

FLOOD RISK ASSESSMENT

Proposed Single-Storey Side & Rear Extension

233 Long Drive Ruislip HA4 0HS

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Introduction

This report has been prepared in support of a Householder Planning Application for 233 Long Drive Ruislip HA4 0HS

The proposal comprises erection of a single-storey rear and side extension.

This statement adheres to the criteria within the National Planning Policy Framework (NPPF) and its guidance notes, as well as the Environment Agency (EA) advice notes to Local Authorities resulting from the proposed development.

Site and Surrounding

The site in this application is located at 233 Long Drive Ruislip HA4 0HS. The rear of the property is an area of open green.

The existing site has a single-family dwelling accommodating three bedrooms sited on a total plot size of 290 square meters. There are two buildings on the site, the main house (50 sqm) and an attached original building.

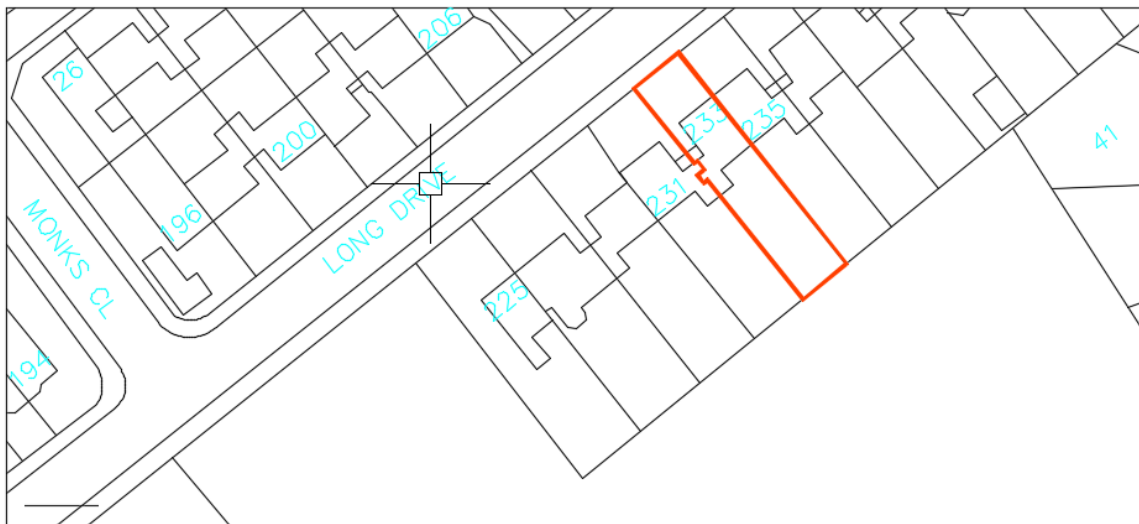


Figure 1-Location Plan

Flood Zones

Fluvial Flood Map:

The Environment Agency's Flood Map for Planning (Rivers and Sea) identifies fluvial and tidal flood zones. Figure 2 presents the Flood Map for the development site and surrounding area.

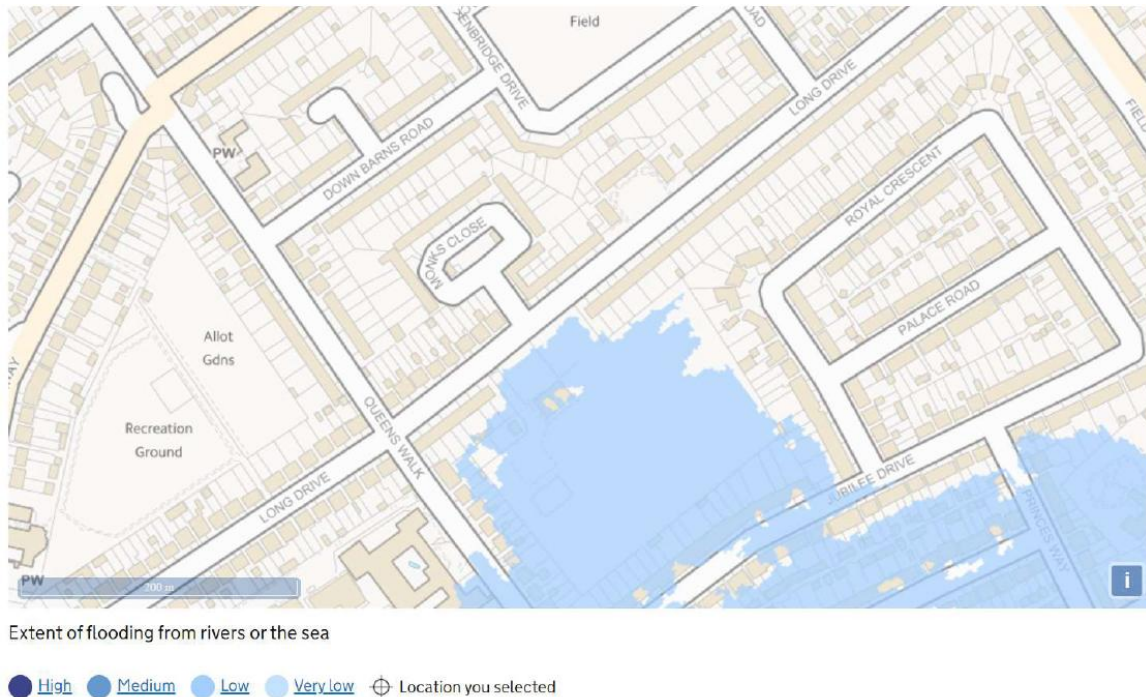


Figure 2-Flood risk map of the site

The EA Fluvial Flood Extent Map identifies the development site to lie within Flood Zone 1, where the chance of flooding is less than 1 in 1000 (0.1 %) annual probability of flooding.

Surface Water Flood Maps:

The environment Agency's updated Flood Map for Surface Water (uFMfSW) identifies pluvial flood risk. Figure 3, below, presents the uFMfSW for the development site and the surrounding area.

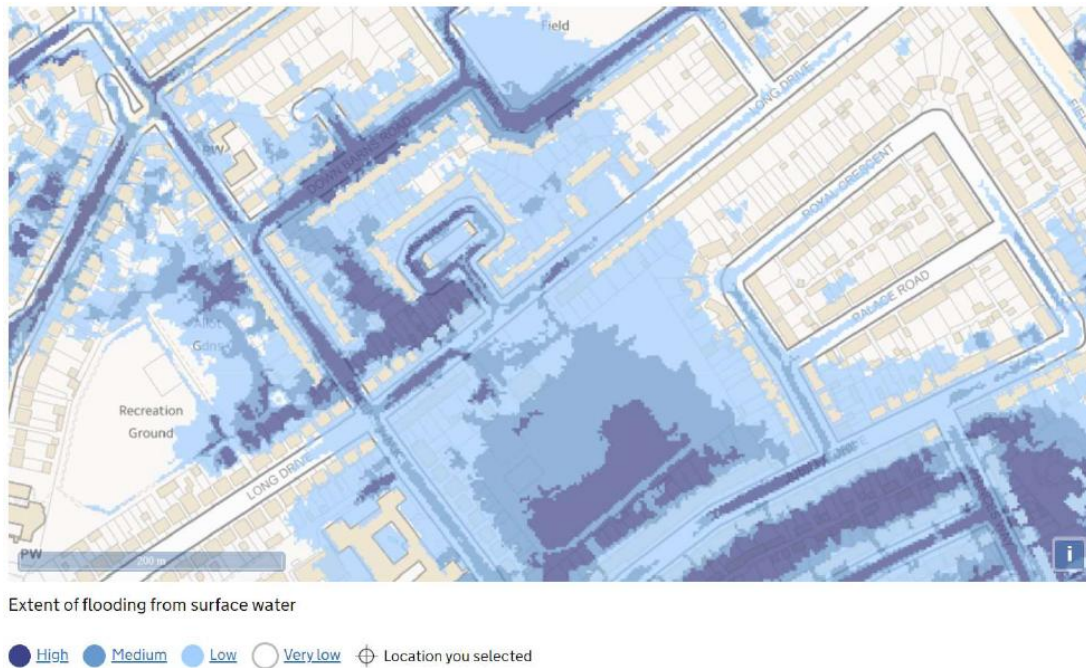


Figure 3-EA Surface Water Flood Extent Map

The uFMfSW shows that area in the vicinity of the development site is at low risk of surface water flooding. Low risk means that the probability of flooding in any given year is 1 in 1000 (0.1%) and 1 in 100 (01%)

Proposed development

The proposal comprises erection of a single-storey rear and side extension. Total extension area will be 27 sqm and considered minor development under the NPPF criteria.

Flood risk assessment

The National Planning Policy Framework and relevant planning practice guidance states that minor developments are unlikely to raise significant flood risk issues unless:

- they would have an adverse effect on a watercourse, floodplain or its flood defences;
- they would impede access to flood defence and management facilities, or;
- where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.

None of the above applies for the proposed extension.

The Environmental Agency advises for minor extensions (less than 250sqm in Flood Zone 2) that one or other of the mitigation measures proposed below has been incorporated into the development:

- Floor levels within the proposed development will be set no lower than existing levels AND, flood proofing of the proposed development has been incorporated where appropriate;
Or,

- Floor levels within the extension will be set 300mm above the known or modelled 1% (1 in 100 chance each year) river flood level or 0.5% (1 in 200 chance each year) tidal & coastal flood level. (This must be demonstrated by a plan that shows finished floor levels relative to the known or modelled flood level). All levels should be stated in relation to Ordnance Datum.

We have assessed that the first option is applicable in this proposed development, and we have employed several strategies to mitigate the risks:

- The proposed extension floor level will be the same with main house floor level.
- New soakaway will be installed, designed to accommodate a 1/100-year storm. We will also use water-butts to collect rainwater from the roofs, which can then be used for garden cleaning & watering.
- New manhole to be installed on site will employ a backflow non-return valve, to prevent surcharge of effluent back into building.
- All new paving will be permeable paving.
- The following construction details of flood proofing / resilience and resistance techniques to be included in accordance with 'improving the flood performance of new buildings' CLG (2007):
 - The foundation will be trench-fill foundation
 - Inside face of the cavity wall will be coated with waterproof sealant, to lap with both the DPM and up to a height of 450mm above FFL.
 - Concrete ground floor slab (150mm thick) should be specified. Suitable floor finishes (ceramic and concrete base with water resistant grout) on concrete screed, on insulation material (closed cell) on DPM (120 gauge, 300mm overlap, and mastic tape on hardcore and binding) (good compacted) as seen in the detail below:

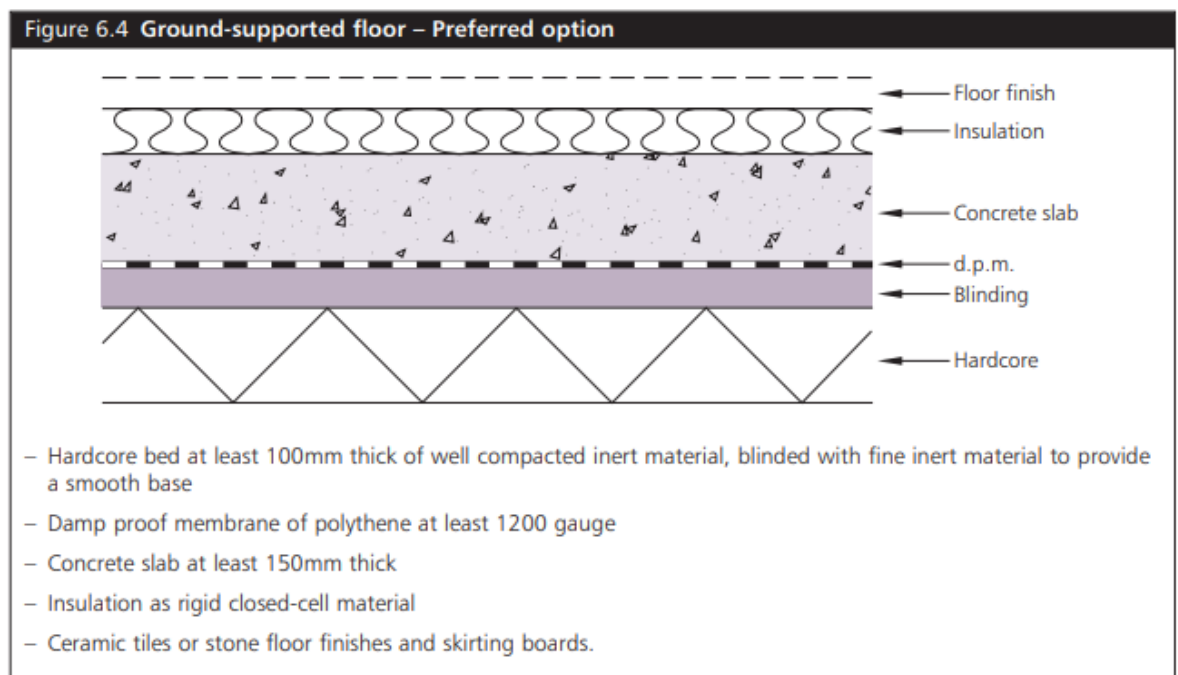


Figure 4: Floor construction detail

- Walls should be constructed as detailed below:

Figure 6.9 Cavity External Walls – Part-filled cavity

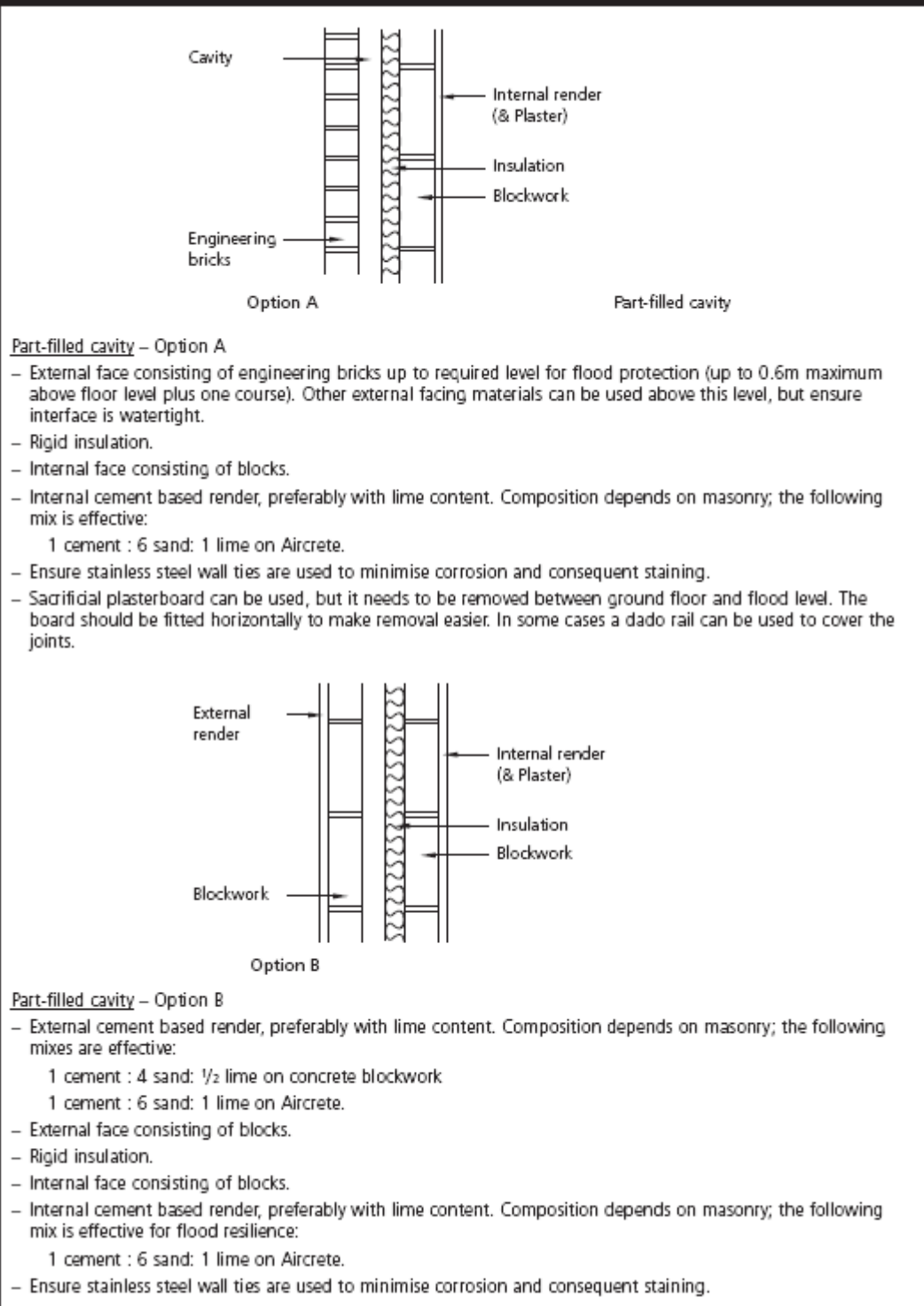


Figure 5: Wall construction details

- Doors and windows should be fitted as detailed below:

General advice for resilient/resistant design

Doors: Raising the threshold as high as possible, while complying with level access requirements, should be considered as the primary measure. In addition, sealed PVC external framed doors should be used and, where the use of wooden doors is a preferred option, all effort should be made to ensure a good fit and seal to their frames.

Hollow core timber internal doors should not be used where the predicted frequency of flooding is high. Where sufficient flood warning is given, butt hinges, that allow internal doors to be easily removed and stored in dry areas prior to a flood, should be used. Where the frequency of predicted flooding is low or where there is no warning (e.g. overland or sewer flooding) it may be necessary to replace the doors after the flood.

Windows/patio doors: Windows and patio doors are vulnerable to flood water and similar measures to those used for doors should be taken. Special care should be taken to ensure adequate sealing of any PVC window/door sills to the fabric of the house. Of particular concern would be excessive water pressure on the glazing of patio doors. Double glazing conforming to the relevant standards would in principle adequately resist the pressures generated by flood waters; debris carrying flows may cause damage.

Air vents: special designs of air vent are available in the market to prevent water ingress in circumstances where the predicted flood depth is low (i.e. < 0.3m); e.g. periscopic air vent, see Figure 6.11. Careful consideration should be given to effectively sealing any associated joints.

- Fittings should be as detailed below:

General advice for resilient design

The main principle is to use durable fittings that are not significantly affected by water and can be easily cleaned (e.g. use of plastic materials or stainless steel for kitchen units). The cost of these units may need to be balanced against the predicted frequency of flooding.

Place fittings (e.g. electrical appliances, gas oven) on plinths as high as practicable above floor so that they are out of reach of flood water.

Ensure adequate sealing of joints between kitchen units and surfaces to prevent any penetration of water behind fittings.

Ensure high quality workmanship in the application of fittings.

- Services should be as detailed below:

General advice for resilient design

Where possible, all service entries should be sealed (e.g. 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 of diluted sewage in situations where there is an identified risk of the foul 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 re-occupation (see Figure 6.13. Note a dado rail which provides a limit for replacement of any wall covering). Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches.

Heating systems: boiler units and ancillary devices should be installed above predicted flood level and preferably on the first floor of two-storey properties. Underfloor heating should be avoided on ground floors and controls such as thermostats 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. Any proposed design solution for flood insulation on all potentially vulnerable wiring should be discussed with the relevant service providers.

Timetable for Implementation surface water drainage.

Soakaway: To be formed and constructed at the same time as drainage System.

Water butts: for recycling of Rainwater to be fitted before the properties are occupied.

Surface water system: to be fully operational before the properties are occupied.

Advisory management and maintenance of the Surface water system.

(Warning if ladders are required please ensure the work is carried out by a competent person)

Weekly:

Visually check gutters from Ground level and complete more detailed check if leak found, as below.

Check and if necessary clean all grating of leaves and other debris. -----

Six monthly:

Check and if necessary clean all gutters of leaves and other debris. Check all rainwater gutters and pipes for signs of leakage and repair as necessary.

Check water butt is operating properly and that there is no debris inside. Ensure the Water Butt Cover is still child safe.

As Required:

Water overflowing from Gutter, Check outlet for debris and clear. If this does not clear the problem get a competent person to diagnose and clear the problem.

Water overflowing from Gullys, Check for debris and clear. If this does not clear the problem get a competent person to diagnose and clear the problem

If there signs of water overflow from either Soakaway. Check the water level inside by lifting the small cover. If full, recheck after 48 hours of dry weather. If still more than half full call in a specialist. To check and if necessary flush out the soakaway removing any

loose debris.

Surface water Collection Facilities.

Water butts: Supply and fit Min 2 no 200Lt water butts.if there is any other appropriate position extra butts will be fitted. Water butts for recycling of Rainwater to be fitted to all rainwater downpipes directly fitted to intercept water until full. Then any over flow water must be discharged into surface water system.

The main surface water storage facilities are the underground Soakaway.

Water Recycling.

Water butts: to be mounted on a suitable stand to allow either a bucket to be placed under the outlet tap or a hose to be fixed to the tap. For watering of the garden as well as cleaning a cars, paving and roadways.