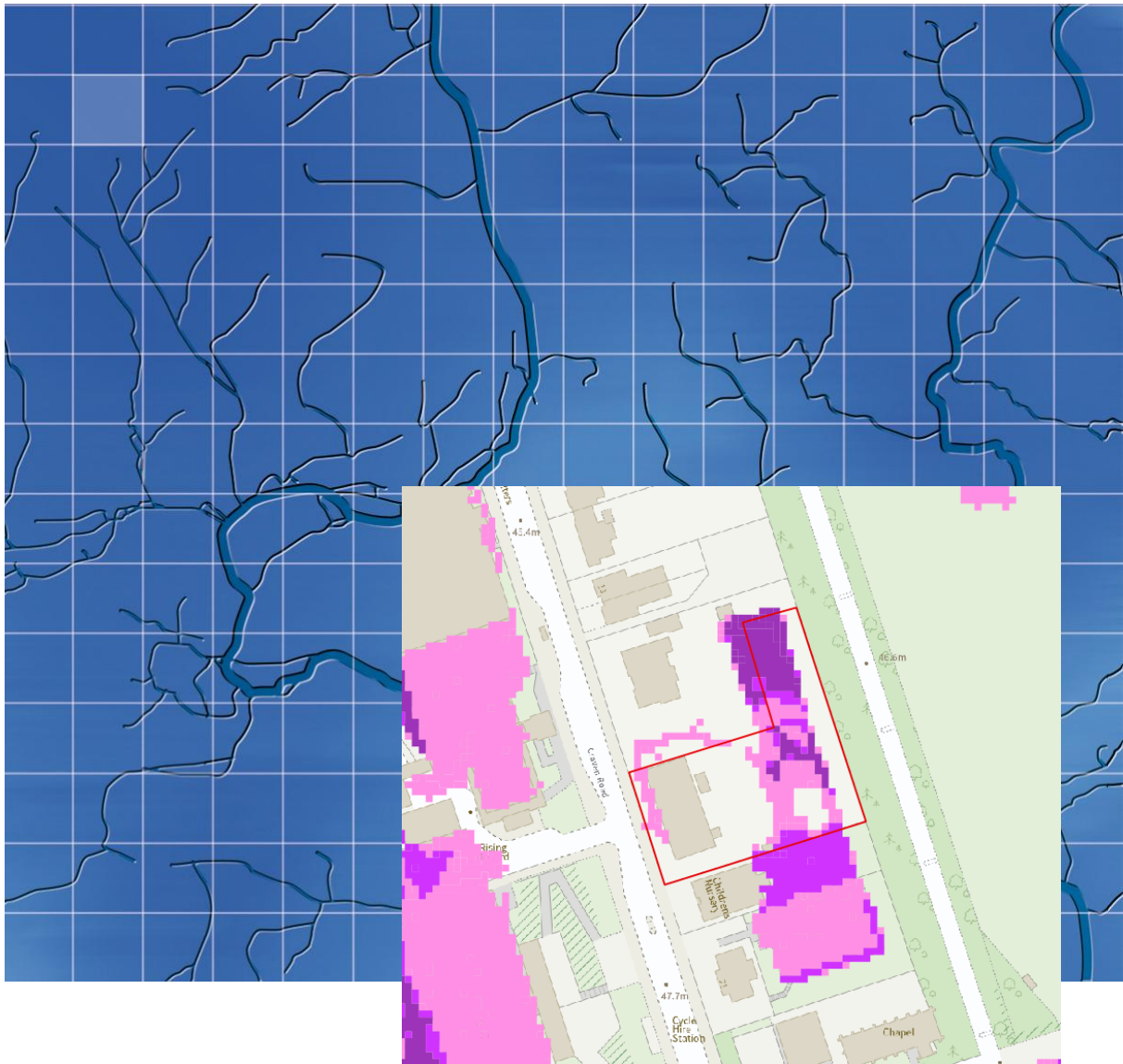


Reading Borough Council

May 2025

Land Adjacent to 17 Craven Road (ER1m)

Level 2 Strategic Flood Risk Assessment



Reading Borough Council

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For and on behalf of Wallingford HydroSolutions Ltd.

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Land Adjacent to 17 Craven Road (ER1m) Level 2 SFRA

Flood Risk Overview

Fluvial Flood Risk	L
Pluvial Flood Risk	M
Other Sources of Flood Risk	L
Confidence in Assessment	M

Flood Risk

Surface water flood risk represents the greatest risk to the site, with 26% of the site inundated by the 1.0% AEP plus climate change design event. In this respect, pluvial flood risk is considered to be moderate.

The risk from fluvial flooding is considered to be low.

The risk from other sources of flooding is considered to be low.

The overall confidence in the assessment is moderate. This is based on the use of national scale mapping to inform the assessment of the primary flood risk at the site.

