

E3: Managing Flood Risk

- 1) To reduce the overall and local flood risk development must be located, designed and laid out to ensure that it is safe (*as defined in PPG Flood Risk and Coastal Change and the Level 1 SFRA*), flood risk is not increased elsewhere) and that residual risks are safely managed. The council would support measures which result in a reduction in flood risk.
- 2) Through the application of the sequential test, new development should be guided to areas of lowest flood risk from all sources¹. Where individual sites contain different levels of flood risk e.g. flood zones, a site-specific sequential approach should be applied to locate the most vulnerable uses in the areas of lowest risk from all sources. The exception test will continue to be applied where national planning policy states that it is necessary.
- 3) All development proposals² are required to demonstrate that they will not result in an increase in surface water run-off from the site ensuring the receiving drainage system is adequate to deal with flows from the site. The Council will expect Sustainable Drainage Systems (SuDS) to be included within the designs to manage surface water drainage and provide multi-functional benefits in accordance with the NPPF, unless it can be demonstrated that they are not appropriate. SuDS should:
 - a) Ensure surface run-off is managed as close to the source as possible and does not increase flood risk elsewhere;
 - b) Be in accordance with the rainwater disposal hierarchy of Building Regulations Part H3 (3);
 - c) In circumstances where it has been proved that infiltration is impractical, ensure discharge of surface water to watercourse/sewer shall not exceed the following peak rates:
 - at pre-development greenfield runoff rates on all new development;
 - as close as reasonably practicable to greenfield run off rates from all other brownfield sites;
 - d) Be designed to be multi-functional and incorporate sustainable drainage into landscaping and public realm, including maximising opportunities to establish surface water ponding areas, urban watercourse buffer areas and multi-use flood storage areas in locations of high surface water flood risk and critical drainage areas to improve flood resilience, amenity and biodiversity;
 - e) Achieve improvements in water quality through a sustainable drainage system management train;
 - f) Be designed with consideration of future maintenance and climate change; and

¹ <https://www.gov.uk/guidance/flood-risk-assessment-the-sequential-test-for-applicants>

² Excluding minor householder such as porches and conservatories

- g) Make improvements in accordance with the Council's most up to date Infrastructure Delivery Plan.
- 4) Development in Flood Zones 2 and 3a³ and on a dry island⁴ will be permitted provided that:
- (a) the vulnerability of the proposed use is appropriate for the level of flood risk on the site (see table below);
 - (b) the proposal passes the sequential and exception test (where required) as outlined in the NPPF and guidance;
 - (c) a site-specific flood risk assessment demonstrates that the development, including the access and egress, will be safe for its lifetime (taking into account the appropriate climate change allowance) without increasing flooding elsewhere⁵, and will, where possible, reduce flood risk overall;
 - (d) safe access and egress⁶ is demonstrated for all developments including residential development of one or more net additional units⁷;
 - (e) the scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character of the area⁸ and;
 - (f) applications include appropriate flood warning and evacuation⁹ and site drainage systems take account of storm events and flood risk of up to 1% annual probability or 1 in 100 year event with an appropriate allowance for climate change.
- 5) Applications must be supported by Flood Risk Assessments where appropriate¹⁰ that demonstrate the development will be safe, not increase flood risk elsewhere, and maximise opportunities to reduce flood risk from all sources.

³ As identified on the latest Environment Agency flood risk maps and the Council's latest Strategic Flood Risk Assessment

⁴ Defined in SFRA as Dry islands: The extensive area of floodplain within Spelthorne is relatively flat; however, there are certain areas of slightly higher ground which are less prone to flooding than the land around them. During times of flood it is possible that all the land surrounding these areas becomes flooded, resulting in this higher area becoming a 'dry island'. During prolonged periods of flooding it may prove difficult to provide resources and emergency services to those living in these areas. In order to reduce the flood risk, these 'dry islands' should be treated the same as for the level of flood risk in the area surrounding them, regardless of their size. When contemplating development, it is important to study the wider area of the flood map to ensure that there is a dry route to a point outside the floodplain

⁵ As set out in the Planning Practice Guidance (para 49) "Where flood storage from any source of flooding is to be lost as a result of development, on-site level-for-level compensatory storage, accounting for the predicted impacts of climate change over the lifetime of the development, should be provided.

⁶ See Flood risk and coastal change section of the Planning Practice Guidance and section 6.2 of the Spelthorne SFRA Level 1 for more information of safe access and egress.

⁷ Not required for residential extensions or replacement dwellings

⁸ Please refer to section 5.8 of SFRA Level 1 which covers measures to control and mitigate flood risk. Section 5.8 specifically addresses flood resilience and resistance measures.

