Right Plans

extending your home starts here

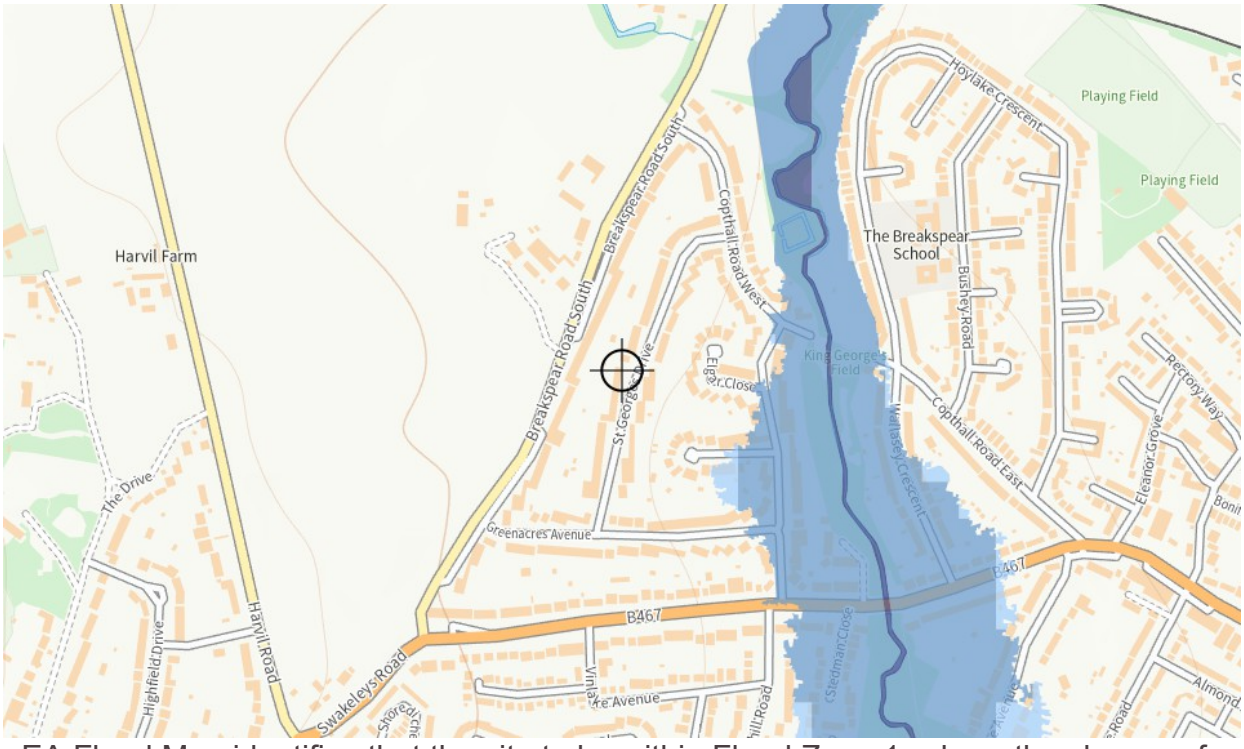
Flood Risk Assessment

35 St Georges Drive, Ickenham, UB10 8HW

15th June 2023

This report contains the details of Flood mitigation measures for 35 St Georges Drive, Ickenham, Uxbridge, UB10 8HW. The depth of flooding for the above site is up to 0.9m. This report includes methods for water exclusion strategy up to a depth of 1.2m above existing ground level. The methods below will be used at construction stage to prevent water ingress into the property.

As required by the Boroughs drainage engineers; both resistance and resilient materials and techniques shall be used. The lowest 1.2m above ground floor will be built with resilient materials and techniques. This provides 0.3m of freeboard, which is the usual requirement set by the Environment Agency. The document “Improving the Flood Performance of New Buildings – Flood Resilient Construction” published by DEFRA / Environment Agency provides guidance on this subject. Specific examples of such construction would include natural stone – or other durable – flooring and waterproof walls as well as running all cabling and pipes (i.e. all services distribution) downwards first floor level. Meters, distribution board and combi-boiler shall be positioned above this ‘GL +1.2m’ level.



The EA Flood Map identifies that the site to be within Flood Zone 1, where the chance of flooding in any given year is less than 1 in 1000 (0.1%)

Further analysis of the uFMfSW has been undertaken to determine the surface water flood depths and velocities in the high, medium and low risk
scenarios as shown. This shows that in the high and medium risk scenarios the flood depths are predicted to be between 300 and 900mm, with
flood velocities over 0.25m/s. In the high-risk scenario the flood depths are predicted to be over 900mm with flood velocities over 0.25m/s.

The NPPF, Planning Practice Guide and the Ministerial Statement all look at the use of SuDS as a priority to aid the disposal of surface water from new developments.

