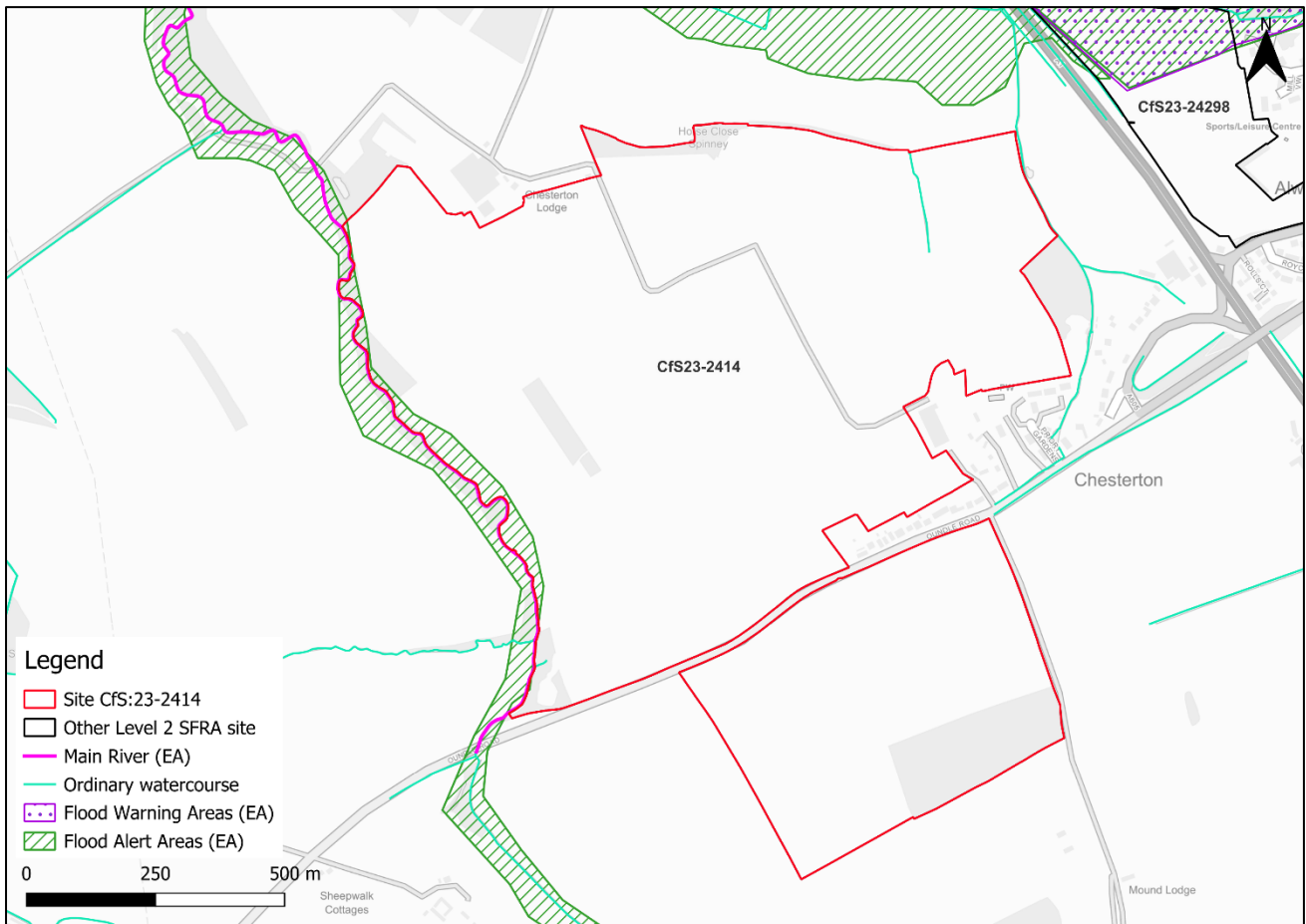


Figure 2-5: EA Flood Warning Areas and Flood Alert Areas

2.5.2 Access and escape routes

Based on available information, safe access and escape routes could likely be achieved from the northern section of the site during a flood event via the Oundle Road to the south and an unnamed road to the north. Safe access and escape routes could likely be achieved from the southern section of the site during a flood event via the Oundle Road to the north.

