

Appendix C Environment Agency's Standing Advice on Preparing a Flood Risk Assessment

Guidance

Preparing a flood risk assessment: standing advice

Find out if you need to follow standing advice when completing a flood risk assessment and what to do.

From: [Environment Agency \(/government/organisations/environment-agency\)](#) and [Department for Environment, Food & Rural Affairs \(/government/organisations/department-for-environment-food-rural-affairs\)](#)

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Applies to England

Contents

- [Research your development site](#)
- [What to include in your assessment](#)
- [Advice for minor extensions](#)
- [Standing advice for vulnerable developments](#)
- [Submit your flood risk assessment](#)

Local planning authorities (LPAs) should use [flood risk standing advice for local planning authorities \(https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities\)](#) to check when to consult the Environment Agency or use standing advice.

Planning applicants and LPAs should use this guide to make sure flood risk assessments (FRAs):

- contain the correct information
- follow the standing advice

If your site is in flood zone 1 but your LPA's strategic flood risk assessment (SFRA) shows it will be at risk of flooding from rivers or the sea in future, you should:

- complete a flood risk assessment (FRA)
- apply this guidance as if the site were in flood zone 2

Follow [standing advice for vulnerable developments \(https://www.gov.uk/guidance/flood-risk-assessment-standing-advice#standing-advice-for-vulnerable-developments\)](#) for developments (including change of use) in flood zone 2 and have a [vulnerability classification \(https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification\)](#) of:

- 'more vulnerable' (except for landfills, waste facility sites, caravan or camping sites)
- 'less vulnerable' (except for waste treatment sites, mineral processing sites, water treatment plants and sewage treatment plants)
- 'water compatible'

[↑ Contents](#)

Related content

[Flood risk assessment: the sequential test for applicants \(/guidance/flood-risk-assessment-the-sequential-test-for-applicants\)](#)

[Review individual flood risk assessments: standing advice for local planning authorities \(/guidance/flood-risk-assessment-local-planning-authorities\)](#)

[Flood risk assessment in flood zone 1 and critical drainage areas \(/guidance/flood-risk-assessment-in-flood-zone-1-and-critical-drainage-areas\)](#)

[Flood risk and coastal change \(/guidance/flood-risk-and-coastal-change\)](#)

[Flood risk assessment in flood zones 2 and 3 \(/guidance/flood-risk-assessment-in-flood-zones-2-and-3\)](#)

assessment for a minor extension in flood zone 2 or 3. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.

If your development is not covered by the standing advice in this guide:

- read [flood risk assessment for planning applications](https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications) (<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>) and the [flood risk assessment check-list](https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section) (<https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section>)
- consider asking the Environment Agency for pre-application advice on flood risk

LPA's will also consult the Environment Agency as set out in the [flood risk assessments: standing advice for local planning authorities](https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities) (<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>) guidance.

Research your development site

A FRA is required for all development:

- within flood zones 2, 3 or 3b
- within flood zone 1 with a site area of 1 hectare or more
- within areas with critical drainage problems
- within flood zone 1 where your LPA's SFRA shows it will be at risk of flooding from rivers or the sea in future
- that increases the vulnerability classification and is in flood zone 1 where your LPA's SFRA shows it is at risk from other sources of flooding

Before starting your FRA you should do the following research:

- visit [flood risk assessments if you're applying for planning permission](https://www.gov.uk/guidance/flood-risk-assessments-if-you're-applying-for-planning-permission) (<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>) to find out how to access information about flood risk from rivers and the sea in your area
- contact the lead local flood authority for information about sustainable drainage systems (SuDS) and other sources of flooding

You should also check the LPA's SFRA to find out if the development is:

- in flood zone 1 now but will be at risk of flood from rivers or the sea during its lifetime
- at risk from any other source of flooding such as groundwater or surface water, or it will be during its lifetime
- within flood zone 3b (functional floodplain)

In addition you need to check the Environment Agency's [flood map](https://flood-map-for-planning.service.gov.uk/) (<https://flood-map-for-planning.service.gov.uk/>) to find if your development is within:

