Flood Risk Assessment

8 Elmbridge Close, Ruislip, HA4 7XA

THE MARKET DESIGN & BUILD

A TRUE DESIGN & BUILD COMPANY

December 2023

This Flood Risk Assessment is written in support of the application for the planning permission for 27982/APP/2023/3260.

Flood Risk Assessment

27982/APP/2023/3260- 8 Elmbridge Close, Ruislip, HA4 7XA.

Introduction

This document has been prepared in relation to a proposed 'Erection of single storey rear/side extensions to include extension of roof following alteration/demolition of existing extensions and conversion of roof space to habitable use to include rear dormer with Juliet balcony, 1 front roof light and 3 side roof lights' at 8 Elmbridge Close, Ruislip, HA4 7XA.

The objective of this FRA is to establish whether the proposed development is likely to be affected by current or future flooding from any source; whether it will increase flood risk elsewhere and whether the measures proposed to deal with these effects and risks are appropriate.

Location

The property is situated at the end of Elmbridge Close, a residential cul-de-sac street within a short walk of the centre of Ruislip.

Site Analysis

The site is located close to the centre of Ruislip. River Pinn is around 80m to the north of the site.

The site occupies an area of approximately 672.37 m^2. The area of the building footprint is approximately 123.07 m^2. Most of the remaining site is covered by grass and soft scape, approximately 466.8 m^2. Approximately 82.5 m^2 area is covered by hard-standing pavement. There are no major watercourses around the site.

Site Characteristics

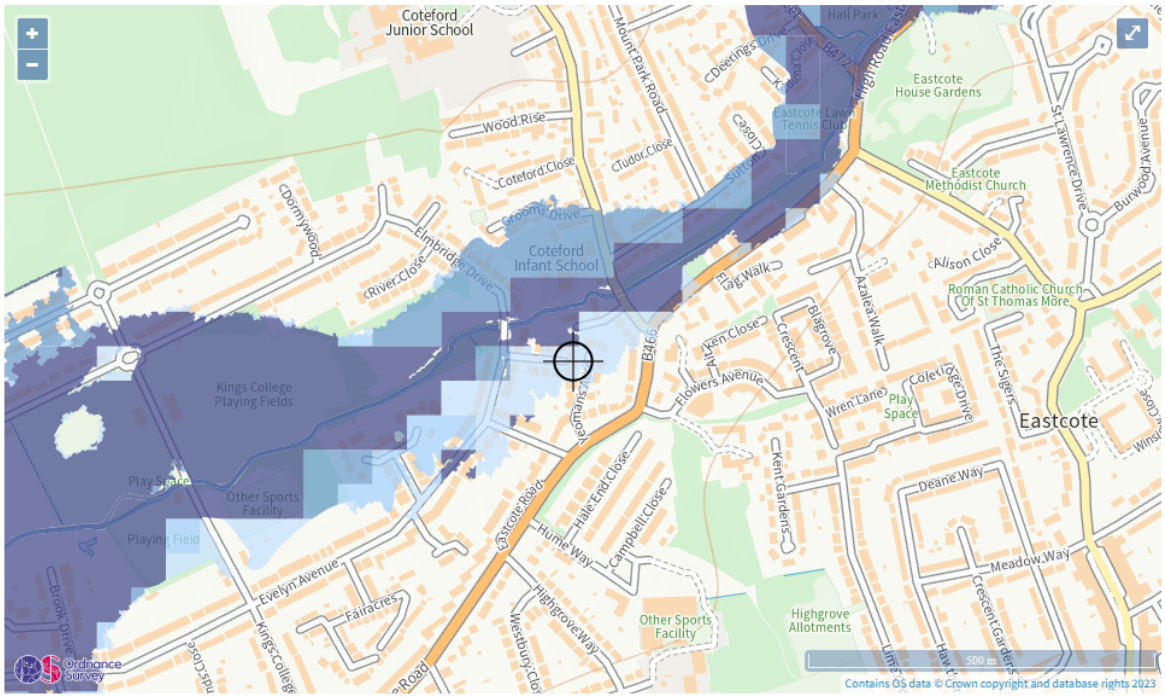
A 2-bedroom, single-storey, detached bungalow, currently occupies the site. The house is built of brickwork painted white on the front elevation, and pebble dashed throughout the rear elevation; with a suspended timber floor and air bricks designed to allow a free passage of air and water under the building. The main floor level is more than 300mm above the adjacent road level to the property.

Flood Risk from Flooding

The Environment Agency flood map shows that the site is situated in **Flood Zone 2** with a chance of a 1 in 100-year flood from rivers or the sea. See attached EA map.

