

Eden Level 1 Strategic Flood Risk Assessment

User Guide

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www.jbaconsulting.com



Town Hall
Corney Square
Penrith
Cumbria
CA11 7QF

SFRA User Guide

The User Guide provides specific guidance for the SFRA. This report should be used by all involved in the development planning process. This Guide is presented as five key chapters comprising:

- Guidance for Spatial Planners
- Guidance for Development Management
- Guidance for Developers
- Guidance for Flood Risk Management
- Guidance for Emergency Planners

SFRA Mapping

A suite of strategic flood risk maps has been produced for the SFRA. These maps should be used to locate development away from areas at high risk of flooding.

Future development planning also needs to make reference to this suite of strategic flood risk maps, as well as any updated information provided by the LPA and Environment Agency.

Use of SFRA Data

Whilst all data used in the preparation of this SFRA has been supplied to the LPA (including reports, mapping, Geographic Information Systems (GIS) and modelled data and development allocation assessments) there is a need to maintain controls over the data and how it is applied and modified. It is anticipated that the SFRA and associated maps will be published on the Council's website as PDFs. As the central source of SFRA data, these maps will be available to download.

The LPA will be able to use the modelled output (depths, hazards, velocities and extent outlines) for internal use. The use of this information must consider the context within which it was produced. The use of this data will fall under the license agreement between the LPA and the Environment Agency as it has been produced using Environment Agency data. It should be remembered that the modelling undertaken for the SFRA is of a strategic nature and more detailed FRAs should seek to refine the understanding of flood risk from all sources to any particular site.

SFRA data should not be passed on to third parties outside of the LPA. Any third party wishing to use existing Environment Agency flood risk datasets should contact the Environment Agency. A charge is likely to apply for the use of this data.

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1. Introduction

1.1 Background

JBA Consulting were commissioned by Eden District Council to undertake a Level 1 Strategic Flood Risk Assessment (SFRA).

The Level 1 SFRA has been prepared in accordance with the updated National Planning Policy Framework¹ (NPPF) and the accompanying Flood Risk and Coastal Change Planning Practice Guidance² (FRCC-PPG).

This User Guide has been prepared in support of the SFRA. This guidance should be used to understand the process and procedures required to support development planning and flood risk guidance in accordance with the NPPF.

This User Guide has been developed to provide guidance on the use of the SFRA for local authority spatial planning, regeneration, Flood Risk Management, development management and emergency planning.

1.1.1 Assessment of flood risk

Flooding is a natural process that is not restricted by political demarcations or administrative boundaries. It is primarily influenced by natural factors such as rainfall, tides, geology, topography, rivers and streams and infrastructure such as flood defences, roads, buildings and sewers.

The vulnerability of the proposed land use to flooding should be considered and measures taken to minimise flood risk to people, property and the environment. This is the basis of the risk-based sequential approach to managing flood risk.

Current Government policy requires LPAs to demonstrate that sufficient consideration has been given to the issue of flood risk as part of the planning process, through a Level 1 SFRA. It also requires that flood risk is managed in an effective and sustainable manner. Where new development is exceptionally necessary in flood risk areas, the policy aim is to make it safe without increasing flood risk elsewhere, guided by a Level 2 SFRA. Whenever possible, overall flood risks should be reduced.

An SFRA is a planning tool that enables the Council to select and develop sustainable site allocations away from vulnerable flood risk areas. The assessment focuses on the existing site allocations within the area but also sets out the procedure to be followed when assessing sites for future development.

It is recognised that considerable land use pressures for regeneration, inward investment and economic growth exist. The SFRA will guide the Council in developing strategies, policies and decisions in respect of their Local Plan.

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

² <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

1.1.2 Level 1 SFRA

The Level 1 element of an SFRA is based on existing information that is required to make an assessment of flood risk from all sources, both now and in the future. It provides the evidence for LPA officers to apply the Sequential Test and identifies the need to pass the Exception Test where required. Both of these tests are a fundamental part of the NPPF.

