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Cotswold Level 1 Strategic Flood Risk Assessment

Final Report

Prepared for	Date
Cotswold District Council	June 2026

COTSWOLD
District Council

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Contract

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This report describes work commissioned by Cotswolds District Council by an instruction dated 23 December 2025. The Client's representative for the contract was Joanne Corbett of Cotswold District council. Kira Khangura and Laura Thompson of JBA Consulting carried out this work.

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between December 2025 and June 2026 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Acknowledgements

We would like to acknowledge the assistance of the Environment Agency, Severn Trent Water, Thames Water, Wessex Water, South Oxfordshire District Council, South

Gloucestershire Council, Stroud District Council, Vale of White Horse District Council, Wiltshire District Council and Wychavon District Council.

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Abbreviations

ADEPT	Association of Directors of Environment, Economy, Planning & Transport
AEP	Annual Exceedance Probability
AIMS	Asset Information Management System
BNG	Biodiversity Net Gain
CaBA	Catchment Based Approach
CC	Climate Change
CDA	Critical Drainage Area
CIA	Cumulative Impact Assessment
CIL	Community Infrastructure Levy
CIRIA	Construction Industry Research and Information Association
DCG	Design and Construction Guidance
Defra	Department for Environment, Food and Rural Affairs
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
FAA	Flood Alert Area
FCERM	Flood and Coastal Erosion Risk Management
FFL	Finished Floor Level
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
FWA	Flood Warning Area
FWMA	Flood and Water Management Act
FWS	Flood Warning System
GCC	Gloucestershire County Council
GI	Green Infrastructure
GSPZ	Groundwater Source Protection Zone
IDB	Internal Drainage Board
JBA	Jeremy Benn Associates
LFRMS	Local Flood Risk Management Strategy
LiDAR	Light Detection and Ranging
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
mAOD	metres Above Ordnance Datum
NFM	Natural Flood Management
NPPF	National Planning Policy Framework

NVZ	Nitrate Vulnerable Zone
PPG	Planning Practice Guidance
RMAs	Risk Management Authorities
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SHELAA	Strategic Housing and Economic Land Availability Assessment
SoP	Standard of Protection
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan

Definitions

1D model: One-dimensional hydraulic model.

2D model: Two-dimensional hydraulic model.

Annual Exceedance Probability: The probability (expressed as a percentage) of a flood event occurring in any given year.

Brownfield: A previously developed parcel of land.

Climate change: Long term variations in global temperature and weather patterns caused by natural and human actions.

Design flood: A flood event of a given annual flood probability, which is generally taken as: fluvial (river) flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), or surface water flooding likely to occur with a 1% annual probability (a 1 in 100 change each year), plus an appropriate allowance for climate change, against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Flood defence: Infrastructure used to protect an area against floods such as floodwalls and embankments; they are designed to a specific Standard of Protection (SoP) (design standard).

Green infrastructure: A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity.

Greenfield: An undeveloped parcel of land.

Lead Local Flood Authority: The unitary authority for the area or if there is no unitary authority, the County Council for the area.

Main river: A watercourse shown as such on the statutory main river map held by the Environment Agency (EA). They are usually the larger rivers and streams. The EA has permissive powers (not duties) to carry out maintenance and improvement works on main rivers).

Major development: Defined in the National Planning Policy Framework (NPPF) as a housing development where 10 or more homes will be provided, or the site has an area of 0.5 hectares or more, or as a non-residential development with additional floorspace of 1,000m² or more, or a site of 1 hectare or more, or as otherwise provided in the Town and Country Planning (Development Management Procedure) (England) Order 2015 (gov.uk).

Natural Flood Management (NFM): Techniques that work with nature to reduce the risk of flooding for communities.

Ordinary watercourse: Any river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows but which does not form part of a

main river. The local authority or Internal Drainage Board (IDB) has permissive powers (not duties) on ordinary watercourses.

Permissive powers: Authorities have the power to undertake flood risk management activities, but not a duty to do so. This will depend on priorities in flood risk management.

Return period: An estimate of the interval of time between events of a certain intensity or size, in this instance it refers to flood events. It is a statistical measurement denoting the average recurrence interval over an extended period of time.

Riparian owner: A riparian landowner, in a water context, owns land or property, next to a river, stream or ditch.

Risk Management Authority (RMA): The EA; a Lead Local Flood Authority; a District Council in an area where there is no unitary authority; an internal drainage board; a water company and a highway authority.

Risk: In flood risk management, risk is defined as a product of the probability or likelihood of a flood occurring, and the consequence of the flood.

Stakeholder: A person or organisation affected by the problem or solution or interested in the problem or solution. They can be individuals or organisations, includes the public and communities.

Sustainable Drainage Systems (SuDS): Methods of management practices and control structures that are designed to drain surface water in a more sustainable manner than some conventional techniques, such as grates, gullies, and channels.

Windfall site: A site which becomes available for development unexpectedly and therefore not included as allocated land in a planning authority's Local Plan.

Executive Summary

This report provides a comprehensive and robust evidence base on flood risk issues to support the development of planning policies for the new Local Plan for Cotswold District. This report uses the best available information, including input from key stakeholders. The SFRA applies the latest national planning policy and guidance, including:

- National Planning Policy Framework (NPPF) (gov.uk), last updated in February 2025.
- Planning Practice Guidance (PPG): Flood risk and coastal change (gov.uk) updated in September 2025.
- The latest Environment Agency climate change guidance (gov.uk) (updated in July 2021 and May 2022).
- The Environment Agency 'How to prepare a strategic flood risk assessment' (gov.uk) guidance, last updated in August 2025.
- The Association of Directors of Environment, Economy, Planning & Transport (ADEPT) 'Strategic flood risk assessment good practice guidance' (adeptnet.org.uk).

Introduction

To support the development of the new Local Plan for Cotswold District Council (referred to hereafter as the Council), the key objectives of the assessment are:

- To collate and analyse the latest available information and data for current and future (i.e., climate change) flood risk from all sources, and how these risks may be mitigated against.
- To inform decisions in the new Local Plan, including informing the sustainability appraisal, the selection of development sites, and planning policies.
- To provide evidence to support the application of the Sequential Test for the allocation of new development sites, to support the Council in the preparation of the new Local Plan.
- To provide a comprehensive set of maps presenting flood risk from all sources that can be used as evidence base for use in the new local plan.
- To help decide when a Flood Risk Assessment (FRA) will be required for individual planning applications.
- To provide advice for applicants carrying out site-specific FRAs, including those at risk from sources other than river flooding, or at risk of flooding in the future due to climate change, and outline specific measures or objectives that are required to manage flood risk.
- To provide the basis for applying the Sequential Test on planning applications, including by identifying sources of flooding other than those in ‘Flood Zones’ and those at risk of flooding in the future.

- To identify opportunities to reduce the causes and impacts of flooding and gather information on the land that is likely to be required for flood risk management structures.

Summary of Cotswold and flood risk

Cotswold administrative area is situated in the south of England within the county of Gloucestershire. Over 90,800 people live in the Cotswold administrative area, according to the 2021 Census. The area covers approximately 1,165km^2 of land, it is rural and sparsely populated, with numerous villages and hamlets. The largest town is Cirencester and is home to approximately 22% of the population of the district.

Flood risk from all sources has been assessed in this SFRA. This study has shown that the most significant sources of flood risk across Cotswold are fluvial and surface water. The points below summarise the findings:

Fluvial: The majority of fluvial risk comes from the River Churn which flows through Cirencester and South Cerney. There is also fluvial flood risk along the River Thames and the River Coln along the southern border of the district. Fluvial flood risk is discussed in Section 4.4.1 and the flood extents are shown in the interactive GeoPDF mapping (Appendix B)

Surface Water: The Environment Agency's (EA) Risk of Flooding from Surface Water (RoFSW) highlights several communities in the district at risk from surface water flooding. Areas to the north of the district appear at highest risk of surface water flooding, including Chipping Campden, Moreton-in-Marsh, Evenlode and Bourton-on-the-Water. Other key areas of risk are present in the south of the district, most notably Cirencester, Down Ampney, South Cerney and Lechlade on Thames. Surface water flood risk is discussed in Section 4.5 and the flood extents are shown in the interactive GeoPDF mapping (Appendix B)

Climate Change: Areas at risk of flooding today are likely to be at increased risk in the future and the frequency of flooding will also increase in such areas, due to climate change. Flood extents will increase; in some locations this may be minimal, but flood depth, velocity and hazard may have more of an impact due to climate change. This SFRA provides an assessment of the impacts of climate change on fluvial and surface water flood risk. The approach to climate change is discussed in Section 5 and the flood extents are also shown in the interactive GeoPDF mapping in Appendix B.

Sewer: Thames Water, Wessex Water and Severn Trent Water provide water and sewerage services across the district and have provided details of historic sewer flooding Sewer flood risk is discussed in Section 4.6.

Groundwater: The risk of groundwater emergence within Cotswold is varied. There are several areas shown in the JBA Groundwater Emergence Map where groundwater levels are either at or very near the ground surface, as detailed in Section 4.7 and shown in the interactive GeoPDF mapping in Appendix B.

There is no national risk-based groundwater flood dataset of a suitable resolution to inform the areas at risk from groundwater flooding; however, emergence mapping when considered in conjunction with topography and surface water flow paths can indicate areas where groundwater is likely to emerge, and the flow paths it may take once above the ground.

Reservoirs: There are 10 reservoirs located outside Cotswold, which present a potential risk of flooding within the district. The level and standard of inspection and maintenance required under the Reservoirs Act means that the risk of flooding from reservoirs is relatively low. However, there is a residual risk of a reservoir breach, and this risk should be considered in any site-specific FRAs (where relevant) in accordance with the updated PPG: Flood risk and coastal change. Reservoir flood risk is discussed in Section 4.8.1 and flood extents are shown in the interactive GeoPDF mapping in Appendix B.

Defences

The EA Asset Information Management System (AIMS) dataset provides information on flood defence assets across Cotswold. The majority of flood defences within Cotswold District are present along the River Windrush, River Leach, River Coln and River Churn, as flood embankments and walls. Further information on defences across Cotswold is available in Section 6 and is shown in the interactive GeoPDF mapping in Appendix B.

How to use this report

The SFRA provides recommendations regarding all sources of flood risk across the district, which can be used to inform policy on flood risk within the new Local plan. This includes how the cumulative impact of development should be considered.

It provides the latest flood risk data and guidance to inform the Sequential Test, for both allocations and individual planning applications and provides guidance on how to apply the Exception Test.

This SFRA is a strategic assessment of flood risk and does not replace the need for site-specific FRAs, where required. The SFRA provides guidance for the development industry and development management officers to establish when an FRA is required and to assess whether site-specific FRAs meet the required quality standard (Section 7). This should be used alongside the EA's FRA Guidance (gov.uk). The SFRA can be used to help identify which locations and developments may require emergency planning provision.

The SFRA will also be helpful for developing community level flood risk policies in high flood risk areas. Similarly, all known available recorded historical flood events across the district are listed in Section 4.3. This can be used to supplement local knowledge regarding areas worst hit by flooding. Ongoing and proposed flood alleviation schemes planned within the district are outlined in Section 6.5 and Section 8 discusses mitigations, resistance and resilience measures which can be applied to alleviate flood risk to an area.

Table 1-1 sets out the contents of the SFRA and how users should use the information provided through the document and appendices.

Mapping

The SFRA mapping in Appendix B highlights on a strategic scale flood risk from fluvial, surface water and reservoirs sources, and where groundwater emergence may occur; as well as where the effects of climate change are most likely. The mapping also shows the location of raised flood defences, flood warning and alert areas and locations where there is the potential for NFM to be implemented. The maps are useful to provide a community level view of flood risk but may not identify if an individual property is at risk of flooding or depict small scale changes in flood risk. Local knowledge of flood mechanisms will need to be included to complement this mapping.

The mapping data should always be supplemented by direct consultation with the relevant wastewater company to ascertain if there is any site-specific risk from a public sewer. This is because sewer flood risk information is not publicly available and would need to be considered on a site-specific basis.

1 Introduction

1.1 Purpose of a Strategic Flood Risk Assessment (SFRA)

Cotswold District Council (referred to hereafter as the Council) acts as the Local Planning Authority (LPA). In its role as LPA, the Council is responsible for producing a Local Plan, determining planning applications, enforcement in response to breaches of planning control, and supporting neighbourhood planning.

As set out in the National Planning Policy Framework (NPPF), 2025 (Paragraph 171) "*Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards*."

This SFRA will form a key part of the evidence base for the Council's new Local Plan and will inform future planning decisions. It will be used to assist in the formulation of land allocations for development and specific policies in relation to water management and adapting to climate change.

1.2 Relevance of the SFRA

The 'How to prepare a Strategic Flood Risk Assessment guidance', 2025 (gov.uk) sets out the requirements that the LPA must address within their SFRA and has been used to undertake this Level 1 SFRA.

This Level 1 SFRA has been developed using the best available information, supplied at the time of preparation. Appendix G details the information supplied and included in the Level 1 SFRA. Over time, new and updated information will become available to inform planning decisions:

- The Environment Agency (EA) regularly reviews and updates its hydrology, hydraulic modelling, and flood risk mapping.
- The EA published the national flood risk assessment 2 mapping (NaFRA2) and national coastal erosion risk mapping (NCERM). Regular updates to flood risk information datasets are ongoing.
- Other datasets used to inform this SFRA may also be updated periodically and following the publication of this SFRA, new information on flood risk may be provided by other Risk Management Authorities (RMAs).

The SFRA should be a live document that is easily updateable to reflect the latest information. Links have been provided for relevant guidance documents and policies published by RMAs such as Gloucestershire County Council (GCC) in its role as the Lead Local Flood Authority (LLFA) and the EA. When considering this Level 1 SFRA to help prepare site specific flood risk assessments (FRA), it is important to check with the source organisation that the most up to date information is used.

As the data available for SFRAs and the relevant legislation is continually changing, the SFRA should be updated to reflect changes where applicable and reasonably practicable. Under any changes in guidance or legislation, the implications on the SFRA should be considered and a review undertaken where this is deemed necessary.

1.3 Levels of SFRA

The PPG: Flood risk and coastal change (gov.uk) identifies two levels of SFRA.

Level 1 SFRAs are high-level strategic documents and do not go into detail on an individual site-specific basis. Where potential site allocations are not at major flood risk and where development pressures are low, a Level 1 assessment may be sufficient, without the LPA needing to progress to a more detailed Level 2 assessment. The Level 1 assessment should be of sufficient detail to enable application of the Sequential Test, to inform the allocation of development to areas of lower flood risk.

A Level 2 assessment is required where land outside flood risk areas cannot appropriately accommodate all necessary development, creating the need to apply the NPPF's Exception Test if relevant, or if the LPA believe they may receive high numbers of applications in flood risk areas on sites not identified in the Local Plan. In these circumstances the assessment should consider the detailed nature of the flood characteristics from all sources, both now and in the future.

This report and associated appendices fulfil the requirements of a Level 1 SFRA.

1.4 Local Plan area

Cotswold District Council administrative area is situated in the south of England within the county of Gloucestershire. The south of the district is bordered by Wiltshire whilst the east borders the West Oxfordshire district. Stratford-upon-Avon and Wychavon districts border the north whilst Tewkesbury, Stroud and Cheltenham districts border the west. Over 90,800 people live in the Cotswold administrative area, according to the 2021 Census. Cotswold is a largely rural district covering 1,165 km^2. The largest town is Cirencester and is home to approximately 22% of the population of the district with numerous villages and hamlets located across the district.

The landscape is exceptionally distinctive. The Cotswolds National Landscape (CNL) (formerly known as the Cotswolds Area of Outstanding Natural Beauty (AONB)) is a national designation which affords the highest level of landscape protection and covers nearly three quarters of the district. In addition, there are locally designated Special Landscape Areas and the Cotswold Lakes (formerly known as the Cotswold Water Park), internationally important for its nature conservation. Coupled with this natural beauty the district has an abundance of built heritage and archaeology, creating a unique 'Cotswold Character'. The district has many listed buildings and a significant number of conservation areas. Several parks are listed on the English Heritage list of historic parklands. The district also has 238 scheduled ancient monuments.

The main river catchment is the Thames catchment which extends over an area of almost 13,000 km^2. The topography of the catchment is characterised by rural landscapes, rolling hills and wide, flat river floodplains with the east comprising a significantly more urban environment. The west of the district is comprised of hilly, upland areas. The nature of the topography indicates a faster, 'flashy' system in the uplands with water levels and flows responding to rainfall in a shorter time. In contrast, the flatter lower-lying parts of the lower catchment show slower responses.

The Thames is a 346-kilometre-long watercourse, rising in the west in Gloucestershire, flowing through the Cotswold district, Oxfordshire and Buckinghamshire. The River Thames has its source upstream of Kemble and continues as an ordinary watercourse in the Cotswold district at Thames Head (ST 9804 9947), very soon being classed as a main river less than 1km downstream. The river then flows through Greater London, with the channel becoming more artificially engineered and straightened, before reaching the Thames Estuary to the east. The Thames has a number of tributaries in its upstream phase that have the potential to be a source of risk for settlements within the Cotswolds, including the River Churn, River Coln, and Ampney Brook.

The River Churn flows through Cirencester, where it is the main source of flood risk to properties and roads in Cirencester, South Cerney and Siddington. Historical blockage of culverts on the River Churn in the Spitalgate Lane area may have contributed to fluvial flood risk in the past. The River Churn is also recorded to have flooded several residential properties at Watermoor, South Cerney and Cerney Wick.

The River Coln rises as several minor rivers in the hills north of Withington. It is classed as a main river from Chedworth Woods onwards. From here it winds its way south eastwards through Bibury, Coln St Aldwyns and Fairford and past the Cotswold Water Park before flowing into the River Thames. The main areas described as being at risk in Fairford are Milton Street and the A417.

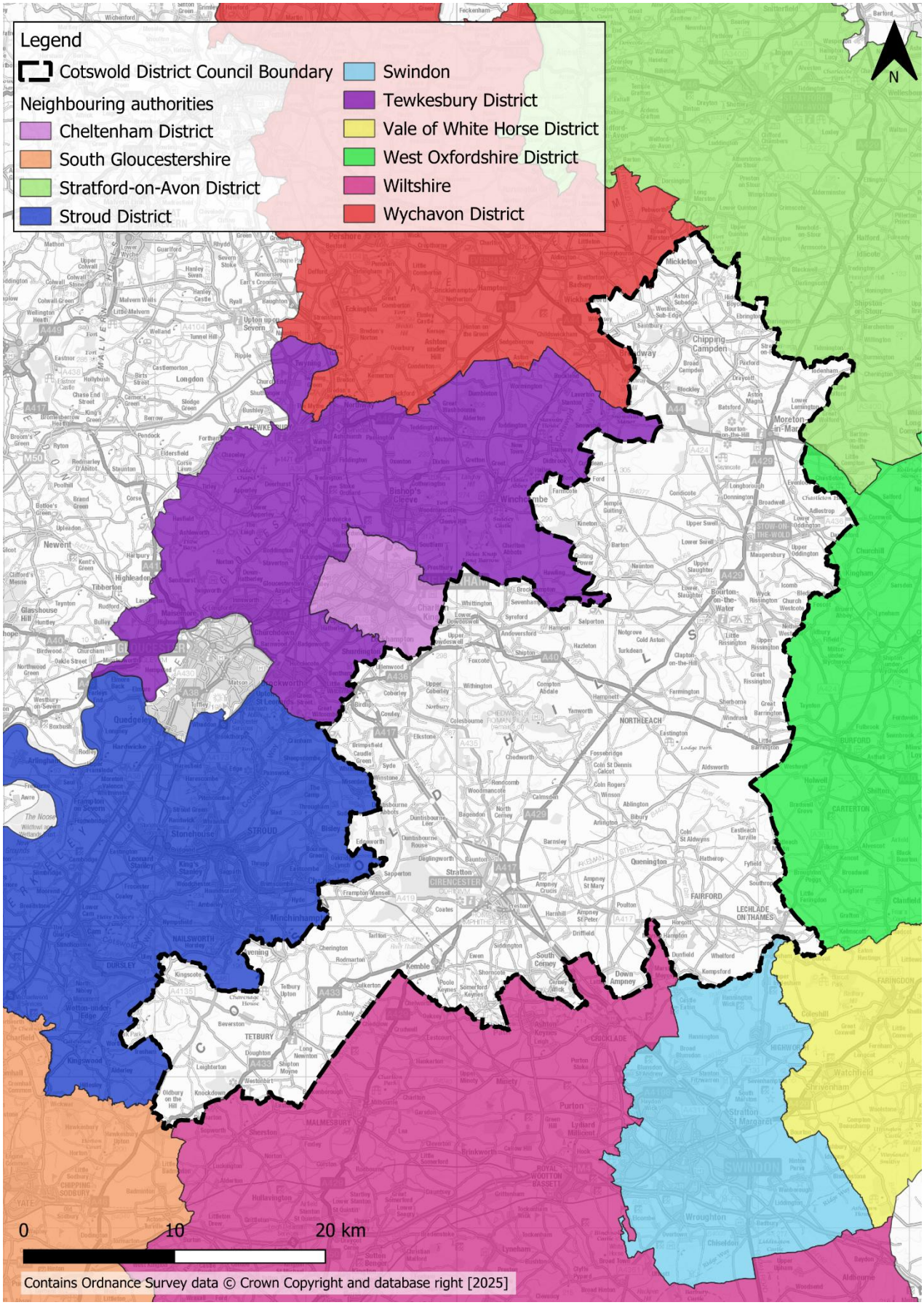


Figure 1-1: Cotswold District and its neighbouring authorities

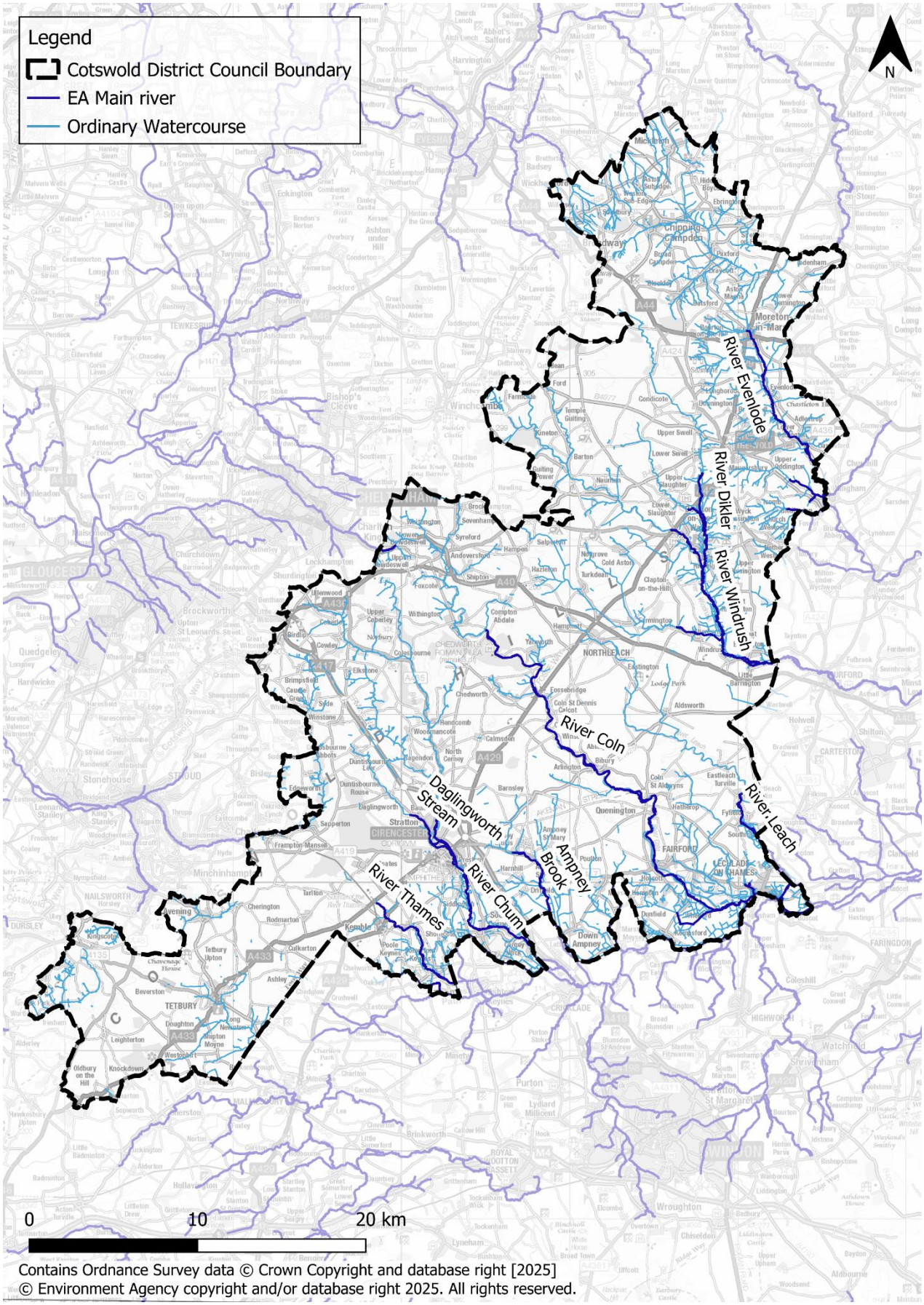


Figure 1-2: Main rivers and other watercourses across Cotswold

1.5 Consultation

SFRAs should be prepared in consultation with other Risk Management Authorities (RMAs). In addition to the LPA the following parties have been consulted during the preparation of the Level 1 SFRA through data requests and draft report reviews:

- Environment Agency
- Lead Local Flood Authority (Gloucestershire County Council)
- Severn Trent Water
- Thames Water
- Wessex Water
- Stratford-on-Avon District Council
- Wychavon District Council
- Tewkesbury Borough Council
- Cheltenham Borough Council
- Stroud District Council
- South Gloucestershire Council
- Wiltshire Council
- Swindon Borough Council
- Vale of White Horse District Council
- West Oxfordshire District Council

The 'How to prepare a Strategic Flood Risk Assessment guidance' (gov.uk) also recommends consultation with:

- Emergency planners
- Emergency services
- Reservoir owners or undertakers
- Highways authorities (National Highways and Gloucestershire County Council)
- Catchment partnerships (Section 12.1)
- Regional flood and coastal committees (Wessex Regional Flood and Coastal Committee)

1.6 Structure of this report

Table 1-1 sets out the contents of this Level 1 SFRA report and appendices, and how to use each section.

Table 1-1: Content of this Level 1 SFRA report

Section	Contents	How to use
Executive summary	This section focuses on how the SFRA can be used by planners, developers, and neighbourhood planners.	Users should refer to this section for a summary of the Level 1 findings and recommendations.
1. Introduction	This section provides a background and context to the study and the Local Plan Area. It also details the organisations involved in the SFRA.	Users should refer to this section for general information and context.
2. Policy and strategy for flood risk management	This section sets out the relevant legislation, policy, and strategy for flood risk management at a national, regional, and local level.	Users should refer to this section for any relevant policy which may underpin strategic or site-specific assessments.
3. Sequential and Exception Tests	This section provides an overview of national planning policy, application of the sequential approach, and the Sequential/Exception Test process. It provides guidance for the Council and developers on the application of the Sequential and Exception Test for both allocations and windfall sites, at allocation and planning application stages.	Users should use this section to understand and follow the steps required for the Sequential and Exception Tests.
4. Understanding flood risk	This section introduces the concept of flood risk and provides an overview of the local characteristics of flooding affecting Cotswold and key risks including historical flooding incidents and flood risk from all sources, as well as characteristics that influence flood risk including topography, geology and soils.	This section should be used to understand all sources of flood risk across Cotswold including where has flooded historically.

Section	Contents	How to use
5. Impact of climate change	This section outlines the latest climate change guidance published by the EA and how this was applied to the SFRA. It also sets out how developers should apply the guidance to inform site-specific FRAs.	This section should be used to understand the climate change allowances for a range of epochs and conditions, linked to the vulnerability of a development.
6. Flood risk infrastructure	This section provides a summary of current flood defences and asset management and future planned schemes.	This section should be used to understand if there are any defences or flood schemes in a particular area, for further detailed assessment at site specific stage.
7. Flood risk management requirements for developers	This section contains guidance for developers on FRAs, considering flood risk from all sources, and principles of managing flood risk in developments.	Developers should use this section to understand requirements for FRAs and what conditions/guidance documents should be followed, as well as mitigation options.
8. Principles for site design and master planning	This section contains guidance for developers on principles of managing flood risk in developments through site design and master planning.	Developers should use this section to understand what should be considered within the site design and master planning stages of a development.
9. Surface water management and SuDS	This section provides an overview of SuDS, including signposting to relevant guidance, as well as guidance for developers on surface water drainage strategies, considering any specific local standards and guidance for SuDS from the LLFA.	Developers should use this section to understand what national, regional, and local SuDS standards are applicable. Hyperlinks are provided.
10. Flood warning and emergency planning	This section provides an overview of the requirements for emergency plans, include any local emergency planning arrangements, and an overview of the available flood alerts and warnings.	Developers should use this section to understand requirements for emergency planning.

Section	Contents	How to use
11. Cumulative Impact Assessment	This section details the cumulative impact assessment, which identifies which catchments are most likely to be sensitive to increased flood risk as a result of future development.	Planners should use this section to help develop policy recommendations for the potential cumulative impacts of development.
12. Strategic flood risk solutions	This section sets out wider strategic solutions that may offer potential to reduce flood risk across Cotswold, including natural flood management. It also details current partnership working opportunities within Cotswold.	Planners should use this section to help develop policy recommendations for strategic flood risk solutions to reduce flood risk across Cotswold, with a particular emphasis on natural flood management and nature-based solutions. Developers should use this section to consider options for strategic solutions and natural flood management techniques and nature-based solutions.
13. Summary, recommendations and next steps	This section outlines planning policy recommendations. It also sets out the recommended next steps and potential future work.	Developers and planners should consider the recommendations made in this section. Developers should refer to the Level 1 SFRA recommendations when considering site specific assessments.
Appendix A	Provides a background to the flood risk policy documents that are relevant to the authority area.	Planners and developers should use this appendix, in conjunction with Section 2 of this report, to understand the relevant flood and water management policy and guidance for development.
Appendix B	Provides the flood risk mapping for the SFRA.	Planners and developers should use these maps to identify key areas of flood risk from different sources.
Appendix C	Technical note explaining the methodology behind the delineation of the functional floodplain (Flood Zone 3b)	Planners and developers should use this appendix to understand the datasets used to

Section	Contents	How to use
	and future functional floodplain for this Level 1 SFRA.	inform the functional floodplain extents.
Appendix D	Excel spreadsheet containing an assessment of flood risk to the potential development allocations based on all available sources of flood risk including for climate change where available. Each potential allocation is assigned a strategic recommendation based on risk and vulnerability.	Planners should use this appendix to understand the level of risk to each potential allocation and associated recommendations for development. Planners should use this appendix to assist in the application of the Sequential Test for Local Plan preparation.
Appendix E	Summarises the outcomes of the sites assessment process recorded in Appendix D.	Planners and developers should use this appendix to understand the level of risk to each potential allocation and associated recommendations for development. Planners should use this appendix to assist in the application of the Sequential Test for Local Plan preparation.
Appendix F	Details the methodology and results for the cumulative impact assessment.	Planners should use this appendix, in conjunction with Section 11 of this report, to help develop policy recommendations for the cumulative impacts of development.
Appendix G	Details the data used to inform the SFRA, including when the data was provided, any associated licensing, and where the data can be obtained from.	Planners and developers should use this appendix to understand what data has been used in the SFRA, whether it has since been updated, and where to access the latest data from.
Appendix H	Sets out the recommended methodology for carrying out the Sequential Test, including how each source of flood risk should be considered following consultation with the EA.	Planners and developers should consider this appendix to inform the application of the Sequential Test.

2 Policy and strategy for flood risk management

This section, along with Appendix A which contains greater detail, sets out the flood risk management roles and responsibilities for different organisations and relevant legislation, policy, and strategy.

2.1 Roles and responsibilities

There are different organisations in and around the district that have responsibilities for flood risk management, known as RMAs. These are listed in Table 2-1 with a summary of their responsibilities.

Further information on the roles and responsibilities of the RMAs is available in Annex A of the National Flood and Coastal Erosion Risk Management Strategy (FCERM) (gov.uk) for England. The Local Government Association (gov.uk) also provides further information on the roles and responsibilities for managing flood risk. The National flood risk standing advice for local planning authorities (gov.uk) provides advice on when to consult the EA.

Table 2-1: Roles and responsibilities for RMAs

Risk Management Authority	Strategic Level	Operational Level	Planning role
EA	Strategic overview for all sources of flooding, National Strategy, flood forecasts and warnings and general supervision	Main River (e.g., River Thames) and reservoirs (Flood Risk Activity Permits, enforcement, and works), flood warning	Statutory consultee for certain development in Flood Zones 2 and 3 and all works within 20 metres of a main river.
Gloucestershire County Council as LLFA	Coordination of Local Flood Risk Management and maintaining a Local Flood Risk Management Strategy (LFRMS)	Surface water, groundwater, and ordinary watercourses (consenting, enforcement, and works)	Statutory consultee for major developments
Severn Trent Water, Thames Water and Wessex Water	Asset Management Plans, supported by Periodic Reviews (business cases), develop drainage and wastewater management plans (DWMPs)	Public sewers and some reservoirs	Non-statutory consultee

Risk Management Authority	Strategic Level	Operational Level	Planning role
Highways Authorities - National Highways for motorways and trunk roads and Cotswold District Council for non-trunk roads	Highway drainage policy and planning	Highway drainage	Statutory consultee regarding highways design standards and adoptions

2.1.1 Riparian ownership

Land and property owners are responsible for the maintenance of watercourses either on or next to their properties, called riparian owners. Riparian owners are also responsible for the protection of their properties from flooding as well as other management activities, for example by maintaining riverbeds/banks, controlling invasive species, and allowing the flow of water to pass without obstruction. More information can be found on the government website in the EA publication 'Owning a watercourse' (gov.uk).

When it comes to undertaking works to reduce flood risk, the EA, and the Council do have permissive powers, but limited resources must be prioritised and targeted to where they can have the greatest effect. Permissive powers mean that RMAs are permitted to undertake works but are not obliged.

3 Sequential and Exception Tests

This section summarises national planning policy for development and flood risk and the application of the Sequential and Exceptions Tests for both planners and developers.

3.1 National Planning Policy Framework and Guidance

The NPPF (February 2025) (gov.uk) sets out government's planning policies for England. It must be considered in the preparation of local plans and is a material consideration in planning decisions. The NPPF advises on how flood risk should be considered to guide the location of future development and FRA requirements. The NPPF states that:

"*Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing of future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere*" (paragraph 170).

The Sequential and Exception Tests help to guide this process.

The Flood Risk and Coastal Change PPG, 2025 (gov.uk) sets out how the policy should be implemented. Diagram 1 in the PPG (Paragraph: 007 Reference ID: 7-007-20220825) sets out how flood risk should be considered in the preparation of local plans. The PPG states that:

"A strategic Flood Risk Assessment should be used to apply the Sequential Test and, where necessary, the Exception Test when determining land use allocations" (paragraph 009).

3.2 The Sequential Test

Firstly, land at the lowest risk of flooding from all sources should be considered for development. A test is applied called the 'Sequential Test' to do this. Figure 3-1 summarises the Sequential Test.

The LPA will apply the Sequential Test to strategic allocations for the potential inclusion in the local plan. For all other developments, evidence must be supplied to the LPA, with a planning application, that the development has passed the test if any proposed building, access and escape route, land-raising or other vulnerable element will be:

- In Flood Zone 2 or 3 of the Flood Map for Planning (FMfP), See Section 4.4.1 for information on the FMfP;
- In Flood Zone 3b and your development is not incompatible;
- Within 'Flood Zones plus climate change' of the FMfP, showing it is at increased risk of flooding from rivers in the future;
- In Flood Zone 1 and the FMfP shows it is at risk of flooding from surface water;
- In Flood Zone 1 and the SFRA shows it will be at increased risk of flooding during its lifetime; or

- Subject to sources of flooding other than from rivers

The requirements for developers are set out in the FRA Standing Advice (gov.uk).

The LPA should define a suitable search area for the consideration of alternative sites in the Sequential Test. Based on the latest updates to the PPG, sites can be considered 'reasonably available' if their location is suitable for the type of development proposed, they are able to meet the same development needs and they have a reasonable prospect of being developed at the same time as the proposal (Paragraph: 027a Reference ID: 7-027a-20220825).

The Sequential Test can be undertaken as part of a local plan sustainability appraisal. Alternatively, it can be demonstrated through a free-standing document, or as part of Strategic Housing Land/Employment Land Availability Assessments.

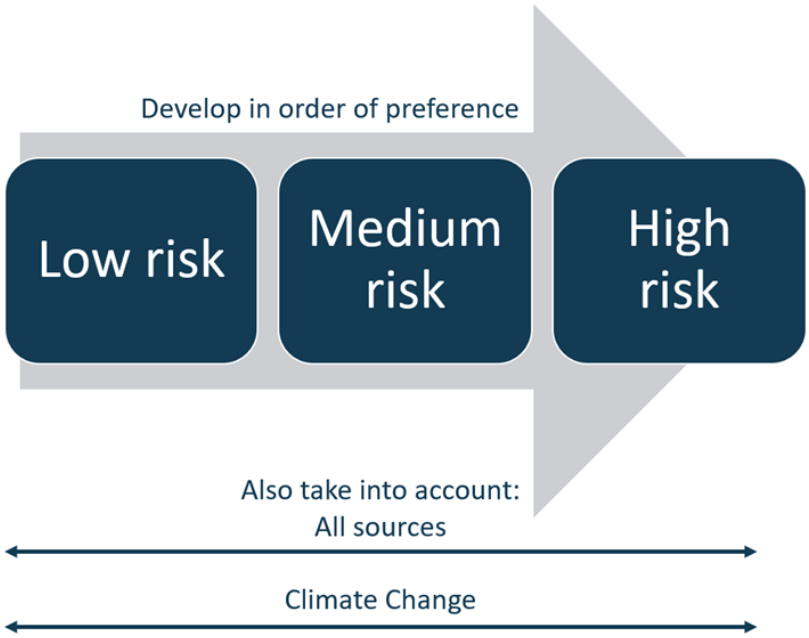


Figure 3-1: The Sequential Test

Whether any further work is needed to decide if the land is suitable for development will depend on both the vulnerability of the development and the Flood Zone it is proposed within. Table 2 of the PPG (gov.uk) (Paragraph: 079 Reference ID: 7-079-20220825) shows whether, having applied the Sequential Test first, the vulnerability of development is not compatible with a particular Flood Zone and where the Exception Test is required to determine the suitability of that vulnerability of development to the Flood Zone.

Figure 3-2 illustrates the Sequential Test as a process flow diagram using the information contained in this SFRA to assess potential development sites against areas of flood risk and development vulnerability compatibilities. This is a stepwise process, but a complex one, as several of the criteria used are qualitative and based on experienced judgement. The process must be documented, and evidence used to support decisions recorded.

In addition, the risk of flooding from other sources and the impact of climate change must be considered when considering which sites are suitable to allocate. Appendix H addresses the use of flood risk information in the performance of the Sequential Test.

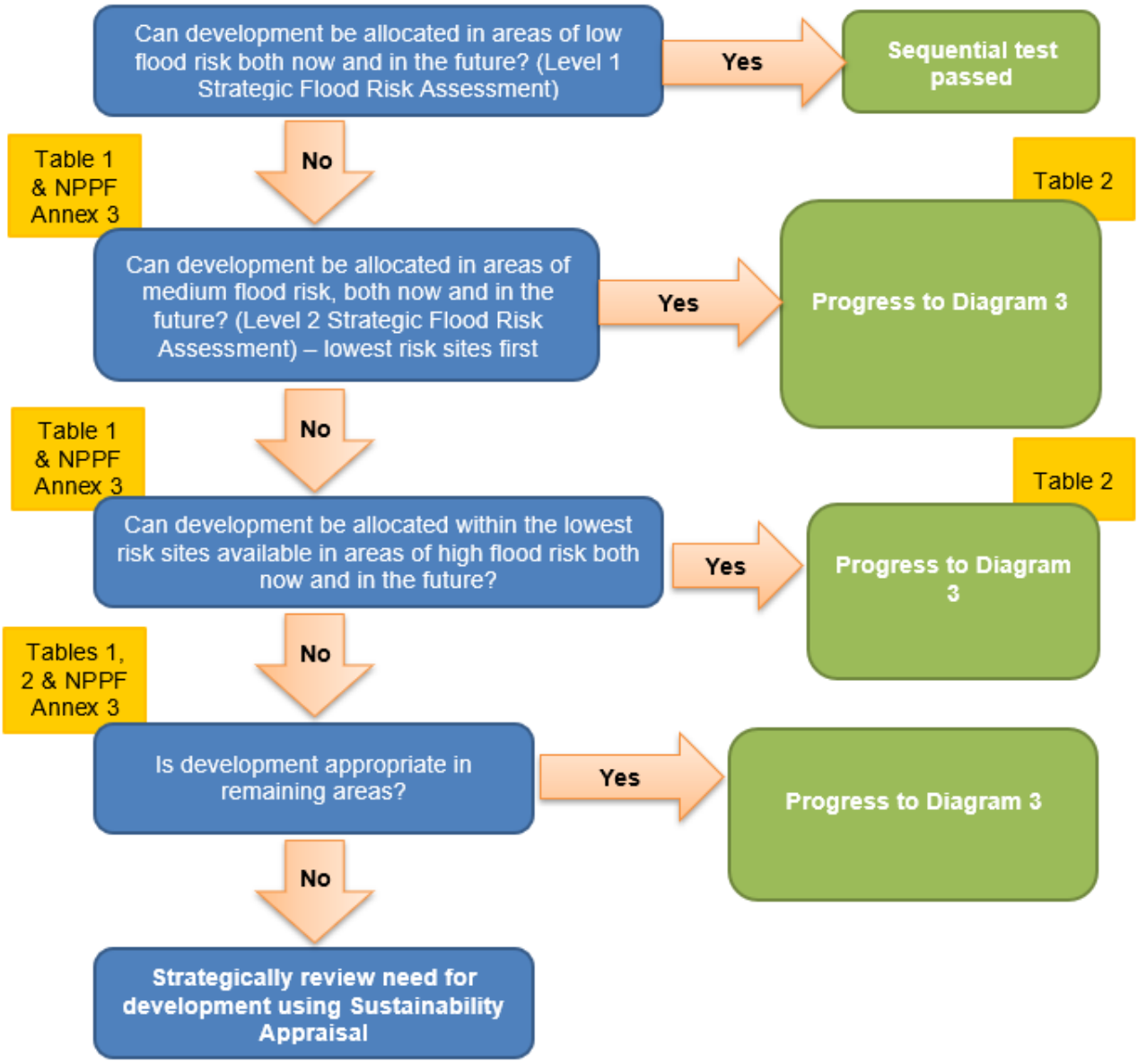


Diagram 2 of PPG: Flood Risk and Coastal Change (paragraph 026, Reference ID 7-026-20220825) Revised September 2025.

Figure 3-2: Application of the Sequential Test for plan preparation

3.2.1 The risk-based approach

The NPPF takes a risk-based approach to development in flood risk areas.

Since July 2021, the approach has adjusted the requirement for the Sequential Test (as defined in Paragraph 172 of the NPPF) so that all sources of flood risk are to be included in the consideration.

The PPG further states:

"*Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk*" (paragraph 023).

The general implications of these approaches are summarised as follows:

- The Sequential Test must be based on mapping that enables decision making according to a prioritisation based on a risk-based sequence (for river flooding national mapping is available that describes low, medium and high-risk Flood Zones but comparable mapping of this specific type and quality is not available for other sources; for river flooding the risk zones are based on the assumption that no flood risk management features are present, with the exception of Flood Zone 3b (the functional floodplain)).
- The other sources of flood risk that can potentially be included in the Sequential Test are surface water, groundwater, sewer flooding and reservoir flooding (or other water impounding features such as canals).
- It follows that proposed new development placed in locations at high or medium risk from flooding from other sources now and in the future (note that the explicit requirement to include climate change in the test, as set out in the September 2025 PPG may require the preparation of additional modelling and mapping or use of proxies) should be accompanied by evidence that the site can remain safe for its lifetime and pass the Exception Test (if applicable) (through a Level 2 SFRA).