Conclusions and Recommendations

The development proposed is categorised as *More Vulnerable Development* which is permissible in Flood Zone 2 but needs to pass the Exception Test to justify development in Flood Zone 3a. More vulnerable development is not permissible in Flood Zone 3b.

In this regard, a new residential development at the site will be permissible given that the site lies completely outside of Flood Zones 2 and 3. Whilst there is a risk of surface water flooding at the site, it should be manageable provided it is considered when locating infrastructure.

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1 Introduction

1.1 Background

Wallingford HydroSolutions Ltd has been commissioned by Reading Borough Council (RBC) to undertake a Level 2 Strategic Flood Risk Assessment (SFRA) at Land Adjacent to 17 Craven Road (ER1m) in accordance with the National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG) and associated guidance from the Environment Agency (EA).

Where there is a risk of flooding at the site, this risk has been quantified with the latest available datasets and any associated limitations with the assessment have been identified.

Where applicable, recommendations for improving our understanding of flood risk and/or mitigating the risk has also been included in this report.

1.2 Assessment of Flood Risk

For the site, a detailed assessment of the nature of flood hazard was undertaken. This included using the relevant fluvial modelling data to assess:

- The proportion of the site inundated for a range of return periods
- The speed of onset
- Flood depth
- Flood velocity
- Flood Hazard

The sites were assessed against a range of return periods, however the design event, the 100-year (plus central climate change) event, was considered most important for planning purposes.

In addition to the analysis of modelling data, the location, standard and condition of existing flood defences was assessed. Other sources of flooding were also reviewed at each site. This included an assessment of surface water flooding and an assessment of groundwater flooding based on available hydrogeological information from BGS and Soilscales. Potential access/egress routes were identified with respect to the risk posed from all sources of flooding.

Following a review of flood risk, flood defences and the identification of access/egress routes, an assessment was made on whether a future site-specific FRA would be able to show that the site can be allocated for development. The assessment takes into account the flood risk vulnerability of the development, the scale of development proposed along with any requirements for the Exception Test. In this context, any mitigative actions in the form of ground raising and compensatory storage are identified.

The site assessments also include guidance for the preparation of FRAs, including information about the use of SuDS.

1.3 Report Structure

This FRA follows the structure summarised below:

- 1 - Introduction (this section)
- 2 - Site Description
- 3 - Flood Risk
- 4 - Detailed Review of Primary Flood Risk
- 5 - Development Viability and FRA Recommendations

2 Site Description

2.1 General Location Plan

The Land Adjacent to 17 Craven Road (ER1m) site is 0.27 ha and is located in a suburban area of eastern Reading between the Royal Berkshire Hospital and Reading School, see Figure 1. The site is currently used for health-related purposes.

In the Replacement Local Development Plan (RLDP) it is proposed to be used for residential development consisting of 22-34 dwellings, subject to it not being required for health-related uses.

2.2 Topography

Based on 1m LiDAR data, the site has a notable variation in topography, as it is partially located within a topographic depression, see Figure 2. The ground levels within the site boundary range from 44.0 to 47.6 m AOD. The average ground level is 45.3 m AOD.

2.3 Nearby Watercourses

The nearest watercourse to the site is the Kennet and Avon Canal located approximately 625 m northwest of the site, see Figure 1.

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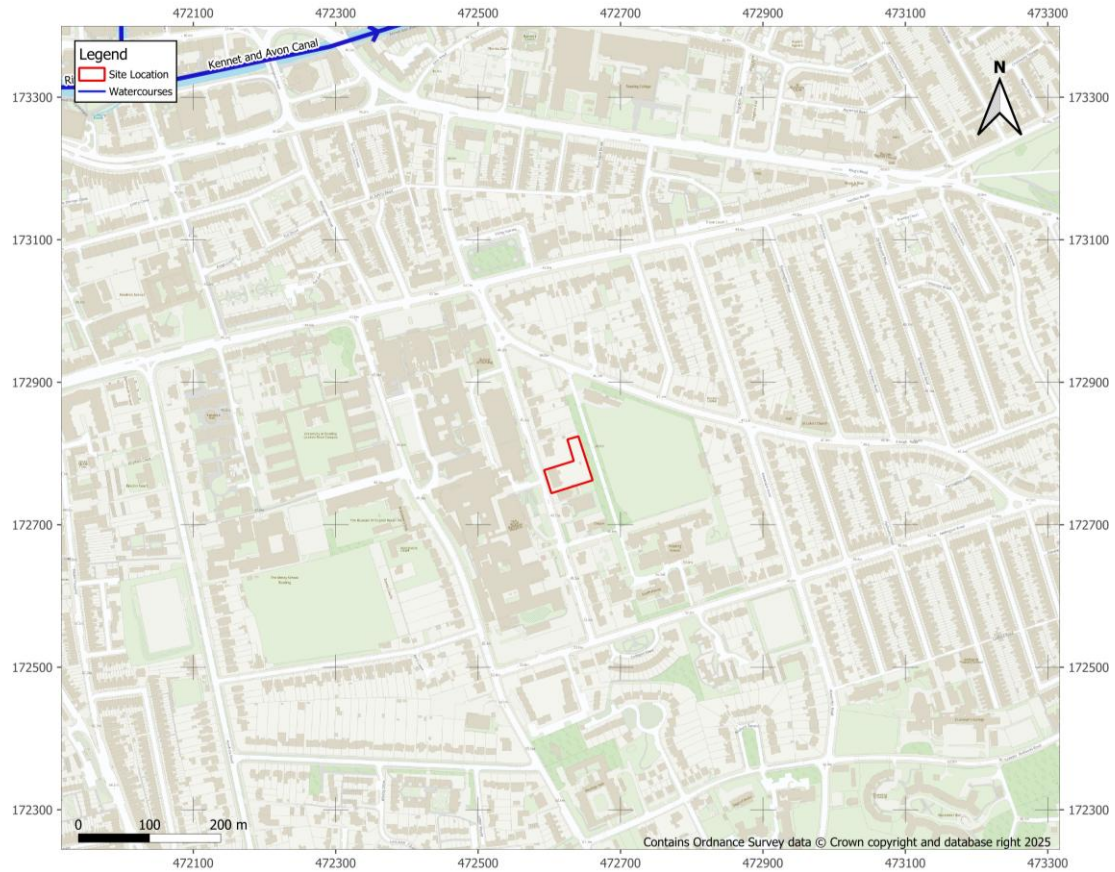