The main tasks for the Level 1 SFRA, reflecting the 2019 EA guidance on how LPAs should prepare a Level 1 SFRA³, include:

- Stakeholder consultation, data collection and review
- Assessment of current and long term flood risk
- Delineation of NPPF Flood Zones including the Functional Floodplain and the impact of climate change
- Assessment of flood risk from 'other' sources including surface water, groundwater, sewers, reservoirs and canals
- Assessment of potential development sites and potential Local Plan allocations
- Assessment of flood risk management and defences, including for natural flood management and opportunities to reduce the causes and impacts of flooding
- Cumulative impacts of new development
- Recommendations on addressing flood risk
- Production of a range of strategic flood risk maps

³ <https://www.gov.uk/guidance/local-planning-authorities-strategic-flood-risk-assessment#level-1-sfra-what-to-include>

2. Guidance for Spatial Planners

The purpose of this section of the guide is to provide guidance to Spatial Planners on dealing with allocations using the SFRA.

- **Scope the Sustainability Appraisal of the Local Plan**
 - Screen development options
 - Produce appropriate flood risk indicators
- **Avoid sites at high risk of flooding where no other planning objectives outweigh flood risk**
 - Using Sustainability Appraisal and Sites Assessment Spreadsheet (Appendix B of this SFRA).
- **Carry out the Sequential Test on proposed development sites**
 - Using information provided in the SFRA and Sites Assessment Spreadsheet to avoid sites at high risk.
- **Identify those sites where a greater understanding of flood risk is required (requiring of a Level 2 SFRA)**
 - These should include key development sites at high risk of flooding.
- **Identify the likelihood of sites passing the Exception Test**
 - Using the Sustainability Appraisal to assess development sites with regards to other planning objectives and assign weight given to flood risk as a planning constraint;
 - Using information provided in a Level 2 SFRA to assess the level of risk to each site and likelihood of it remaining safe. If a site cannot pass all the criteria of the Exception Test it cannot be approved.
- **Allocate appropriate development through the Sustainability Appraisal**
 - Produce evidence that both Tests have been applied by noting the outcome and decisions made to avoid, substitute or allocate the site (through Level 1 and 2 SFRA as the evidence bases).
- **Draft flood risk policies and develop guidance on each allocated site within the Sustainability Appraisal**
 - Guidance should include the need for site-specific FRAs.

2.1 Introduction

The SFRA provides the basis for the sequential approach. The LPA should consider flood risk, the mechanism of flooding as well as the spatial distributions and development vulnerability in all stages of the development planning process.

The SFRA promotes positive planning to deliver strategic opportunities that reduce flood risk to communities.

Throughout the risk-based sequential testing process, opportunities to minimise flood risk at each stage of the planning process need to be considered. The primary aim of these actions is to ensure that risks to people and property are effectively managed. The hierarchy of management decisions and actions comprise:

- Avoidance, by locating new development outside of areas at risk of flooding;
- Substitution, by changing from more vulnerable to less vulnerable land uses; and
- Control & Mitigation of residual risks, by implementing suitable flood risk management measures.

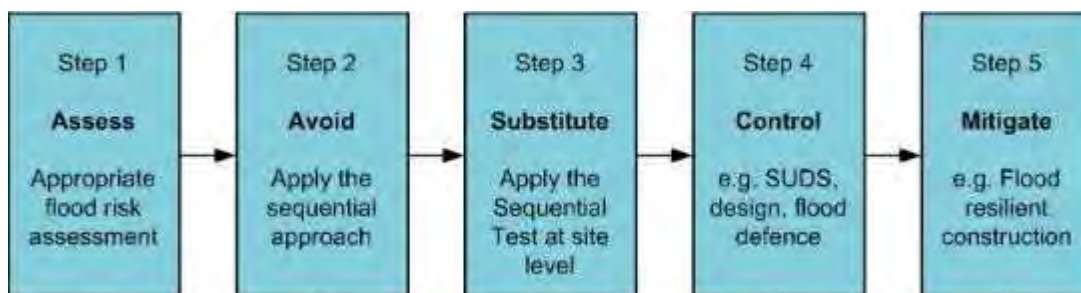


Figure 0-1: Flood Risk Management hierarchy

The SFRA provides information on flood risk allowing the LPA to:

- Produce appropriate policies for development control and site allocation;
- Produce appropriate flood risk indicators that inform the Sustainability Appraisal;
- Undertake the Sequential Test and (with sufficient and suitable information) Exceptions Testing; and
- Allocate appropriate land use for development.

It is recommended that a supporting document is prepared, by the LPA, recording decisions made for each proposed development site using the information recorded in the Sites Assessment spreadsheet (Appendix B). This should include all evidence considered in making a decision and this record will form the evidence base that demonstrates that both the Sequential and Exception Test (where applicable) have been applied.