A basic requirement for the Sequential Test to be performed is that appropriate, competent mapping can be prepared to enable logical comparison of the flood risk from different sources at alternative locations, both now and in the future, as this is fundamental to establishing a logical “risk sequence”.

Appendix H describes the implications of including different sources of flooding both now and in the future in the Sequential Test. It also highlights matters to be considered and identifies a preferred approach. This suggested approach has been consulted on with the EA.

3.3 The Exception Test

It will not always be possible for all new development to be located on land that is not at risk from flooding. To further inform whether land should be allocated, or planning permission granted, a greater understanding of the scale and nature of the flood risks is required. In these instances, the Exception Test will be required. Diagram 3 of the PPG (gov.uk) (Paragraph: 033 Reference ID: 7-033-20220825) summarises the Exception Test (Figure 3-3).

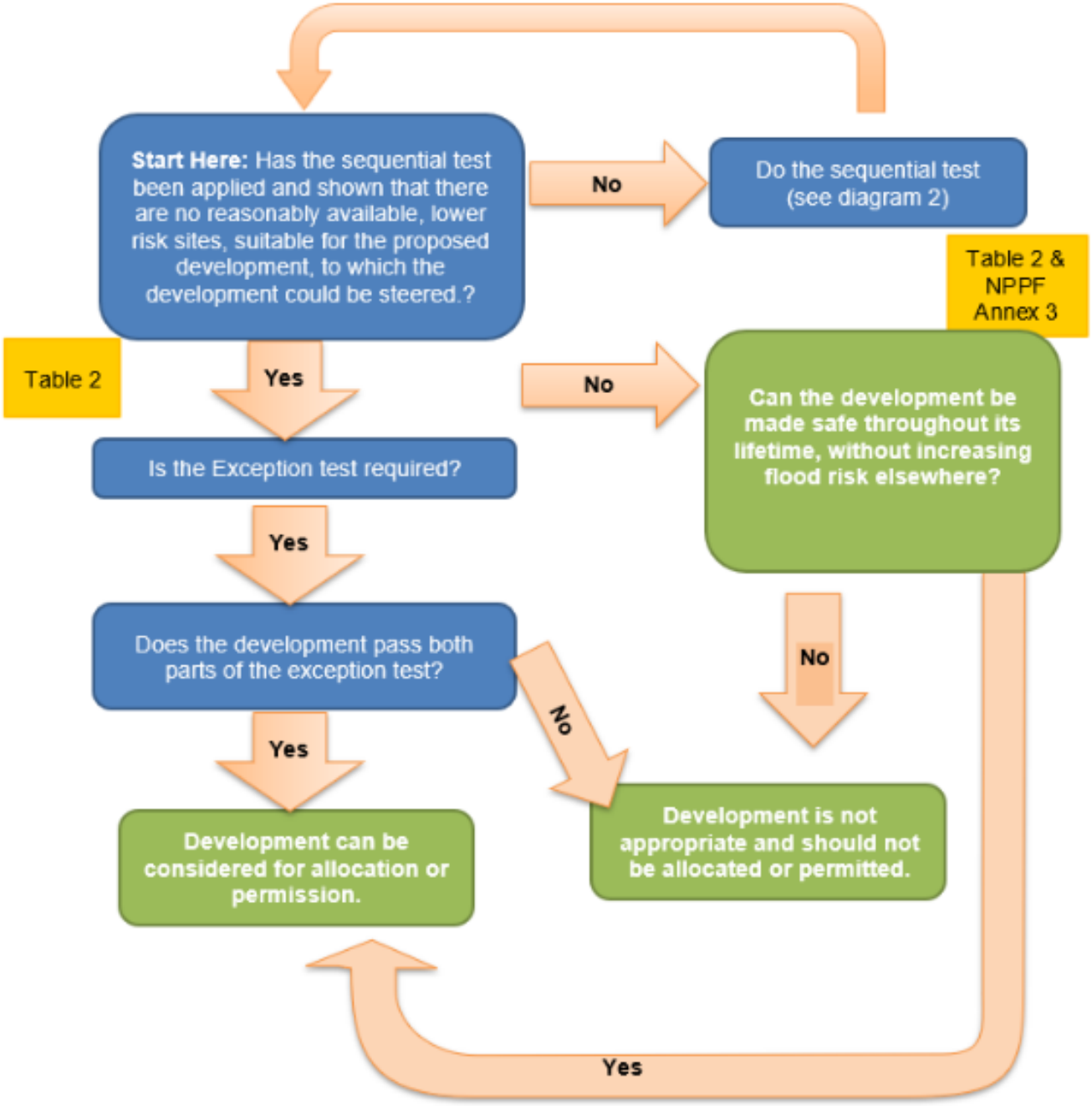
Table 2 of the PPG (gov.uk) sets out when the Exception Test is required but does not reflect the need to avoid flood risk from sources other than rivers and the sea. There is no

guidance on how to consider other sources of flood risk. The Exception Test should only be applied, following the application of the Sequential Test, in the following instances for:

- 'Essential infrastructure' in Flood Zone 3a or 3b.
- 'Highly vulnerable' development in Flood Zone 2 (this is NOT permitted in Flood Zone 3a or 3b).
- 'More vulnerable' development in Flood Zone 3a (this is NOT permitted in Flood Zone 3b).

While the Exception Test is not explicitly required for sites at risk from other sources of flooding, the LPA should follow a similar principle where sites are proposed that are at risk from other sources of flooding, carefully weighing up the wider benefits of development against the risk, ensuring that site users can be kept safe through the lifetime of the development and ensuring residual risk can be safely managed.

For sites proposed for allocation within the local plan that are at flood risk, the LPA should use information provided in a Level 2 SFRA to inform the Exception Test. At the planning application stage, the developer must design the site such that it is appropriately flood resistant and resilient in line with the recommendations in national and local planning policy and supporting guidance and those set out in the SFRA. This should demonstrate that the site will still pass the flood risk element of the Exception Test based on the detailed site level analysis.



† Diagram 3 of PPG: Flood Risk and Coastal Change (paragraph 033, Reference ID 7-033-20220825) Revised September 2025.

Figure 3-3: Application of the Exception Test to plan preparation

There are two parts to demonstrating whether a development passes the Exception Test that should be considered by the LPA when allocating development sites, and developers when required (see Section 3.4 for Exception Test requirements for individual planning applications).

Part A: Demonstrating that the development would provide wider sustainability benefits to the community that outweigh the flood risk.

The LPA will need to set out the criteria used to assess the Exception Test and provide clear advice to enable applicants to provide evidence to demonstrate that it has been passed. If the application fails to prove this, the LPA should consider whether the use of planning conditions and/or planning obligations could allow it to pass the Exception Test. If this is not possible, this part of the Exception Test has failed, and development should not be considered for allocation or granting planning permission.

Wider sustainability objectives should be considered, such as those set out in local plan sustainability appraisals. These generally consider matters such as the local economy, biodiversity, green infrastructure, housing, historic environment, climate change adaptation, flood risk, green energy, pollution, health, transport etc.

The sustainability issues the development will address and how far doing so will outweigh the flood risk concerns for the site should also be considered, e.g., by facilitating wider regeneration of an area, providing community facilities, infrastructure that benefits the wider area, etc.

Part B: Demonstrating that 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.

In circumstances where the potential effects of proposed development are material, a Level 2 SFRA is likely to be needed to inform the Exception Test for strategic allocations to provide evidence that the principle of development can be supported. At the planning application stage, a site-specific FRA will be needed. Both will need to consider the undefended and residual risk and how this will be managed over the lifetime of the development.

3.4 Applying the Sequential Test and Exception Test to individual planning applications

3.4.1 Applying the Sequential Test

The LPA are responsible for considering the extent to which Sequential Test considerations have been satisfied.

Developers should consult with the LPA in the first instance before commencing on a site-specific FRA to determine the Sequential Test requirements for their site, including search area. Developers are required to apply the Sequential Test to all development sites, unless the site is:

- A strategic allocation and the test has already been carried out by the LPA as part of preparing the local plan, or
- A change of use (except to a caravan, camping or chalet site, or to a mobile home or park home site), or

- A minor development (householder development, small non-residential extensions with a footprint of less than 250m²), or
- A development in Flood Zone 1 unless there are other flood risk issues in the area of the development (i.e. surface water, groundwater, reservoir, sewer flooding).

The September 2025 update to the PPG sets out that the Sequential Test is also not required where *"a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development […], without increasing flood risk elsewhere"* (PPG, Paragraph 027).

It should also be noted that residential sub-divisions are exempt from the definition of minor development and therefore, by default, should also be subject to the Sequential Test.

This SFRA contains information on all sources of flooding and considers the impact of climate change. This should be considered when a developer undertakes the Sequential Test, including the consideration of reasonably available sites at lower flood risk.

Local circumstances must be used to define geographical scope of the Sequential Test (within which it is appropriate to identify reasonably available alternatives). To determine the appropriate search area criteria, include the catchment area for the type of development being proposed. For some sites this may be clear, e.g. school catchments, urban extensions, in other cases it may be identified by other local plan policies. For some sites, e.g. regional distribution sites, it may be suitable to widen the search area beyond LPA administrative boundaries.

As stated in the September 2025 update to the PPG *"…where there are large areas in Flood Zones 2 and 3 (e.g. coastal towns and settlements on major rivers) and development is needed in those areas to sustain the existing community, sites outside them are unlikely to provide reasonable alternatives"* (PPG, Paragraph 027a).

The Sequential Test should be applied proportionately, with a focus on realistic alternatives in areas of lower flood risk that could satisfy the same development need.

The sources of information on reasonably available sites may include but is not restricted to:

- Site allocations in local plans.
- Sites with planning permission but not yet built out.
- Strategic Housing and Economic Land Availability Assessments (SHELAAs)/five-year land supply/annual monitoring reports.
- Locally listed sites for sale.

It may be that a number of smaller sites or part of a larger site at lower flood risk form a suitable alternative to a development site at high flood risk. Ownership or landowner agreement are not acceptable as reasons not to consider alternatives.

3.4.2 Applying the Exception Test

Where a development proposal is in accordance with an allocation made in a local plan following the application of the Sequential and Exception Tests, the Exception Test will only be required to be repeated if:

- Elements of the development that were key to it satisfying the Exception Test at the plan-making stage (such as wider sustainability benefits to the community or measures to reduce flood risk overall) have changed or are not included in the proposed development; or
- The understanding of current or future flood risk has changed significantly.

For developments that have not been allocated in the local plan or where the Sequential Test was not applied at the development plan stage and new information becomes available that identifies a flood risk, developers must undertake the sequential and Exception Tests and present this information to the LPA for approval. The Level 1 SFRA can be used to scope the flooding issues that a site-specific FRA should investigate in more detail to inform the Exception Test for windfall sites.

The applicant will need to provide information that the application can pass both parts of the Exception Test.

4 Understanding flood risk

This section explores what flood risk is, key sources of flooding in Cotswold, and the factors that affect flooding including topography, soils, and geology.

This is a strategic summary of the risk in the district to inform the application of the Sequential and Exceptions Tests if required. Developers should use this section of the SFRA with the flood risk data included in the interactive GeoPDF mapping (Appendix B) to scope out the flood risk issues they need to consider in greater detail in a site-specific FRA to support a planning application. Information in this section should not be used to inform flood risk at a property-level.

4.1 Defining flood risk

Section 3 (subsection 1) of the Flood and Water Management Act 2010 (FWMA) (gov.uk) defines the risk of a potentially harmful event (such as flooding) as "*a risk in respect of an occurrence is assessed and expressed (as for insurance and scientific purposes) as a combination of the probability of the occurrence with its potential consequences*."
Figure 4-1 sets out this definition of risk.

Figure 4-1: Conceptual model depicting how risk can be defined

4.1.1 Probability

The probability of flooding is expressed as a percentage based on the average frequency measured or extrapolated from records over many years. For example, a 1% AEP (annual exceedance probability) indicates the flood level that has a 1% chance of occurring in any one year, not that it will occur at least once every hundred years.

4.1.2 Consequences

The consequences of flooding include fatalities, property damage, disruption to lives and businesses, with severe implications for people (e.g., financial loss, emotional distress, health problems). Consequences of flooding depend on the hazards caused by flooding (depth of water, speed of flow, rate of onset, duration, wave-action effects, water quality), the receptors that are present and the vulnerability of these receptors (type of development, nature, e.g., age-structure, of the population, presence, and reliability of mitigation measures etc).

4.1.3 Source-Pathway-Receptor model

Flood risk can be assessed using the Source-Pathway-Receptor model (Figure 4-2) where:

- The source is the origin of the floodwater, principally rainfall.
- A pathway is a route or means by which a receptor can be affected by flooding, which includes rivers, drains, sewers, and overland flow.
- A receptor is something that can be adversely affected by flooding, which includes people, their property, and the environment.

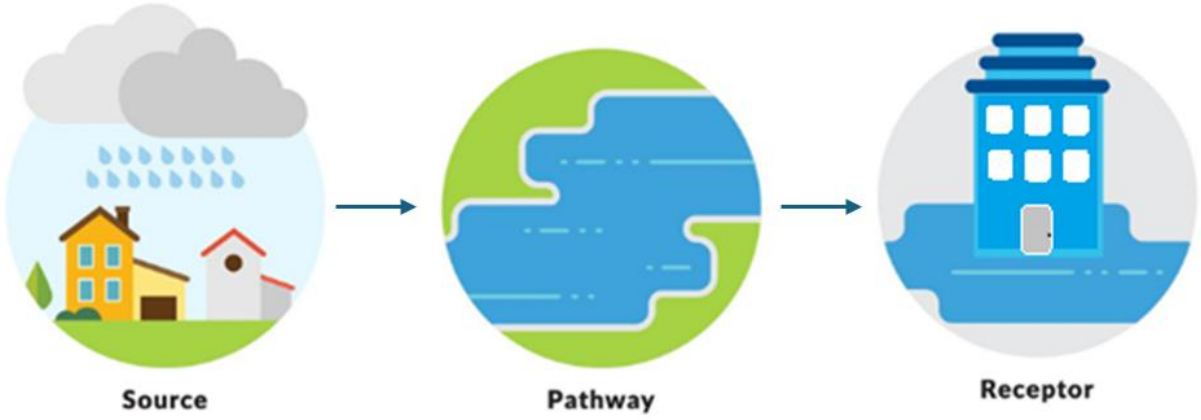


Figure 4-2: Source-Pathway-Receptor model

This is a standard environmental risk model common to many hazards and should be the starting point of any assessment of flood risk. All these elements must be present for flood risk to arise. Having applied the Source-Pathway-Receptor model it is possible to mitigate the flood risk by addressing the source (often very difficult), blocking, or altering the pathway, or removing the receptor, e.g., steer development away.

The planning process is primarily concerned with the location of receptors, taking appropriate account of potential sources and pathways that might put those receptors at risk. It is therefore important to define the components of flood risk to apply this guidance in a consistent manner.

4.2 Topography, geology, and soils

Topography, geology and soil are all important in influencing the way the catchment responds to a rainfall event. The degree to which a material allows water to percolate through it, the permeability, affects the extent of overland flow and therefore the amount of runoff reaching the watercourse. Steep slopes or clay rich (low permeability) soils will promote rapid surface runoff, whereas more permeable rock such as limestone and sandstone may result in a more subdued response due to greater infiltration.

4.2.1 Topography

The National LIDAR Programme (gov.uk) provides elevation data at 1m spatial resolution for all of England.

The topography of the district is influenced by the interbedded nature of the limestones and clays of the Inferior and Great Oolite Group. Towards the western extent of the district the landscape is characterised by a steep scarp face with incised valleys marking the edge of the Cotswold Hills. Here, elevations are in excess of 300 mAOD with the Inferior Oolite rocks forming the main upland area. To the east and south west of the escarpment, the topography of the district becomes rather more undulating, reflecting the regional dip of the Inferior and Great Oolite beds. Towards the south and south eastern extents of the district, valleys of those such as the Evenlode, Windrush and Coln are typically much broader and shallower cut into the underlying softer Lias mudstones. Here, elevations ranging from approximately 165 mAOD in the headwaters to 82 mAOD as the watercourses approach the flatter, wider floodplains of the River Thames. Figure 4-3 shows the topography of the district.

4.2.2 Geology

The geology of the district is complex and is dominated by limestones of the Jurassic age. The limestones within the Great Oolite Group and Inferior Oolite Group cover the majority of the district towards the north-western and central extents and have a significant influence on the topography, drainage and soils of the Cotswolds. Geology information can be viewed on the British Geological Society website here.

Much of the upland areas of the Cotswolds comprises of the Great Oolite Group and demonstrates a greater variety in formations than the Inferior Oolite Group. An area of Lias Group mudstones dominates to the northeast. Towards the south and east of the district in the Upper Thames Valley, the Jurassic limestones of the Great Oolite Group are succeeded by a succession of mudstones including the Oxford clay. These form the broad valleys around the main rivers and streams which flow eastwards.

Sand and gravel drift deposits are mainly associated with the tributaries of the River Thames including the Rivers Churn, Coln, Leach, Windrush and Evenlode and within the Cotswold Water Park towards the south. Here, superficial deposits are thick and extensive. Further drift deposits can be found towards the northeast of the district, overlying the Lias Group mudstones.

Away from the escarpment the drainage is almost entirely south eastwards via the tributaries of the Thames; namely the Rivers Churn, Coln, Leach, Windrush and Evenlode. Where they join the Thames, superficial deposits are thick and extensive. The valleys of the Churn, Coln, Leach and their tributaries tend to be narrow and meandering because they are incised into the limestones of the Inferior Oolite and Great Oolite. They contain narrow tracts of superficial deposits. In contrast, the Windrush and the Evenlode lie in broader shallow valleys cut into soft Lias mudstones and may be flanked by more substantial expanses of terrace deposits and alluvium. In addition, in the case of the Evenlode, which drains the Vale of Moreton, there are broad tracts of till and associated sand and gravel deposits left behind by an ice sheet during the last Ice Age.

A map detailing the extents of this bedrock and further superficial geology across Cotswold can be viewed online in the British Geology Society Geology Viewer (bgs.ac.uk).

The EA also provides mapping of different types of aquifers, the underground layers of water-bearing permeable rock from which groundwater can be extracted. Aquifers are designated as either principal or secondary aquifers. Principal aquifers are designated by the EA as strategically important rock units that have high permeability and water storage capacity.

The majority of the bedrock and superficial geology beneath the district are categorised as Principal aquifers. There are small areas in the south classified as Secondary A aquifers. A secondary aquifer is a permeable layer which can support local water supplies and provide a source of base flow to rivers.

4.2.3 Soils

Soils across the district are varied. Soilscapes are a classification of soils in England and Wales, conveying a summary of the regional differences in the soil landscapes.

Soils across the district are largely classified as Soilscape 3 (shallow lime-rich soils over chalk or limestone). Soil is freely draining and at particular risk to contamination from nitrate. Other soils are present across the authority in small amounts, including Soilscape 9 (lime-rich loamy and clayey soils with impeded drainage), drainage of soils to the stream network may be slightly impeded. Some soils in areas to the south of Stow-on-the-Wold are categorised by Soilscape 18 (slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils). This soil type is slowly permeable and seasonally wet. In the south east of the district, soils covering areas of Fairfield, Lechlade, Somerford Keynes and South Cerney are categorised as Soilscape 5 (Freely draining lime-rich loamy soils).

The British Geological Survey website (bgs.ac.uk) provides data on soils across the district.

