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FLOOD RISK ASSESSMENT

For a proposed single storey rear extension at

64 Brookside Road
Hayes
Middlesex
UB4 0PL

BMD/1198 **Aug 2023**

Introduction

This Flood Risk Assessment (FRA) has been prepared in support of planning application **Ref: 14811/APP/2023/2127** for a proposed single storey rear extension at **64 Brookside Road, Hayes.**

The application site is located within Flood Zone 2 due to the proximity of **Yeading Brook.**

The property has previously been extended with a two-storey side extension.

The proposed rear extension shall create an additional 17m2 at ground floor level.

The planning process requires an assessment to be made of any flood risks related to proposed developments.

In particular this involves two key issues; whether the development itself would be at risk of being flooded or whether the development would increase the risk of flooding elsewhere.

This assessment is contained within this report which has been prepared for submission with the planning application.

The study also assesses the potential requirements for any surface water storage within the on-site infrastructure design.

Fig 1 Application Site

Site Location

The application site is located at **64 Brookside Road, Hayes.**

The site comprises of a residential dwelling with an outbuilding to the rear.

It is located within a densely populated area surrounded by other residential dwellings.

Fig 2 Site Location Plan

Site Flooding Potential

The development is shown by the Environment Agency flood maps to lie within Flood Zone 2.

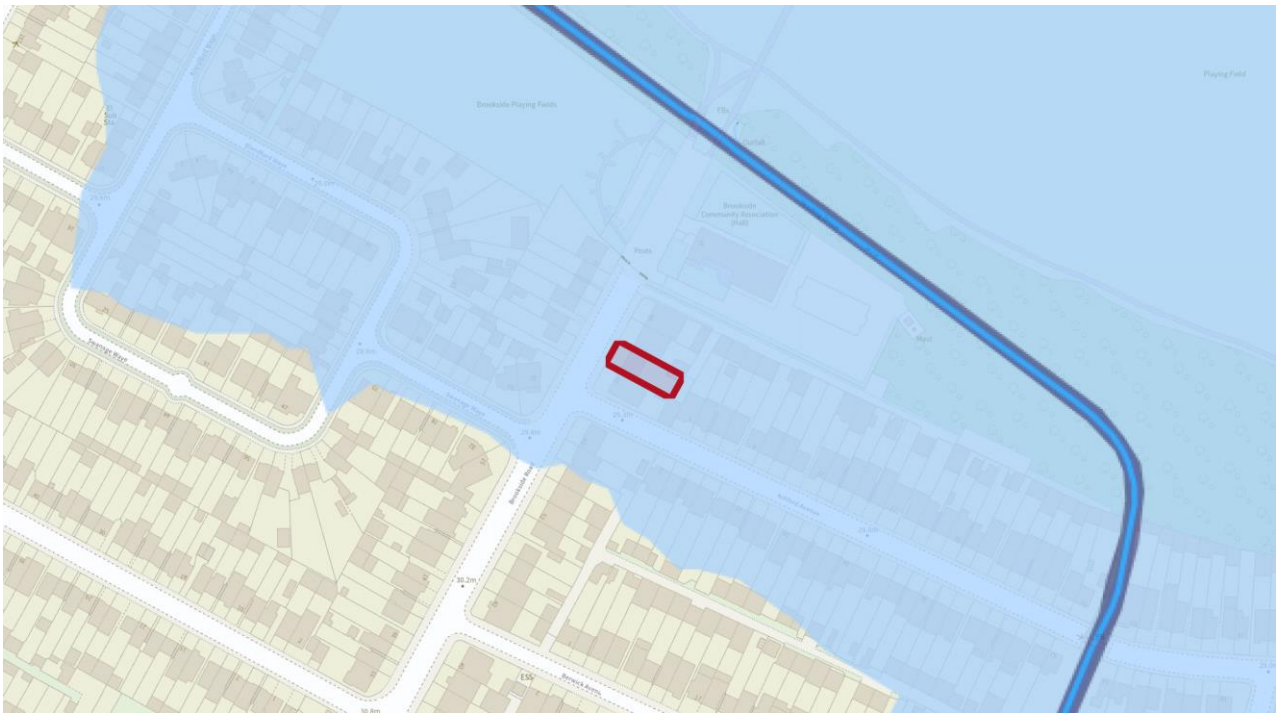

Fig 3 EA Flood Map

The Environment Agency's definition of this is stated below:

Flood Zone 2 – **medium probability of flooding.**

Definition This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

The site does not benefit from any formal flood defences.