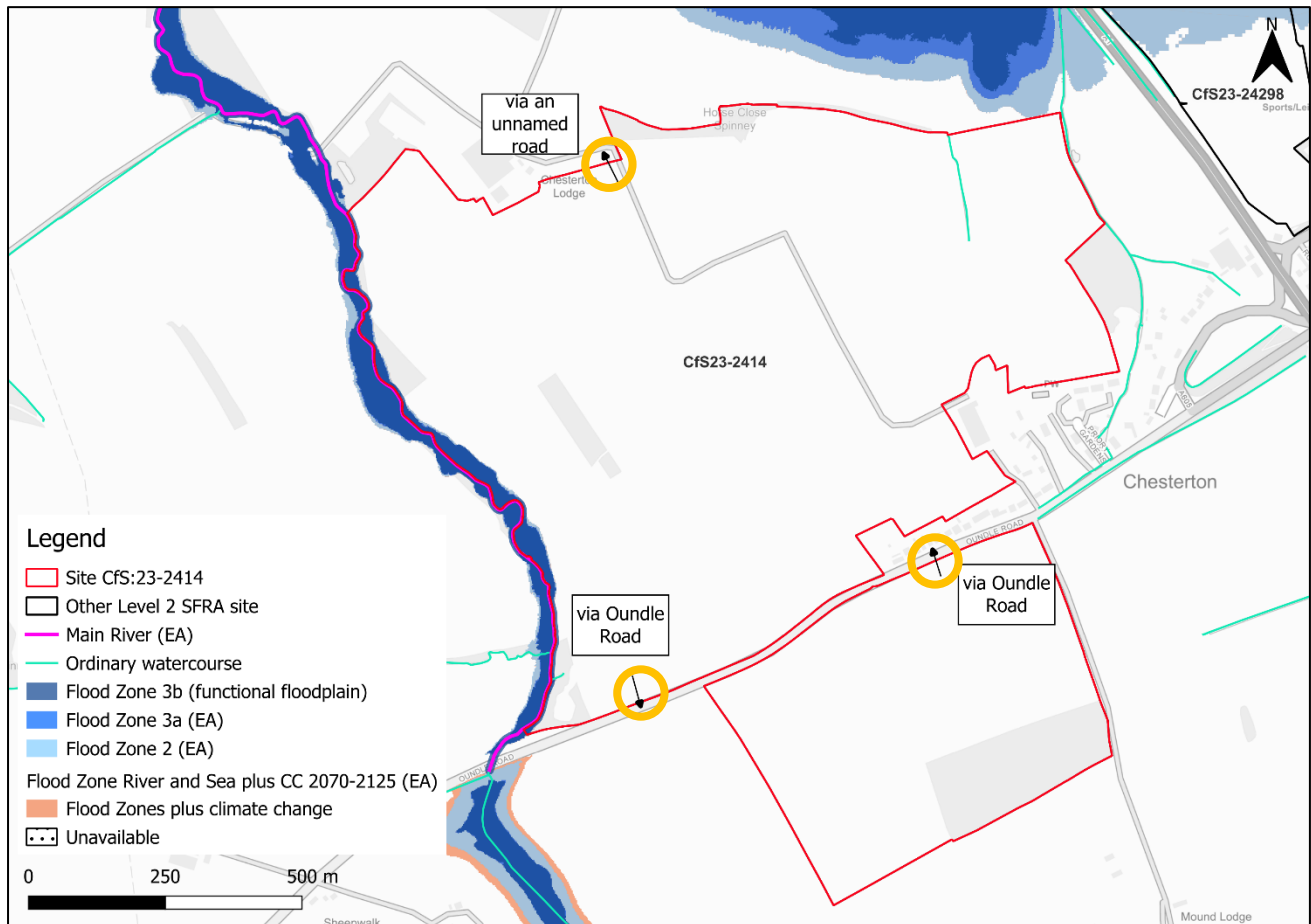


Figure 2-6: Potential access and escape routes

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.
 - There is currently no detailed model available for Billing Brook, therefore flood depths and hazards cannot be assessed.
 - The site is partially located within fluvial Flood Zone 3a and therefore must be subject to the exception test.
 - The risk area from Billing Brook, and particularly the functional floodplain onsite, should remain undeveloped and used as a blue green corridor offering multifunctional benefits.
 - The extent of fluvial risk from the unmodelled watercourses is currently unknown. Using the 0.1% AEP surface water event as a proxy, the ordinary watercourses do not appear to pose a risk to the site.

- Mitigation:
 - The functional floodplain and whole risk area should remain as open greenspace in the form of a blue green corridor, offering multifunctional benefits including ecological, social and amenity value to the site.
 - The site-specific FRA should develop a detailed model of Billing Brook and flood depths and hazards should be assessed. Risk from the ordinary watercourses should also be investigated. Modelling may be required.
 - Were development of this site to proceed, given the proximity of this site to neighbouring site CfS23-24298, it would be prudent to formulate a strategy to develop these sites in tandem and for consultation between each developer to take place to ensure a joined-up approach for sustainable development is in place.
 - The ordinary watercourses should be included within the site design and layout. Infilling of drainage ditches should be avoided.
 - If works are proposed on or near a river, a separate permission may be required. The type of permission needed and whether it must be sought from the Environment Agency, Lead Local Flood Authority or Internal Drainage Board will depend on the activity and location proposed. For non-tidal main rivers, a flood risk activity permit may be required if the development of the site is within 8 metres of a riverbank, flood defence structure or culvert.
- Access and escape:
 - Safe access and escape routes must be available at times of flood and appear to be available from both section of the site, via Oundle Road and the north via an unnamed road. A FAA is in place however which should provide advanced warning for site users to evacuate ahead of a flood event in the short term.
 - EA flood alerts should continue to be in place to ensure early evacuation of site users before an extreme flood event occurs.

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 2% of the site is at high surface water risk. A further 1% is at medium surface water risk and 2% at low surface water risk.

Surface water risk is largely confined to topographical low spots, and along Oundle Road in the southern site parcel.