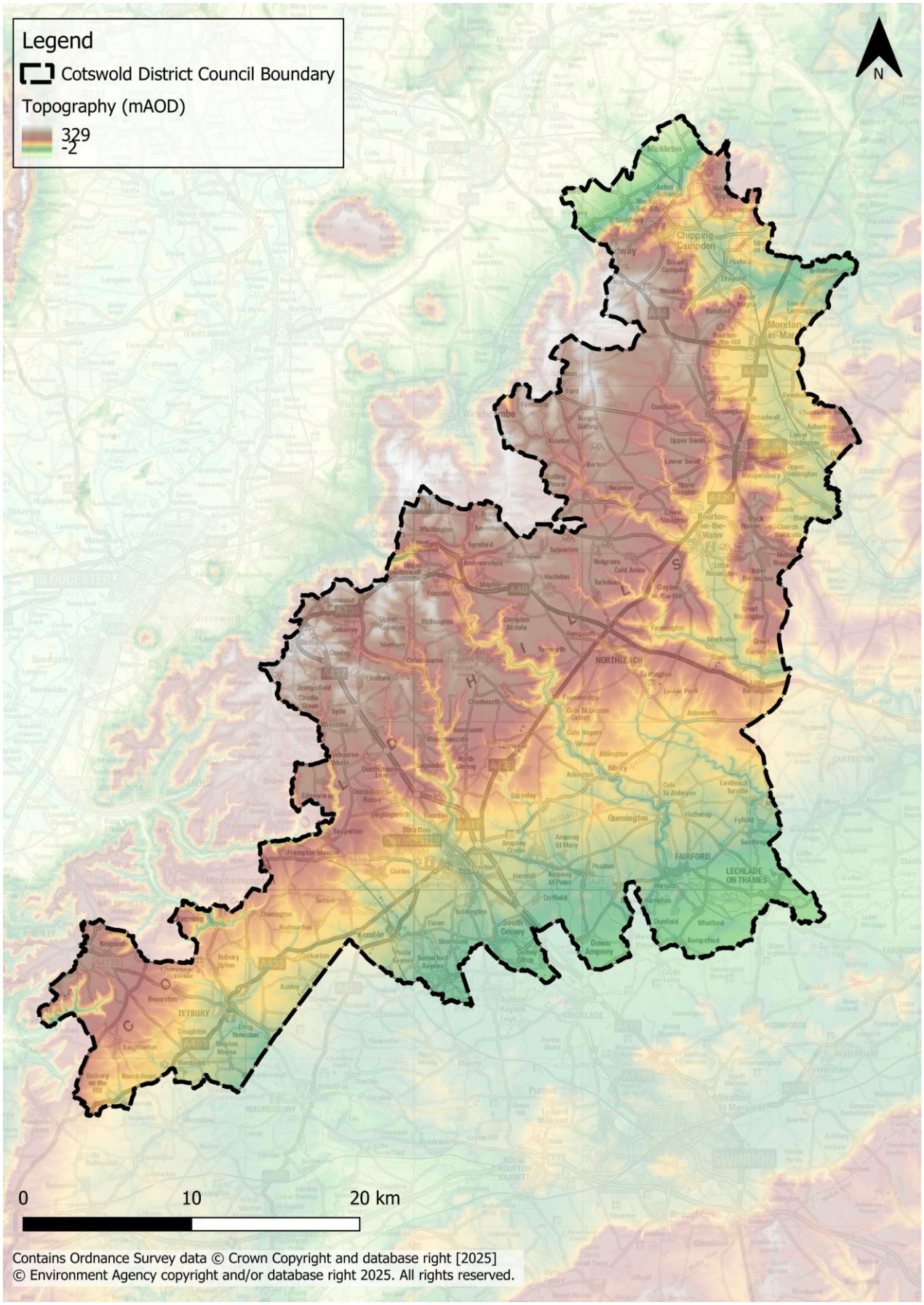


Figure 4-3: EA 1m LiDAR data showing the topography across Cotswold

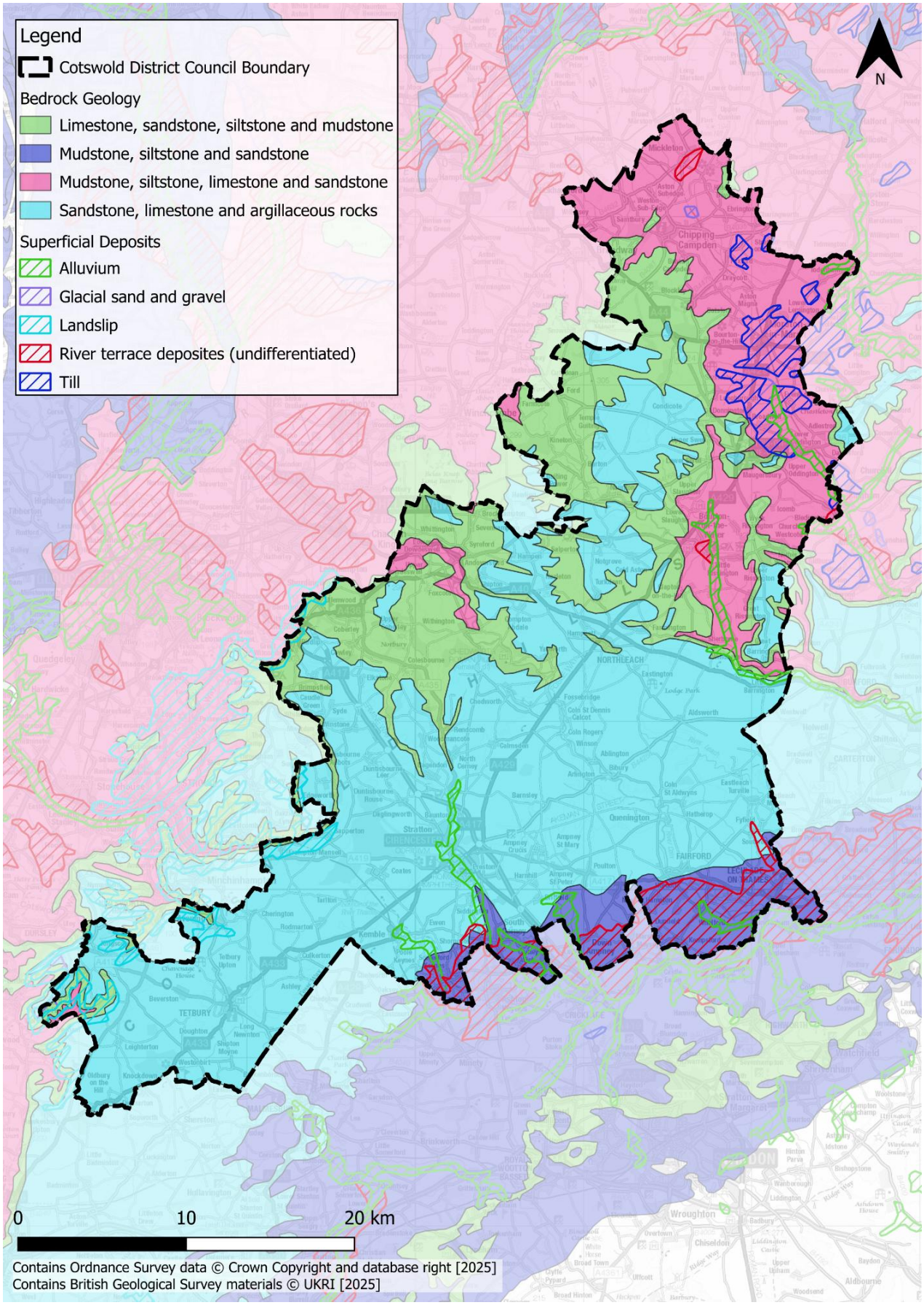


Figure 4-4: Bedrock geology across Cotswold

4.3 Historic flooding

Records of past flood events can help to build a picture of areas and locations that may be prone to flooding and to help confirm flood modelling outputs. Historic flood events can also help RMAs to target where flood risk management or resilience works may be required based on tangible evidence.

4.3.1 LLFA historic flood records

GCC as LLFA, is required, under the FWMA, to maintain and update its historic flood incidents database as and when any locally significant flood incidents occur. The LLFA has a statutory responsibility to investigate and report upon any 'significant' flood events. Figure 4-5 displays the number of LLFA recorded flood incidents, aggregated by ward. The highest number of historic flood events have been recorded in Fosseridge Ward, covering the area to the north and east of Stow-on-the-Wold.

The Gloucestershire Local Flood Risk Management Strategy (LFRMS) (2014) identified that the district has a long history with flooding, with flood events occurring throughout the last 80 years. Notable flood events occurred in the Summer of 2007 and the winter of 2012, due to heavy rainfall causing both surface water and fluvial flooding.

The LFRMS (2014) outlines nine major flood incidents in Cotswold District:

- March 1947
- July 1968
- August 1977
- September 1992
- October 1993
- April 1998
- December 2000
- Summer 2007
- January 2008

4.3.1.1 LLFA December 2020 flooding summary report

The LLFA flood summary report documents the flooding experienced across Gloucestershire on the 23 and 24 December 2020. The event was characterised by a period of intense rainfall, with rivers responding quickly and reaching their highest recorded peak levels. There were 94 reporting of flooding to property experienced across the district, 89 of these residential and five commercial properties. There were five parishes across Cotswold that experienced more than five reports of internal property flooding, namely Bledington, Cirencester, Lower Slaughter, Moreton-in-Marsh and Wyck Rissington.

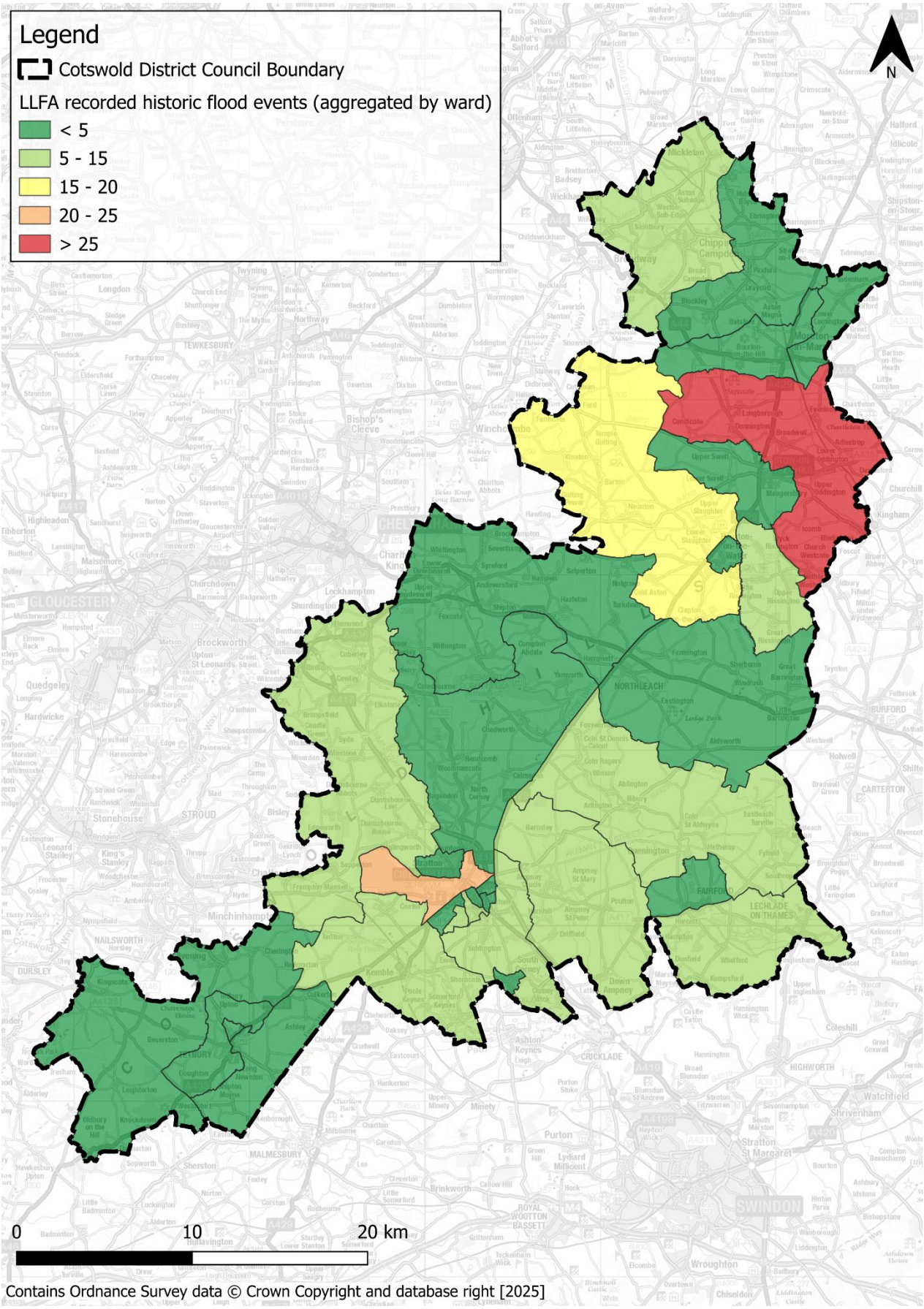


Figure 4-5: LLFA recorded historic flood events (aggregated by ward)

4.3.2 EA Historic Flood Map and Recorded Flood Outlines

The Historic Flood Map (HFM) is a spatial dataset showing the maximum extent of all recorded historic flood outlines from rivers, the sea and groundwater and shows areas of land that have previously been flooded across England. Records began in 1946 when predecessor bodies to the EA started collecting information about flooding incidents. The HFM accounts for the presence of defences, structures, and other infrastructure where such features existed at the time of flooding. It includes flood extents that may have been affected by residual flooding such as overtopping, breaches or blockages. It is also possible that historic flood extents may have changed and that some areas would not flood at present i.e., if a flood defence has been built.

The HFM does not contain any information regarding the specific flood source, return period or date of flooding, nor does the absence of the HFM in an area mean that an area has never flooded, only that records of historic flooding do not exist.

The Recorded Flood Outlines (RFO) dataset does include details of flood events. The difference between the two datasets is that the HFM only contains flood outlines that are ‘considered and accepted’ by the EA following adequate verification of the RFO dataset using certain criteria.

The EA's HFM dataset contains 29 records of flooding in Cotswold. The locations of these incidents are shown in Figure 4-6. Details of these incidents are provided in Table 4-1. Incidents have been recorded from 1947 to 2008. 22 incidents have been caused by the channel capacity being exceeded. Seven incidents have occurred due to surface water or local drainage issues.

Table 4-1: EA Historic Flood Map incidents in Cotswold

Start date	End date	Flood source	Flood cause
01/01/1925	31/01/1925	ordinary watercourse	channel capacity exceeded (no raised defences)
01/01/1947	12/12/1947	main river	channel capacity exceeded (no raised defences)
01/01/1968	12/12/1968	main river	channel capacity exceeded (no raised defences)
01/07/1968	01/07/1968	main river	channel capacity exceeded (no raised defences)
01/01/1977	12/12/1977	other	local drainage/surface water
01/01/1977	12/12/1977	main river	channel capacity exceeded (no raised defences)
06/03/1978	06/03/1978	drainage	local drainage/surface water
01/01/1979	12/12/1979	main river	channel capacity exceeded (no raised defences)
01/01/1985	01/01/1985	main river	channel capacity exceeded (no raised defences)
20/01/1985	24/01/1985	main river	channel capacity exceeded (no raised defences)
01/01/1992	12/12/1992	main river	channel capacity exceeded (no raised defences)
01/01/1993	12/12/1993	main river	channel capacity exceeded (no raised defences)
18/03/1996	18/03/1996	drainage	local drainage/surface water
01/04/1998	30/04/1998	main river	channel capacity exceeded (no raised defences)
01/01/2000	31/12/2000	main river	channel capacity exceeded (no raised defences)
23/12/2002	12/01/2003	other	channel capacity exceeded (no raised defences)
22/01/2006	22/01/2006	drainage	local drainage/surface water
19/07/2007	29/07/2007	drainage	local drainage/surface water
19/07/2007	29/07/2007	main river	channel capacity exceeded (no raised defences)
19/07/2007	29/07/2007	ordinary watercourse	channel capacity exceeded (no raised defences)
20/07/2007	23/07/2007	main river	channel capacity exceeded (no raised defences)
12/01/2008	20/01/2008	drainage	local drainage/surface water

Start date	End date	Flood source	Flood cause
12/01/2008	20/01/2008	main river	channel capacity exceeded (no raised defences)
13/12/2013	03/03/2014	main river	channel capacity exceeded (no raised defences)

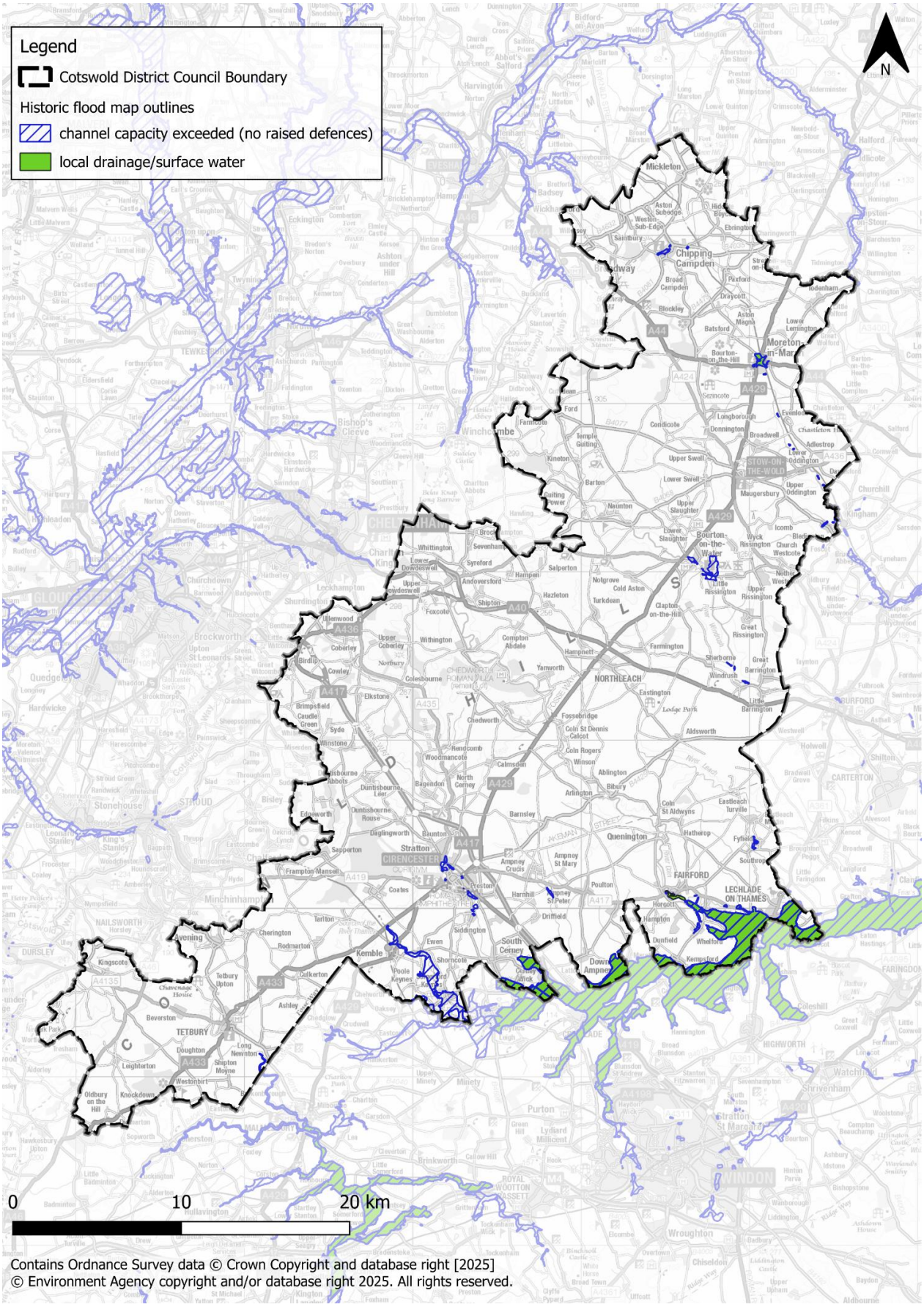


Figure 4-6: EA Historic Flood Map

4.3.3 Historic fluvial flooding

The LFRMS (2014) states that the unprecedented flooding in Gloucestershire in 2007 and also the less severe flooding in 2012 were largely caused by fluvial sources due to heavy rainfall causing high water levels in rivers and brooks. On the 20th of July the equivalent of two months' rain fell in 14 hours, leading to the flooding of approximately 5,000 residential properties and 500 non-residential properties.

4.3.3.1 July 2007

During the July 2007 event, Cotswold District Council received over 1,150 reports of flooded homes and businesses. Approximately 40% of these properties were located in Moreton-in- Marsh, Bourton-on-the-Water and Chipping Campden to the north of the district. In total, 79 towns and villages across the Cotswold District are known to have been affected by the floods in summer 2007.

Rivers were reported as a source of flooding in 42 of the 79 (53%) locations affected. The River Windrush flooded over 100 homes and businesses in Naunton and Bourtonon-the-Water, while the River Churn flooded parts of Cirencester. The River Thames at Lechlade reached record levels and there were over 100 reports of property flooding at the confluence of the Thames and River Leach. The northernmost part of the District is located within the Avon catchment. The River Cam, a sub catchment of the Avon, caused severe flooding to a number of residential properties and businesses in Chipping Campden.

Some of the areas worst-affected by surface water flooding included Moreton-In-Marsh, Fairford and Whelford. Additionally, Thames Water has identified nine areas where properties were flooded internally by sewers (Fairford, South Cerney, Ampney St Peter, Ampney St Mary, Upper and Lower Slaughter, Moreton-in-Marsh, Bourton-on-the-Water, Quenington). However, it recognises that there were many other areas where sewers caused flooding to gardens and open spaces. Further, groundwater was reported as a source of flooding in nine locations. Blewbury Rd East Hagbourne, report on flooding of 20th July 2007.

The flooding followed unprecedented rainfall; the wettest-ever May to July period since national records began in 1766. The Centre for Ecology and Hydrology3 states that May to July produced hydrological conditions with no close modern parallel for the summer period in England and Wales. Met Office records show that an average of 414mm of rain fell across England and Wales during a three month period - 228mm greater than the average May to July rainfall recorded.

4.3.3.2 Winter 2013/14

Flooding problems were experienced in known flood risk areas e.g. Cirencester and South Cerney. Sewer flooding problems were again at Lakeside, Lechlade. The flood events did test the defences at Moreton-in-Marsh and Fairford which were considered to have performed well.

4.3.3.3 December 2020

During the December 2020 flood event, significant flooding was observed in Bledington, Cirencester, Lower Slaughter and Moreton-in-Marsh. The event was characterised by a short period of intense rainfall that fell on saturated ground and elevated river levels, causing widespread flooding across the district. Peak river levels were exceeded by the River Evenlode at Moreton, the River Churn at Cerney Wick and the River Thames at Somerford Keynes.

4.3.3.4 Autumn 2024

Storm Bert caused prolonged periods of heavy rainfall across the Cotswolds in November 2024. This resulted in widespread flooding impacting roads, infrastructure and properties. Bledington was impacted significantly during this event, with at least four properties requiring evacuation, and a further 20 were flooded.

4.3.4 Historic surface water flooding

The LFRMS (2014) states that the Summer 2007 flood event was also partly caused by water overloading the drainage system leading to surface water flooding.

4.3.5 Historic sewer flooding

Severn Trent Water, Thames Water and Wessex Water have provided their sewer flood incident data. Many historic flooding incidents form sewers are at the individual property level and considered sensitive information. The incident locations have therefore been aggregated to ward boundaries, as shown in Figure 4-7. The highest number of recorded incidents have occurred around the areas of Chipping Campden in the north of the district, and around the areas of Shipton Moyne, Long Newnton and Tetbury in the south of the district. It should be noted that the absence of a recorded historic incident doesn't mean sewer flooding has not occurred in a location, only that it hasn't been recorded.