- 20 metres of a main river or a flood defence
- a water storage area (also likely to be flood zone 3b in the SFRA)
- flood zone 1, 2 or 3

Check if you need to do a sequential test and exception test

Before you start a FRA, check if your development needs to satisfy the [sequential test](https://www.gov.uk/guidance/flood-risk-and-coastal-change#sequential-approach) (<https://www.gov.uk/guidance/flood-risk-and-coastal-change#sequential-approach>). The sequential test steers development to areas with the lowest flood risk. It compares your proposed site with other available sites to show which one has the lowest flood risk. The LPA may refuse planning permission if other, lower risk sites are identified. You need to justify and provide evidence of the search area you used. Contact your LPA early to discuss whether your development can satisfy the sequential test.

If the sequential test is satisfied you need to check if the [exception test](https://www.gov.uk/guidance/flood-risk-and-coastal-change#Exception-Test-for-specific-development-proposals) (<https://www.gov.uk/guidance/flood-risk-and-coastal-change#Exception-Test-for-specific-development-proposals>) also needs doing. If it does, you need to satisfy both elements of the exception test before the LPA can permit the development.

Check whether any other permissions or consents are needed

[↑ Contents](#)

- is within 20 metres of a main river, a flood defence or flow control structure
- directly affects a watercourse that is not a main river

[Check if you need permission to do work on a river, flood defence or sea defence \(https://www.gov.uk/permission-work-on-river-flood-sea-defence\)](https://www.gov.uk/permission-work-on-river-flood-sea-defence). Do this as soon as possible to make sure you can get the necessary permissions.

Flood risk permits or consents are often needed as well as planning permission. Getting planning permission does not guarantee you'll also get a flood risk permit or consent.

What to include in your assessment

For all developments covered by this standing advice, your FRA should include:

- your site address
- a description of your development
- an assessment of the flood risk from all sources of flooding for your development, plus an allowance for climate change
- the estimated flood level for your development, taking into account the impacts of climate change over its lifetime
- details of the finished floor levels
- details of your flood resistance and resilience plans
- any supporting plans and drawings
- any other information the relevant standing advice tells you to include

The estimated flood level is the depth of flooding anticipated on your development site in a:

- river flood with a 1 in 100 annual probability plus an [allowance for climate change \(https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances\)](https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances)
- tidal flood with a 1 in 200 annual probability plus an [allowance for climate change \(https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances\)](https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances)

If flood defences are present, the estimated flood level should account for the residual flood risk if they breached or overtopped. You may be able to get the estimated flood level from the Environment Agency or your LPA. If not, you'll need a flood risk specialist to calculate this for you.

Advice for minor extensions

You need to provide a plan showing the finished floor levels and the estimated flood levels.

State in your assessment all levels in relation to Ordnance Datum (the height above average sea level). You may be able to get this information from the [Ordnance Survey \(http://www.ordnancesurvey.co.uk/\)](http://www.ordnancesurvey.co.uk/). If not, you'll need to get a land survey carried out by a qualified surveyor.

Make sure the floor levels are either no lower than existing floor levels or 300 millimetres (mm) above the estimated flood level. You will also need to use flood resistant materials up to at least 300mm above the estimated flood level.

Flood water can put pressure on buildings, causing structural issues. If your design aims to keep out a depth of more than 600mm of water, you should get advice from a structural engineer.

Standards for the installation and retrofit of resistance measures are available in [British Standard 851188-1:2019+A1:2021 \(https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard\)](https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard).

If you cannot raise the floor levels in this way, you will also need to include extra flood resistance and resilience measures. These measures should protect the property to at least 300mm above the estimated flood level.

Make sure your flood resilience plans follow the guidance in the [Construction Industry Research and Information Association \(CIRIA\) Property Flood Resilience Code of Practice \(https://www.ciria.org/ItemDetail?iProductCode=C790F&Category=FREEPUBS\)](https://www.ciria.org/ItemDetail?iProductCode=C790F&Category=FREEPUBS).