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)
95	2	1	2

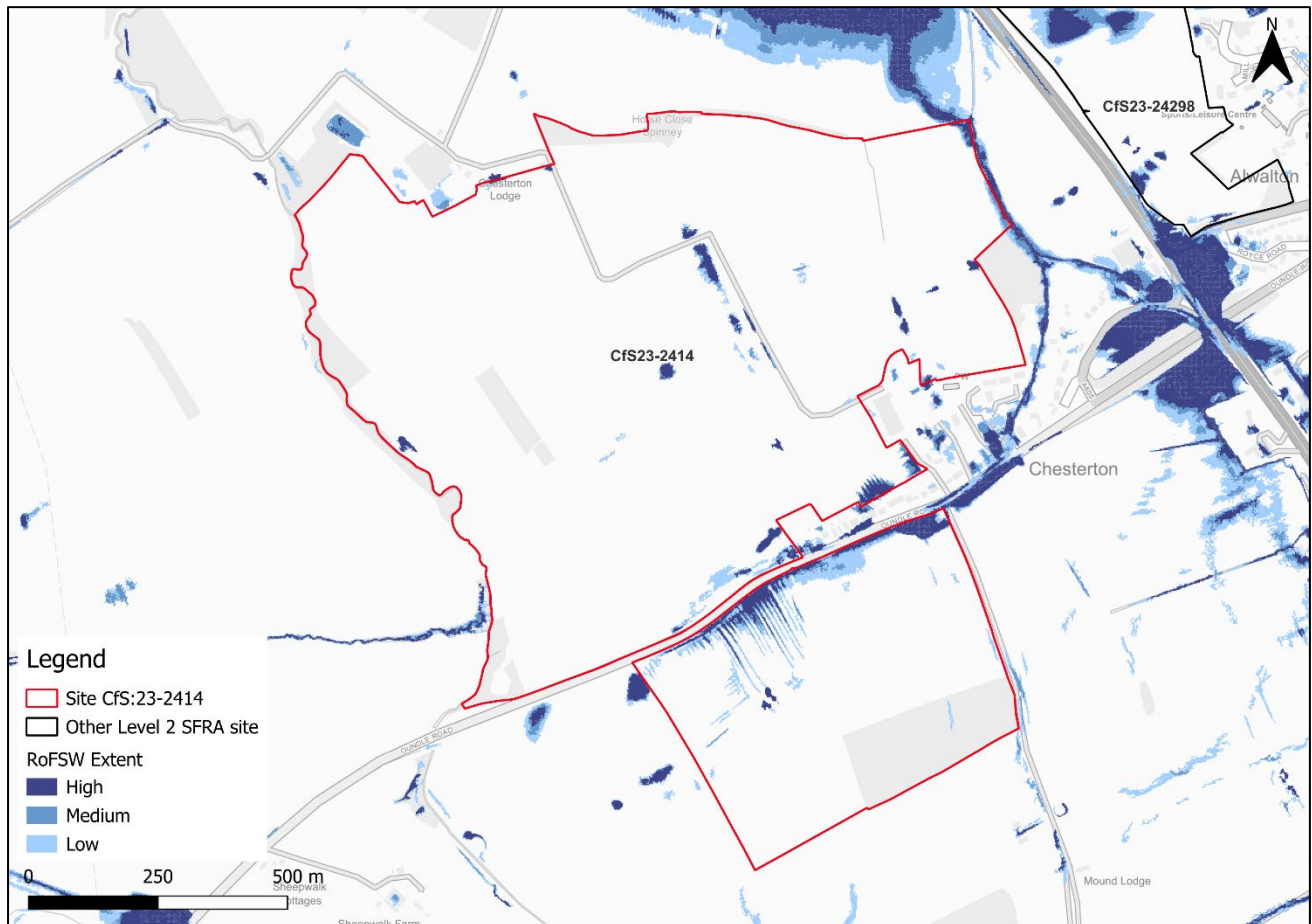


Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

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

The EA's national scale third generation RoFSW map, shows a significantly smaller area of surface water risk than NaFRA2 along Oundle Road but a larger area along the western site boundary at the Billing Brook.

Flooding along Oundle Road is predicted to mostly remain below 0.30m in depth (Figure 3-2) and be a low hazard (Figure 3-3), however some nominal areas in the east may reach 1.2m and be a significant hazard.

There are clear differences between the NaFRA2 RoFSW map and the third-generation depths and hazard mapping with no areas of ponding in the third generation mapping. This reinforces the requirement for detailed assessment of surface water at the FRA stage to establish surface water flood risk conditions.