In granting planning permission, it will be the requirement of Development Control officers to confirm that all parts of the Exception Test have been addressed through a Level 2 SFRA and/or FRA. During the initial spatial planning stage, only the likelihood of passing the Exception Test can be assessed. To pass the Exception Test a site-specific FRA will be required to identify constraints and demonstrate that safe development is achievable.

The SFRA also provides information to allow planners to make strategic decisions that identify the amount and type of development that may be suitable in the community and the reality of it remaining safe from flooding if allocated. It also identifies potential strategic mitigation strategies that may be required for development to be feasible in the area.

2.2 Sequential Test

When allocating or approving land for development in flood risk areas, those responsible for making development decisions are expected to demonstrate that there are no suitable alternative development sites (of the type and nature proposed by the Local Plan) located in lower flood risk areas.

The Sequential Test is core to the Level 1 SFRA process. The Sequential Test is the key driver for the SFRA. In order to carry out the Sequential Test the LPA needs to know:

- Spatial extent of flood risk within the whole LPA area
- Flood Zones
 - Flood Zone 1 – Low Probability: less than 0.1% AEP fluvial flood event
 - Flood Zone 2 – Medium Probability: between a 1% AEP and 0.1% AEP fluvial flood event
 - Flood Zone 3a – High Probability: with a 1% AEP or greater fluvial flood event
 - Flood Zone 3b – Functional Floodplain: land where water has to flow or be stored in times of flood. This is land which would flood with an annual probability of 1 in 20 (5% AEP) or greater in any year or is designed to flood in an extreme (0.1% AEP) flood.
- Flooding from other sources: canals, reservoirs, groundwater etc.
- Location of proposed development sites and the proposed vulnerability of that development in flood risk terms (See Appendix B in the SFRA)

There are a number of steps that Spatial Planners may follow when sequentially testing sites and assessing the likelihood that a site will pass the Exception Test. These are:

- The LPA is required to prioritise the allocation of land for development in ascending order from FZ1 to FZ3 (including subdivisions of FZ3);
- Identify those sites where substitution is possible due to high percentage of land within lower flood risk areas;

- Identify those sites where a Level 2 SFRA is required to inform the Exception Test;
- Record the decisions taken on each site in the Sites Assessment spreadsheet (Appendix B) of the Level 1 SFRA;
- Identify those sites that can pass the first part of the Exception Test;
- Identify those sites that may pass the second part of the Exception Test;
- Do not allocate those sites that will likely fail the Exception Test, as identified through a Level 2 SFRA; and
- Produce a supporting document recording all decisions made during the decision-making process. Each proposed development site should be referenced, and the decisions made to avoid, substitute, or allocate the site and the evidence and/or reasoning used to make the decision should be recorded.

There are a number of key challenges faced by the LPA in applying the Sequential Test. The Sequential Test is purely based on the Flood Zones as defined by Table 1 in the FRCC-PPG, but these zones only take account of fluvial and tidal flooding, which ignore the presence of flood risk management measures such as defences. Other sources of flooding must also be considered in the spatial distribution of development. However, it can be problematic to map the spatial extent of flooding from other sources as well as matching the level of risk associated with other sources with those presented within the Flood Zones. For instance, Flood Zone 3 cannot be directly related to an area at high risk of surface water flooding as the probability and consequences are significantly different.

Whilst it may not be appropriate to avoid development at risk from other sources of flooding, risk should be considered when taking a sequential approach to land use or the substitution of lower development vulnerability in higher risk areas within a development site.

2.3 Exception Test

If the Sequential Test has been successfully applied, and the LPA cannot allocate development in lower flood risk areas, Table's 2 and 3 of the FRCC (Flood Risk and Coastal Change)-PPG should be referred to. Only once the vulnerability of the development is defined should an assessment be made of whether or not that development is appropriate within that Flood Zone and whether the Exception Test needs to be applied.

The NPPF and FRCC-PPG explains where and for what type of development the Exception Test needs to be applied. In some situations, for certain types of development, it is not appropriate to use the Exception Test to justify development. For example, highly vulnerable development cannot be justified within the high-risk zone through the use of the Exception Test. The Exception Test must not be used to bypass the Sequential Test.