There is adequate capacity within the curtilage of the property to include SuDS measures. The use of water butts and/or soakaway areas should be considered for use to minimise surface water runoff from the site.
The uFMfSW shows that area in the vicinity of the development site is at high risk of surface water flooding. High risk means that the probability of flooding in any given year is greater than 1 in 30 (3.3%). The proposed development is minor in scale. It will not impede surface water flows nor increase flood risk locally or elsewhere.

Hillingdon Council, in their guidance document 'Minor Development Flood Risk Assessment Requirements' set out that surface water from minor developments, including new extensions, must not connect directly to the sewer network, and must be controlled on site through soakaway or tank. The garden area has sufficient capacity to provide an adequate soakaway function. All soakaways must be sited at least 5m from any building or road and preferably at least 2.5m from any boundary. It is proposed that a crate system is used, size/volume of a crate type soakaway can be calculated as follows:

Volume = Roof area being drained x (50mm rainfall rate per hr/3000).

Therefore the proposed soakaway calculation is 150m2x(50/3000) which equals 2.5m3 of storage. The dimensions of this soakaway can be 2.6m x 1m x 1m

Flood Resistance and Resilience Measures

Foundations

Concrete blocks used in foundations should be sealed with an impermeable material or encased in concrete to prevent water movement from ground to the wall construction.

Floor

Ground supported floors are the preferred option and concrete slabs of at least 150mm thickness will be specified for non-reinforced constructions. Hollow slabs are not suitable if the element are not effectively sealed. Hardcore and binding: bed at least 100mm thick of well compacted inert material (to reduce the risk of settlement and consequential cracking) blinded with fine inert material to provide a smooth base.

Damp Proof Membrane (d.p.m): will be provided to minimize the passage of water through ground floors. Impermeable polythene membranes should be at least 1200 gauge to minimise ripping. Join membrane sections with overlaps of 300mm, and also tape (mastic tape with an overlap of 50mm minimum).

Insulation materials

Water will lower the insulation properties of some insulation materials. Floor insulation should be of the closed-cell type to minimise the impact of flood water. The location of insulation materials, whether above or below the floor slab, is usually based on either achieving rapid heating of the building or aiming for more even temperature distribution with reduced risk of condensation. Insulation placed above the floor slab (and underneath the floor finish) rather than below would minimise the effect of flood water on the insulation properties and be more easily replaced, if needed.

Floor finishes

Suitable floor finishes include ceramic or concrete-based floor tiles, stones and sand/cement screeds. All tiles should be bedded on a cement-based adhesive/bedding compound and water resistant grout should be used. Concrete screeds above polystyrene or polyurethane insulation should be avoided as they hinder drying of the insulation material. Suitable materials for skirting boards include ceramic tiles and PVC. Ceramic tiles are likely to be more economically viable and environmentally acceptable.

Wall construction-Partial Fill Cavity

External cement based render, with lime content (1 cement : 4 sand : ½ lime on concrete blockwork), external face consisting of blocks, rigid insulation, internal face consisting of blocks, internal cement based render preferably with lime content, the following mix is effective for flood resilience 1 cement : 6 sand : 1 lime on Aircrete

Doors

Sealed PVC external framed doors should be used and, where the use of wooden doors is a preferred option, all efforts should be made to ensure a good fit and seal to their frames.

Services

Where possible all services should be sealed with expanding foam or similar closed cell material.

Pipework: closed cell insulation should be used for pipes which are below the predicted flood level.

Drainage services

non-return valves are recommended in the drainage system to prevent back-flow in situations where there is an identified risk of the fouls sewer surcharging.

Maintenance of these valves is important to ensure their continued effectiveness. Water, electricity and gas meters: should be located above predicted flood level.

Electrical services

electrical sockets should be installed above flood level for ground floors to minimise damage to electrical services and allow speedy reoccupation.

Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches above 1.2m from GL.

Heating services

Boiler units and ancillary devices should be installed above predicted flood level and preferably on the first floor of two-storey properties.

Electric underfloor heating should be avoided on ground floors and controls such as thermostast should be placed above flood level. Conventional heating systems, e.g hot water pipes are unlikely to be significantly affected by flood water unless it contains a large amount of salts. The less common, hot air duct heating would remain effective provided it is installed above the design flood level.

Communications wiring

wiring for telephone, TV, internet and other services
should be protected by suitable insulation in the distribution ducts to prevent damage above 1.2m from GL

Sustainable Drainage systems

Permeable paving construction & maintenance plan

Permeable surfaces including permeable block paving, porous asphalt, gravel or free draining soils that allow rain to percolate through the surface into underlying drainage layers:

- They must be protected from silt, sand, compost, mulch, etc.
- Permeable block paving and porous asphalt can be cleaned by suction brushing recommended at least 3 times a year at the end of Winter, mid-summer and after autumn leaf fall.
- Stabilise and mow all contributing and adjacent areas.
- Remove weeds on a regular basis
- Repair any cracks or broken blocks as well as any blocks which may be hazardous to users or effect the structural performance of the paving.
- Inspect the silt accumulations rates and adjust the brushing frequencies accordingly.
- Annually Remedial Work Frequency Monitor effectiveness of permeable pavement and when water does not infiltrate immediately advise Client of possible need for reinstatement of top layers or specialist cleaning.
- Recent experience suggests jet washing and suction cleaning will substantially reinstate pavement to 90% efficiency