Flood risk from land, surface water and sewers

Flooding from land can be caused by rainfall being unable to infiltrate into the natural ground or entering the drainage systems due to blockage, or flows being above design capacity.

This can then result in (temporary) localised ponding and flooding. The natural topography and location of buildings/structures can influence the direction and depth of water flowing off impermeable and permeable surfaces.

Surface water flooding can be difficult to predict, much more so than river or sea flooding as it is hard to forecast exactly where or how much rain will fall in any storm.

The Environment Agency classifies the site, as being within a low-risk area of flooding (i.e. each year this area has a chance of flooding of between 0.1% and 1%).

Tidal Flood Risk

Tidal flooding occurs when a high astronomical tide and storm (tidal surge) exceeds the level of coastal land or coastal flood defences.

Tidal flooding can also be caused by 'tide locking' of rivers or estuaries.

Tide locking prevents a river from discharging into the sea, causing 'backing up' and resulting in tidal/fluvial flooding.

The Site is not located within an area at risk from tidal flooding.

Groundwater flood risk

According to the West London Strategic Flood Risk Assessment, the site is located not in the area with the potential for Elevated Groundwater in permeable superficial deposits, as the proposed development is on ground level, the risk of flooding from this source could be considered low.

Artificial sources of flooding include reservoirs, canals, ponds and mining abstraction.

A review of the Environment Agency Reservoir Maps indicates that the site is within an area at risk from reservoir flooding.

Reservoir flooding can be extremely dangerous due to the speed and volume of the water released which may be with little or no warning.

Since this is a prediction of a worst case scenario, it's unlikely that any actual flood would be this large. Reservoir flooding is also extremely unlikely with no loss of life attributed since 1925.

The Local Authority for each reservoir listed below could be contacted for further information on local emergency plans.

Reservoir	Owner	Grid Reference	Lead Local Flood Authority
King George VI	Thames Water Ltd	TQ0417074259	Surrey
Queen Mary	Thames Water Ltd	TQ0831069750	Surrey
Wraysbury	Thames Water Ltd	TQ0303075640	Surrey
Virginia Water	The Crown Estate	SU9785768524	Surrey
Queen Mother	Thames Water Ltd	TQ0129777727	Windsor and Maidenhead

Residual flood risk

Residual Risk is defined as 'the risk which remains after risk avoidance, reduction and mitigation measures have been implemented'.

For the purpose of assessing flood risk, it is assumed that events greater than those assessed as Actual Risk are considered a 'Residual Risk'.

As proposed development is located in a medium flood risk zone and does not benefit from the presence of significant defences.

As such, the residual risk to the site could be considered to be relatively low.

Development and flood risk policy

The contents of this FRA describe the assessment of the proposal and the implications of the proposed development on flood risk.

The FRA has been prepared following guidance provided in the revised National Planning Policy Framework and the Planning Policy Guidance

The aim of this assessment is to provide the level of detail necessary to demonstrate that the potential effects of flood risk (to the proposal) have been addressed by:

• Identifying the source and probability of flooding to the application site, including the possible

effects of climate change;

• Determining the consequences of flooding to and from the proposed development proposal and

advising on the how this will be managed, if necessary; and

• Demonstrating the flood risk issues described in this assessment are compliant with the relevant

guidance.

Flood Risk Assessment

NPPF states that a flood risk assessment should be proportionate to the risk and appropriate to the scale, nature and location of the development.

In this case, the applicant is seeking planning permission for a minor extension to an existing dwelling.