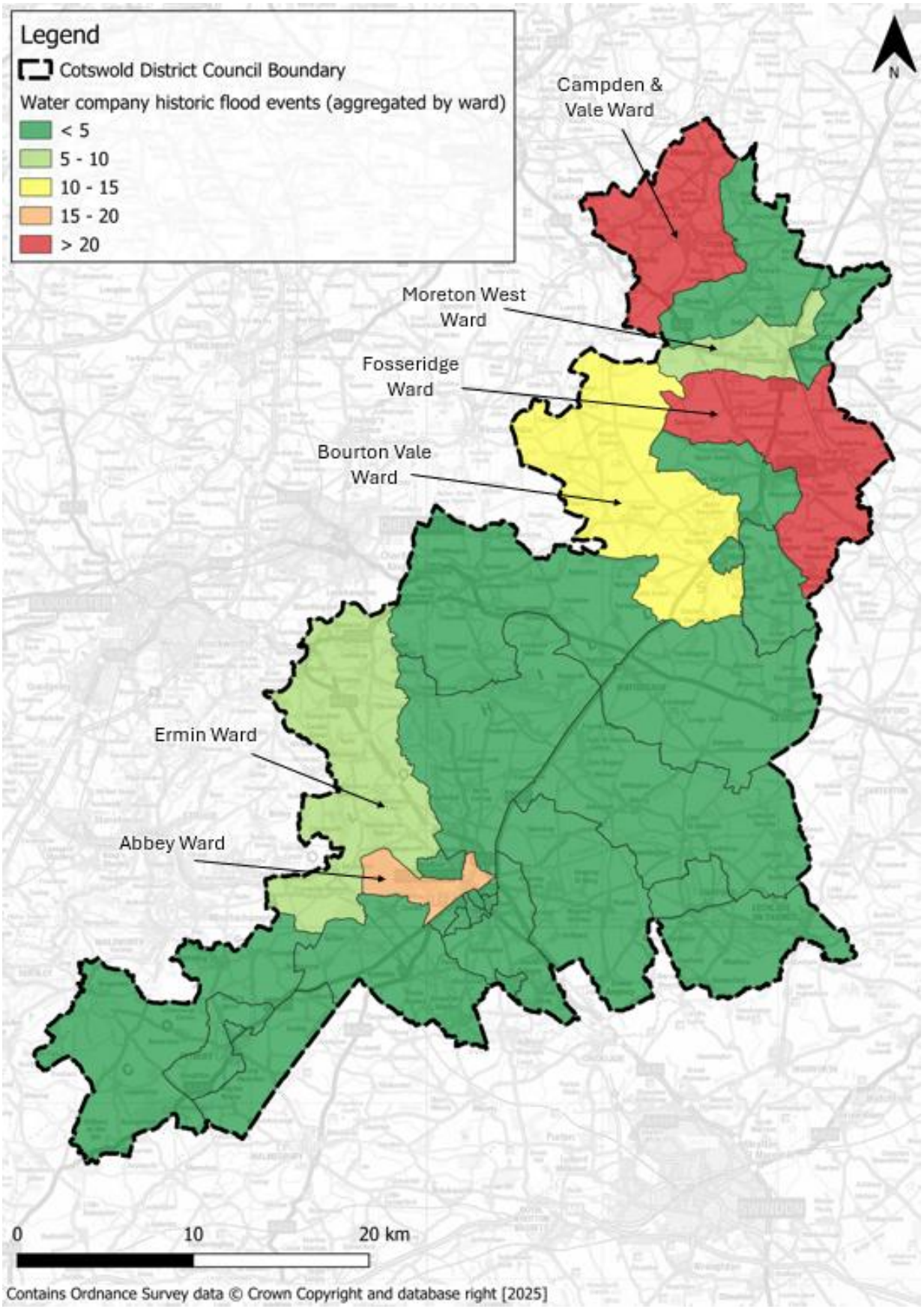


Figure 4-7: Severn Trent Water, Thames Water and Wessex Water historic flood incidents, aggregated by ward

4.3.6 Historic groundwater flooding

There are no records available of historic flooding from groundwater sources.

4.4 Fluvial flood risk

4.4.1 Flood Zones

Present day fluvial flood risk across the district is assessed based on Flood Zones. The definition of the Flood Zones is provided below. The Flood Zones do not consider defences, except when considering the functional floodplain. This is important for planning long term developments as long-term policy and funding for maintaining flood defences over the lifetime of a development may change over time.

The Flood Zones are:

- FMfP Flood Zone 1: Low risk: less than a 0.1% chance of river or sea flooding in any given year.
- FMfP Flood Zone 2: Medium risk: between a 1% and 0.1% chance of river or sea flooding in any given year.
- Flood Zone 3a (distinct from FMfP Flood Zone 3): High risk: between a 3.3% and 1% chance of river flooding in any given year or between a 3.3% and 2% change of flooding from the sea. This Flood Zone includes all areas in the FMfP Flood Zone 3 that are not in Flood Zone 3b.
- Flood Zone 3b: Functional Floodplain: land where water has to flow or be stored in times of flood. Only water compatible and essential infrastructure are permitted in this zone and should be designed to remain operational in times of flood, resulting in no loss of floodplain or blocking of water flow routes. Annex 3 of the NPPF (gov.uk) provides information on flood risk vulnerability. See Appendix C for details on the functional floodplain and how it has been delineated through this SFRA.

Important note on Flood Zone information in this SFRA

The FMfP Flood Zones for Cotswold are shown in Figure 4-8 and are included in the interactive GeoPDF mapping (Appendix B). These have been derived from the EA's Flood Map for Planning (FMfP) (gov.uk), accessed December 2025. Flood Zones 2 and 3a within this SFRA show the same extent as the online FMfP, at the time of publication of this SFRA. An updated Flood Zone 3b extent has been delineated through this SFRA.

The Flood Zones of the FMfP do not cover all catchments or ordinary watercourses with areas <3km². However, where the EA have suitable data for smaller catchments, this will be included in the Flood Zones of the FMfP. As a result, whilst the EA Flood Zones of the FMfP may show an area is in Flood Zone 1, there may be a flood risk from a smaller watercourse(s) not shown in the Flood Zones. Where detailed modelling or the FMfP is not available for a watercourse, the surface water flood extents can be used as a proxy for fluvial risk. At the planning application stage, a detailed model for small watercourses within the vicinity of a site may be required to robustly assess fluvial flood risk.

As stated in EA guidance, flood defences should be considered when delineating the functional floodplain. The methodology for functional floodplain delineation is described in Appendix C. Caution should also be applied where the Flood Zone 3b extent encompasses existing urban areas which would not otherwise be "designed to flood". Developers should consult the LPA on the derivation of the functional floodplain.

Potential development sites shown to be at high or medium risk from fluvial sources should be subject to further investigation through a Level 2 SFRA (Section 13.1).

4.4.2 Summary of fluvial flood risk across Cotswold

According to the EA's FMfP (as shown in Figure 4-8), the majority of fluvial risk is concentrated in the south of the district. An extensive area of Flood Zone 3 is located along the River Churn, which passes through Cirencester and South Cerney. There is also fluvial flood risk along the River Thames and the River Coln along the southern border of the district. Other key areas include the areas located adjacent to the River Dikler, the River Windrush and the River Evenlode.

Present day and future fluvial flood risk within the authority area is included in the interactive GeoPDF mapping (Appendix B). The impacts of climate change on fluvial flooding are discussed in Section 5.2.

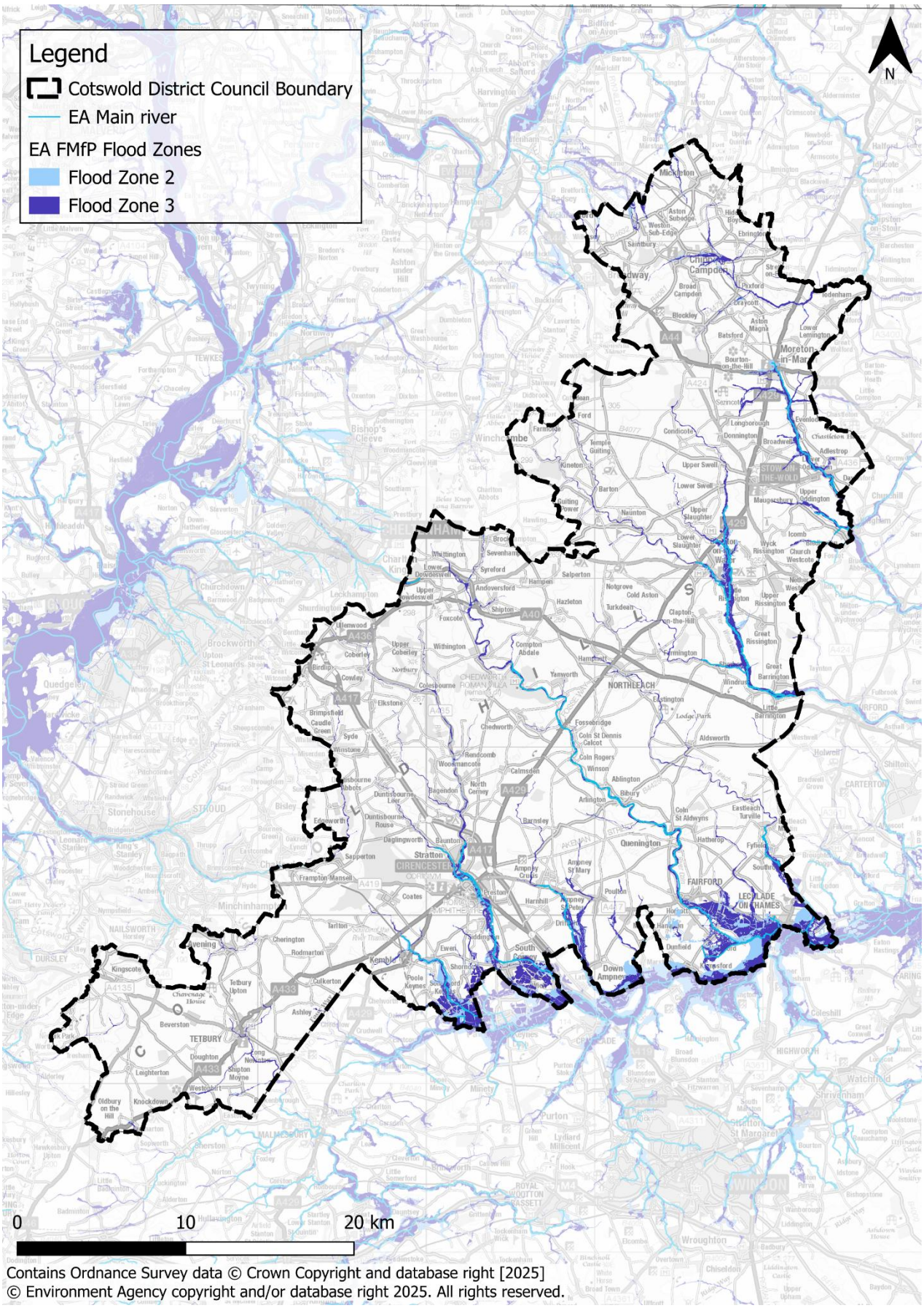


Figure 4-8: EA's Flood Map for Planning for Rivers and Sea - Flood Zones

4.5 Surface water flood risk

Surface water runoff is most likely to be caused by intense downpours e.g. thunderstorms. At times the amount of water falling can completely overwhelm the drainage network, which is not designed to cope with extreme storms. The flooding can also be complicated by blockages to drainage networks, sewers being at capacity and/or high-water levels in watercourses that cause local drainage networks to back up.

The EA's Risk of Flooding from Surface Water mapping (RoFSW) (gov.uk) received a significant update through NaFRA2 and was published January 2025. The RoFSW has been used to assess surface water risk within this SFRA. These maps are intended to provide a consistent standard of assessment for surface water flood risk across England and Wales in order to help LLFAs, the EA, and any potential developers to focus their management of surface water flood risk.

The RoFSW map is an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground buy lies on or flows over the ground instead. It is produced using national scale modelling and enhanced with compatible, locally produced modelling from LLFAs. Risk is displayed as one of three likelihood bandings:

- High - greater than or equal to 3.3% (1 in 30) chance in any given year.
- Medium - less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year.
- Low - less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1000) chance in any given year.

The RoFSW map does not map flooding less than 0.075m (7.5cm) in depth. Therefore, where the map may show no flooding, there may be shallow flooding up to a depth of 0.075m. Therefore, the RoFSW should not be used to understand flood risk for individual properties but can be considered suitable for high level assessments such as this SFRA.

Potential development sites shown to be at high or medium risk from surface water should be subject to further investigation through a Level 2 SFRA (Section 13.1).

4.5.1 Summary of surface water flood risk across Cotswold

The EA RoFSW (as shown in Figure 4-9) highlights several communities in the district at risk from surface water flooding. Surface water flow paths generally follow the topography of existing watercourses. Areas to the north of the district appear at highest risk of surface water flooding, including Chipping Campden, Moreton-in-Marsh, Evenlode and Bourton-on-the-Water. Other key areas of risk are present in the south of the district, most notably Cirencester, Down Ampney, South Cerney and Lechlade on Thames.

Surface water flow paths generally follow areas of topographic low spots with areas of isolated ponding. Additionally, surface water flow routes are also established on roads in the more urban areas highlighting risk to transport networks while posing a risk to buildings which water can be routed to.

The RoFSW data for the district is included in the interactive GeoPDF mapping (Appendix B). The impacts of climate change on surface water flooding are discussed in Section 5.3.

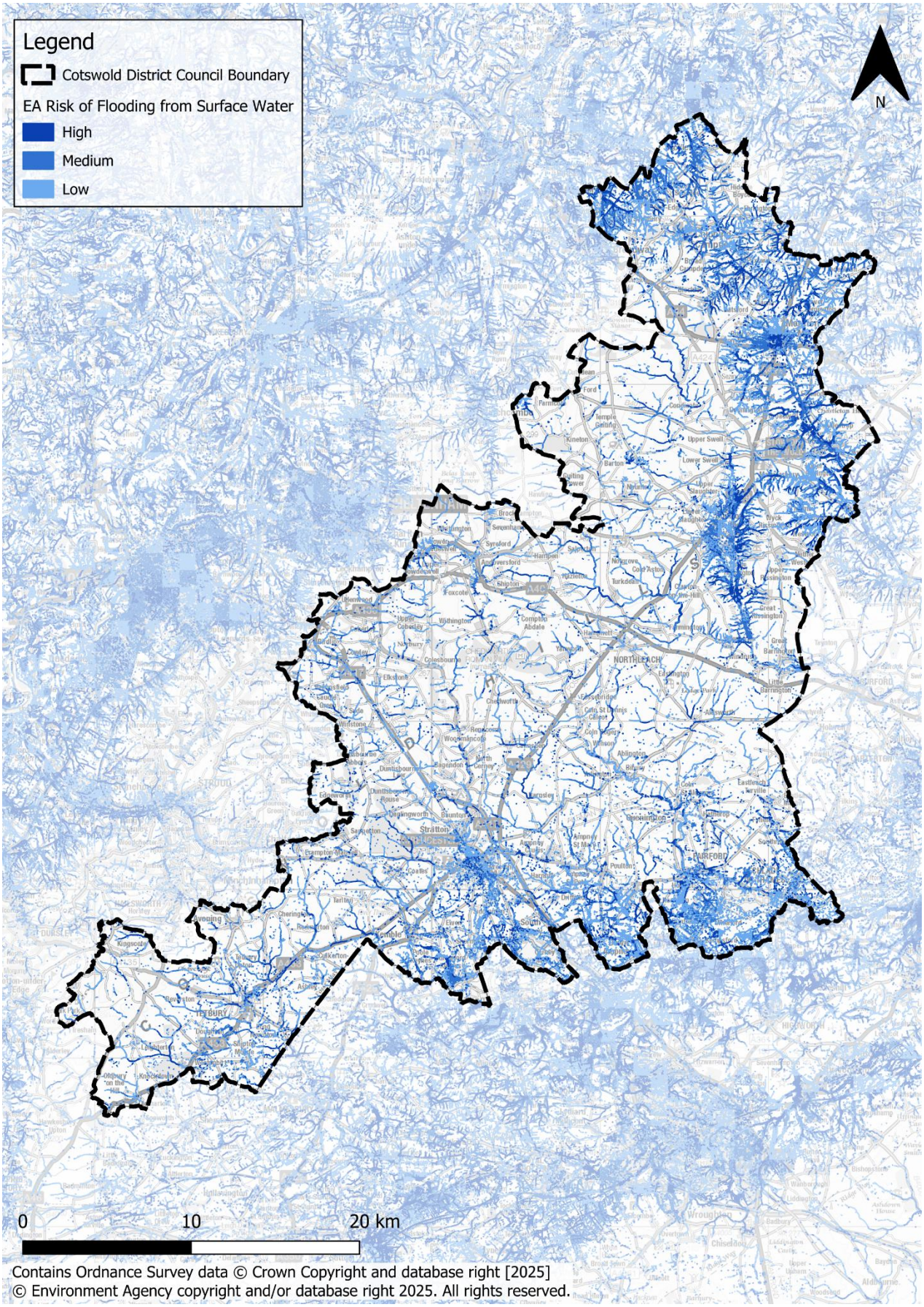


Figure 4-9: EA's Risk of Flooding from Surface Water mapping

4.6 Sewer flood risk

Sewer flooding occurs when intense rainfall/river flooding overloads sewer capacity (surface water, foul or combined), and/or when sewers cannot discharge to watercourses due to high water levels. Sewer flooding can also be caused by blockages, collapses, equipment failure or groundwater leaking into sewer pipes.

Since 1980, the Sewers for Adoption guidelines mean that new surface water sewers have been designed to have capacity for a 3.3% AEP rainfall event, although until recently this did not apply to smaller private systems. This means that sewers can be overwhelmed in larger rainfall and flood events.

New developments should not cause additional pressures on existing sewers due to the requirements to maintain greenfield runoff rates. However, increases in rainfall as a result of climate change can lead to existing sewers becoming overloaded, although this can be reduced through the use of well-designed SuDS to reduce surface water runoff. Water Cycle Studies can also assist LPAs and water companies in planning for new development and subsequent increased pressures on the sewerage and wastewater network.

Severn Trent Water, Wessex Water and Thames Water are the water companies responsible for the management of the sewerage networks across the district, as shown in Figure 4-10.

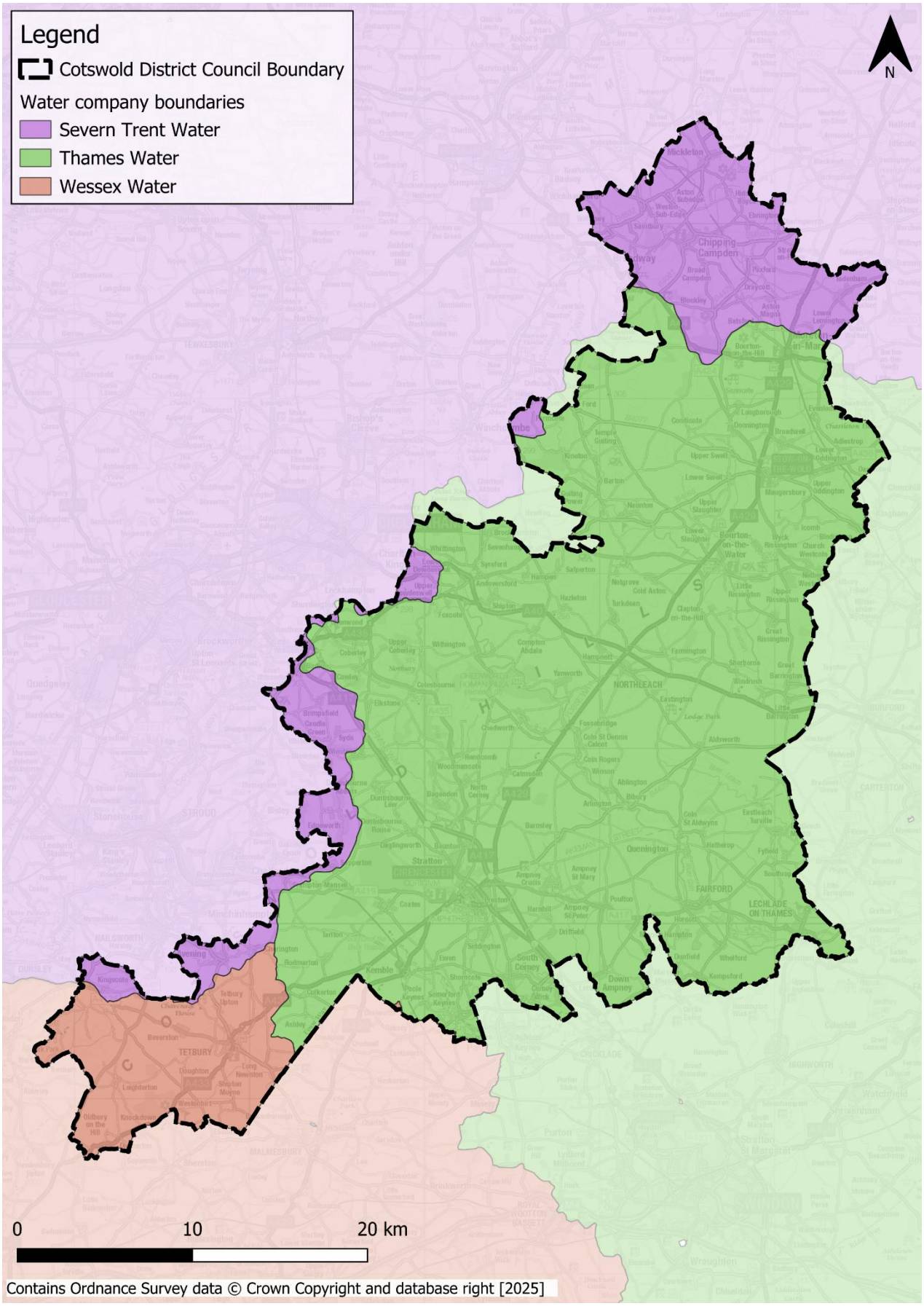


Figure 4-10: Water company boundaries covering Cotswold

4.6.1 Summary of sewer flood risk across Cotswold

Sewer flood risk is greatest in urban locations, particularly in areas where surface water and wastewater share the same combined sewer. Based on the water company historic flood incident data (Figure 4-7), the areas with the highest risk of sewer flooding are Chipping Campden, Tetbury, Long Newnton, Ashley and Shipton Moyne.

4.7 Groundwater flood risk

In general, less is known about groundwater flooding and availability of data is limited. Groundwater flooding can be caused by:

- High water tables, influenced by the type of bedrock and superficial geology.
- Seasonal flows in dry valleys, which are particularly common in areas of chalk geology.
- Rebounding groundwater levels, where these have been historically lowered for industrial or mining purposes.
- Where there are long culverts that prevent water easily getting into watercourses.
- Perched aquifers underlain by impermeable geology, particularly in low lying areas.

Groundwater flooding is different to other types of flooding. It can last for days, weeks, or even months and is much harder to predict and warn for. Monitoring does occur in certain areas, for example where there are major aquifers or in areas of historic mining.

The JBA Groundwater Emergence map shows the likelihood of groundwater emergence posing a risk to both surface and subsurface assets, based on predicted groundwater levels during a 1% AEP event. This divides groundwater emergence into five categories (Table 4-2).