Figure 1 - Site Location

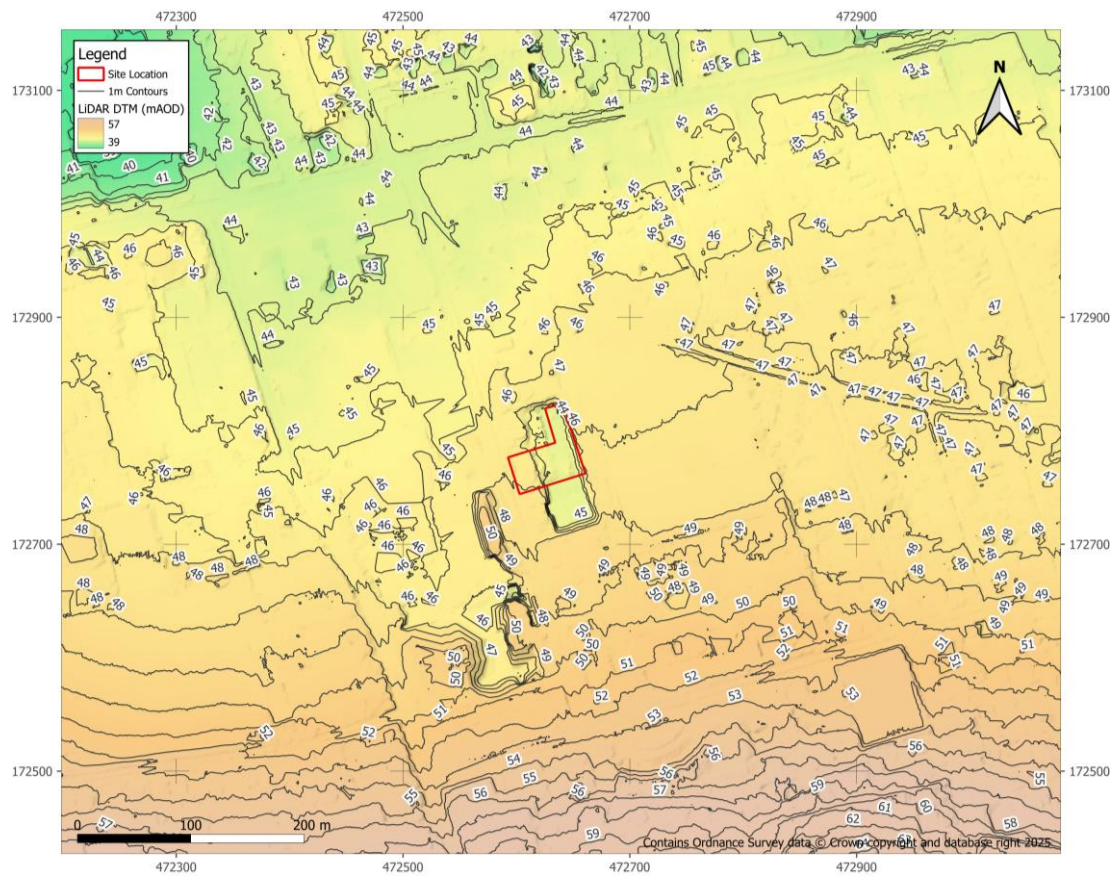


Figure 2 - Topography

3 Flood Risk

3.1 Historical Flooding

The EA does not hold any record of historic flooding at the location of the site. The closest recorded flood extent is associated with the Kennet and Avon Canal located approximately 610 m northwest of the site. This event occurred in December 2000.