There are conditions, all of which must be fulfilled before the Exception Test can be passed. These conditions (see paragraph 160 of the NPPF) are as follows:

1. the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
2. the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

It will be the requirement of Development Management officers to make sure all parts of the Exception Test have been passed in granting planning permission (see Section 6 of the SFRA). At a spatial planning stage, only the likelihood of passing the Exception Test can be assessed, as actually passing the Test will require the completion of a site-specific FRA to determine if the site and its occupiers will be safe during times of flood.

What should be done at this early stage of the planning process is to identify those sites in which the Exception Test is required and to avoid those sites in which flood risk is too great, using the information provided in the Level 1 SFRA, or there are no overriding planning objectives for that development.

2.4 Applying the Sequential Test and assessing the likelihood of passing the Exception Test

This section provides guidance on how spatial planners are to apply the Sequential and Exception Test within the Sustainability Appraisal of the Local Plan.

The LPA should produce clear and transparent evidence that both the Sequential and Exception Tests have been applied, which can then feed into the Sustainability Appraisal process. This can either be reported within the Sustainability Appraisal itself or a supporting stand-alone document which then feeds into the Sustainability Appraisal.

The guidance provided in this SFRA User Guide should not supersede the NPPF or FRCC-PPG or other plans and policies but should be seen as a practicable approach in how the LPA should apply the Sequential and Exception Tests within the preparation of the Local Plan. In applying the tests, spatial planners should keep in mind the flood risk management hierarchy of avoid, substitute, control and mitigate (see Figure 0-1), whilst identifying and allocating sustainable development sites.

The evidence provided in the SFRA and the Sustainability Appraisal should form the main input to the tests. Initially the LPA should assess alternative development options at a strategic scale using the Sustainability Appraisal. This then expands to using evidence provided in the SFRA to avoid inappropriate development sites, substitution within the site boundary, identify those sites requiring Exception Testing (using the Level 1 SFRA) and to assess if the site will remain safe through the Exception Test (following a Level 2 SFRA). This is a step wise process and must be documented, but a challenging one as a number of the criteria used are qualitative and based on experienced judgement.

Spatial planners will need to assess the likelihood of sites passing the Exception Test. **This is seen as a critical part of the spatial planning process by avoiding inappropriate development being allocated.** The Environment Agency and/or Development Management are likely to object to inappropriate development. By following the process outlined in **Figure 0-2**, spatial planners should be able to obtain a greater understanding on the level of flood risk present at each key development site that remains following application of the Sequential Test.

Spatial Planners should use the Sustainability Appraisal process to assess alternative sites against flood risk indicators and other planning considerations. Once this has been completed the evidence base for the Sustainability Appraisal, the allocation of appropriate development sites, and the production of flood risk policies and development guidance can be carried out.