To manage flood risk, the Local Planning Authority have developed policies which “avoid flood risk to people and property where possible, and manage any residual risk”

Proposed Development

The proposed development is for a single storey rear extension

Flood issues relating to the proposed development

The existing surface water drainage system for the property shall be retained with a new soakaway being formed for the new extension.

The new soakaway shall be formed using attenuation crates which will be installed at least 5m away from any building.

Any foul waters will be discharged into the existing foul water system.

Non-return valves will be installed at all connection pipes to the main sewer in order to prevent the backing up of foul waters should the outlet become submerged under extreme flood conditions.

According to the Environment Agency’s advices as laid out within Note 10 of the National Planning Policy Framework, and the advices of the Environment Agency, the minimum requirements for an FRA that is submitted to the Local Planning Authority for residential/ Industrial/Commercial extensions less than 250m2 within Flood Zone 3/2 should confirm that;

Flood proofing of the proposed development has been considered by the applicant and incorporated where appropriate.

It is recommended that any new works carried out should adopt measures for flood resilience, generic details of which are supplied with this report. It is also recommended that the occupants of the property be registered with the EA Flood Watch line which gives 24/7 warning of a flood threat.

Effects of the proposed development on flood risk on site and in the surrounding region

The application site is located within a residential area.

It is not anticipated that there will not be any increase in plant debris that might be transported into the local drainage system by surface runoff, given that the surface runoff rates from the site are not expected to increase.

Hence there is little risk of drains designed to remove surface water becoming blocked as a result of the proposal.

Flood resilience and resistance proposal

The following flood risk reduction measures could be applied to the development in accordance with preparing for floods guideline:

In order to protect the development against the effects of flooding it is also intended that wet and dry proofing measures are incorporated into the project designs. Dry proofing measures are defined as those designed to keep water out of a building. Wet-proofing measures are those that improve the ability of a property to withstand the effects of flooding once floodwaters have entered.

The extension is to be built and set no lower than the existing ground floor rooms which are currently about 150mm above finished external ground levels.

The proposed development will have a non-return valve installed at the foul sewer connections to prevent backing-up within the pipes should the system become overwhelmed with floodwater.

Water-resistant paints can be used on the outside face of external walls. Water resistant render and lime-based plaster, ceramic tiles and hydraulic lime coatings can be used where possible on the inside face of the external walls. Damp proof membranes could be installed, lapped and bonded with damp proof courses.

Cavity walls to incorporate rigid insulation with stainless steel wall ties.

Walls to be sand and cement rendered internally.

All timber stud and plasterboard walls at ground floor level are to be avoided.

Solid timber doors should be installed rather than hollow sections doors.

Kitchen units are to be built on plastic adjustable legs and UPVC units to be used if possible.

Separate fridge/freezers, hobs and built in ovens are to be installed.

Waterproof coatings to be used on as many suitable surfaces as possible.

Carpets to be avoided or replaced with rugs/tiles with water resistant grout.

Low permeability paints to be used instead of wallpaper.

The proposed floor of the kitchen area is to have a tiled finish over a reinforced insulated solid concrete floor slab.

All utility services such as fuse boxes, meters, mains-cables, gas pipes, phone lines and sockets are to be positioned at high level where practical.

All proposed electrical sockets are to be raised to a minimum of 450mm.

Movable flood protection barriers are to be fitted to the existing and proposed doors to prevent water ingress to the house if necessary.

The new concrete floor slabs will incorporate a Bituthene 3000 self-adhesive rubber/bitumen polyethylene waterproof membrane. This will provide a continuous waterproof tanking system in the even of any flooding. The membrane will be linked back to the existing floor slab to provide increased protection to the main floors. All works to be carried out in accordance with the BSI and BBA standards and certifications.

CONCLUSIONS

In conclusion the proposed development will be safe, without increasing flood risk on site or elsewhere. The residents of the property will not be placed in danger from flood hazards given the site's being in a flood defence area together with the above proposed measures, and should remain safe throughout the lifetime of the proposed development and land use.