3.2 Fluvial Flood Risk

In the existing Flood Map for Planning (FMfP), no part of the site is at risk of fluvial flooding, see Figure 3.

When accounting for climate change, the site remains outside of the fluvial flood extents, see Figure 4.

Fluvial flood risk is considered to be low.

3.3 Flood Defence Infrastructure

There is no formal flood defence infrastructure in the vicinity of the site. The site is not located within an area associated with a reduction in risk of flooding from rivers and sea due to defences nor is it located within a flood storage area.

3.4 Surface Water Flood Risk

The EA's surface water flood maps show surface water flood risk predominantly in the east of the site within the topographic depression. Approximately 13% of the site is inundated during the 3.3% AEP event, 19% is inundated during the 1.0% AEP event, and 39% is inundated during the 0.1% AEP event, see Figure 5. When considering the effects of climate change, these proportions increase to 17%, 26%, and 44% respectively.

Overall the risk of surface water flooding is considered to be moderate.

3.5 Groundwater Flooding

The site is underlain by the Lambeth Group which comprises Clay, Silt and Sand bedrock. This is expected to permit variable amounts of infiltration. Superficial deposits of gravel are also present at this site, these are also expected to be freely draining. The underlying soils are acid loamy soils which are also expected to be freely draining.

Based on the data available the water table at the site could be mobile, translating to a moderate risk of groundwater flooding. More data is required at the planning stage to confirm this.

3.6 Reservoir Flood Risk

The FMfP shows that no part of the site is a risk of flooding from a reservoir breach, see Figure 7.

3.7 Flood Warning Service

The site is not located within an EA Flood Warning Area.

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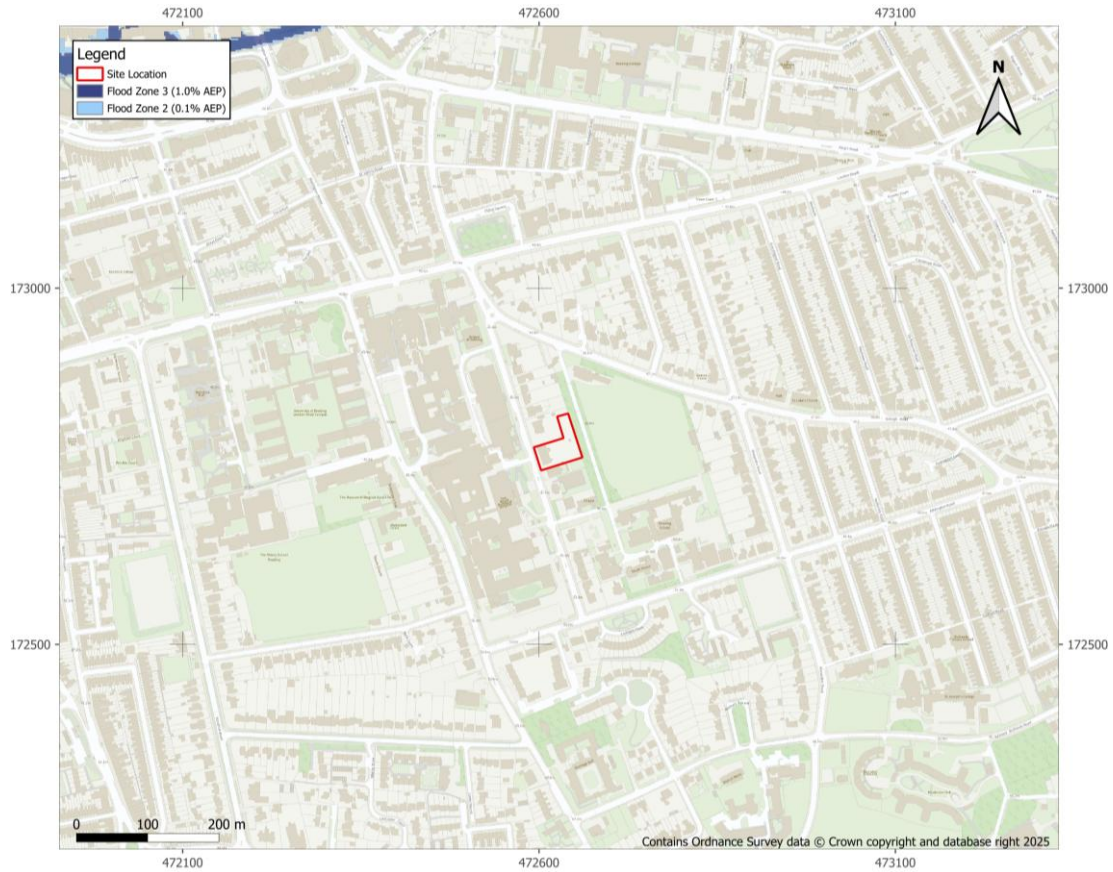