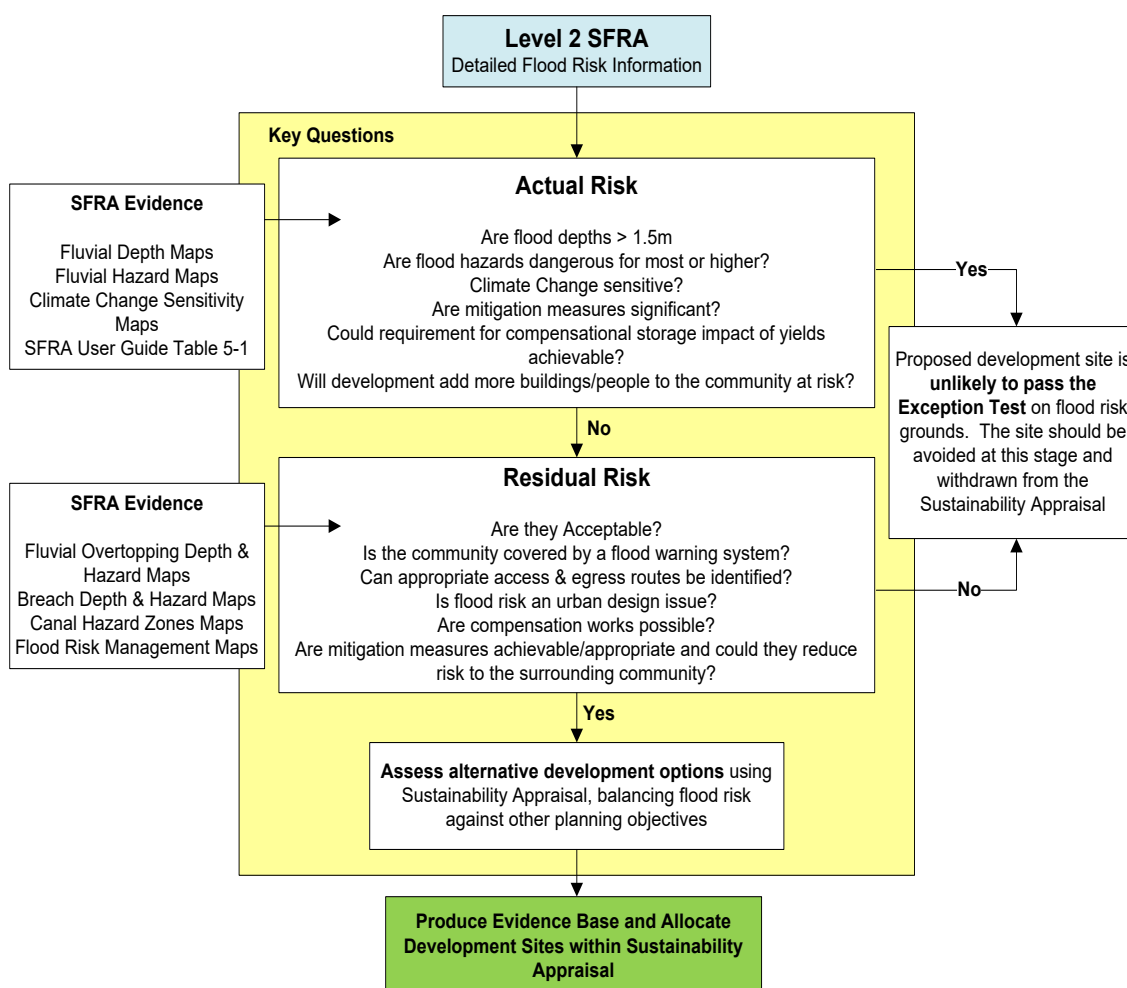


Figure 0-2: Identifying the likelihood of passing the Exception Test

3. Guidance for Development Management

The aim of this section is to provide guidance on the use of the SFRA by Development Management.

When reviewing individual planning applications, planners should use the guidance in the SFRA, NPPF and FRCC-PPG to:

- **Check whether the Sequential Test and/or the Exception Test have already been applied**
 - Refer developers to the Local Plan and supporting evidence to identify if the Sequential Test has been applied and whether the development is likely to pass the Exception Test (if applicable).
 - If evidence is available, the Sequential Test and likelihood of passing the Exception Test have been assessed. If no evidence is available, developers must carry out the Sequential Test (and the Exception Test if applicable).
- **Refer developer to the following in order for them to apply the Sequential and Exception Tests**
 - Level 1 SFRA (to inform Sequential Test), in particular the Sites Assessment spreadsheet (Appendix B) and the interactive maps (Appendix A);
 - Level 2 SFRA (inform Exception Test);
- **Consult with the Environment Agency and other relevant stakeholders to**
 - Assess flood risk constraints identified on site using the SFRA
- **Scope an appropriate FRA**
 - What is the scale and nature of risk from all sources?
 - Are there any strategic mitigation requirements identified in the SFRA?
- **Consult with Environment Agency over FRA acceptance and approval**

3.1 Introduction

The LPA is the decision-maker on planning applications for new development. Whilst it is the developer's responsibility to fully consider flood risk issues, the LPA should be involved during any pre-application discussions.

Following on from recommendations made in the Pitt Review (2007), Development Management must take some of the roles and responsibilities from the Environment Agency as the first point of call in Flood Risk Management and planning applications.

Flood risk needs to be considered at a strategic level by Development Control officers, even though applications for proposed developments are submitted on a site by site basis. Applications may need to fit within a wider flood risk management strategy for an area rather than on a site by site basis.

Development Management officers must always consider development from a strategic viewpoint and the cumulative effect of all proposed development taking place, even though applications for developments are submitted at a site level. It should not be presumed that flood risk has been understood at a strategic high level and that one application may need to fit within a flood risk management strategy for an area.