Table 4-2: JBA Groundwater Emergence Map category descriptions

Category	Potential risk
0-0.025 - Groundwater levels are either at or very near (within 0.025m of) the ground surface.	Within this zone there is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.
0.025 - 0.5 - Groundwater levels are between 0.025m and 0.5m below the ground surface.	Within this zone there is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.
0.5 - 5 - Groundwater levels are between 0.5m and 5m below the ground surface.	There is a risk of emergence to subsurface assets, but surface manifestation of groundwater is unlikely.
>5 - Groundwater levels are at least 5m below the ground surface.	Groundwater emergence is not likely.

Category	Potential risk
N/A - no risk	This zone is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.

It should be noted that this dataset only identifies areas likely to be at risk of groundwater emergence and does not allow for the prediction of the likelihood of groundwater flooding or quantification of the volumes of groundwater that might be expected to emerge in a given area.

Potential development sites shown to be at risk from groundwater emergence should be subject to further investigation through a site-specific FRA (Section 7.2).

4.7.1 Summary of groundwater emergence risk across Cotswold

The risk of groundwater emergence within Cotswold is varied. There are several areas shown in the JBA Groundwater Emergence Map where groundwater levels are either at or very near the ground surface. These areas include:

- Area around and to the south of Moreton-in-Marsh
- Areas of Ashton Keynes and Somerford Keynes
- South of Down Ampney
- Area to the east of Fairford and to the south near RAF Fairford
- Lechlade

A site-specific assessment for groundwater may be required to fully inform the likelihood of emergence to subsurface and surface areas. This may involve seasonal percolation testing and ground investigations. The JBA Groundwater Emergence Map is shown in Figure 4-11 and is included in the interactive GeoPDF mapping (Appendix B).

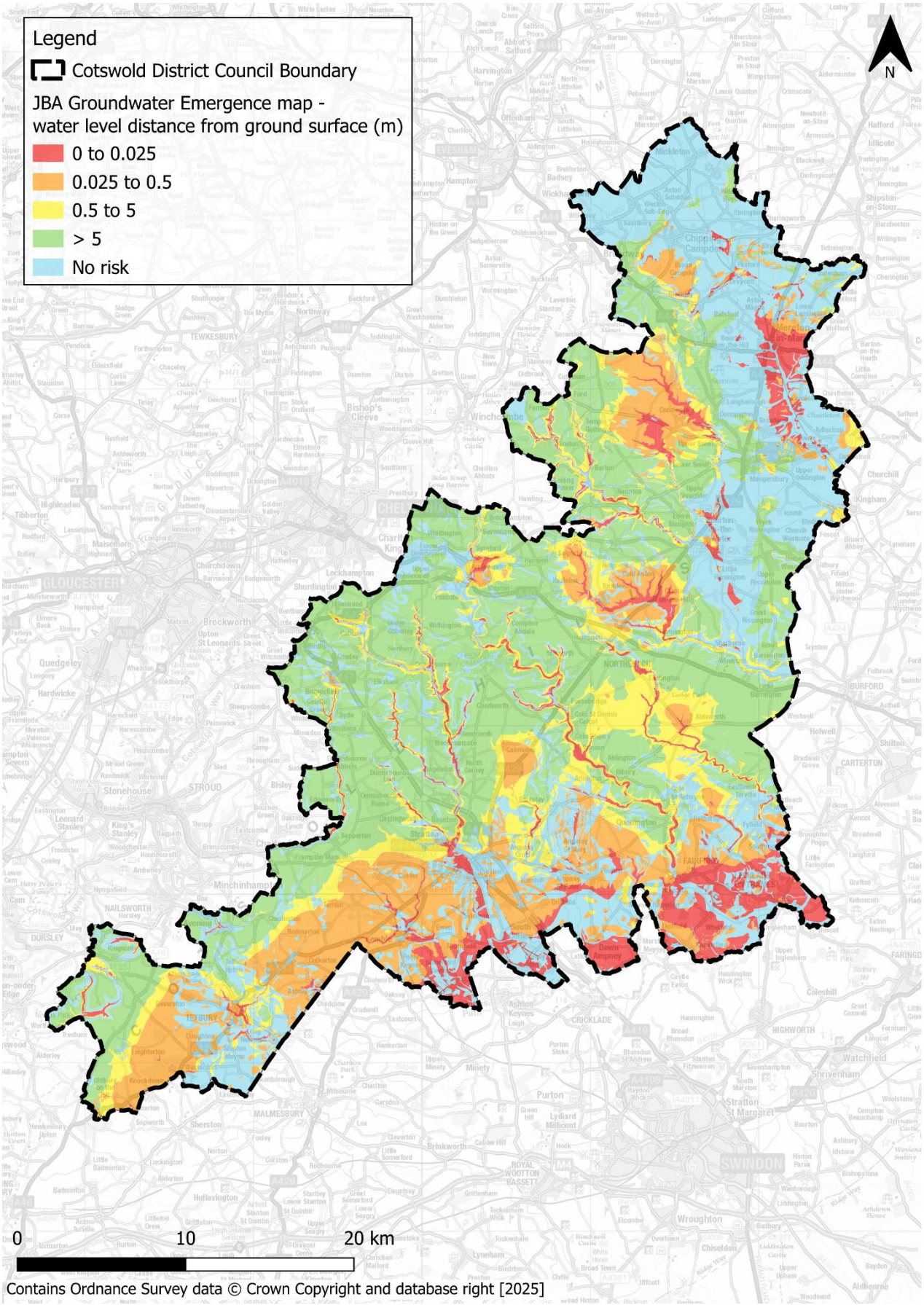


Figure 4-11: JBA Groundwater Emergence Map

4.8 Residual risk

Residual risk comes in two main forms (PPG: Flood Risk and Coastal Change Paragraph: 041):

- Residual risk from flood risk management infrastructure.
- Residual risk to a development once any site-specific flood mitigation measures are taken into account.

Examples of residual flood risk from flood risk management infrastructure include:

- A breach of a raised flood defence, blockage of a surface water conveyance system (culvert), or failure of a pumped drainage system;
- Failure of a reservoir / impounded waterbody; and
- A flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot accommodate.
- This SFRA does not assess the probability of infrastructure failure. However, in accordance with the NPPF, all sources of flooding need to be considered. If a defence breach or overtopping event were to occur, then the consequences to people and property could be significant. It is the responsibility of the developer to fully assess flood risk, propose measures to mitigate it and demonstrate that any residual risks can be safely managed.

Examples of residual flood risk to a single development to consider include:

- The depth of internal flooding predicted after any raising of land or finished floor levels;
- The flood hazard to which people would be exposed on access or escape routes after they have been raised; and
- A failure of flood forecasting or flood warning and the risks associated with people not receiving warnings or not acting upon them.

4.8.1 Reservoir flood risk

Reservoirs with an impounded volume greater than 25,000 cubic metres are governed by the Reservoirs Act 1975 (gov.uk) and are on a register held by the EA. The level and standard of inspection and maintenance required by a Supervising Panel of Engineers under the Act means that the risk of flooding from reservoirs is very low.

Reservoirs have a designated "risk category" set by the potential damage and loss of life in circumstances where there is a breach or an extreme flood event. Reservoirs designated as high risk are subject to increased inspection and maintenance requirements. However, this designation does not mean they are at a high risk of flooding. Allocation of new development downstream of an existing reservoir could potentially change the risk category of the reservoir and result in a legal requirement to improve the structural and hydraulic capacity of the dam. As the cost of implementing such works can be substantial, consideration should be given to whether it would be more appropriate to place development in alternative locations not associated with such risk.

Flooding from reservoirs occurs following partial or complete failure of the control structure designed to retain water in the artificial storage area. Reservoir flooding is very different from other forms of flooding; it may happen with little, or no warning and evacuation will need to happen immediately. The likelihood of such flooding is difficult to estimate but is extremely low compared to flooding from other sources. It may not be possible to seek refuge upstairs from floodwater as buildings could be unsafe or unstable due to the force of water from the reservoir breach or failure.

The EA's Reservoir Flood Map (RFM) shows the potential consequences of reservoir failure. Developers and planners should check the Long-Term Risk of Flooding (gov.uk) before using the reservoir data shown in this SFRA to make sure they are using the most up to date mapping. The EA provide two flooding scenarios for the RFM: a ‘dry-day’ and a ‘wet-day’. The ‘dry day’ scenario shows the predicted flooding which would occur if the dam or reservoir fails when rivers are at normal levels. The ‘wet day’ scenario shows the predicted worsening of the flooding which would be expected if a river is already experiencing an extreme natural flood. It should be noted that these datasets give no indication of the likelihood or probability of reservoir flooding. The EA maps represent a credible worst-case scenario. In these circumstances it is the time to inundation, the depth of inundation, the duration of flooding and the velocity of flood flows that will be most influential.

Potential development sites shown to be at risk from reservoir flooding should be subject to further investigation through a site-specific FRA (Section 7.2).

4.8.1.1 Summary of reservoir flood risk across Cotswold

The RFM shows that there are 10 reservoirs located outside the district which may pose a risk to Cotswold (detailed in Table 4-3). The EA's 'dry-day' and 'wet-day' reservoir flood extent maps are shown in Table 4-3 and are included in the interactive GeoPDF mapping (Appendix B).

Reservoir flood risk largely follows the channels of the River Churn in the south and the River Thames in the southeast of the authority area.

Table 4-3: Reservoirs with flood extents that may impact Cotswold

Reservoir	Easting and Northing	Reservoir owner	Risk Category	Local Authority	Does reservoir flooding impact the district in 'dry day' scenario?
Buscot Park Lake	424900, 196900	The National Trust	High-risk	Oxfordshire	Yes
Buscot Reservoir	423800, 196600	The National Trust	High-risk	Oxfordshire	Yes
Cirencester Park - The Mansion Lake	401700, 201700	Bathurst Estate Farming Limited	High-risk	Gloucestershire	Yes
Coate Water	417500, 182000	Swindon Borough Council	High-risk	Swindon	Yes
Dowdeswell	399000, 219700	Environment Agency	High-risk	Gloucestershire	Yes
Gatcombe Water	386900, 199245	Ede Holdings Limited	High-risk	Gloucestershire	Yes
Kennel Pond, Woodchester	382600, 201100	The National Trust	High-risk	Gloucestershire	No
Middle Pond, Woodchester	382100, 201300	The National Trust	High-risk	Gloucestershire	No
Parkmill Pond, Woodchester	383000, 200900	The National Trust	High-risk	Gloucestershire	No
Stanton Park Lake	417600, 190000	Swindon Borough Council	High-risk	Swindon	No

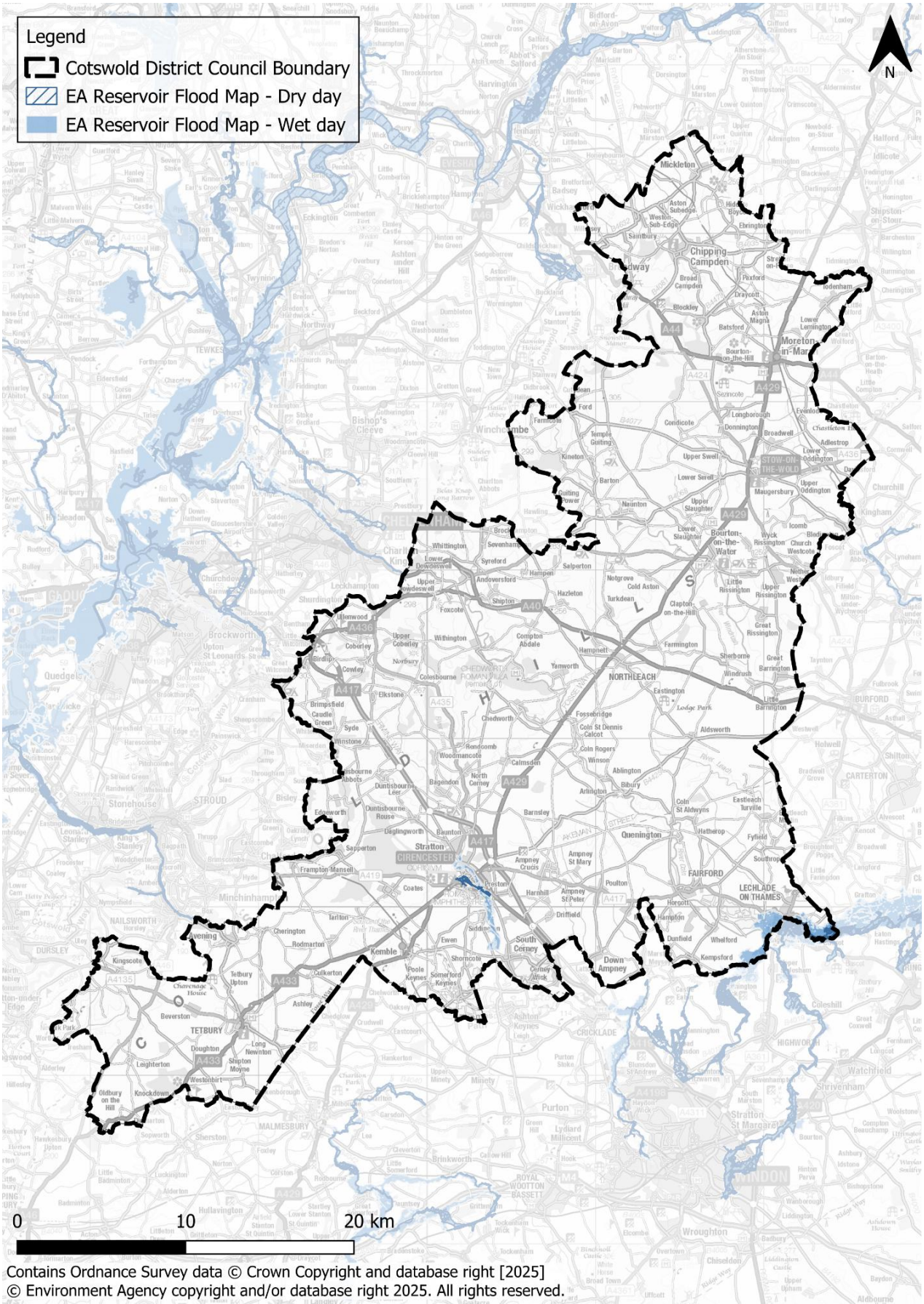


Figure 4-12: EA's Reservoir Flood Map in Cotswold

4.9 Combined sources of flood risk

In urban areas, surface water drainage networks and sewer systems are closely linked, with their interaction significantly influencing flood risk. Traditional urban drainage relies on impermeable surfaces directing rainwater into pipes and culverts, which often connect to combined sewers carrying both wastewater and stormwater. During heavy rainfall, these systems can become overwhelmed, leading to overflows that discharge untreated sewage into watercourses, exacerbating flooding and pollution.

4.10 Summary of flood risk in the district

The risk across the district is varied

- Fluvial flood risk predominantly originates from the River Churn, which flows through Cirencester and South Cerney. There is also fluvial flood risk along the River Thames and the River Coln along the southern border of the district. Historic fluvial flood events have significantly impacted the village of Bledington.
- Surface water risk is scattered across the study area. Notably this includes Chipping Campden, Moreton-in-Marsh, Evenlode and Bourton-on-the-Water in the north of the authority area and Cirencester, Down Ampney, South Cerney and Lechlade-on-Thames in the south.
- Groundwater emergence risk is varied across the district. Risk is greatest in areas around Moreton-in-Marsh and in the south of the district, covering areas including Down Ampney, Somerford Keynes, Fairford and Lechlade.
- Reservoir flood risk largely follows the channels of the River Churn in the south and the River Thames in the southeast.

5 Impact of climate change

The NPPF sets out that flood risk should be managed over the lifetime of a development, taking climate change into account. This section sets out how the impact of climate change on flood risk should be considered.

5.1 Climate change guidance

The Climate Change Act 2008 (legislation.gov.uk) creates a legal requirement for the UK to put in place measures to adapt to climate change and to reduce carbon emissions by at least 80% below 1990 levels by 2050. This was updated in June 2019 under the Climate Change Act 2008 (2050 Target Amendment) Order (legislation.gov.uk) to a 100% reduction (or net zero) by 2050.

In 2018, the Met Office published new UK Climate Projections (UKCP18) (gov.uk). The EA used these projections to update their guidance on climate change allowances for new developments for peak river flows (July 2021) and peak rainfall intensities (May 2022). This includes information on how these allowances should be included in both SFRAs and FRAs. The guidance adopts a risk-based approach considering the vulnerability of the development and considers risk allowances on a management catchment level, rather than a river basin level. The management catchments for Cotswold are shown in Figure 5-1.

Developers should check Flood risk assessments: climate change allowances (gov.uk) for the most recent guidance before undertaking a detailed FRA.

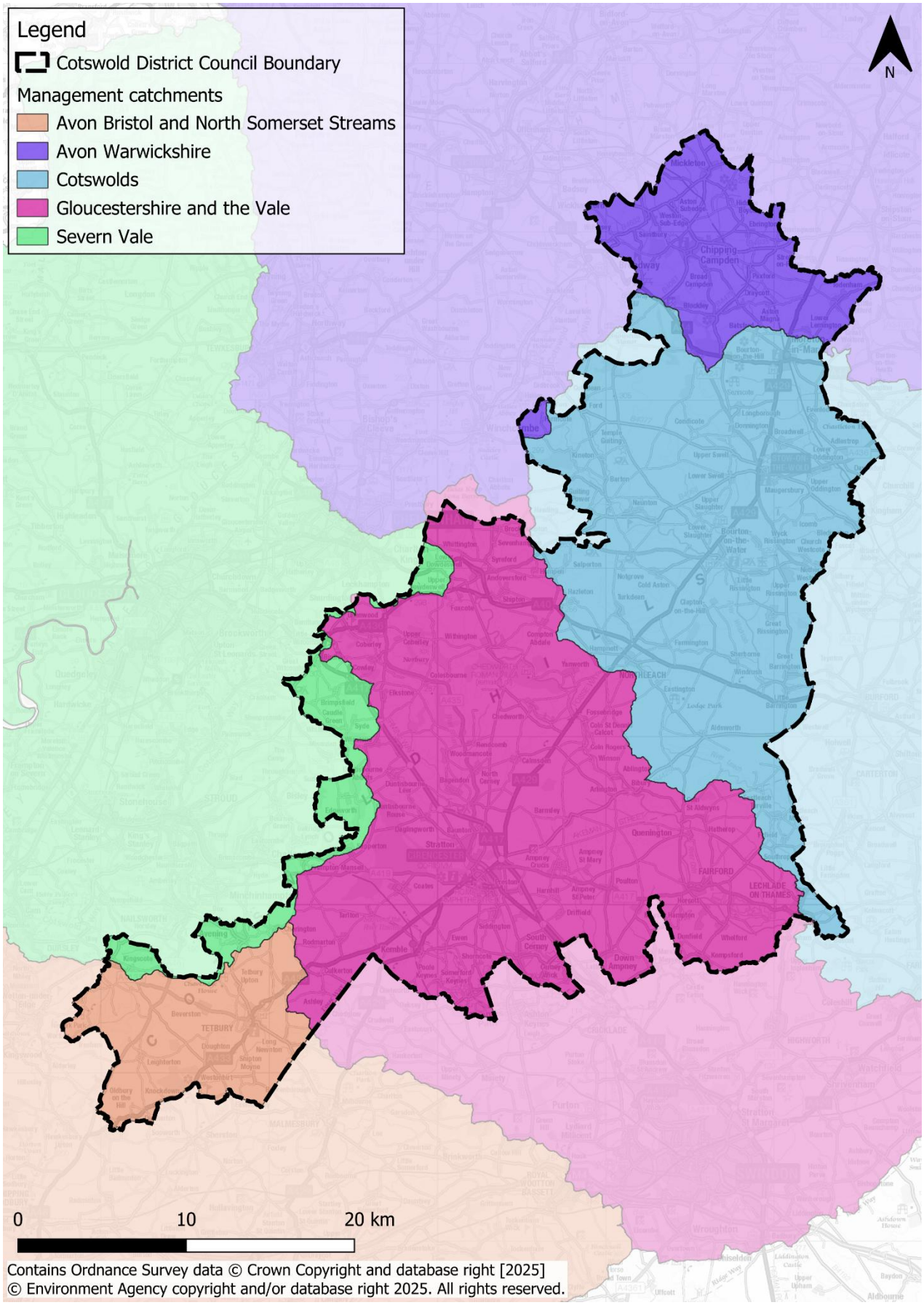


Figure 5-1: Management Catchments (assigned by the EA) across Cotswold

5.2 Peak river flows

Climate change is expected to increase the frequency, extent and impact of flooding, reflected in peak river flows. Wetter winters and more intense rainfall may increase fluvial flooding and surface water runoff and there may be increased storm intensity in summers. Rising river levels may also increase flood risk.

The peak river flow allowances (gov.uk) provided in the guidance shows the anticipated changes to peak flows for the management catchment within which the subject watercourse is located. The range of allowances are based on percentiles which describe the proportion of possible scenarios that fall below an allowance level:

- The central allowance is based on the 50th percentile (exceeded by 50% of the projections in the range).
- The higher central allowance is based on the 70th percentile (exceeded by 30% of the projections in the range).
- The upper end allowance is based on the 95th percentile (exceeded by 5% of the projections in the range).

These allowances (increases) are provided in the form of figures for the total potential change anticipated, for three climate change periods or epochs:

- The '2020s' (2015 to 2039).
- The '2050s' (2040 to 2069).
- The '2080s' (2070 to 2125).

The time period used in the assessment depends upon the expected lifetime of the proposed development. Residential development should be considered for a minimum of 100 years, whilst the lifetime of a non-residential development depends upon the characteristics of that development but a period of at least 75 years is likely to form a starting point for assessment. Further information on what is considered to be the lifetime of development is provided in the PPG (gov.uk).

5.2.1 Peak river flow allowances

The district is located within the Cotswolds, Gloucestershire and the Vale, Avon Warwickshire, Severn Vale and Avon Bristol and North Somerset Streams Management Catchment for peak river flow allowances. Table 5-3 displays the peak river flow allowances that apply to the district authority area.