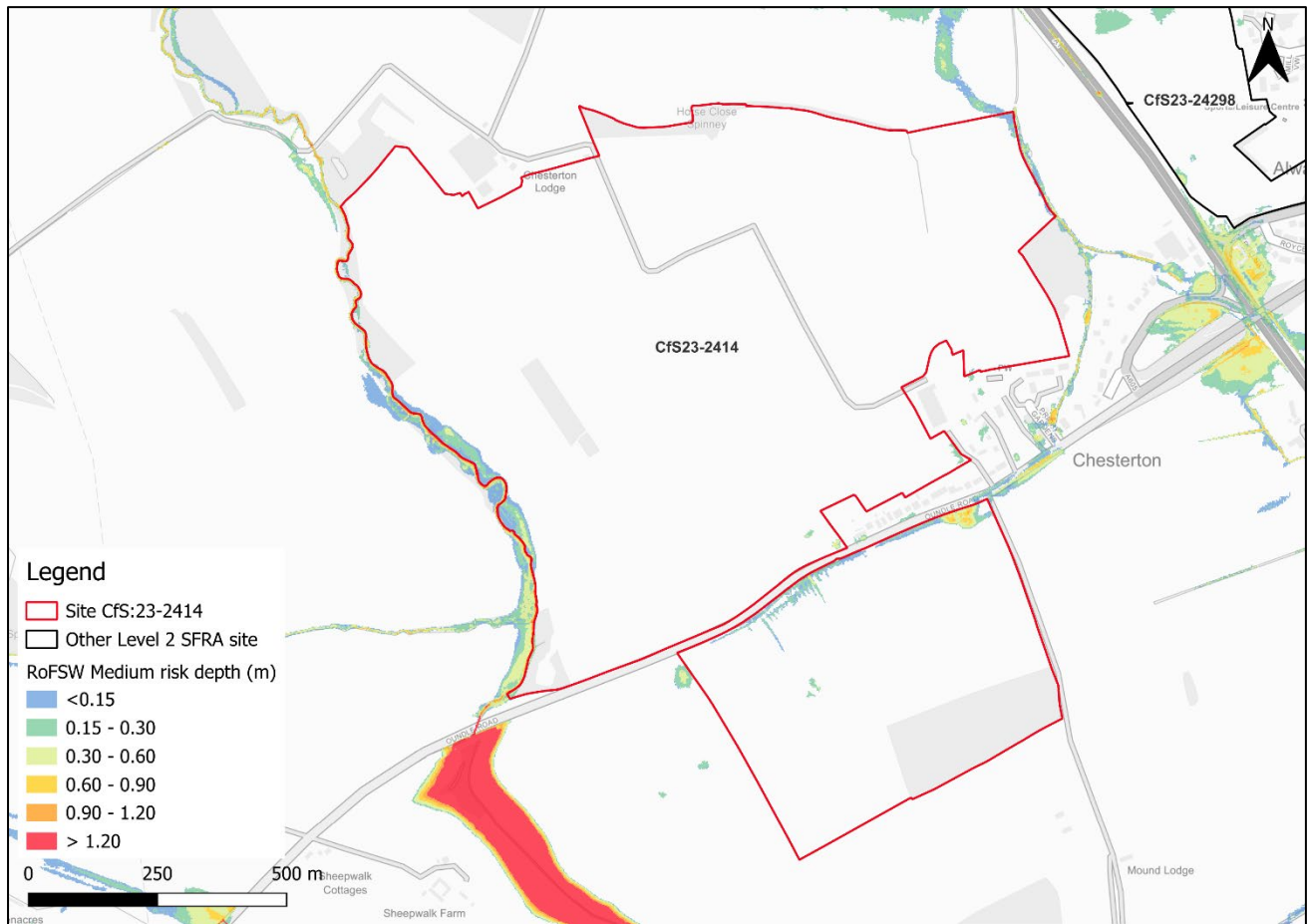


Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

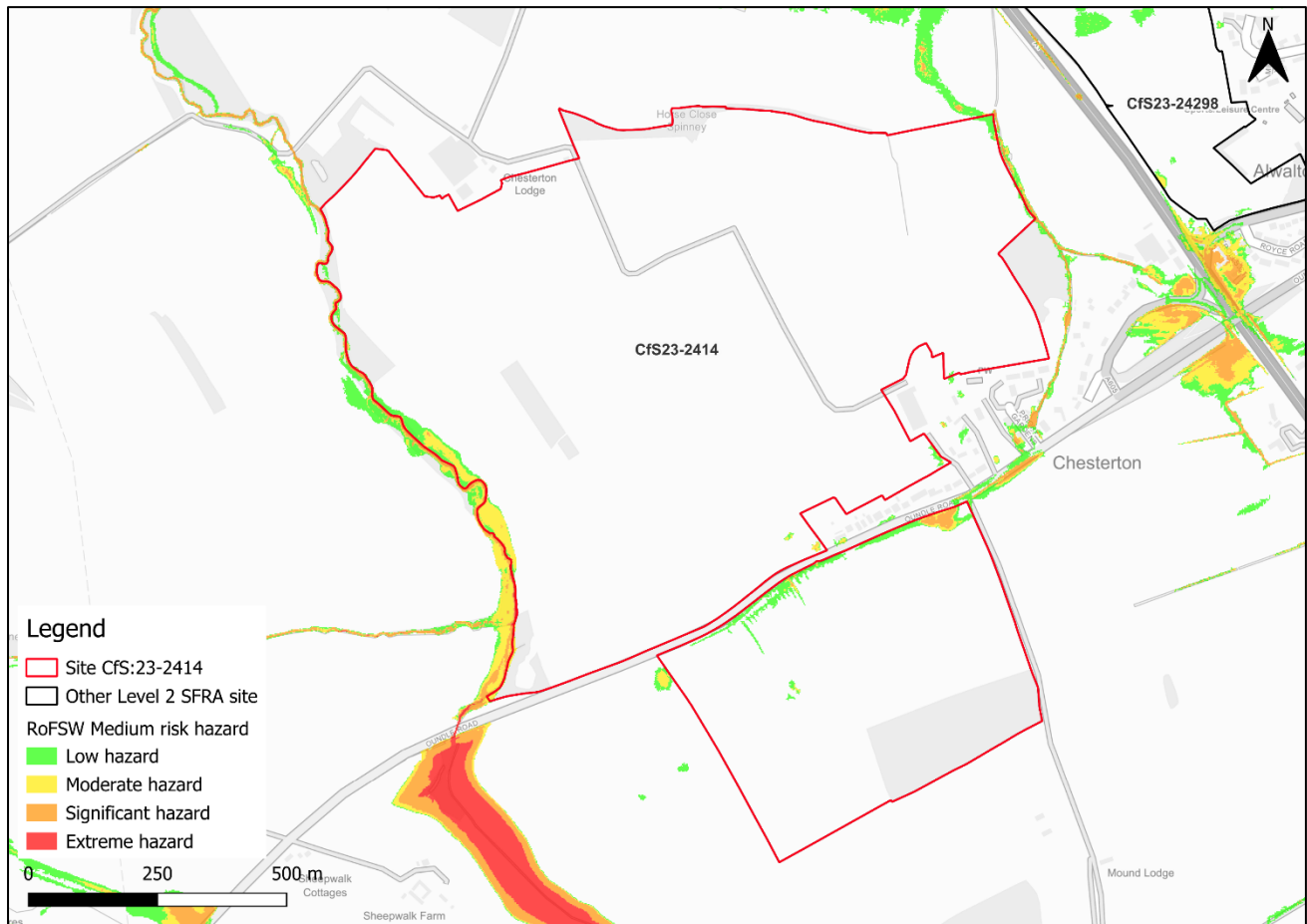


Figure 3-3: Medium risk event surface water flood hazard¹ (Third generation - Risk of Flooding from Surface Water map)

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 current information, the area at risk along Oundle Road increases in size, with flooding still mostly predicted to remain below 0.30m, with some areas exceeding this. A larger area of flooding is predicted to pose a significant hazard.

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

There are clear differences between the NaFRA2 RoFSW map and the third-generation depths and hazard mapping. This reinforces the requirement for detailed assessment of surface water at the FRA stage to establish surface water flood risk conditions.