3.2 The Sequential Test and Exception Test

If the proposed site is already identified in the Local Plan, which is supported by the findings of the SFRA which provides transparent evidence that the Sequential Test has been carried out, then the developer can assume that the site will already have been through the Sequential Test, however confirmation must be sought from the LPA. Also, the developer must still apply the sequential approach to site layout when matching land use vulnerability.

However, where it is identified that a site has not been through the Sequential Test, the developer will need to provide evidence to the LPA that there are no other reasonably available sites, within the identified search area, where the development could be located. The LPA will then use this information to apply the Sequential Test. This will particularly apply to Windfall Sites that have not been allocated in the Local Plan.

For Windfall Sites, developers will need to provide evidence that the Exception Test can be passed, if required according to the vulnerability of the proposed land use. Development Management will then need to review the evidence provided and decide whether a site passes the Exception Test in consultation with the Environment Agency.

Paras 033 - 044 of the FRCC-PPG provide more detail and recommended approaches on how to apply the Sequential Test and Exception Test to individual planning applications.

3.3 Supporting the FRA process

All development applications must be supported by an appropriate site-specific FRA in accordance with the guidance provided in Paras 030 – 032 and 068 of the FRCC-PPG.

At the earliest practical stage, Development Management should refer developers to the SFRA including the associated flood risk mapping. The developer should also be referred to the appropriate Local Plan flood risk policies which could potentially influence their development proposals.

If a site has been identified as being at risk of flooding, Development Management and the developer should consult the Environment Agency (if within 20 metres of a main river and/or coastal flood risk) and the Lead Local Flood Authority (if risk is from surface water or ordinary watercourse), together with any other relevant flood risk consultees, such as water and sewerage companies, Canal & River Trust, reservoir undertakers, emergency planners, emergency services, highways authorities, regional flood and coastal committees and internal drainage boards (if relevant) to identify known flood-related site constraints and agree the scope of an FRA.

As well as the FRCC-PPG, the Environment Agency's standing advice should be used at this stage. This can be accessed online:

<http://www.environment-agency.gov.uk/research/planning/82584.aspx>

Also, guidance for completing a FRA as part of a planning application is provided by the Environment Agency via:

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

4. Guidance for Developers

The aim of this section is to provide guidance to developers on using the SFRA. Developers should use the Guidance in the SFRA, NPPF and FRCC-PPG to:

- **Assess whether the site is a**
 - Windfall development, allocated development within the Local Plan, within a regeneration area, single property or change of use.
- **Check whether the Sequential Test and/or the Exception Test have already been applied**
 - Request information from the LPA on whether the Sequential Test or likelihood of the site passing the Exception Test have been assessed;
 - If not, provide evidence to the LPA that the site passes the Sequential Test and will pass the Exception Test.
- **Consult with LPA Development Control, the Environment Agency, the Lead Local Flood Authority and the wider group of flood risk consultees (where appropriate) to scope an appropriate FRA if required. Also consult:**
 - Guidance on FRAs provided in the SFRA;
 - The NPPF and FRCC-PPG;
 - Environment Agency standing advice and advice for planning applications (see links in previous section), CIRIA advice (CIRIA Report C624).
- **Submit FRA to Development Control, Environment Agency, Lead Local Flood Authority (if appropriate) for approval, and other applicable flood risk consultees, where necessary**

4.1 Introduction

The SFRA provides the evidence base for developers to assess flood risk at a strategic level and determine the requirements of an appropriate site-specific FRA.

Developers will need to liaise closely with the LPA in the first instance to determine if a site is suitable for development. If a site is considered suitable then developers should prepare a site-specific FRA considering all sources of flood risk when assessing the suitability of a site. Developers should also refer to Environment Agency online advice for FRAs when applying for planning permission via:

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

4.2 The Sequential Test and Exception Test

These tests should have already been carried out if they are included with the LPA's Local Plan. However, these tests may still be required at an individual site level. Table 0-1 identifies when the Sequential and Exception Tests are required for certain types of development and who is responsible for providing the evidence and those who need to apply the tests.

Development	Sequential Test Required?	Who Applies the Sequential Test?	Exception Test Required?	Who Applies the Exception Test?
Allocated Sites	No (assuming the development type is the same as that submitted via the allocations process)	Local Planning Authorities should have already carried out the test during the allocation of development sites	Dependent on land use vulnerability	Local Planning Authority to advise on the likelihood of test being passed. The developer must also provide evidence that the test can be passed by providing planning justification and producing a detailed Flood Risk Assessment.