[↑ Contents](#)

Standards for materials and design approaches that will speed the recovery of buildings after flooding are available in [British Standard 85500:2015](https://shop.bsigroup.com/products/flood-resistant-and-resilient-construction-guide-to-improving-the-flood-performance-of-buildings/standard) (<https://shop.bsigroup.com/products/flood-resistant-and-resilient-construction-guide-to-improving-the-flood-performance-of-buildings/standard>).

Standards for dealing with and preventing water from surrounding ground entering below ground structures such as basements are available in [British Standard 8102:2009](https://shop.bsigroup.com/products/code-of-practice-for-protection-of-below-ground-structures-against-water-from-the-ground/standard) (<https://shop.bsigroup.com/products/code-of-practice-for-protection-of-below-ground-structures-against-water-from-the-ground/standard>).

Your plans also need to show how you're going to ensure the development is not flooded by surface water or groundwater. This could be by:

- diverting water away from buildings but safely managing it within the site
- or by raising floor levels above the estimated flood depths of surface and groundwater flooding

Check with the LPA to see if your minor extension is in an area with increased flood risk because of multiple minor extensions in the area. If it is, you need to include an assessment of the off-site flood risk.

Check [table 3 of the planning practice guidance](https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-3-Flood-risk-vulnerability) (<https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-3-Flood-risk-vulnerability>) if your proposed minor extension is in flood zone 3b (functional floodplain). It states that development should not be permitted in flood zone 3b if its [vulnerability classification](https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification) (<https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>) is:

- 'highly vulnerable'
- 'more vulnerable'
- 'less vulnerable'

Standing advice for vulnerable developments

For all relevant vulnerable developments, you should follow the advice for:

- floor levels
- extra flood resistance and resilience measures
- access and escape
- surface water management

Floor levels

You need to provide the:

- average ground level of your site
- ground level of the access road(s) next to your building
- finished floor level of the lowest room in your building

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

You should also use construction materials that have low permeability up to at least the same height as finished floor levels.

Standards for the installation and retrofit of resistance measures are available in [British Standard 851188-1:2019+A1:2021](https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard) (<https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard>). State in your assessment all levels in relation to Ordnance Datum (also known as height above average sea level). You may be able to get this information from the [Ordnance Survey](http://www.ordnancesurvey.co.uk) (<http://www.ordnancesurvey.co.uk>). If not, you'll need to get a land survey carried out by a qualified surveyor.

If you cannot raise floor levels to meet the minimum requirement, you will need to:

- raise them as much as possible
- consider moving vulnerable uses to upper floors
- include extra flood resistance and resilience measures

on buildings causing structural issues. If your design aims to keep out a depth of more than 600mm of water, you should get advice from a structural engineer. They will need to check the design is safe.

Extra flood resistance and resilience measures

Follow the guidance in this section for developments in flood risk areas where you cannot raise the finished floor levels to the required height. You should design buildings to exclude flood water where possible and to speed recovery in case water gets in.

Make sure your flood resilience plans for the development follow the guidance in the [CIRIA Property Flood Resilience Code of Practice \(https://www.ciria.org/ItemDetail?iProductCode=C790F&Category=FREEPUBS\)](https://www.ciria.org/ItemDetail?iProductCode=C790F&Category=FREEPUBS). Please note that the code of practice uses the term 'recovery measures'. In this guide we use 'resilience measures'.

Flooding can affect the structural stability of buildings. If your building design would exclude more than 600mm of flood water, you should get advice from a structural engineer. They will need to check the design is safe. Only use resistance measures that will not cause structural stability issues during flooding. If it is not possible to safely exclude the estimated flood level, exclude it to the structural limit then allow additional water to flow through the property.

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

Standards for the installation and retrofit of resistance measures are in [British Standard 851188-1:2019+A1:2021 \(https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard\)](https://shop.bsigroup.com/products/flood-resistance-products-building-products-specification-1/standard).

Standards for speeding the recovery of buildings after a flood are in [British Standard 85500:2015 \(https://shop.bsigroup.com/products/flood-resistant-and-resilient-construction-guide-to-improving-the-flood-performance-of-buildings/standard\)](https://shop.bsigroup.com/products/flood-resistant-and-resilient-construction-guide-to-improving-the-flood-performance-of-buildings/standard).