Flood risk from rivers or the sea

The site is identified as 'Very Low risk' means that this area has a chance of flooding of less than 0.1% each year**.**

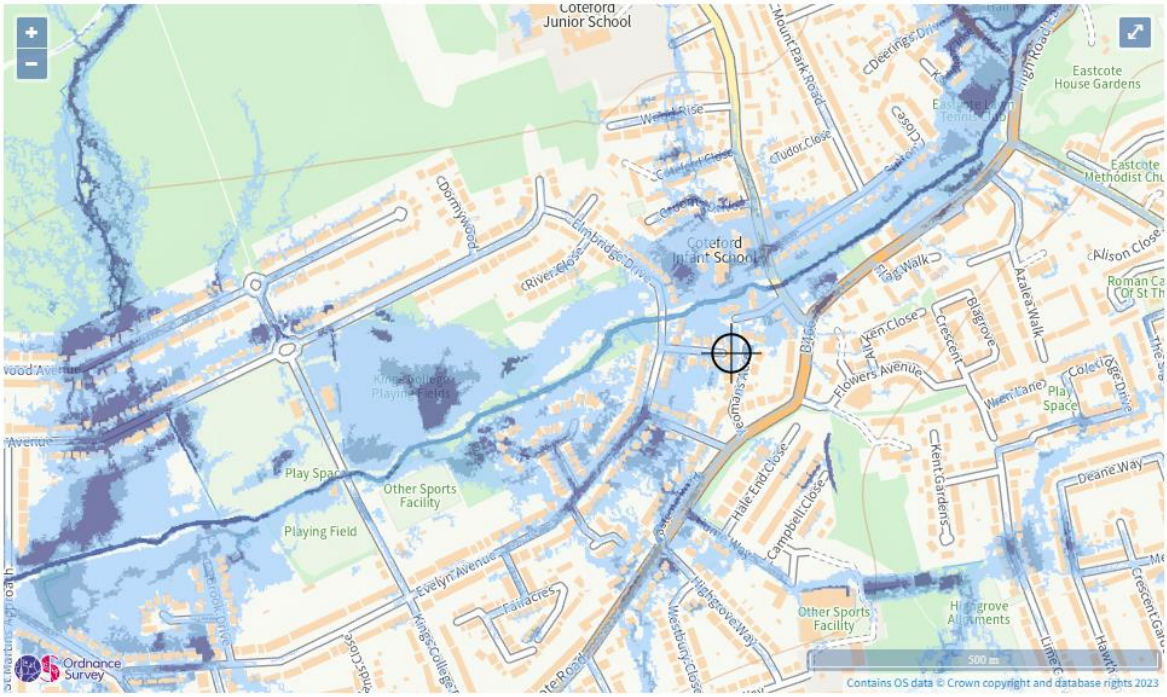


Extent of flooding from rivers or the sea

High Medium Low Very low Location you selected

Flood Risk from surface water

The site is identified as ‘Low risk’ means that this area has a chance of flooding of between 0.1% and 1% each year**.** The overall risk of surface water flooding to the area varies from ‘very low’ to 'low' with the maximum flood depth up to 300mm.



Extent of flooding from surface water

High Medium Low Very low Location you selected

Flood Risk from reservoirs

There is a risk of flooding from reservoirs in this area. Flooding from reservoirs is extremely unlikely. George V FSA is the reservoir that could affect the area.

Maximum extent of flooding from reservoirs:

when river levels are normal | when there is also flooding from rivers | Location you selected

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Site Topography

The site is trapezoidal in shape with a max length of 43.55 m and a max width of 27.5 m. The site topography is mostly flat and level. The road datum level outside the property is 43.9 m as per the Ordnance Survey Map which is indicated on the application drawings.

Design

The proposal consists of an erection of single-storey rear/side extensions to include the extension of the roof following alteration/demolition of existing extensions and conversion of the roof space to habitable use to include a rear dormer with a Juliet balcony.
The footprint area of the proposed extension is approximately 39.2 m^2 of additional floor area.

Good Design Principles

Whilst the flood risk is minimal the following design principles will be adopted

- Electrical sockets are set 500mm above finished floor level.
- New floor level in the extension will be raised above the existing extension floor level.
- The introduction of underfloor heating would help the building to dry out
- The dpc will be raised 1200mm above ground level

Finished floor levels should be a minimum of (whichever is higher of) 300mm above the:

- average ground level of the site
- adjacent road level to the building
- estimated river or sea flood level

The guidance requires that the development should be designed to exclude flood water where possible and to speed recovery in case water gets in.

The design should be appropriately flood-resistant and resilient by:

- Using flood resistant materials that have low permeability to at least 600mm above the estimated flood level
- Making sure any doors, windows or other openings are flood resistant to at least 600mm above the estimated flood level
- using flood resilient materials (for example lime plaster) to at least 600mm above the estimated flood level
- by raising all sensitive electrical equipment, wiring and sockets to at least 600mm above the estimated flood level
- making it easy for water to drain away after flooding such as installing a sump and a pump
- making sure there is access to all spaces to enable drying and cleaning
- ensuring that soil pipes are protected from back-flow such as by using non-return valves

Access and escape

The application plans show a safe route of access and escape which is set above the estimated flood level and connects the site to an area away from flood risk. The nearest open space is Warrender Park, approximately 0.8 miles from the property, should any residents need to evacuate from the house and wait at the park for assistance.