Figure 3 - Fluvial Flood Map

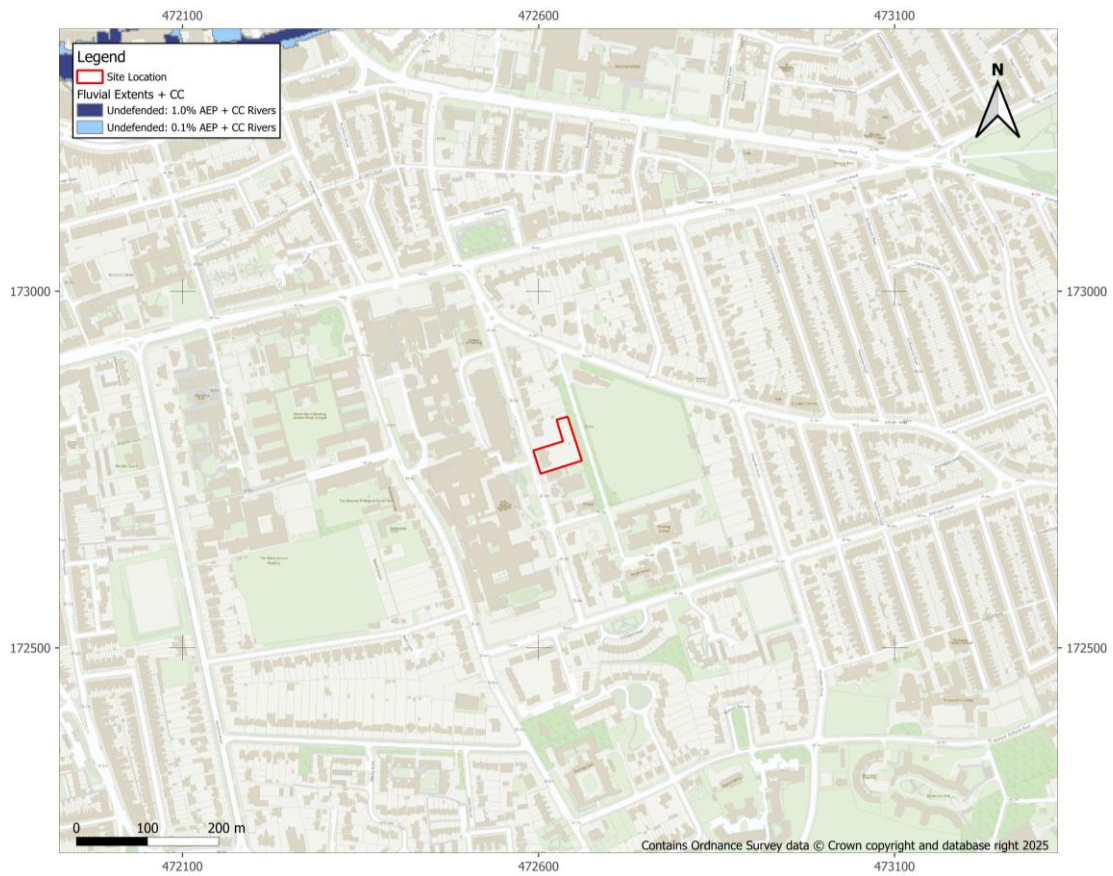


Figure 4 - Fluvial Climate Change Flood Map

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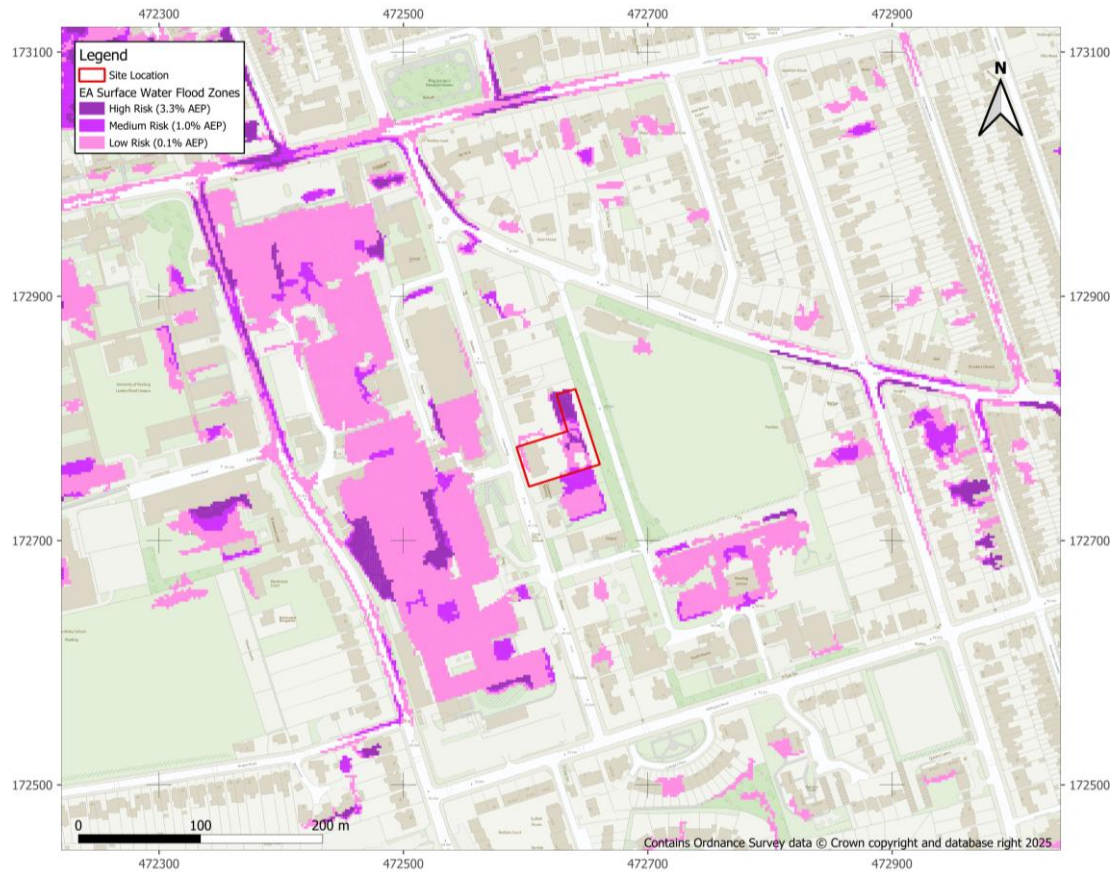