⁹ <https://www.gov.uk/government/publications/personal-flood-plan>

¹⁰ See NPPF (2021) footnote 59

1 in 30 year – Flood Zone 3b

- 6) Within the 1 in 30 year¹¹ (Flood Zone 3b or functional floodplain, which includes, but is not limited to, the 3.3% annual probability extent¹²;
- (a) the provision of essential infrastructure should be avoided but will be considered if demonstrated to pass the exceptions test. Essential infrastructure should be designed and constructed to:
 - i) remain operational and safe for users in times of flood
 - ii) result in no net loss of floodplain storage
 - iii) not impede water flows and not increase flood risk elsewhere
 - (b) change of use to a higher vulnerability classification will not be permitted;
 - (c) extensions or re-development of buildings may be considered, subject to the following:
 - i) the footprint of the building should not be increased unless level for level floodplain compensatory storage can be provided,
 - ii) finished floor levels shall not be lower than the existing and where possible they should be raised¹³;
 - iii) surface water runoff rates and volumes from the site should be reduced;
 - iv) where possible, floodplain storage capacity should be increased and space created for flooding to occur by restoring functional floodplain;
 - v) flood resistance and resilience measures¹⁴ be incorporated and;
 - vi) inclusion of measures to ensure development remains safe for users in time of flood¹⁵.
 - (d) Extent basements, basement extensions, conversions of basements to a higher vulnerability classification are not permitted¹⁶.
- 7) Schemes which deliver a betterment will be supported, subject to consultation with the Environment Agency where required, and meeting other policy requirements of the Plan.

River Thames Scheme

- 8) The Council supports proposals for strategic flood relief measures, including the proposed flood channel through the Borough as part of the River Thames Scheme. The proposed route

¹¹ Existing infrastructure or solid buildings that resist water ingress are not included within the definition of Flood Zone 3b Functional Floodplain and the associated planning requirements do not apply.

¹² The definition of FZ3b being used by Spelthorne is broader than the 3.3% annual probability event, it includes the use of the 2% annual probability event for the River Colne. *Where a watercourse does not have modelling available for the 1 in 30 year (3.3% annual probability) flood event, a conservative approach should be applied and the extent of Flood Zone 3 used to define Flood Zone 3b, until such a time as modelling is available.*

Any areas designed to flood (e.g. flood storage areas) should also be included in the definition of FZ3b in accordance with Planning Practice Guidance, Flood Risk and Coastal Change

¹³ The applicant must provide a written justification of why it is not possible for the extension/redevelopment to raise the floor level

¹⁴ Section 5.8 of Level 1 SFRA explains flood resilience measures

¹⁵ This may incorporate the timely evacuation of properties prior to the onset of flooding in accordance with an individual Flood Warning and Evacuation Plan for the site).

of the channel and the land adjacent to it, as shown on the Policies Map will be safeguarded for this purpose¹⁷.

Definitions

- 13.1 Different areas of flood risk in Spelthorne Borough are determined by definitions contained within national planning practice guidance and the Council's Strategic Flood Risk Assessment (Level 1).
- Flood resistance: Flood-resistant construction can prevent entry of water or minimise the amount that may enter a building where there is short duration flooding outside with water depths of 0.6 metres or less. This form of construction should be used with caution and accompanied by resilience measures, as effective flood exclusion may depend on occupiers ensuring some elements, such as barriers to doorways are put in place and maintained in a good state.
 - Flood resilience: Flood-resilient buildings are designed and constructed to reduce the impact of flood water entering the building so that no permanent damage is caused, structural integrity is maintained, and drying and cleaning is easier and the building can be re-occupied more quickly.
- 13.2 Planning Practice Guidance¹⁸ states that flood resistance and resilience measures should not be used to justify development in inappropriate locations.

Flood Zones (source Planning Practice Guidance Flood risk and coastal change)

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% /1 in 1,000) annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% (1 in 100 and 1 in 1,000) annual probability of river flooding; or land having between a 0.5% and 0.1% (1 in 200 and 1 in 1,000) annual probability of sea flooding.
Zone 3a High Probability	Land having a 1% (1 in 100) or greater annual probability of river flooding; or land having a 0.5% (1 in 200) or greater annual probability of sea flooding.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: <ul style="list-style-type: none">• land having a 3.3% or greater annual probability of

¹⁷ As set out in para 161 (b) of the NPPF 2021.

¹⁸ Updated 25 August 2022

	<p>flooding, with any existing flood risk management infrastructure operating effectively; or</p> <ul style="list-style-type: none"> land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.</p>
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- 13.3 Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) available on the Environment Agency's website, do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the [Strategic Flood Risk Assessment](#) when considering location and potential future flood risks to developments and land uses.