Flood Levels

As the proposal site is located within Flood zone 2, it is proposed to match the ground floor level of the main house and floodproofing of the proposed development will be incorporated where appropriate. It is proposed that flood resilient measures are used in the development as far as practicable to manage the residual risk, reduce the damage and clean up time following a flood.

Flood Resilient Measures

The following flood resilient measures will be adopted, wherever practicable, for the erection of the proposed extension to minimise the damage and to enable quick recovery and clean up after the flooding event:

Foundations

Concrete blocks used in foundations will be sealed with an impermeable material or encased in order to prevent water movement from the ground to the walls.

Floor

Preference will be given to ground supported floors. The concrete slabs will be provided at least 150mm thickness for non-reinforced constructions. If hollow slabs are used, the joints and all elements will be effectively sealed.

Hardcore and binding: bed will be provided at least 100mm thick of well compacted inert materials blinded with fine inert material to provide a smooth base in order to reduce the risk of settlement and cracking.

Damp Proof Membrane: The Damp Proof Membrane will be provided in order to minimize the passage of water through ground floor. Impermeable polythene membranes will be of 1200 gauge in order to minimise ripping. Join membrane sections with a minimum overlap of 300mm and mastic tape with a minimum overlap of 50mm will be provided.

Floor Finishes

Suitable floor finishes include ceramic or concrete-based floor tiles, stones and sand/cement screeds. All tiles will be bedded on a cement-based adhesive/bedding compound and water-resistant grout will be used. Suitable materials for skirting boards include ceramic tiles and PVC.

Insulation materials

Floor insulation will be of the closed-cell type in order to minimise the impact of floodwater.

Wall construction

External brickwork, internal face consisting of blocks, internal cement-based render will be effective for flood resilience.

Doors

Sealed external framed doors will be used and where the use of wooden doors is a preferred option, it will be made sure that the frames will be of good fit, and if necessary, seal the frames.

Services

Where practicable, all services will be sealed with expanding form or similar closed cell material.

Pipework

Close cell insulation will be provided for pipes which run below the predicted flood level.

Drainage services

Non-return valves will be fitted in the drainage system in order to prevent back-flow during the sewer surcharging.

Electrical Services

Electric sockets will be installed above the maximum flood level in order to minimise damage to electrical services and allow speedy re-occupation. Heating Services Boiler units and ancillary devices will be installed above the predicted flood levels.

Communication Wiring

Wiring for telephone, TV, internet and other services will be protected by suitable insulation in order to prevent damage by floodwater.

Surface Water Management

The surface runoff from the site will be improved by implementing appropriate SuDS. The requirements for SuDS will ensure that any redevelopment or new development does not negatively contribute to the surface water flood risk of other properties and instead provides a positive benefit to the level of risk in the area. It will also ensure that appropriate measures are taken to increase the flood resilience of new properties and developments in surface water flood risk areas, such as those identified as being locally important flood risk areas.

Based on the general assessment of the potential SuDS measures, it is proposed that a soakaway will be implemented to improve the surface runoff from the site. A soakaway of a minimum storage volume of 3m3 will be implemented at the site to improve the surface runoff. The location of the soakaway can be changed in order to suit the location condition.

Conclusion

The proposal consists of an erection of single storey rear/side extensions to include extension of roof following alteration/demolition of existing extensions and conversion of roof space to habitable use to include rear dormer with Juliet balcony, located at 8 Elmbridge Close, Ruislip, HA4 7XA. The River Pinn is located approximately 80m away to the North of the site .

The Environment Agency's Flood Maps show that the site lies within Flood Zone 2 (i.e. medium probability flooding). The overall risk of surface water flooding to the site is 'very low' with the maximum flood depth up to 300mm. The flood risk from other sources including underground water and sewer is low, but with a risk of flooding from the reservoirs in the area.

To provide a level of protection against flooding, the floor level of the proposed extension will be set no lower than the existing level of the property**,** which is higher than the level of the existing rear

extension this development will replace. Floodproofing of the proposed development will be incorporated where appropriate.

One of the key requirements of the Flood Risk Assessment process is to demonstrate that proposals will not increase flood risk elsewhere. Surface water runoff from the site will therefore be appropriately managed to comply with the requirement of the NPPF as outlined in this report.

A soak away will be implemented to improve the surface runoff from the site. The development will not give rise to backwater effects or divert water towards other properties.

The National Planning Policy Framework sets out planning policy to avoid inappropriate development in areas at risk of flooding by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

Prepared by The Market Design & Build

September 2023