Table 5-1: Peak river flow allowances for the management catchments covering Cotswold

Management Catchment	Allowance category	Total potential change (%) anticipated for '2020s' (2015 to 2039)	Total potential change (%) anticipated for '2050s' (2040 to 2069)	Total potential change (%) anticipated for '2080s' (2070 to 2125)
Cotswolds	Upper end	31	43	82
	Higher Central	17	21	43
	Central	11	13	30
Gloucestershire	Upper end	33	43	84
	Higher Central	17	19	41
	Central	11	11	26
Avon Warwickshire	Upper end	22	31	59
	Higher Central	12	14	32
	Central	7	8	21
Severn Vale	Upper end	34	52	94
	Higher Central	20	28	53
	Central	14	19	37
Avon Bristol and North Somerset Streams	Upper end	27	38	71
	Higher Central	15	19	39
	Central	10	12	26

5.2.2 Which peak river flow allowance to use?

The EA guidance states that both the central and higher central allowances should be assessed in SFRAs.

The Flood Zone and flood risk vulnerability classification (gov.uk) should be considered when deciding which allowances apply to the development or the plan. Specific guidance for which climate change allowance estimates should be applied can be found in the EA climate change guidance (gov.uk).

5.2.3 Representation of fluvial climate change within the Level 1 SFRA

The EA provided the latest available flood models for watercourses within Cotswold. The central allowance for the 2080s epoch has been assessed for risk of flooding from rivers, as per the EA's guidance on climate change. All seven of the available river models are up to date with the latest climate change allowances, having previously been updated in accordance with the EA peak river flow allowances to produce flood extents to support the

2023 Cotswold SFRA update. The available climate change allowances are stated in Table 5-2. These EA models are still the latest available and have been used to inform the future fluvial risk across Cotswold for this version of the Level 1 SFRA.

The FMfP also now includes the Flood Zones plus Climate Change dataset. This dataset represents how the combined extent of Flood Zones 2 and 3 could increase with climate change, ignoring the benefits of any existing flood defences. This dataset has been used to represent fluvial climate change in areas not subject to detailed modelling. No additional modelling has been completed as part of this Level 1 SFRA.

Table 5-2: EA detailed flood models covering Cotswold

Model	Year	Available 1% AEP event climate change allowances
Bledington Brook	2012	30%, 43%
Churn (Baunton to Siddington)	2011	30%, 43%
Daglingworth Stream FRA	2016	30%, 43%
Thames (MRL to St Johns)	2014	30%, 43%
Thames (St Johns to Shifford)	2011	15%, 25%, 35%, 70%
Windrush (Bourton-on-the-Water)	2014	30%, 43%
Windrush (Bourton-on-the-Water)	2018	10%, 11%, 13%, 15%, 17%, 21%, 25%, 30%, 31%, 35%, 43%, 70%, 82%

5.2.4 Implications of climate change for fluvial risk across the district

According to the available EA detailed model climate change outlines, as shown in Figure 5-2, there is an increase in fluvial flood risk when taking into account the impact of climate change. This is primarily evident along the River Thames and River Churn, in the areas of Cirencester, South Cerney and Fairford.

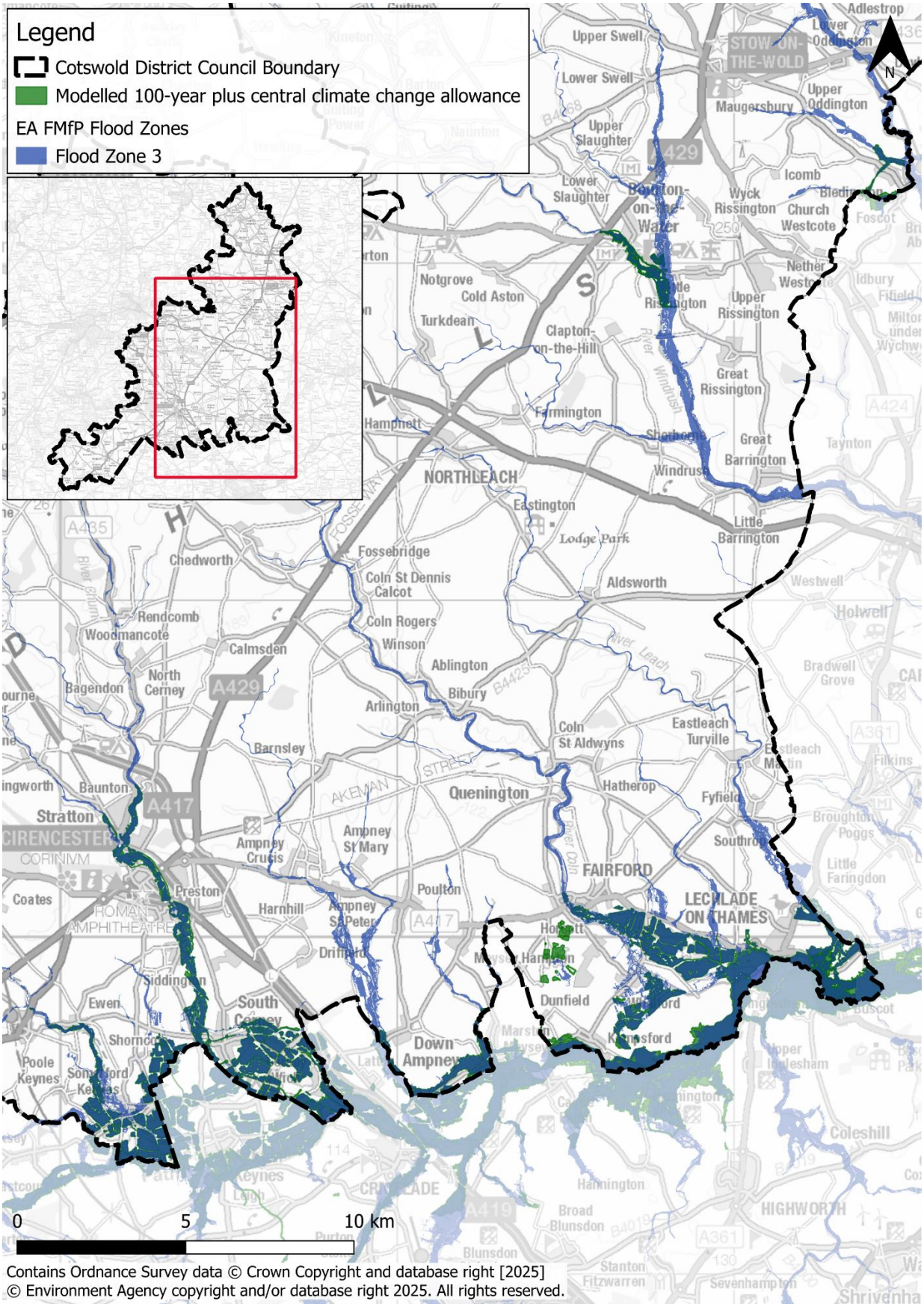


Figure 5-2: EA Detailed Flood Model Outlines - 100-year undefended plus central climate change allowance

5.3 Peak rainfall intensities

Climate change is predicted to result in wetter winters and increased summer storm intensities in the future. This increased rainfall intensity will likely negatively impact land and urban drainage systems, resulting in surface water flooding, due to the increased volume of water entering the systems. The EA have developed a peak rainfall allowances map (gov.uk) which shows anticipated changes in peak rainfall intensity which can be used for site-scale applications (like urban drainage design) and surface water flood mapping in small catchments (<5km^2).

The guidance suggests that direct rainfall modelling may not be suited to larger (>5km^2) catchments with rural land use. In these instances, the guidance states that the fluvial flood risk affected by climate change should be assessed using uplifts from peak river flow allowances (Section 5.2).

5.3.1 Peak rainfall intensity allowances for the district

The district is located within the Cotswolds, Gloucestershire and the Vale, Avon Warwickshire, Severn Vale and Avon Bristol and North Somerset Streams Management Catchment for peak rainfall allowances. Table 5-3 shows the peak rainfall allowances that apply to the district.

Table 5-3: Peak rainfall intensity allowances for small and urban catchments for Cotswold

Management Catchment	Allowance category	Total potential change (%) anticipated for '2050s' (2022 to 2060) 3.3% AEP	Total potential change (%) anticipated for '2050s' (2022 to 2060) 1% AEP	Total potential change (%) anticipated for '2070s' (2061 to 2125) 3.3% AEP	Total potential change (%) anticipated for '2070s' (2061 to 2125) 1% AEP
Cotswolds	Upper end	35	40	35	40
	Central	20	20	25	25
Gloucestershire	Upper end	35	40	35	40
	Central	20	20	25	25
Avon Warwickshire	Upper end	35	40	35	40
	Central	20	20	25	25
Severn Vale	Upper end	35	40	35	40
	Central	20	25	25	25
Avon Bristol and North Somerset Streams	Upper end	35	40	40	45
	Central	20	25	25	25

5.3.2 Which peak rainfall intensity allowance to use?

Rainfall intensity climate change uplifts should be applied to both the 3.3% and 1% AEP events. The recommended epoch and use of either the central or upper end allowances should be based on the design lifetime of the proposed development. Further details are provided within the EA climate change guidance (gov.uk). For FRAs and SFRAs the upper end allowance should be used. The EA guidance recommends that the upper end allowance is considered for both the 3.3% and 1% AEPs for the 2070's epoch (2061 to 2125), unless the allowance for the 2050's epoch (2022 to 2060) is higher, in which case this should be used. This is appropriate for development with a lifetime beyond 2100. For development with an expected shorter lifetime, the central allowance can be used.

5.3.3 Representation of surface water climate change within the Level 1 SFRA

The 2025 RoFSW includes for one modelled climate change scenario, the 2050s central allowance for the 3.3%, 1% and 0.1% AEP events. However, as stated above, the upper end allowance on peak rainfall for the 2070s should be assessed in SFRAs. Therefore, at the time of writing, the national surface water climate change mapping available, is unsuitable for consideration in development planning. For this Level 1 SFRA, the 0.1% AEP event is considered as a conservative, worst case proxy for the 1% AEP plus climate change extent, as consulted on with the EA. The proxy surface water climate change mapping is shown on the interactive GeoPDF mapping in Appendix B.

5.4 Groundwater

The effect of climate change on groundwater flooding, and those watercourses where groundwater has a large influence on winter flood flows, is uncertain. Milder wetter winters may increase the frequency of groundwater flooding incidents in areas that are already susceptible, but warmer drier summers may counteract this effect by drawing down groundwater levels to a greater extent during the summer months. The effect of climate change on groundwater levels for sites in areas where groundwater may be an issue, as informed at a strategic level by the JBA Groundwater Emergence map (Section 4.7), should be considered appropriately at the planning application stage. There is currently no available dataset that assesses the impacts of climate change on groundwater.

5.5 Adapting to climate change

PPG: Climate Change (gov.uk) Paragraph 003 (Reference ID: 6-003-20140612) contains information and guidance for how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change. Paragraph 005 (Reference ID: 6-005-20140306) also provides considerations for the LPA on dealing with the uncertainty of climate risks and accounting for climate change in a realistic way within developments.

The Gloucestershire climate change strategy (2023-2024) sets out how the County Council will reduce contributions to global warming and meet ambitious net-zero targets. It details the commitment of GCC to cut corporate emissions by 80% by 2030 and achieve a net-zero

county by 2045. Initiatives include the installation of EV charge points for residents, the improvement of cycling infrastructure, investment in decarbonisation and waste reduction.

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6 Flood risk infrastructure

This section provides a summary of existing flood alleviation schemes and assets in Cotswold. Planners should note the areas that are protected by defences where further work to understand the undefended and residual flood risk through a Level 2 SFRA may be beneficial. Developers should consider the benefit they provide over the lifetime of a development in a site-specific FRA.

6.1 Asset management

RMAs hold databases of flood risk management and drainage assets according to their jurisdiction as follows:

- The EA holds a national asset database that is updated by local teams known as the Asset Information Management System (AIMS).
- The LLFA should hold a register of significant local flood risk assets, required under Section 21 of the FWMA (2010).
- Highways authorities (National Highways for major roads in England, GCC for local, minor roads) hold databases of highways drainage assets, such as gullies and connecting pipes.
- Water companies hold records of public surface water, foul and combined sewers, the records may also include information on culverted watercourses.

The databases include the assets the RMAs directly maintain, and also third-party assets. The drainage network is extensive and will have been modified over time. It is unlikely that any RMA contains full information on the location, condition, and ownership of all the assets in their area. RMAs generally take a prioritised approach to collecting asset information, which will continue to refine the understanding of flood risk over time.

6.2 Standards of Protection

Flood defences are designed to give a specific Standard of Protection (SoP), reducing the risk of flooding to people and property in flood prone areas. For example, a flood defence with a 1% AEP SoP means that the flood risk in the defended area is reduced to at least a 1% chance of flooding in any given year.

Over time the actual SoP provided by the defence may decrease, for example due to deterioration in condition, lack of maintenance, or increases in flood risk due to climate change. The understanding of SoP may also change over time as RMAs undertake more detailed surveys and flood modelling studies.

It should be noted that the EA's ongoing hydraulic modelling programme may revise flood risk datasets and, therefore, the SoP offered by flood defences may also be revised. The AIMS dataset contains information on SoP.

6.3 Maintenance

Different authorities have responsibilities relating to maintenance of flood risk assets, set out in Table 6-1. It is important that the authorities work in partnership to maintain flood risk assets and manage flood risk across Cotswold.

Table 6-1: Flood risk asset maintenance responsibilities based on the FWMA (2010)

Authority	Asset maintenance responsibilities
EA	Permissive powers to maintain and improve main rivers, ultimate responsibility for maintaining watercourses rests with the landowner.
Local Authorities	Permissive powers to maintain and improve ordinary watercourses, ultimate responsibility for maintaining watercourses rests with the landowner.
LLFA	Permissive powers, limited resources are prioritised and targeted to where they can have the greatest effect
Highways Authorities	Duty to maintain public roads, making sure they are safe, passable, and the impacts of severe weather have been considered. Responsible for maintaining sections of watercourses where they are crossed by highways.
Water Companies	Duty to effectually drain their area. What this means in practise is that assets are maintained to common standards and improvements are prioritised for the parts of the network that do not meet this standard e.g., where there is frequent sewer flooding.
Riparian Owners	Responsible for the protection of their properties from flooding as well as other management activities, for example by maintaining riverbeds/banks, controlling invasive species, and allowing the flow of water to pass without obstruction.

There is potential for the risk of flooding to increase in areas where flood alleviation measures are not maintained regularly. Breaches in raised flood defences are most likely to occur where the condition of a flood defence has degraded over time. Drainage networks can frequently become blocked with debris which can lead to blockages of culverts and bridge openings.

Developers should not assume that any defence, asset, or watercourse is being or will continue to be maintained throughout the lifetime of a development. They should contact the relevant RMA about current and likely future maintenance arrangements and make future users of the development aware of their obligations to maintain watercourses.

Formal structural defences are given a rating based on a grading system for their condition. A summary of the grading system used by the EA for condition is provided in Table 6-2.

Table 6-2: Grading system used by the EA to assess flood defence condition

Grade	Rating	Description
1	Very good	Cosmetic defects that will have no effect on performance.
2	Good	Minor defects that will not reduce the overall performance of the asset.
3	Fair	Defects that could reduce the performance of the asset.
4	Poor	Defects that would significantly reduce the performance of the asset. Further investigation required.
5	Very poor	Severe defects resulting in complete performance failure.

Source: Condition Assessment Manual – EA 2006

6.4 Major flood risk management assets in Cotswolds

The EA's AIMS dataset includes raised flood defences. Table 6-3 details the locations in the district which benefit from formal flood defences within the AIMS dataset. The LPA, LLFA, and developers should refer to the AIMS Spatial Flood Defences dataset (gov.uk) for further information on specific flood defences in terms of planning development. It is clear from Table 6-3 that there are gaps in information regarding much of the defence network across the district whereby current conditions and SoPs are unknown. Survey of any defences that may provide protection to an area where new development is planned should be carried out. It should be noted that the AIMS dataset does not include all third-party flood defences, therefore there may be existing defences that are not included in Table 6-3.

The AIMS Spatial Flood Defences dataset is shown on the interactive GeoPDF Mapping (Appendix B).

Table 6-3: Locations shown in the EA 'AIMS' dataset

Watercourse	Location	Type	Design SoP (AEP)	Actual SoP (AEP)	Target Condition Rating (1-5)	Actual Condition Rating (1-5)	Asset Maintainer
Bledington Brook	Bledington	Embankment	2	Unknown	Uknown	Unknown	Unknown
River Windrush	Bourton-on-the-Water	Embankment	75	Unknown	Unknown	Unknown	Unknown
River Windrush	Bourton-on-the-Water	Embankment	75	Unknown	3	2	Environment Agency
River Windrush	Bourton-on-the-Water	Embankment	75	Unknown	Unknown	Unknown	Local Authority
River Windrush	Bourton-on-the-Water	Wall	75	Unknown	Unknown	Unknown	Unknown
River Leach	Lechlade-on-Thames	Embankment	5	Unknown	Unknown	Unknown	Private individual Company or charity
River Leach	Lechlade-on-Thames	Embankment	5	Unknown	Unknown	Unknown	Unknown
River Coln	Whelford	Embankment	5	Unknown	Unknown	Unknown	Private individual, company or charity

Watercourse	Location	Type	Design SoP (AEP)	Actual SoP (AEP)	Target Condition Rating (1-5)	Actual Condition Rating (1-5)	Asset Maintainer
River Coln	Fairford	Embankment (2)	Unknown (2)	Unknown (2)	Unknown (2)	Unknown (2)	Private individual, company or charity (2)
River Coln	Fairford	Wall (4)	Unknown (4)	Unknown (4)	Unknown (4)	Unknown (4)	Private individual, company or charity Local Authority (1)
River Churn	South Cerney	Embankment (3)	5 (3)	Unknown (3)	Unknown (3)	Unknown (3)	Private individual, company or charity (3)
River Churn	South Cerney	Wall (2)	5 (2)	Unknown (2)	Unknown (2)	Unknown (2)	Private individual, company or charity (2)

Watercourse	Location	Type	Design SoP (AEP)	Actual SoP (AEP)	Target Condition Rating (1-5)	Actual Condition Rating (1-5)	Asset Maintainer
Unnamed watercourse	Somerford Keynes	Embankment (2)	50 (2)	Unknown (2)	3 (2)	3 (2)	Environment Agency (2)
River Churn	Cirencester	Embankment	5	Unknown	Unknown	Unknown	Private individual, company or charity
River Churn	Cirencester	Embankment	Unknown	Unknown	3	3	Environment Agency
River Churn	Cirencester	Embankment (2)	Unknown (2)	Unknown (2)	Unknown (2)	Unknown (2)	Unknown (2)
River Churn	Cirencester	Wall	Unknown	Unknown	Unknown	Unknown	Private individual, company or charity
River Churn	Cirencester	Wall (2)	Unknown (2)	Unknown (2)	Unknown (2)	Unknown (2)	Unknown (2)
River Churn	Cirencester	Engineered High Ground	50	Unknown	Unknown	Unknown	Unknown

6.5 Existing and future flood alleviation schemes

The EA manages government investment to reduce flood risk and coastal erosion in England. The LLFA works with the EA and other RMAs to deliver Local Flood Risk Management Strategies, focusing on surface water, groundwater, and ordinary watercourse flooding, and to deliver specific local flood risk management projects outlined in the local strategy and action plan.

6.5.1 Completed schemes in Cotswold

6.5.1.1 Chipping Campden Flood Alleviation Scheme

The Chipping Campden flood alleviation scheme was developed in response to the July 2007 flooding where approximately 115 to 120 properties were affected. The scheme was completed in March 2013. According to the Chipping Campden flood alleviation report the following measures were implemented:

- Creation of clay core earth bund in the grounds of Westington Mill
- Installation of a filter drain on the boundary of Westington Mill and Campden House land
- Channel clearance downstream of blind lane culverts

6.5.1.2 Northleach Flood Alleviation Scheme

The Northleach flood alleviation scheme was developed in response to the July 2007 flooding where approximately 15 to 20 properties were affected. The scheme was completed in August 2013. According to the Northleach flood alleviation report the following measures were implemented:

- New surface water pipe laid along High street to alleviate surface water and highway flooding
- Creation of balancing pond

6.5.1.3 Weston-Sub-Edge flood alleviation scheme

The Weston-Sub-Edge flood alleviation scheme was developed in response to the July 2007 flooding where 16 properties were affected. The scheme was completed in Spring 2013. According to the Weston-Sub-Edge flood alleviation report the following measures were implemented:

- Saintbury brook bank protection
- Surface water diversion scheme, reprofiling driveways and junctions to divert surface water into a carrier pipeline discharge into Coombe brook
- Communal property level protection at Cider Mill Orchard

6.5.1.4 Bledington Village Flood Risk Management

An outline design summary report was completed in 2023 for the Bledington Village Flood Risk Management project. A previous options appraisal was completed which identified the need for raising the level of the existing village ditch bund, which had been overtopped in recent events, and also the creation of a new bund that will limit the ingress of water from the Westcote Brook to the village ditch. The report summarises the desk-based assessments completed to define the best approaches and next steps to move the project forward.

6.5.1.5 Wyck Rissington Pipe Capacity

Modelling has been undertaken to review the pipe capacity under the village green. The modelling will be used to inform the installation of two 250mm culverts beneath the main report through the village, as agreed with the Parish Council.

6.5.1.6 Other schemes

Other completed schemes within the area include:

- Bourton-on-the-Water - several permanent flood defences (Naight Meadow Flood Bund, Congiers Meadow Flood Bund, Rissington Road Flood Bund and Chestnut House Wall)
- Cirencester - offered protection from works associated with the Environment Agency's Churn Strategy to provide a 1 in 30-year SoP, including flood defences, flow control structures and localised management
- Fairford FAS - offered protection from the Fairford Flood Alleviation Scheme, consisting of a combination of walls and bunds in targeted locations throughout the town to provide a 1 in 100-year SoP
- Somerford Keynes - offered protection from the Somerford Keynes Flood Alleviation Scheme, consisting of embankments, channel realignment and a pumping station, providing a 1 in 50-year SoP

6.5.2 Future schemes

6.5.2.1 Queen Street, Chedworth

GCC, as LLFA, and highways have agreed that work is required to improve the condition of the existing drainage infrastructure on Queen Street to ensure maximum capacity for conveying flow. The completion of this work is subject to funding being sourced. The next phase of the work involves further investigations by the highways structures teams on the collapsed culvert beneath the highway at the bottom of Queen Street.