Emergency Flood Plan

As the property is situated in Surface flood zone it would be prudent for a flood warning and evacuation plan to be set up and implemented post development. This plan would include residents signing up to the Environment Agency flood warning service.
The EA operate a flood forecasting and warning service in areas at risk of flooding from rivers or the sea, which relies on direct measurements of rainfall, river levels, tide levels, in-house predictive models, rainfall radar data and information from the Met Office. This service operates 24 hours a day, 365 days a year.
If flooding is forecast, warnings are issued using a set of easily recognisable codes.
The flood warning service has three types of warning that will help you to prepare for flooding and take action.

Know your flood warning service
Our new warning service has three types of warnings - Flood Alert, Flood Warning and Severe Flood Warning - that will help you prepare for flooding and take necessary actions.

Online flood risk forecast	 FLOOD ALERT	 FLOOD WARNING	 SEVERE FLOOD WARNING	Warning no longer in force
What it means Be aware. Keep an eye on the weather situation.	**What it means** Flooding is possible. Be prepared.	**What it means** Flooding is expected. Immediate action required.	**What it means** Severe flooding. Danger to life.	**What it means** No further flooding is currently expected in your area.
When it's used Forecasts of flooding on our website are updated at least once a day.	**When it's used** Two hours to two days in advance of flooding.	**When it's used** Half an hour to one day in advance of flooding.	**When it's used** When flooding poses a significant threat to life.	**When it's used** When river or sea conditions begin to return to normal.
What to do • Check weather conditions. • Check for updated flood forecasts on our website.	**What to do** • Be prepared to act on your flood plan. • Prepare a flood kit of essential items. • Monitor local water levels and the flood forecast on our website.	**What to do** • Move family, pets and valuables to a safe place. • Turn off gas, electricity and water supplies if safe to do so. • Put flood protection equipment in place.	**What to do** • Stay in a safe place with a means of escape. • Be ready should you need to evacuate from your home. • Co-operate with the emergency services. • Call 999 if you are in immediate danger.	**What to do** • Be careful. Flood water may still be around for several days. • If you've been flooded, ring your insurance company as soon as possible.

Recommended Flood Plan

Before a flood:
• Find out if you are at risk of flooding;
• Find out if you can receive flood warning;
• Prepare and keep a list of all your contacts to hand or save them on your mobile phone/tablet;
• Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture and electrical equipment;
• Know how to turn off gas, electricity and water supplies;
• Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.

On receipt of a flood warning

• Tune into your local radio station on a battery or wind-up radio;
• Fill jugs and saucepans with water
• Grab your already prepared flood kit
• Collect blankets, torch, first aid kit, medication and food;
• Move important documents, personal items, valuables and lightweight belongings upstairs or to high shelves;
• Raise large items of furniture, or put him in large bags if you have them;
• Move people, outdoor belongings, cars and pets to higher ground
• Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when in standing water;
• Fit flood protection products, if you have them, for example flood boards, airbrick covers and sandbags;
• If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths; Know your means of escape;
• Listen to the advice of the emergency service and evacuate if told to do so;
• Avoid walking or driving through flood water. 300mm of fast flowing water can knock over an adult and two feet of water can move a car

Site Evacuation Procedures & Routes

Identify in advance of flooding what actions could be taken to protect your property. Allow time for this to occur before any routes become affected by the flooding. Evacuation procedures should be developed which identify when and how evacuation takes place, and to where everyone evacuates to, if necessary signed routes may be required, (including the maintenance of signs and keeping evacuation routes clear). Consideration should be given to the road network around the site, especially if these are more likely to flood first and therefore affect evacuation time, and to the safety of the proposed evacuation location / rendezvous point.

The evacuation procedures should include options for the evacuation of ALL people on site, (including those with restricted mobility). It should be assumed that visitors will not have local knowledge and will need to be guided to a safe route / location

Evacuation Route

The evacuation route will be:
1. Exit the property via front door onto St Georges Drive
2. Walk north towards no.37,39 etc, away from the flood

Conclusion

The uFMfSW shows that area in the vicinity of the development site is at high risk of surface water flooding. High risk means that the probability of flooding in any given year is greater than 1 in 30 (3.3%). The proposed development is minor in scale. It will not impede surface water flows nor increase flood risk locally or elsewhere.
However, the scheme has been designed to accommodate safe operations that incorporate suitable flood resilient measures for extreme flood events. Hillingdon Council, in their guidance document ‘Minor Development Flood Risk Assessment Requirements’ set out that surface water from minor developments, including new extensions, must not connect directly to the sewer network, and must be controlled on site through soakaway or tank. Based on the likely flooding risk, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF