

Householder and other minor extensions in Flood Zones 2 and 3

This guidance is for domestic extensions; and non-domestic extensions where the additional footprint created by the development does not exceed 250 square metres. It should NOT be applied if an additional dwelling is being created.

We recommend that:

Planning Authorities

- 1) Refer the applicant to the standing advice pages on the Environment Agency website or provide them with a copy of this page for them to include as part of the planning application submission.
- 2) Check the planning application to ensure that one or other of the mitigation measures from the table below has been incorporated.

Applicants complete the table below and include it with the planning application submission. The table, together with the supporting evidence, will form the Flood Risk Assessment (FRA) and will act as an assurance to the Local Planning Authority that flood risk issues have been adequately addressed. Print¹ the completed form to a PDF writer if submitting this form electronically.

Applicant to choose one or other of the flood mitigation measures below	Applicant to provide the LPA with the supporting information detailed below as part of their FRA	Applicant to indicate their choice in the box below. Enter 'yes' or 'no'
Either : 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.	Details of any flood proofing / resilience and resistance techniques, to be included in accordance with 'Improving the flood performance of new dwellings' CLG (2007)	YES. Site is in Flood Zone 1
Or: Floor levels within the extension will be set 300mm above the known or modelled 1 in 100 annual probability river flood (1%) or 1 in 200 annual probability sea flood (0.5%) in any year. This flood level is the extent of the Flood Zones	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 ¹	Site is in Flood Zone 1

Subterranean/basement extensions

Due to the risk of rapid inundation by floodwater, basements should be avoided in areas at risk of flooding.

The LPA may hold additional guidance for basement extensions.

Self-contained basement dwellings are 'Highly Vulnerable' development and should not be permitted in flood zone 3. We are fundamentally opposed to these developments.

Continued...

¹ Ordnance Datum or the abbreviation 'OD' is the mean level of the sea at Newlyn in Cornwall from which heights above sea level are taken. The contour

Cumulative impact of minor extensions and the removal of Permitted Development rights.

PPS25 paragraph D16 highlights the potential for the cumulative impact of minor extensions to have a significant effect on flood risk. Where local knowledge (Strategic Flood Risk Assessment held by the LPA/information provided by the parish council) suggests this is the case the guidance contained in FRA guidance note 2 should be applied². FRA guidance note 2 can also be applied where permitted development rights have been removed for flood risk reasons. The Environment Agency does not usually comment on minor development in this category.

Permeable paving and changes to permitted development rights for householders

On the 1st October 2008 the General Permitted Development Order (GPDO) in England was amended by the Government (Statutory Instrument 2008 No. 2362).

One of the changes introduced by the GPDO amendment is the removal of permitted development rights for householders wishing to install hard surfacing in front gardens which exceeds 5 square metres (i.e. 1m x 5 m) without making provision to ensure permeability. This means that use of traditional materials, such as impermeable concrete, where there is no facility in place to ensure permeability, requires an application for planning permission.

In order to help and advise householders of the options for achieving permeability and meeting the condition for permitted development status the Department for Communities and Local Government (CLG) has produced guidance on permeable paving which can be found on the following link <http://www.communities.gov.uk/publications/planningandbuilding/pavingfrontgardens>.

The Environment Agency support this change to the GPDO as it is in line with the recommendations of the Pitt Report regarding the need to better tackle the impact of surface water flooding. However, Local Planning Authorities should determine these applications in accordance with the CLG guidance **without** consulting the Environment Agency.

End of comment

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Dear Case Officer,

Aegaea have been instructed to produce a Flood Risk Statement to support the planning application for the proposed development at 72 Meadlands Drive, Richmond, TW10 7EE (Figure 1). The site is currently a residential dwelling, and the proposed development is for a rear extension on site.



Figure 1. Site Location (Base map and data from Google Hybrid ©)

Fluvial/ Tidal

Based on the EA Flood Map for Planning, the site is in Flood Zone 1 (low risk of flooding from fluvial (river) or tidal sources) as shown in Figure 2.



Figure 2. EA Flood Map for Planning (Base map and data from Google Hybrid © Contains public sector information licensed under the Open Government Licence v3.0)

Flood Zone 1 is defined as having less than 1 in 1000 annual probability of river and tidal flooding.

As such; the risk of flooding from fluvial and tidal source is considered low.

Pluvial

The EA's Risk of Flooding from Surface Water (RoFSW) dataset indicates that the site is at a 'Very Low' risk of surface water flooding (Figure 3).

The surrounding road can be seen as 'Very Low' risk of flooding meaning dry access and egress should be achievable. The proposed development is for the construction of extensions to the existing dwelling and thus access/ egress arrangements would not differ from the existing situation.

As such, the risk of flooding from surface water is considered low.



Figure 3. EA RoFSW Dataset (Base map and data from Google Hybrid © Contains public sector information licensed under the Open Government Licence v3.0)

Reservoirs

Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground level or are used to retain floodwater. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.

According to the EA's Flood Risk from Reservoirs mapping the site is at risk of flooding in the event of a breach at multiple reservoirs (Figure 4). The worst reservoir failure model is a 'wet day' scenario meaning that it would have to happen at the same time as other flooding for there to be enough water to reach the site.

All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the Reservoirs Act 1975 in England and Wales. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work carried out. As reservoirs are highly managed the maximum flood extent provided in the EA Risk of Flooding from Reservoirs mapping is considered a worst-case scenario. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, flooding from this source may be considered as a relatively low risk. Although to be precautionary flood resilient design and building practices could be implemented to further reduce risk.

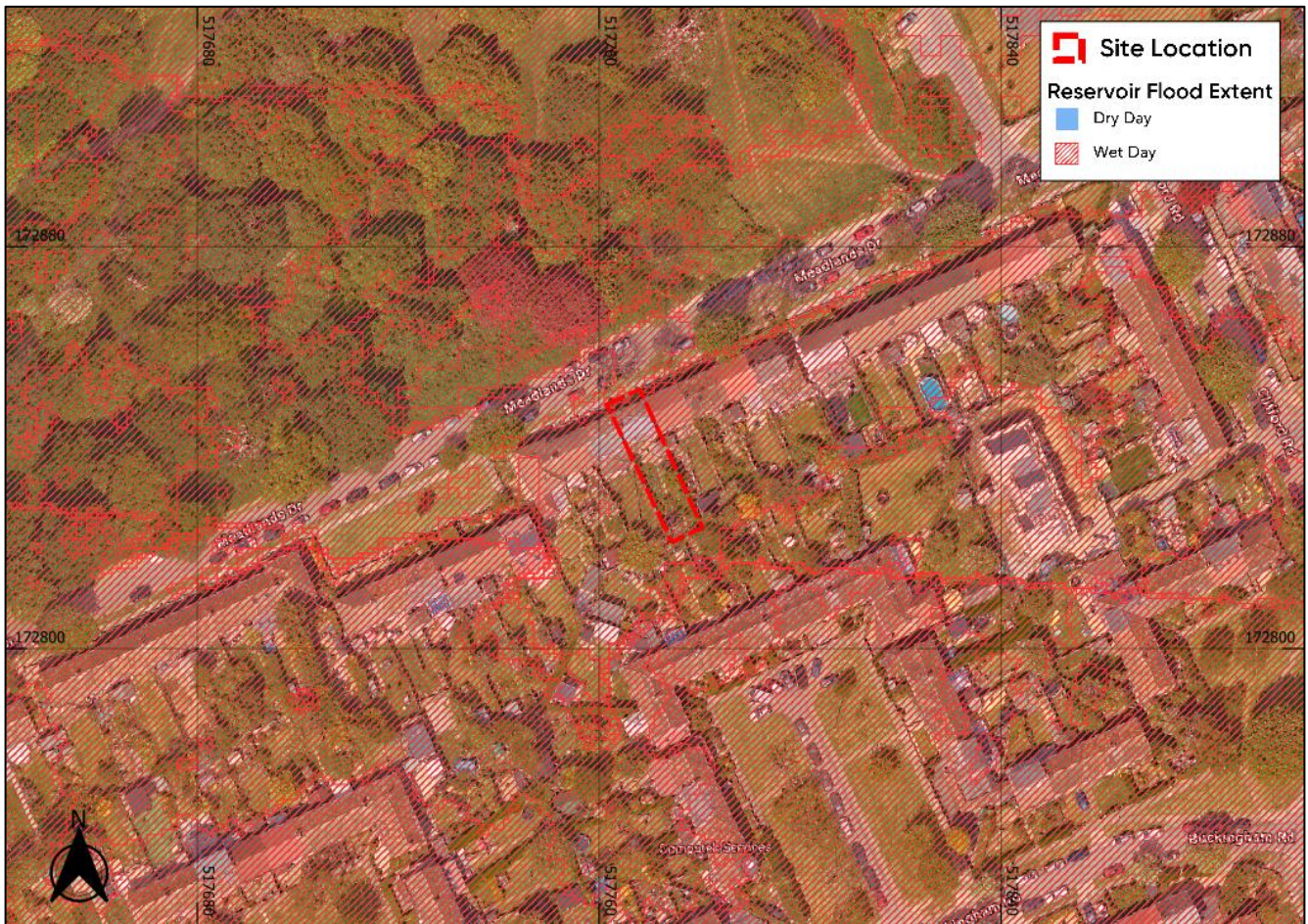


Figure 4. EA Reservoir Flood Risk Mapping (Base map and data from Google Hybrid © Contains public sector information licensed under the Open Government Licence v3.0)

Groundwater

Groundwater flooding occurs in areas where underlying geology is permeable, and water can rise within the strata sufficiently to breach the surface.

The British Geological Survey's (BGS) mapping shows superficial deposits of Kempton Park Gravel Member comprising of sand and gravel underlying the site. The bedrock underlying the site is mapped as the London Clay Formation comprised of clay and silt. The London Borough of Richmond upon Thames SFRA (2021) shows that the sand and gravel deposits have a high hydraulic conductivity and therefore the water can move through more easily. This increases the risk of groundwater flooding.

The London Borough of Richmond upon Thames SFRA (2021) shows the areas that are susceptible to groundwater flooding. Figure 5 shows that 75% or more of the 1km grid that the site is located in is considered susceptible to groundwater flooding. However, it is important to note that this dataset is a strategic scale dataset and should not be relied upon as an indicator that a specific site is considered to be at risk of groundwater flooding. Ground investigations and nearby boreholes would provide a greater understanding of the risk to any given site.

BGS borehole (TQ17SE159) (located approximately 330m southeast of the site) was a 8m deep borehole, and records show groundwater was encountered at 3m depth.

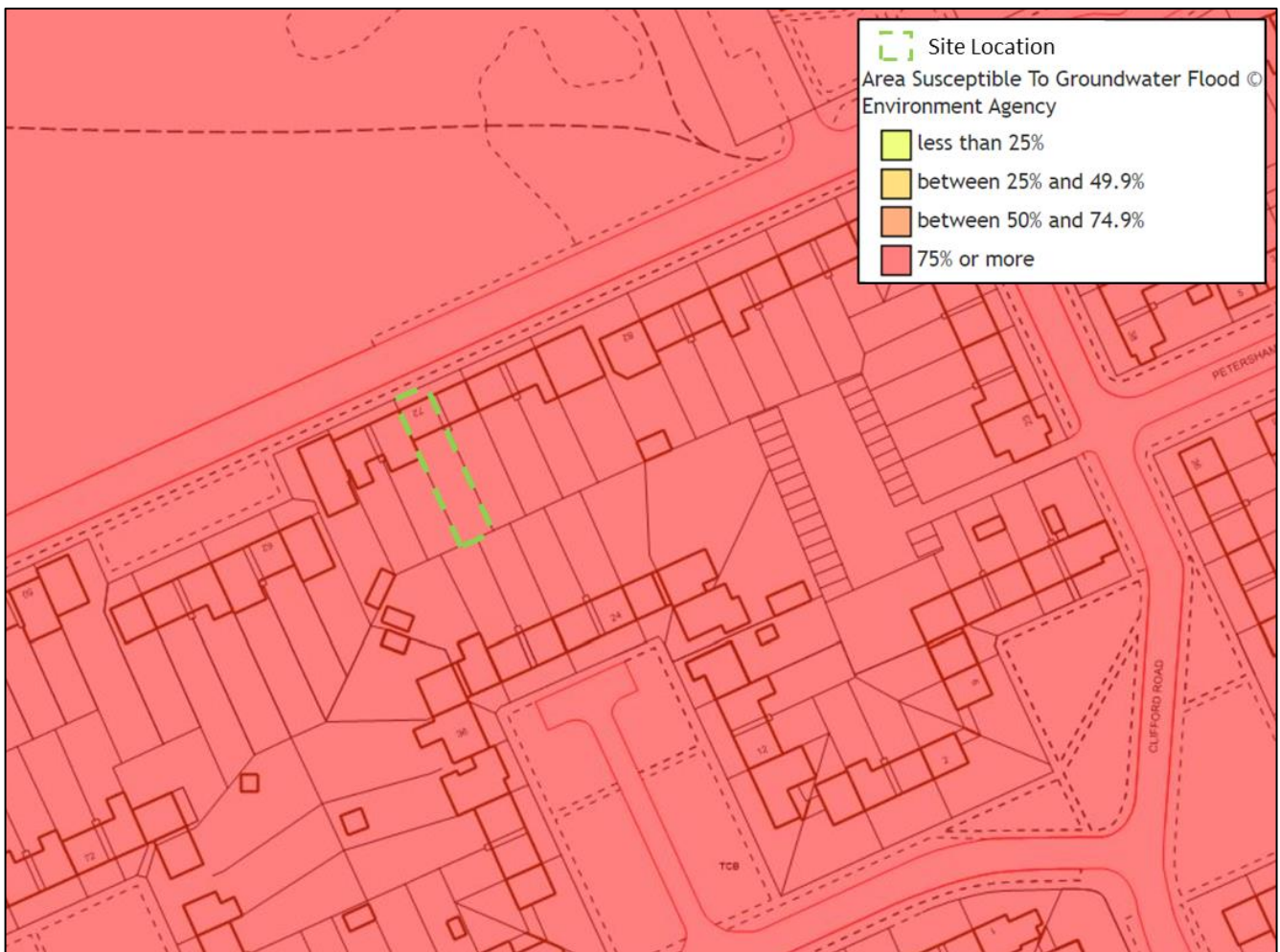


Figure 5. London Borough of Richmond upon Thames SFRA Groundwater flood risk.

As a result, the risk of groundwater flooding to the site can be considered as moderate, as such mitigation measures will be recommended.

Conclusion

The proposed development is for the construction of a rear extension to the existing dwelling.

The Environment Agency (EA) data, show the site appears to be in Flood Zone 1 and low risk from all sources, apart from groundwater.

The risk of flooding to the site from groundwater is considered moderate, but it is important to note that this dataset is a strategic scale dataset and should not be relied upon as an indicator that a specific site is considered to be at risk of groundwater flooding.

However, due to the site at moderate risk from groundwater flooding and given that the proposed is an extension to the existing dwelling and is therefore considered Minor Development, it should adhere to the EA Standing Advice: finished floor levels of the proposed extension are to match the existing finished floor levels.

Furthermore, as a precautionary measure, it is recommended that the extension is built in a flood resilient manner in accordance with *Improving the Flood Performance of New Buildings - Flood Resilient Construction*¹. The following measures from the document are recommended where practical:

- *Damp proof membranes should be included within the design of the dwelling to minimise the passage of water through ground floors. Damp proof membranes to be incorporated into the ground floor to at least 300mm overlap/s*
- *DPC to be a minimum of 150mm.*
- *Air brick covers to be installed.*
- *Non-return valves should be installed on all new drainage.*
- *All new plumbing insulation to be of closed cell design.*

¹https://assets.publishing.service.gov.uk/media/602d673ee90e0709e8d085d8/Improving_the_Flood_Resilience_of_Buildings_Through_Improved_Materials__Methods_and_Details_Technical_Report.pdf

The proposal constitutes a Minor Development in terms of flood risk, under the NPPF.

Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) states:

Minor developments are unlikely to raise significant flood 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.*

As such, the proposed development in isolation should have a negligible impact on flood risk elsewhere.



Flood risk, water and environment

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