Flood Resistance

- 13.4 Flood resistance measures aim to keep water out and give occupants time to relocate ground floor contents. There are a range of flood protection devices/methods including:

- Using materials and construction with low permeability
- Landscaping e.g. creation of low earth bunds (subject to this not increasing flood risk elsewhere)
- Raising thresholds and finished floor levels (See 13.1 and Planning Practice Guidance) e.g. porches with higher thresholds than main entrance
- Flood gates with waterproof seals
- Sump and pump for floodwater to remove waste water faster than it enters
- Door guards and airbrick covers

Flood Resilience

- 13.5 Flood resilience measures are designed to allow water in but to limit damage and allow rapid re-occupancy. There are a range of options:

- Use materials with either good drying and cleaning properties, or, sacrificial materials that can easily be replaced;
- Design for water to drain away;
- Design access to all spaces to permit drying and cleaning;
- Raise the level of electric wiring, appliances and utility metres (0.1m above flood level);
- Ground supported floors with concrete slabs coated with impermeable membrane;
- Tank basements, cellars and ground floors with water resistant membranes; and
- Plastic water resistant internal doors.

Flood Zone 3b Functional Floodplain

- 13.6 The definition of Flood Zone 3b Functional Floodplain for Spelthorne Borough Council is set out in the Strategic Flood Risk Assessment (SFRA) Level 1 document, which can be found on the Council website. It includes all buildings which have not been designed to exclude floodwater and do not resist water ingress, such as garages and warehouses, as well as roads, other linear features and other areas for car parking or recreational use which may provide important flow routes and flood storage functionality.
- 13.7 The definition of FZ3b being used by Spelthorne is set out in the Strategic Flood Risk Assessment (SFRA) Level 1 document, which can be found on the Council website. It is broader than the 3.3% annual probability event, it includes the use of the 2% annual probability event for the River Colne. Any areas designed to flood (e.g. flood storage areas) should also be included in the definition of FZ3b in accordance with Planning Practice Guidance, Flood Risk and Coastal Change. *Where a watercourse does not have modelling available for the 1 in 30 year (3.3% annual probability) flood event, a conservative approach should be applied and the extent of Flood Zone 3 used to define Flood Zone 3b, until such a time as modelling is available.*

13.8

Flood Risk Vulnerability and Flood Zone 'incompatibility' (Source: PPG)

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compat
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Notes

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to those developments set out in [National Planning Policy Framework footnote 56](#). The Sequential and Exception Tests should be applied to 'major' and 'non major' development;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

“+” In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

“*” In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

Reasoned Justification

- 13.9 In Spelthorne there are areas within the 1 in 30 (Flood Zone 3b or functional floodplain, which includes, but is not limited to, the 3.3% annual probability extent¹⁹) or greater flood extent that are already developed and are prevented from flooding by the presence of existing infrastructure or solid buildings. Whilst these areas may be subject to frequent flooding, it may not be practical to refuse all future development. As such, and in accordance with the PPG, in some instances the Council will consider existing building footprints, where they can be demonstrated to exclude floodwater, not to be defined as Flood Zone 3b Functional Floodplain.
- 13.10 The approach the Council will take to development within the 1 in 30 year (Flood Zone 3b or functional floodplain, which includes, but is not limited to, the 3.3% annual probability extent) flood outline recognises the importance of pragmatic planning solutions that will not unnecessarily 'blight' areas of existing development, the importance of the undeveloped land surrounding them and the potential opportunities to reinstate areas which can operate as functional floodplain through redevelopment to provide space for floodwater and reduce risk to new and existing development.

¹⁹ The definition of FZ3b being used by Spelthorne is broader than the 3.3% annual probability event, it includes the use of the 2% annual probability event for the River Colne. *Where a watercourse does not have modelling available for the 1 in 30 year (3.3% annual probability) flood event, a conservative approach should be applied and the extent of Flood Zone 3 used to define Flood Zone 3b, until such a time as modelling is available.* Any areas designed to flood (e.g. flood storage areas) should also be included in the definition of FZ3b in accordance with Planning Practice Guidance, Flood Risk and Coastal Change

- 13.11 The consideration of whether a building resists water ingress will be considered on a case-by-case basis as part of the planning application process, having regard to the presence of existing buildings on the site and the existing routing of floodwater through the site during times of flooding.

Key Evidence

- Local Flood Risk Management Strategy (Surrey County Council, 2017)
([Surrey Local Flood Risk Management Strategy - Surrey County Council](#))
- Level 1 Strategic Flood Risk Assessment (Spelthorne Borough Council, October 2024)
- Level 2 Strategic Flood Risk Assessment (Spelthorne Borough Council, October 2024)
- Spelthorne Water Cycle Study (Spelthorne Borough Council, 2019)
- [Sustainable Drainage System Design Guidance - Surrey County Council](#)
- [Non-Major Sustainable Drainage System Design Guidance - Surrey County Council](#)