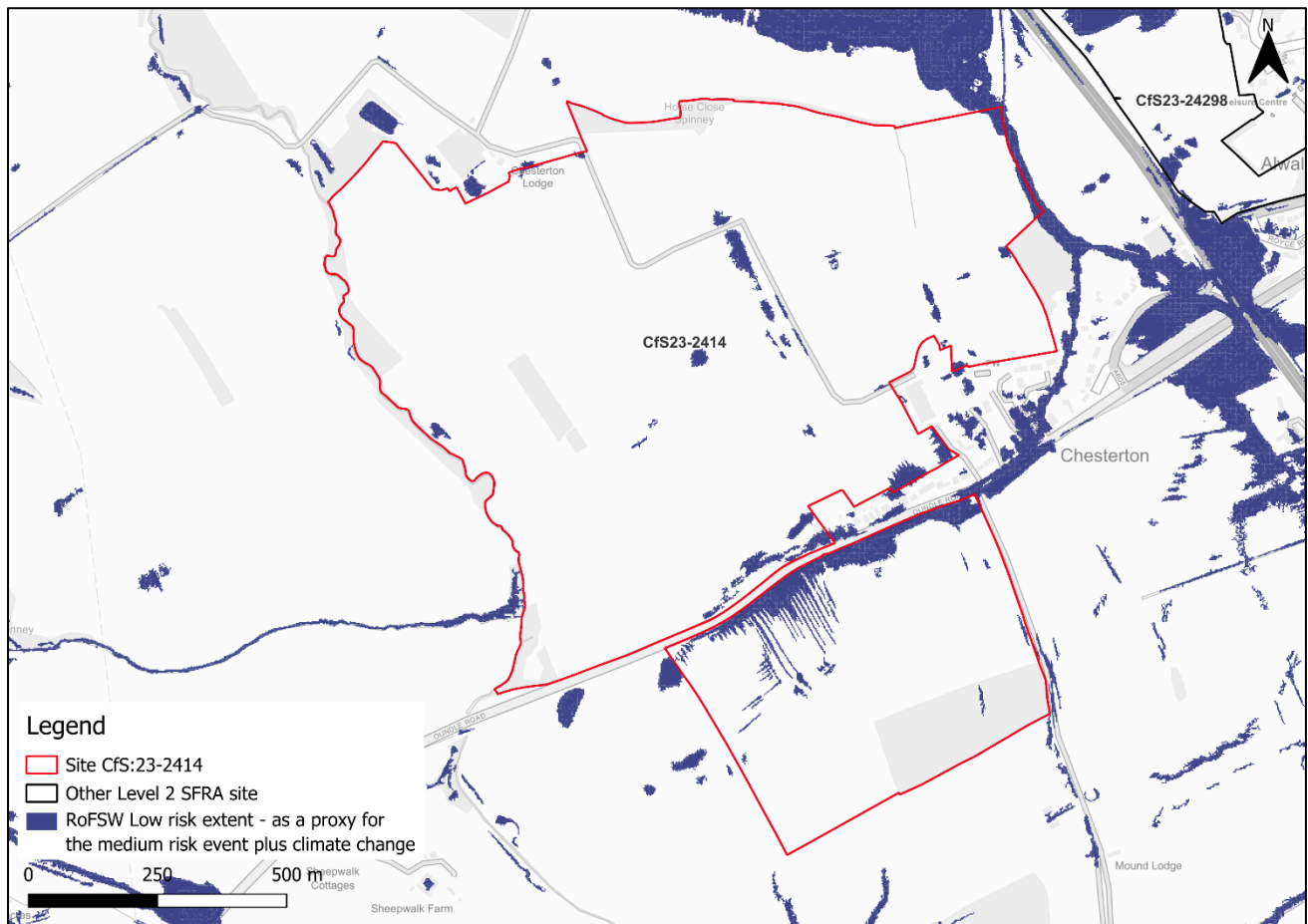


Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

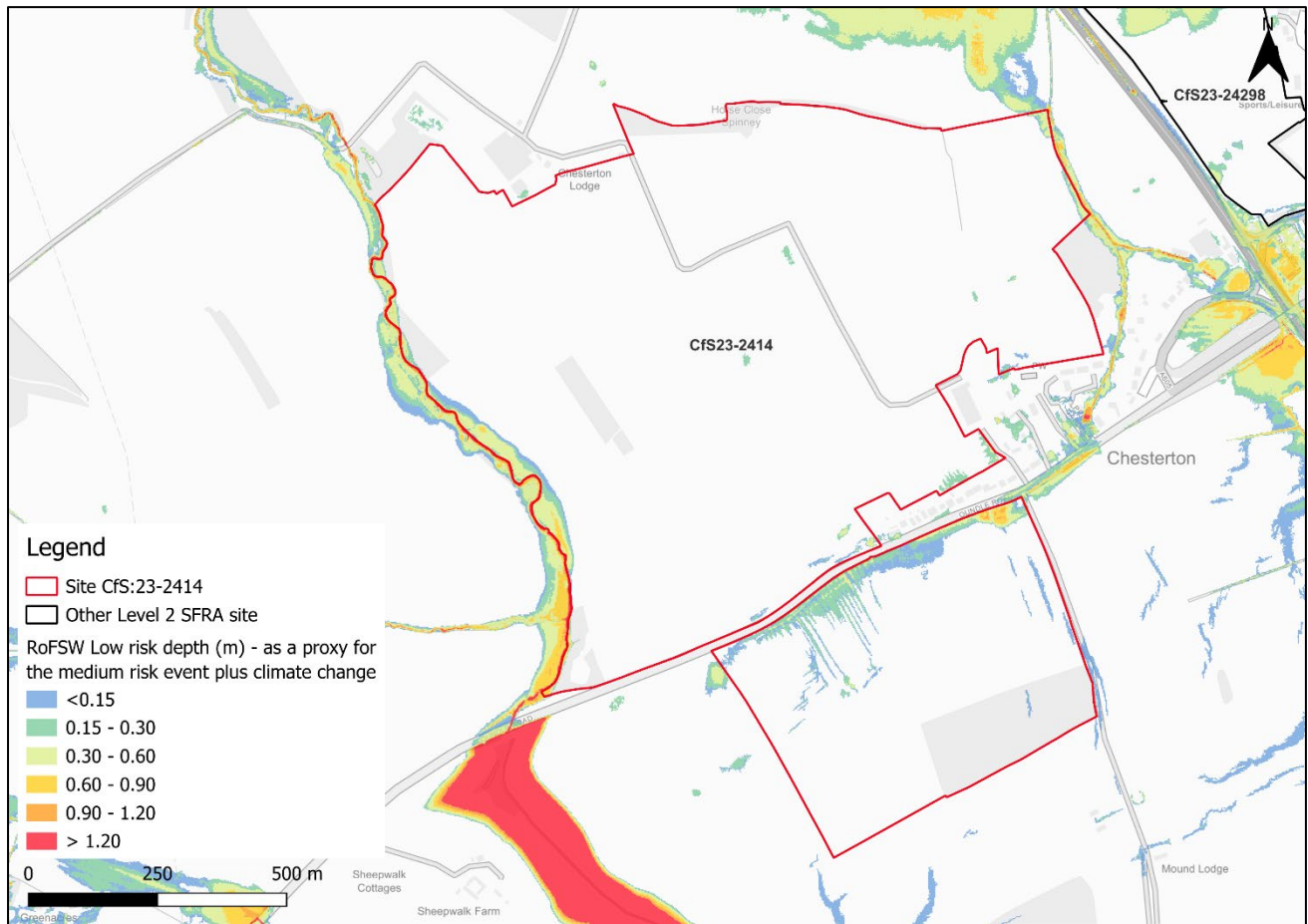


Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

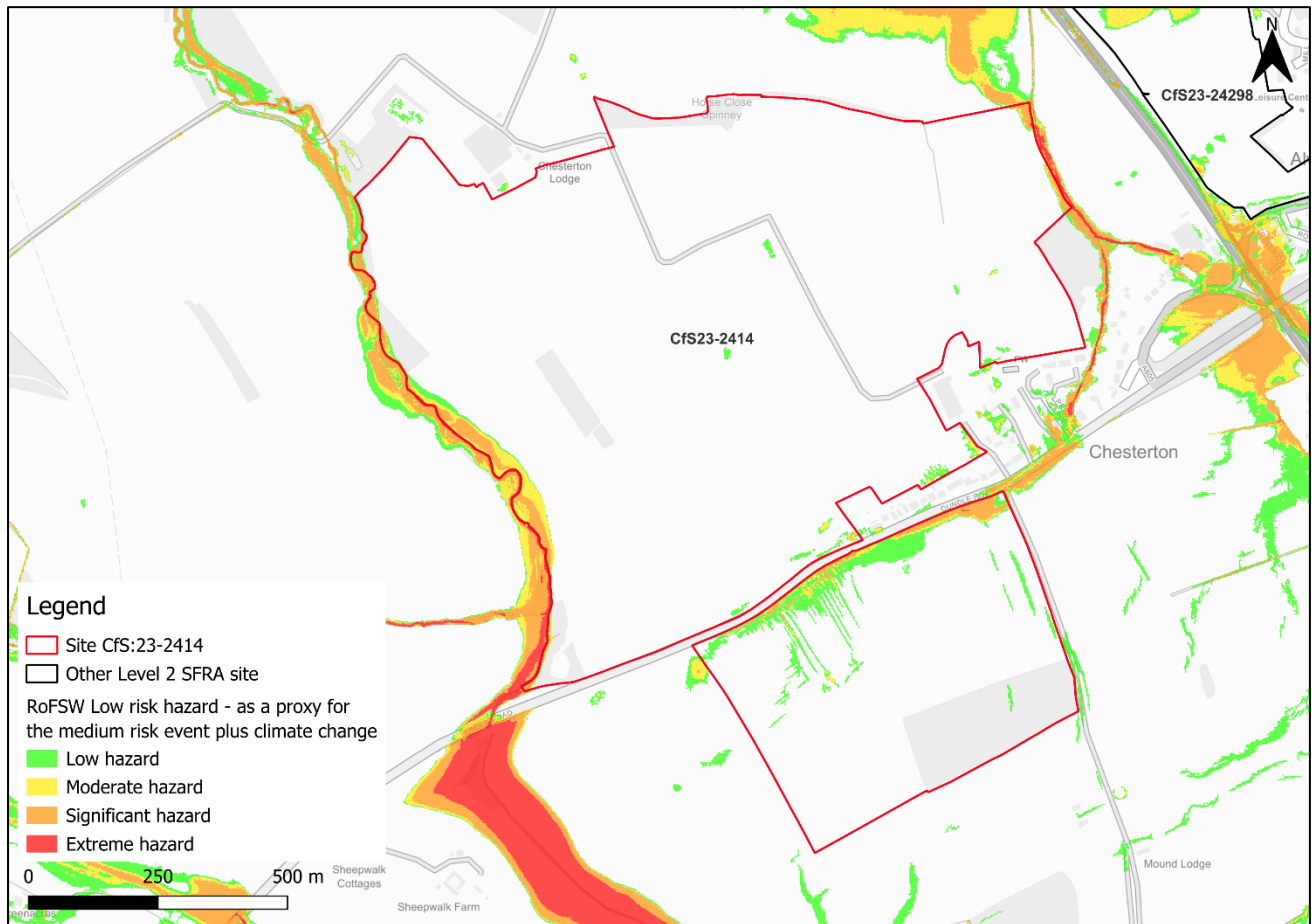


Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

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

- Current risk to the site is predominantly very low, with 95% of the site being at very low surface water flood risk. Surface water risk in the high and medium risk events is largely confined to Oundle Road and small areas of ponding.
- 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 a greater extent of ponding along Oundle Road.
- 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.
- There are clear differences between the NaFRA2 RoFSW map and the third-generation depths and hazard mapping. This reinforces the requirement for detailed assessment of surface water at the FRA stage to establish surface water flood risk conditions.

- 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.
- Topographic low spots and flow paths should be incorporated into site design and layout.
- 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 two catchments, namely, the Billing Brook catchment and the Nene - Islip to tidal catchment. These catchments are ranked as low sensitivity catchments. Planning considerations for sites at low 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 Guide². 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 northern site parcel is shown to have groundwater levels within 0.025m to 0.5m from the ground surface in the 100-year return period flood event. Infiltration SuDS are therefore unlikely to be appropriate in this site parcel. The site-specific FRA should further investigate groundwater levels through percolation testing in both wet and dry weather conditions across the site. Infiltration SuDS should be appropriate in the southern site parcel as there is no risk of groundwater emergence in the majority of this area.

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.	