Development	Sequential Test Required?	Who Applies the Sequential Test?	Exception Test Required?	Who Applies the Exception Test?
Windfall Sites	Yes	Developer provides evidence, to the Local Planning Authority that the test can be passed. An area of search will be defined by local circumstances relating to the catchment and for the type of development being proposed	Dependent on land use vulnerability	Developer must provide evidence that the test can be passed by providing planning justification and producing a detailed Flood Risk Assessment
Regeneration Sites Identified Within Local Plan	No	-	Dependent on land use vulnerability	Local Planning Authority to advise on the likelihood of test being passed. The developer must also provide evidence that the test can be passed by providing planning justification and producing a detailed Flood Risk Assessment

Development	Sequential Test Required?	Who Applies the Sequential Test?	Exception Test Required?	Who Applies the Exception Test?
Redevelopment of Existing Single Properties	No	-	Dependent on land use vulnerability	Developer must provide evidence that the test can be passed by providing planning justification and producing a detailed Flood Risk Assessment
Changes of Use	No (except for any proposal involving changes of use to land involving a caravan, camping or chalet site)	Developer provides evidence to the Local Planning Authority that the test can be passed	Dependent on land use vulnerability	Developer must provide evidence that the test can be passed by providing planning justification and producing a detailed Flood Risk Assessment

Table 0-1: Development types and application of Sequential and Exception Tests for developers

4.3 Site-specific Flood Risk Assessments

The principal aims of an FRA are to determine the level of flood risk to a site and to confirm that suitable flood management measures can be developed to control flooding, and safeguard life and property, without increasing risk to the surrounding area.

Once the site has been Sequentially Tested and has been identified as being likely to pass the Exception Test, a site-specific FRA should be undertaken. The LPA and EA should be consulted in order to determine the content and scope of the FRA.

The production of a site-specific FRA can be seen as an iterative process by carrying subdividing the FRA into three levels:

- Level 1 is a screening study used to identify whether there are any flood risk issues that need to be considered further;

- Level 2 is a scoping study that should be undertaken if the Level 1 FRA indicates that there are flood risk issues that need further consideration; and
- Level 3 is a detailed study where further quantitative analysis is required to fully assess flood issues and confirm that effective mitigation measures can be implemented to control flood risk and that the second part of the Exception Test can be passed.

It is appropriate to review the level of risk present and assess whether development is appropriate and achievable at each stage of the assessment.

The SFRA is an assessment of flood risk at a strategic level. This information can be used to provide evidence for Level 1 and Level 2 of the FRA. Where a more detailed FRA is required (Level 3), then a developer should undertake a detailed assessment of the flood risk at the site. The scope of the FRA should be agreed by the developer through consultation with the LPA and applicable stakeholders such as the EA, the LLFA and other relevant flood risk consultees.

Significant consultation with the LPA and the flood risk consultees that are relevant to the site may be required for complex development proposals. Complex developments may need to include flood mitigation measures and compensatory storage.

Together with appropriate consultation, accepted FRA guidance should be followed by developers:

- Find out when you need to do an FRA as part of a planning application, how to complete one and how it's processed:
<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>
- What is a site-specific FRA? (Paras 030 - 032 -
<https://www.gov.uk/guidance/flood-risk-and-coastal-change#site-specific-flood-risk-assessment-all>
- FRA checklist: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section>

In summary, the FRA should address the following:

1. Development description and location
 - a. What is the type of development and where will it be located?
 - b. What is the vulnerability classification (Table 2 of FRCC-PPG) of the current and future building use?
 - c. Has the development site been assessed in the SFRA? If so, has the Sequential Test been carried out? Has the Exception Test (if applicable) been applied and passed previously?
2. Access and egress
 - a. Can safe access and egress routes be achieved during a flood event?