Figure 5 – Surface Water Flood Map

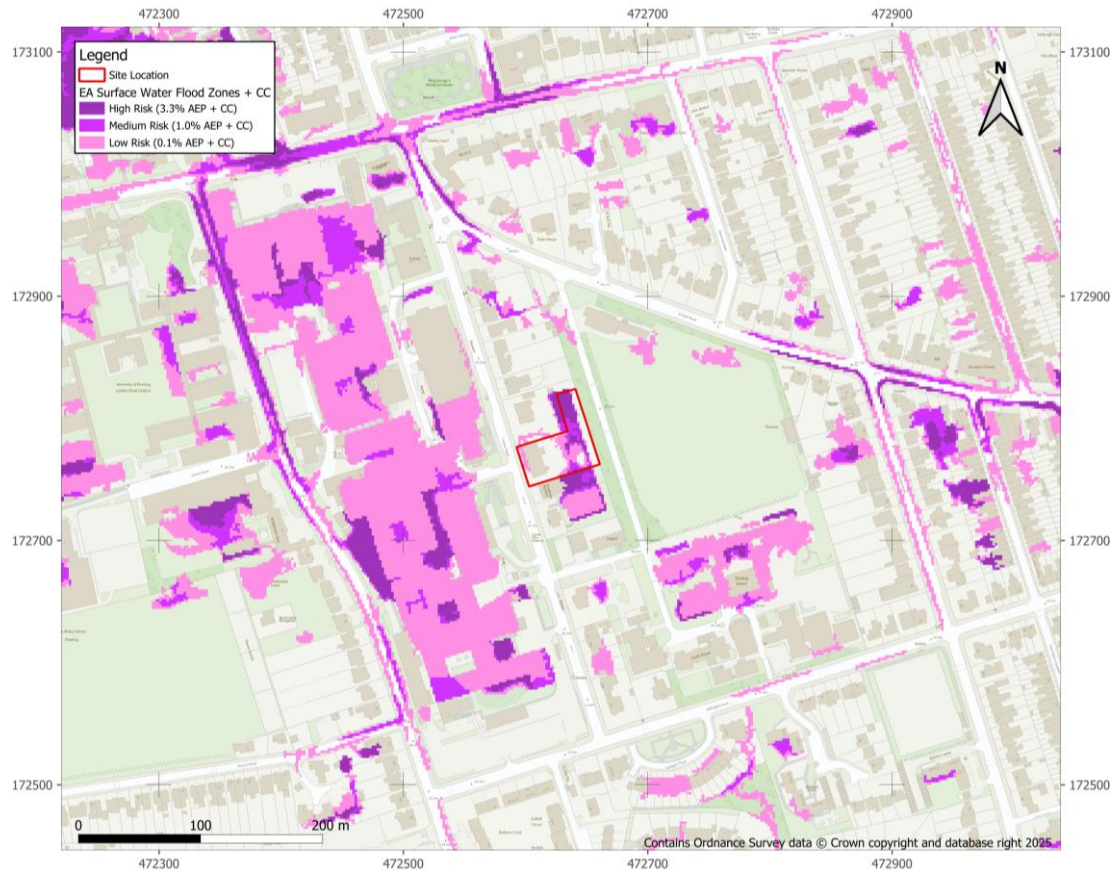


Figure 6 -Surface Water Climate Change Flood Map

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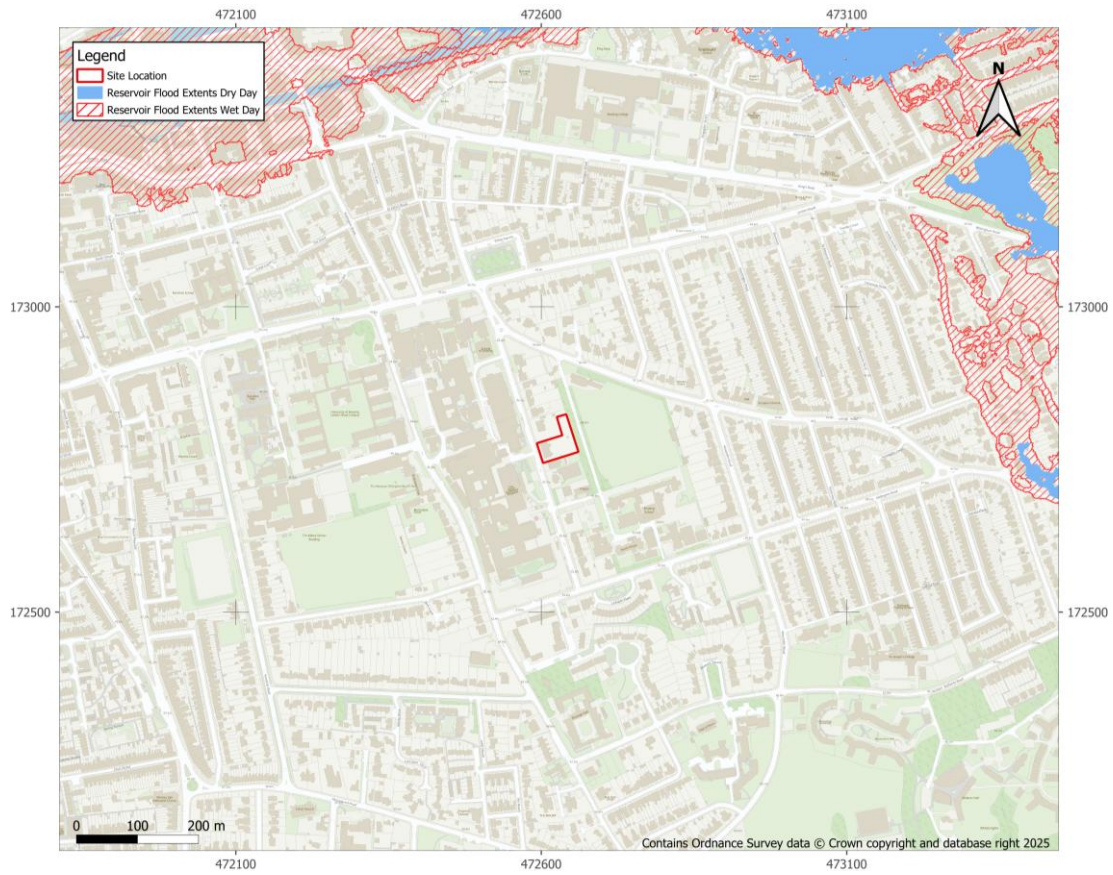


Figure 7 - Reservoir Failure Flood Map

4 Detailed Review of Primary Flood Risk

4.1 Primary Flood Risk

The primary flood risk mechanism at the site is pluvial in origin. The flood risk is quantitatively assessed in more detail below.

4.2 Flood Risk Metrics

For the 100-yr plus climate change design event, 26% of the site is flooded. As the current extents are based on national scale mapping, velocity data is not available however depth banding is available. Across the majority of the site the depth banding is less than 0.2 m depth. However, two areas have depths up to 0.6 m. These areas are located in the north of the site and along a portion of the southern boundary. Based on surface topography, surface water risk is associated with the local topographic depression that covers the eastern portion of the site.

4.3 Access and egress

Access to the site is via Craven Road to the west. Onward travel would be in a southerly direction. No part of the site or the surrounding area is at risk during a fluvial flood event and in general is at very low surface water flood risk, see Figure 8.