Standards for dealing with and preventing water from the surrounding ground entering below ground structures such as basements are in [British Standard 8102:2009 \(https://shop.bsigroup.com/products/code-of-practice-for-protection-of-below-ground-structures-against-water-from-the-ground/standard\)](https://shop.bsigroup.com/products/code-of-practice-for-protection-of-below-ground-structures-against-water-from-the-ground/standard).

You will also need to comply with relevant Building Regulations in [Part P \(https://www.gov.uk/government/publications/electrical-safety-approved-document-p\)](https://www.gov.uk/government/publications/electrical-safety-approved-document-p). They set minimum and maximum heights for certain electrical infrastructure.

Temporary or demountable flood barriers are not appropriate for new buildings. Only consider them for existing buildings when:

- there is clear evidence that it would be inappropriate to raise floor levels and include passive resistance measures
- an appropriate flood warning or other appropriate trigger is available

If proposals involve the development of buildings constructed before 1919, refer to [Flooding and Historic Buildings \(https://historicengland.org.uk/advice/your-home/flooding-and-older-homes/making-your-home-flood-resistant-and-resilient/\)](https://historicengland.org.uk/advice/your-home/flooding-and-older-homes/making-your-home-flood-resistant-and-resilient/) guidance produced by Historic England.

Access and escape

You need to provide details of your emergency escape plans for any parts of

[↑ Contents](#)

[Emergency Plans for New Development guidance](https://www.adeptnet.org.uk/floodriskemergencyplan)
(<https://www.adeptnet.org.uk/floodriskemergencyplan>).

Make sure your plans show:

- that any single storey buildings or ground floors without access to upper floors can access a safe refuge above the estimated flood level
- that any basement rooms have clear internal access (for example a staircase) to an upper floor above the estimated flood level
- 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

You will also need to comply with relevant Building Regulations in [Part B](https://www.gov.uk/government/publications/fire-safety-approved-document-b)
(<https://www.gov.uk/government/publications/fire-safety-approved-document-b>). They require you to provide suitable access for the fire service.

Surface water management

You should use SuDS for all:

- developments involving surface water drainage in flood risk areas
- major developments involving surface water drainage

If you do not include SuDS in these circumstances, you need to provide the LPA with clear evidence of why their use would be inappropriate.

In major developments SuDS should also provide multifunctional benefits where possible.

You should include information about SuDS in a sustainable drainage strategy or as part of your FRA. See section 6: surface water management of the [site-specific flood risk assessment: checklist](https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section)
(<https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section>) for the information you need to include.

Your plans for the management of surface water need to meet any requirements set out in your local authority's:

- surface water management plan where available
- SuDS guidance where available
- SFRA

They also need to meet the requirements of the [planning practice guidance](https://www.gov.uk/guidance/flood-risk-and-coastal-change#sustainable-drainage-systems)
(<https://www.gov.uk/guidance/flood-risk-and-coastal-change#sustainable-drainage-systems>) and the approved building regulations [Part H: drainage and waste disposal](https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h)
(<https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h>). Read section H3 rainwater drainage.

Refer to the [non-statutory technical standards](https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards)
(<https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>) for guidance on the design, maintenance and operation of SuDS. Further guidance on how to design SuDS to maximise their benefits is in the [CIRIA Suds Manual](https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91) (<https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>).

You can follow [Water UK's Design and Construction Guidance](https://www.water.org.uk/sewerage-sector-guidance-approved-documents/)
(<https://www.water.org.uk/sewerage-sector-guidance-approved-documents/>) to design and construct SuDS. This will ensure they qualify for adoption by the relevant water and sewerage company.

You need [planning permission](https://www.gov.uk/planning-permission-england-wales) (<https://www.gov.uk/planning-permission-england-wales>) to surface more than 5 square metres of a front garden using a material that cannot absorb water.

Submit your flood risk assessment

Submit your completed FRA with your planning application to your LPA.

The LPA will review your FRA and tell you if it's satisfactory. Planning applications that do not have a satisfactory FRA may be refused.

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[↑ Contents](#)

[River maintenance, flooding and coastal erosion \(/environment/river-maintenance-flooding-coastal-erosion\)](#)

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