- b. Safe access and escape routes should be explicitly identified as part of an agreed emergency plan.
3. Definition of flood hazard
 - a. What are the sources of flooding at the site?
 - b. For each source how would flooding occur? Referencing any historical records
 - c. What existing surface water drainage infrastructure is present on the site? Consultation required with LPA, LLFA, EA and water companies)
4. Probability
 - a. Confirm the Flood Zone designation for the site (refer to the Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/>)
 - b. Determine the actual and residual risks at the site (refer to the SFRA maps and EA modelled depth and hazard information)
 - c. What are the discharge rates and volumes generated by the existing site and proposed development?
5. Climate change
 - a. How is flood risk at the site likely to be affected by climate change?
 - b. Check appropriate allowances:
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>
6. Flood Risk Management measures
 - a. How will the site be protected by flooding, including the potential impacts of climate change, over the lifetime of the development?
7. Residual risks
 - a. What are the consequences to the site of flood defence failure? Breach/overtopping scenarios should be modelled.
 - b. Is there residual risk from reservoirs? If so, how can this be mitigated and does the emergency plan address such risk? Reference the EA's Reservoir Flood Map:
https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=SurfaceWater#Reservoirs_3-ROFR
 - c. Is there residual from canals? If so, how can this be mitigated and does the emergency plan address such risk? Consultation required with the EA, LLFA and Canal & River Trust. Breach/overtopping scenarios should be modelled.
 - d. What flood-related risks will remain after mitigation measures have been implemented?
 - e. How, and by whom, will these risks be managed over the lifetime of the development?

8. Offsite impacts
 - a. How will the proposed development ensure there are no impacts to other development downstream or nearby?
 - b. What measures will be implemented to control surface water runoff?
9. Groundwater
 - a. This mechanism of flooding should be considered particularly when determining the acceptability of SuDS schemes as a way of managing surface water drainage. Developers should consult with the LPA, LLFA and EA at an early stage of the assessment.
10. Sewer systems
 - a. Where the SFRA has identified a risk of surface water flooding, any water that escapes from the sewer system would tend to follow similar flow paths and pond in similar locations. The SFRA should also contain historical evidence to refer to.
 - b. Where required, liaison with the relevant water company should be undertaken at an early stage in the assessment process to confirm localised sewer flooding problems that could affect the site.
 - c. Future development should be designed so that it does not exacerbate existing sewer capacity problems.

5. Guidance for Emergency Planners

This section provides guidance on how Local Authority Emergency Planners can use the outputs of the SFRA to update Multi-agency Flood Plans and provide advice on Flood Plans written by developers for new development.

Emergency Planners should use the guidance in this SFRA, the NPPF and FRCC-PPG to:

- **Update the Local Resilience Forum, including the Community Risk Register and Community Emergency Plan**
 - Using the overall assessment of flood risks provided in the SFRA
- **Provide advice on developer flood plans for new development**
 - Using outputs from the SFRA
 - <https://www.adeptnet.org.uk/floodriskemergencyplan>
- **Raise awareness of flood risk from all sources through the Local Resilience Forum**
 - Using outputs from the SFRA
- **Flood warning and evacuation plans**
 - Using outputs from the SFRA
 - In partnership with the EA. Advice and guidance on plans available from the EA. Plan templates available for businesses and local communities

5.1 Introduction

This section provides guidance on how Local Authority Emergency Planners can use the outputs of the SFRA to update multi-agency flood plans and provide advice on flood plans written by developers for new development.

5.2 Flood Plan Recommendations

The Level 1 SFRA provides a number of flood risk data sources that should be used when producing or updating flood plans. Local Authority Emergency Planners may wish to use the assessment to help them in considering and understanding the possibility, likelihood and spatial distribution of all sources of flooding, including fluvial, surface water and sewer, manmade bodies of

water including canals and reservoirs and groundwater flooding, as discussed in the Level 1 SFRA. This information may support emergency responders in planning for and delivering a proportionate, scalable and flexible response to the level of risk.

Relevant SFRA sections and maps include:

- Understanding the risk from different sources of flooding
- Flood zone maps
- Surface water maps
- Climate change
- Residual risk associated with flood risk management infrastructure
- Flood defence infrastructure
- Reservoir Flood Map
- Groundwater flood map
- Flood warning

Emergency planners should use the data in the SFRA to:

- Consider the need for evacuation plans for existing vulnerable institutions and people in the floodplain and other areas at high flood risk
- Develop appropriate warning and informing strategies
- Consider reviewing and updating safe evacuation routes and access routes for emergency services from any existing area of flood risk to rest centres, avoiding routes that may be flooded
- Review the Cumbria Community Risk Register (CRR)



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Registered Office
1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0)1756 799919
info@jbaconsulting.com
www.jbaconsulting.com
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