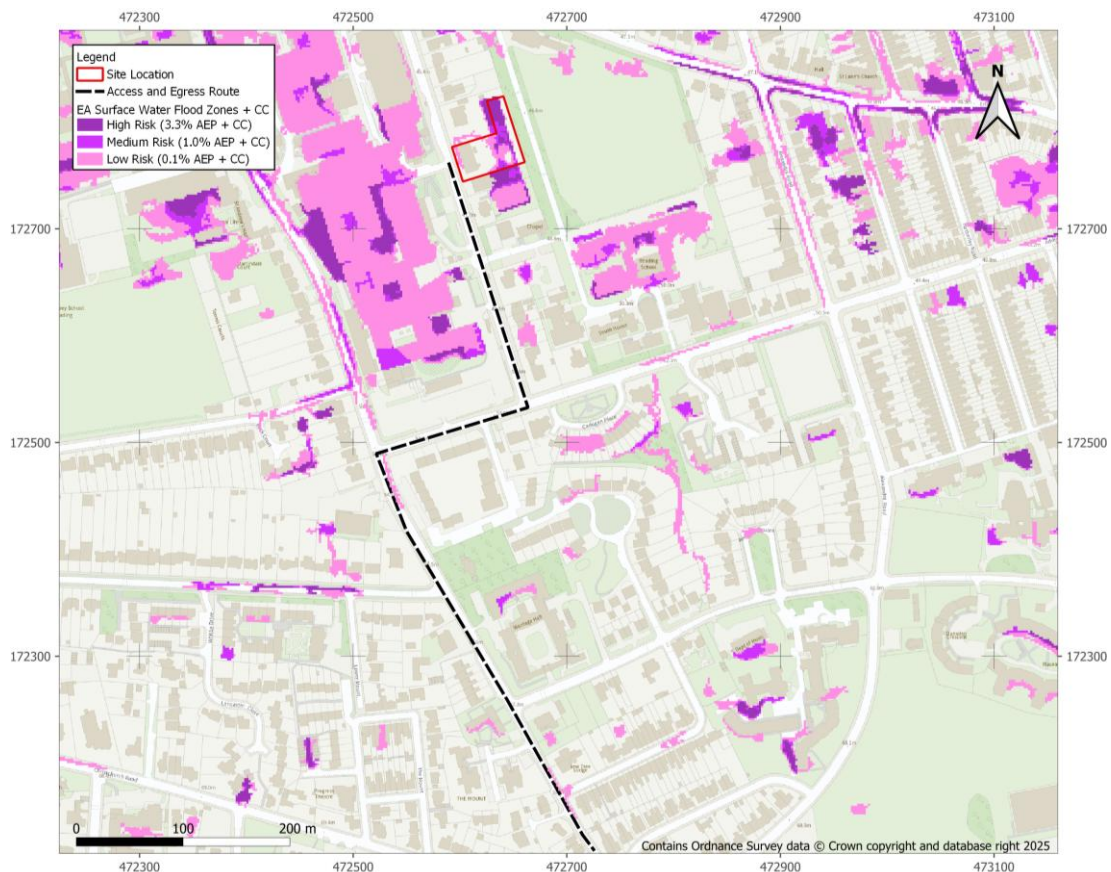


Figure 8 – Access and Egress Route

5 Development Viability and FRA recommendations

5.1 Development Categorisation

The development proposed is categorised as *More Vulnerable Development* which is permissible in Flood Zone 2 but needs to pass the Exception Test to justify development in Flood Zone 3a. More vulnerable development is not permissible in Flood Zone 3b.

In this regard, a new residential development at the site will be permissible given that the site lies completely outside of Flood Zones 2 and 3. Whilst there is a risk of surface water flooding at the site, it should be manageable provided it is considered when locating infrastructure.

5.2 Scale of Development

The total site area is currently 0.27 ha; allocated for residential development between 22 and 34 dwellings. It is assumed that given the scale of the development it is likely to cover the majority of the site area. The whole development will be within Flood Zone 1. Surface water flood risk is present at the site so does need to be considered when locating infrastructure.

5.3 Sequential Approach

It should be possible to place all infrastructure in Flood Zone 1. However, a sequential approach should be undertaken using the surface water flood extent prioritising more vulnerable residential development in lower flood risk areas with ancillary infrastructure such as car parks and green spaces located in higher flood risk areas if required. This is on the assumption that it does not increase flood risk elsewhere and is designed to be appropriately resistant and resilient to flooding. For this site it is recommended that the surface water climate change extents are used, which more clearly show the graduation in flood risk across the site.

5.4 Other Site-Specific Considerations

A site-specific FRA should consider in more detail the nature of the surface water flood risk to determine how quickly it occurs and the degree of hazard. If new infrastructure is proposed, the drainage strategy for the proposed development should be suitably designed to manage additional runoff arising from the development and ensure that surface water flood risk at the site and to third party land is not increased.

In assessing and demonstrating the viability of any drainage solution for the site, a site-specific FRA should follow the non-statutory technical standards for SuDS and any relevant Local Authority Local Plan policies. The geology at the site is freely draining. However, the water table is likely high and at the same level as the river, therefore the significant use of infiltration SuDS solutions may be challenging. It is recommended that a geotechnical investigation is undertaken at this site to obtain further information relating to infiltration rates, this will confirm whether infiltration could be viable in some areas. Attenuated discharge to a watercourse or a sewer will also need to be considered as part of a site-specific FRA.