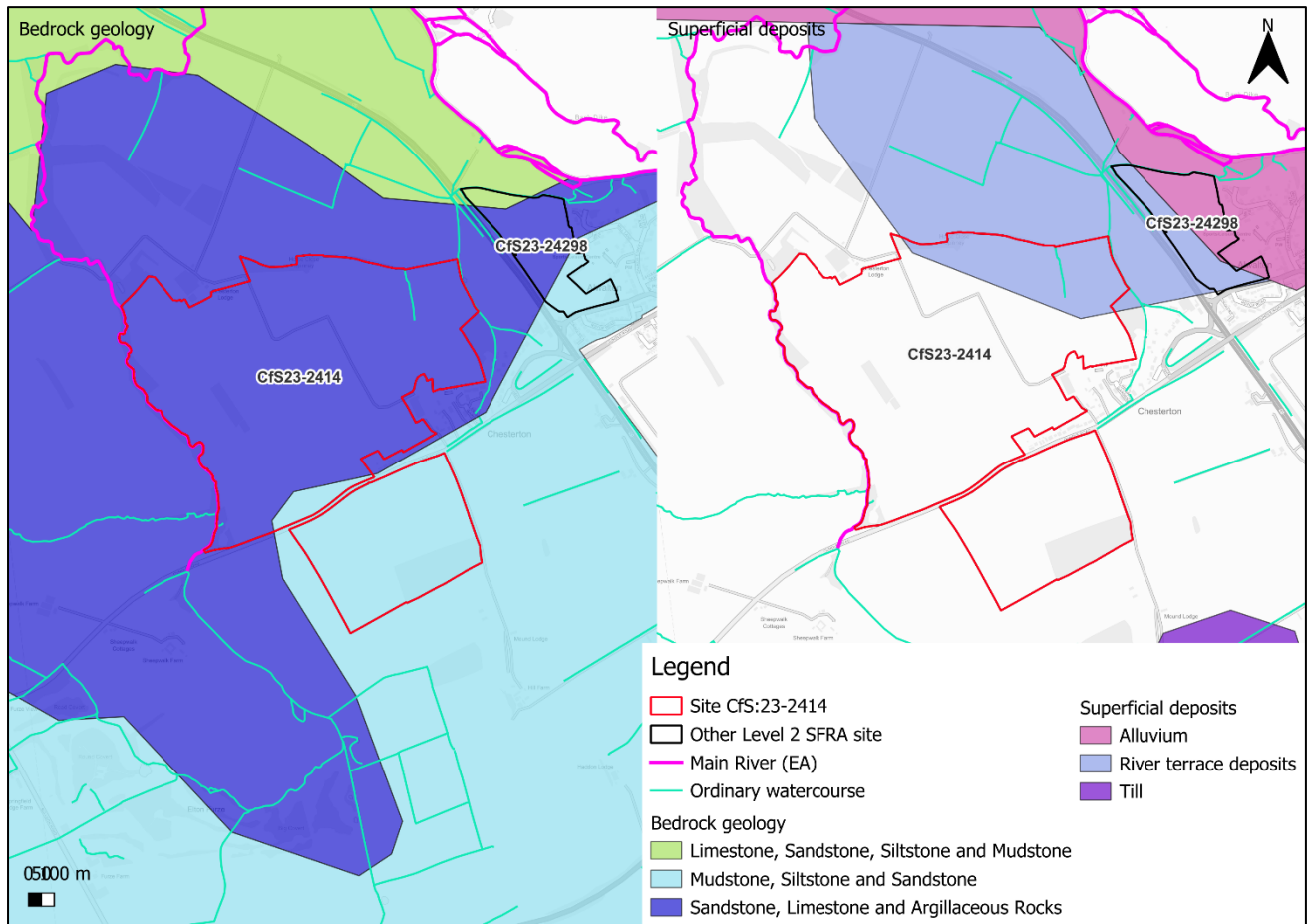


Figure 5-2: Soils and geology

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.

Based on available information, there does not appear to be any residual risk to this site.

6.1 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 required to pass part b) of the exception test as it is proposed for more vulnerable development and is located within Flood Zone 3a. Based on the information presented in this Level 2 SFRA, the exception test could be passed and the site allocated. However, the test should be reapplied at the application stage as some flood risk information has not been available for consideration in this Level 2 SFRA, as outlined below. The test should also be reapplied if more recent information about existing or potential flood risk becomes available at application stage.

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 Billing Brook should be modelled and flood depths and hazards assessed.
- Risk from the ordinary watercourses should be investigated at the FRA stage. Modelling may be required.
- Surface water flood risk is inconclusive between datasets and given the large area of the site and the fact it is currently greenfield, a drainage strategy should therefore investigate risk further.
- The ordinary watercourses and areas of ponding should be included within the site design and layout. Infilling of drainage ditches should be avoided.
- Groundwater conditions must be investigated further through the site-specific FRA. The potential use of SuDS should be investigated.
- 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 the low risk surface water flood event.

7.3 Site-specific FRA requirements and further work

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

- Full detailed flood modelling of Billing Brook and investigations into potential risk from the ordinary watercourses.
- Further consideration of surface water flood risk, including a drainage strategy. Discharge rates should remain at greenfield rates at a minimum in consultation with the LLFA.
- Investigation into groundwater conditions and appropriate SuDS.

- 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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