6.5.2.2 Lower Slaughter Weir Overflow Channel

Investigations are ongoing into the reshaping of an overflow channel past the weir on the River Eye. The benefits of the scheme are currently being identified to inform a funding application.

6.5.2.3 South Cerney Road, Siddington

The first design phase has been completed to help improve conveyance around Siddington to reduce flooding at The Common.

7 Flood risk management requirements for developers

This section provides guidance on site-specific FRAs and other principles for managing flood risk in new development.

7.1 Early consultation with statutory and non-statutory consultees

Developers should consult with the EA, the LLFA and the relevant sewerage undertaker at an early stage to discuss flood risk including requirements for site-specific FRAs, detailed hydraulic modelling and foul and surface water drainage assessment and design. It should be noted that some of these consultees may need to charge for data and/or advice requested by developers or landowners. However, developers should first consult the LPA when considering a site for development on whether the site has already been subject to the Sequential Test as part of the local plan making process.

7.2 Site-specific FRAs

7.2.1 What is a site-specific FRA?

A site-specific FRA is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site and should accompany a planning application where required (see Section 7.2.2). It is recommended that the assessment is undertaken by a suitably qualified person or company. The assessment should demonstrate how flood risk will be managed now and over the development's lifetime, taking both climate change and the vulnerability of users into account. The developer should check with the LPA whether they are required to apply the Sequential Test prior to commencing with a site-specific FRA.

The objectives of a site-specific FRA are to establish:

- Whether a proposed development is likely to be affected by current or future flooding from any source.
- Whether a proposed development will increase flood risk elsewhere.
- Whether the measures proposed to deal with these effects and risks are adequate and appropriate.
- The nature of residual risk and whether this can be safely managed.
- The evidence, if necessary, to apply the Sequential Test.
- The evidence, if applicable, to show whether the development will be safe for its lifetime and pass the Exception Test.

7.2.2 When is an FRA required?

As set out in Flood risk assessments: applying for planning permission (gov.uk), a site-specific FRA is required for all development (including minor development and changes of use) proposed:

- In Flood Zones 2, 3, or 3b.
- Within Flood Zone 1 with a site area of 1 hectare or more.
- Within Flood Zone 1 and the FMfP shows it is though shown to be at risk of flooding from surface water.
- In areas with critical drainage problems (as identified by the EA or LLFA).
- Within Flood Zone 1 where the LPA's SFRA shows it will be at increased risk of flooding during its lifetime, as shown in the Environment Agency detailed climate change modelled and the 'Flood Zones plus Climate Change' extent shown on the EA FMfP.
- Where the vulnerability classification is increased and may be subject to sources of flooding other than rivers or sea.

7.2.3 What level of detail is needed in a site-specific FRA?

Site-specific FRAs should be proportionate to the degree of flood risk and the scale, nature, and location of the development. This SFRA can be used by developers as a starting point to identify the initial flood risk to a site however a pre-application consultation is key to define the scope of the FRA and identify data requirements, making sure that latest available datasets are used.

7.2.4 Guidance for FRAs

FRAs should follow the approach recommended by the NPPF (and associated planning practice guidance), and guidance provided by the EA and the LLFA. Guidance and advice for developers on the preparation of site-specific FRAs is available from the following websites with hyperlinks provided:

- Standing Advice on Flood Risk (gov.uk)
- Flood Risk Assessment for Planning Applications (gov.uk); and
- Site-specific Flood Risk Assessment: Checklist (gov.uk)

Guidance should be sought from the EA and the Council at the earliest possible stage, and opportunities should be taken to incorporate environmental enhancements and reduce flooding from all sources both to and from the site through development proposals. Developers should seek to go beyond managing the flood risk and support opportunities to reduce the causes and impacts of flooding, whilst enhancing and conserving the natural environment. PPG: Flood risk and coastal change (gov.uk) Paragraphs 062 - 067 provide further information. Potential strategic solutions to consider are detailed in Section 12 of this report.

7.3 Emergency planning

Safe access and escape routes should always be available from developments. The developer should seek to incorporate an emergency plan and ensure safe refuge points are available if the development site has been identified to be at risk of flooding. Emergency planners, emergency services, the local resilience forum, and all other flood incident responders should be consulted when designing an emergency plan. For further details on emergency planning, see Section 10.2 of this report.

8 Principles for site design and master planning

Flood risk should be considered at an early stage in deciding the layout and design of a site to provide an opportunity to reduce flood risk within the development. This section sets out the principles for site design through ground level modifications, consideration of the impact of defence infrastructure on planning, and property flood resilience.

The NPPF states that a sequential, risk-based approach should be applied to try to locate more vulnerable land uses away from high-risk areas to higher ground and lower flood risk areas, while more flood-compatible development (e.g., recreational spaces) can be located in higher risk areas. Higher risk areas can also be retained and enhanced as natural green space. Whether parking in floodplains is appropriate will be based on the likely flood depths and hazard, evacuation procedures and availability of flood warnings and alerts. The nature of risk to water quality also needs to be considered and mitigated to ensure that accumulated hydrocarbons and other vehicle related pollutants are not released to the aquatic environment.

Waterside areas, or areas along known flow routes, can be included in development layouts as blue green infrastructure, being used for recreation, amenity, and environmental purposes, allowing the preservation of flow routes and flood storage, whilst at the same time providing valuable social and environmental benefits contributing to other sustainability objectives. Appropriate landscaping should provide safe access to higher ground from these areas and avoid the creation of isolated 'dry islands' as water levels rise.

8.1 Modification of ground levels

Modifying ground levels to raise the land above the design flood level is an effective way of reducing flood risk to a particular site in circumstances where the land does not act as conveyance for floodwaters. However, care must be taken as raising land above the flood level could reduce conveyance or flood storage in the floodplain and could adversely impact flood risk downstream or on neighbouring land. Raising ground levels can also deflect flood flows, so analysis should be performed to demonstrate that there are no adverse effects on third party land or property.

If compensatory flood storage is required, following application of the sequential test and sequential approach to site layout, this should be provided on a level for level, volume for volume basis on land that does not currently flood but is adjacent to the floodplain (for it to fill and drain by gravity). This should be provided where development displaces water within the floodplain. It should be in the vicinity of the site and within the red line of the planning application boundary (unless the site is strategically allocated). Where it is not possible to provide onsite compensatory storage, it may be acceptable to provide it off-site if it is hydraulically and hydrologically linked. Stilts and voids are unlikely to be an acceptable method of compensating for losses in floodplain storage.
The PPG: Flood risk and coastal change (gov.uk) Paragraph 049, and Appendix A3 of the

CIRIA Publication C624 (ciria.org) provides guidance on how to address floodplain compensation.

Raising levels can also create areas where surface water might pond during significant rainfall events. Any proposals to raise ground levels should be modelled and fully tested to check that it would not cause increased ponding or build-up of surface runoff on third party land.

Any proposal for modification of ground levels within areas of flood risk will need to be discussed at an early stage with the EA and its impacts assessed as part of a detailed FRA.

8.2 Raised floor levels

If raised floor levels are proposed, these should be agreed with the LPA and the EA. The minimum Finished Floor Level (FFL) may change dependent upon the vulnerability and flood risk to the development.

Developers should refer to the Preparing a flood risk assessment: standing advice (gov.uk) for the latest guidance on FFLs but generally the EA advises the minimum finished floor levels should be set 600mm above the 1% AEP fluvial plus climate change peak flood level (considered to be the standard design event), where the appropriate climate change allowances have been used. An additional allowance may be required because of residual risks relating to blockages to the channel, culvert or bridge and should be considered as part of an FRA. Lowering existing FFLs below the existing levels within the 1% AEP plus climate change floodplain would not be acceptable and should be discouraged. New development offers opportunities to improve the resilience of buildings to flooding.

Building design and raised floor levels are the only way to fully reduce groundwater flood risk, through ensuring FFLs are raised above predicted groundwater levels considering known groundwater issues.

Allocating the ground floor of a building for less vulnerable, non-residential, or non-habitable residential use may be an effective way of raising living space above flood levels. However, it is important to consider the flood risk vulnerability for the whole development to ensure it is compatible with the flood zone. Single storey buildings such as ground floor flats or bungalows are especially vulnerable to rapid rise of water (such as that experienced during a breach of flood defences). This risk can be reduced by use of multiple storey construction and raised areas that provide a point of refuge. However, safe access and escape routes must still be available, particularly when flood duration covers many days.

Similarly, the use of basements should be avoided in areas of flood risk. Habitable uses of basements within Flood Zone 3 and areas at high or medium risk of surface water flooding should not be permitted, whilst basement dwellings (classed as 'highly vulnerable') in Flood Zone 2 will be required to pass the Exception Test.

Where the ground level of a site is below the ground level at the point where the drainage connects to the public sewer, care must be taken to ensure that the proposed development is not at an increased risk of sewer surcharge. It is good practice for the FFLs and manhole cover levels (including those that serve private drainage runs) to be higher than the

manhole cover level at the point of connection to the receiving sewer. Alternatively, mitigation measures may need to be incorporated into the proposals to protect against sewer surcharge.

8.3 Development and raised defences

8.3.1 Undefended and residual risk

Construction of localised raised floodwalls or embankments to protect new development is not a preferred option, as a residual risk of flooding will remain. New defence works would normally be into in place to protect existing development. Compensatory storage must be provided where raised defences remove storage from the floodplain. This is because raised defences prevent floodwater from spreading naturally across the floodplain, which can increase flood levels elsewhere.

Where development is located behind, or in an area that benefits from defences, both the undefended risk and the residual risk of flooding from defence breaching or overtopping must be considered by the developer and it must be demonstrated that they can be safely managed. The assessment of the risk should consider:

- Improvements required to the level of protection afforded by existing defences for future development.
- The future commitment and funding to maintain the current SoP of any existing defences.
- Any disparities between the proposed level of commitment to maintain the current standard of protection and the level of protection required to support future development.
- The effects of climate change on the future SoP afforded by the defences and the associated maintenance and upgrade commitments required.
- Any land required to be safeguarded for affordable future flood risk management measures.

8.3.2 Breach assessment

The assessment of the residual risk from a breach event should consider an assessment of the hazards that might occur from subsequent flood flows, considering depth and flow velocities, so that the safety of people and structural stability of properties and infrastructure can be appropriately considered.

Considerations should include the location of a breach, when it would occur and for how long, the depth of the breach (toe level), the loadings on the defence, and the potential for multiple breaches.

There are various ways of assessing breaches using hydraulic modelling. EA LIT56413 Breach of Defences Guidance (2021) provides some guidance for breach assessment from the EA. It is recommended that the EA is consulted if a development site is located near to a flood defence, to understand the level of assessment required and to agree the location(s) and approach for the breach assessment. Breach assessment can be modelled to inform site allocation through a Level 2 SFRA.

8.3.3 Overtopping assessment

The assessment of the residual risk from overtopping of defences should consider the potential flood hazard to people, based on factors such as the height of floodwaters above the crest of the defence, the proximity and elevation of receptors relative to the defence and the likely depth and velocity of floodwaters in the event of overtopping. The Defra and EA Flood Risks to People guidance document (gov.uk) provides standard flood hazard ratings based on the distance from the defence and the level of overtopping. Overtopping modelling or assessments should be undertaken for any sites located near to defences or perched ponds/reservoirs, accounting for climate change.

8.3.4 Developer contributions

In some cases, and following application of the Sequential Test, it may be appropriate for the developer to contribute to the improvement of flood defence provision that would benefit both the proposed new development and the existing local community. Developer contributions can also be made to maintenance and provision of flood risk management assets, flood warning and the reduction of surface water flooding (i.e. SuDS). LPAs can choose to impose a community infrastructure levy (CIL) on development in their area.

8.4 Buffer strips

The provision of a buffer strip alongside a watercourse allows additional capacity to accommodate climate change and means access to the watercourse, and any structures or defences, is retained for future maintenance purposes. It also helps to avoid the disturbing of riverbanks which may adversely impact local ecology, and the need to have to construct engineered riverbank protection and can also contribute to Biodiversity Net Gain (see Section 12.2). A buffer strip of 8m is recommended for any non-tidal main river. Where flood defences are present, these distances should be taken from the landward toe of the defence.

Building adjacent to riverbanks may cause issues with the structural integrity of the riverbanks and subsequently the building itself, making future maintenance of the river much more difficult. Flood Risk Activity Permits (gov.uk) from the EA are likely to be required for development in these areas alongside any planning permission. There should be no built development within these distances from main rivers/flood defences (where present).

8.5 Property Flood Resilience (PFR)

Property Flood Resilience (PFR) includes a range of measures that can be installed around the perimeter of a building to reduce the risk of internal flooding. PFR can also be used within a building, to minimise the damage done if internal flooding stills occurs. PFR aims to help households and businesses reduce the damage caused by flooding, helping to speed up recovery and reoccupation.

PFR encompasses two main elements:

- Resistance - Resistance measures are installed around the perimeter of a building. These measures aim to reduce or resist the amount of water entering the building, thus reducing the damage caused internally. Examples include flood doors/barriers, anti-flood airbricks, and non-return valves.
- Resilient adaptation (recoverability) - Adaptations made within a property, which aim to reduce the damage caused if internal flooding occurs.

The consideration of resistance measures and resilient adaptation should not be used to justify development in inappropriate locations. However, having applied planning policy there may be some instances where development is permitted in high or medium flood risk areas where application of resistance and resilience measures may be required.

There may also be opportunities for 'change of use' developments to be used to improve the flood resistance and resilience of existing development, which may not have been informed by a site-specific FRA when first constructed.

Further information and guidance on best practice can be found online in the following locations:

- Department for Communities and Local Government Improving the Flood Performance of New Buildings: Flood Resilient Construction (gov.uk)
- CIRIA Property Flood Resilience Code of Practice (ciria.org)
- EA Flood resilience construction of new buildings (gov.uk)

9 Surface water management and SuDS

This section provides an overview of SuDS, including signposting to relevant guidance, as well as guidance for developers on surface water drainage strategies.

9.1 Sustainable Drainage Systems (SuDS)

Sustainable Drainage Systems (SuDS) are management practices which enable surface water to be drained in a more sustainable manner and to mimic the local natural drainage. The inclusion of SuDS within developments is also an opportunity to enhance ecological and amenity value, and promote blue green infrastructure, incorporating above ground features into the development landscape strategy.

It is essential that developers consider sustainable drainage at an early stage of the development process – ideally at the pre-application or master planning stage. To further inform development proposals at the master planning stage, pre-application submissions are accepted by the Council. This assists with the delivery of well designed, appropriate, and effective SuDS. Applicants are also encouraged to engage with the relevant water company to discuss their surface water proposals, especially where adoption is proposed.

9.2 Sources of SuDS guidance

9.2.1 National standards for SuDS

Previously, SuDS guidance was developed to sit alongside the PPG and provide non-statutory standards as to the expected design and performance for SuDS

As of June 2025, the Defra National standards for sustainable drainage systems (SuDS) (gov.uk) were brought in to comply with principles laid out in Section 9.1. Whilst remaining as a non-statutory specification, these now form a material consideration for LPAs when assessing planning applications. These standards aim to reflect and reinforce good practice and use of SuDS as detailed in Section 9.4, reflecting the four pillars of SuDS design.

The national standards contain two sets of standards. The first type (Standard 1) is known as the hierarchy standard and gives criteria for the prioritisation of final runoff destinations. The other standards (Standards 2-7) detail the minimum requirements of design criteria that surface water drainage systems should satisfy alongside how they are to be appropriately built, maintained, and operated.

9.2.2 C753 CIRIA SuDS Manual (2015)

The C753 CIRIA SuDS Manual (2015) (ciria.sharefile.com) provides guidance on planning, design, construction, and maintenance of SuDS. The manual is divided into five sections ranging from a high-level overview of SuDS, progressing to more detailed guidance with progression through the document.

9.2.3 Design and Construction Guidance (DCG)

The Design and Construction Guidance (DCG) (water.org.uk) contains Codes for Adoption, covering the adoption of new water and wastewater infrastructure by water companies, and contains details on the water sector's approach to the adoption of SuDS.

9.2.4 Local SuDS guidance

GCC defer to the Defra National standards for SuDS as the guidance that should be used for development within Cotswold.

9.3 Roles of the LLFA and LPA

GCC as LLFA are a statutory planning consultee. They provide technical advice on surface water drainage strategies and designs put forward for major development[1] proposals, to confirm that onsite drainage systems are designed in accordance with the current legislation and guidance.

When considering planning applications, the LLFA drainage/flood risk engineering team will provide advice to the LPA on the management of surface water. The LPA should satisfy themselves that the development's proposed minimum standards of operation are appropriate and, using planning conditions or planning obligations, to ensure there are clear arrangements for ongoing maintenance over the lifetime of the development.

In their respective roles as LPA and LLFA, Cotswold District Council and GCC should:

- Promote the use of SuDS for the management of runoff;
- Ensure their policies and decisions on applications support and compliment the building regulations on sustainable rainwater drainage, giving priority to infiltration over discharges into watercourses, and then sewer conveyance;
- Incorporate favourable policies within development plans;
- Adopt policies for incorporating SuDS requirements into the Local Plan; and
- Encourage developers to utilise SuDS whenever practical, if necessary, through the use of appropriate planning conditions.

9.3.1 Schedule 3 of the Flood and Water Management Act (2010)

At the time of writing, the implementation of SuDS is driven through planning policy. Schedule 3 of the FWMA 2010 aims to provide a framework for the approval and adoption of drainage systems, to designate SuDS Approving Bodies (SAB) within unitary and county councils, and to ensure national standards on the design, construction, operation, and

1 The NPPF defines residential major development as development where 10 or more homes will be provided, or the site has an area of 0.5 hectares or more. For non-residential development it means additional floorspace of 1,000m^2 or more, or a site of 1 hectare or more, or as otherwise provided in the Town and Country Planning (Development Management Procedure) (England) Order 2015.

maintenance of SuDS for the lifetime of the development are followed. Timescales for the enactment of Schedule 3 by government are unknown.

9.4 Considerations for SuDS design

9.4.1 Four pillars of SuDS design

SuDS are designed to maximise the opportunities and benefits that can be secured from surface water management practices. SuDS design should consider the four pillars of SuDS (Figure 9-1): water quantity, water quality, amenity, and biodiversity.

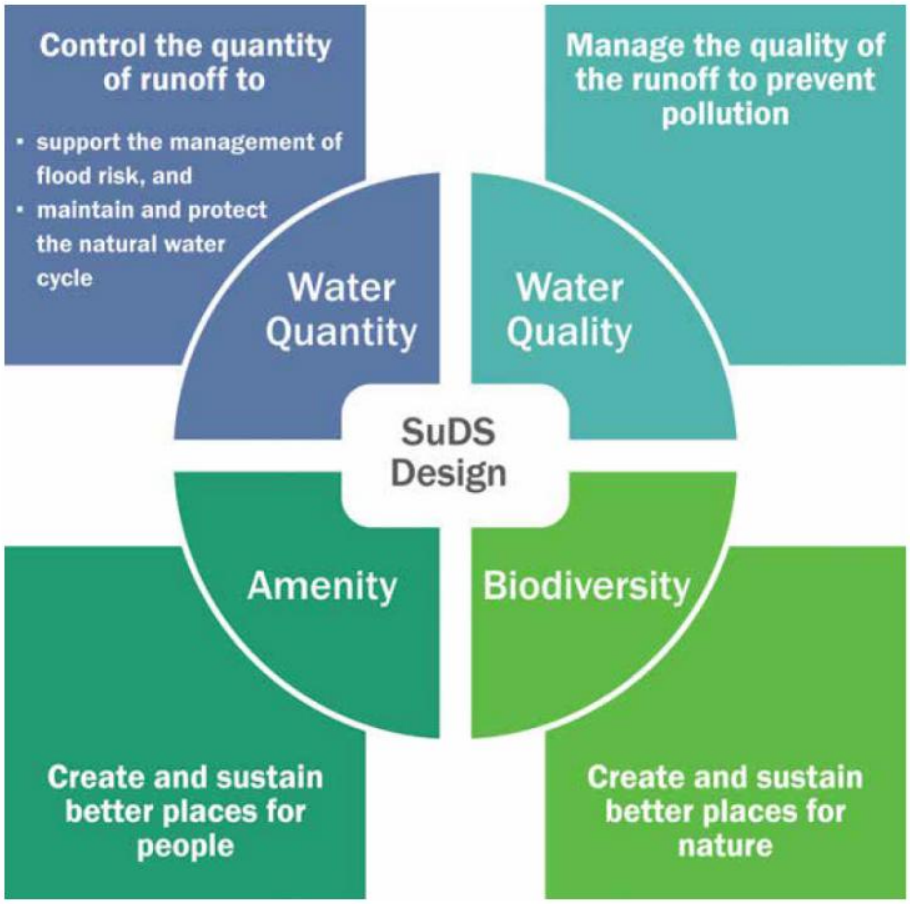

Figure 9-1: Four pillars of SuDS design (The SuDS Manual C753, 2015)

Given the flexible nature of SuDS, they can be used in most situations within new developments as well as being retrofitted into existing developments. SuDS can also be designed to fit into most spaces, for example, permeable paving could be used in parking spaces or rainwater gardens as part of traffic calming measures.

It is a requirement that *'applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity'* (NPPF Paragraph 182).

It is important that SuDS are maintained for the lifetime for the development so that features can continue to function as designed. Consideration should be given to enhancing SuDS to achieve Biodiversity Net Gain.

9.4.2 Types of SuDS System

There are many different SuDS techniques that can be implemented in attempts to mimic pre-development drainage conditions. Techniques can include soakaways, infiltration trenches, permeable pavements, grassed swales, green roofs, ponds, and wetlands. Many of which do not necessarily need to take up a lot of space. The suitability of the techniques will be dictated in part by the development proposal and site conditions. Advice on best practice is available from the EA and the Construction Industry Research and Information Association (CIRIA) e.g. the CIRIA SuDS Manual C753 (2015).

9.4.3 SuDS management train

SuDS should not be used individually but as a series of features in an interconnected system designed to capture water at source and convey it to a discharge location. Collectively this concept is described as a SuDS Management Train (see Figure 9-2).

The number of treatment stages required within the Management Train depends primarily on the source of the runoff and the sensitivity of the receiving waterbody or groundwater.

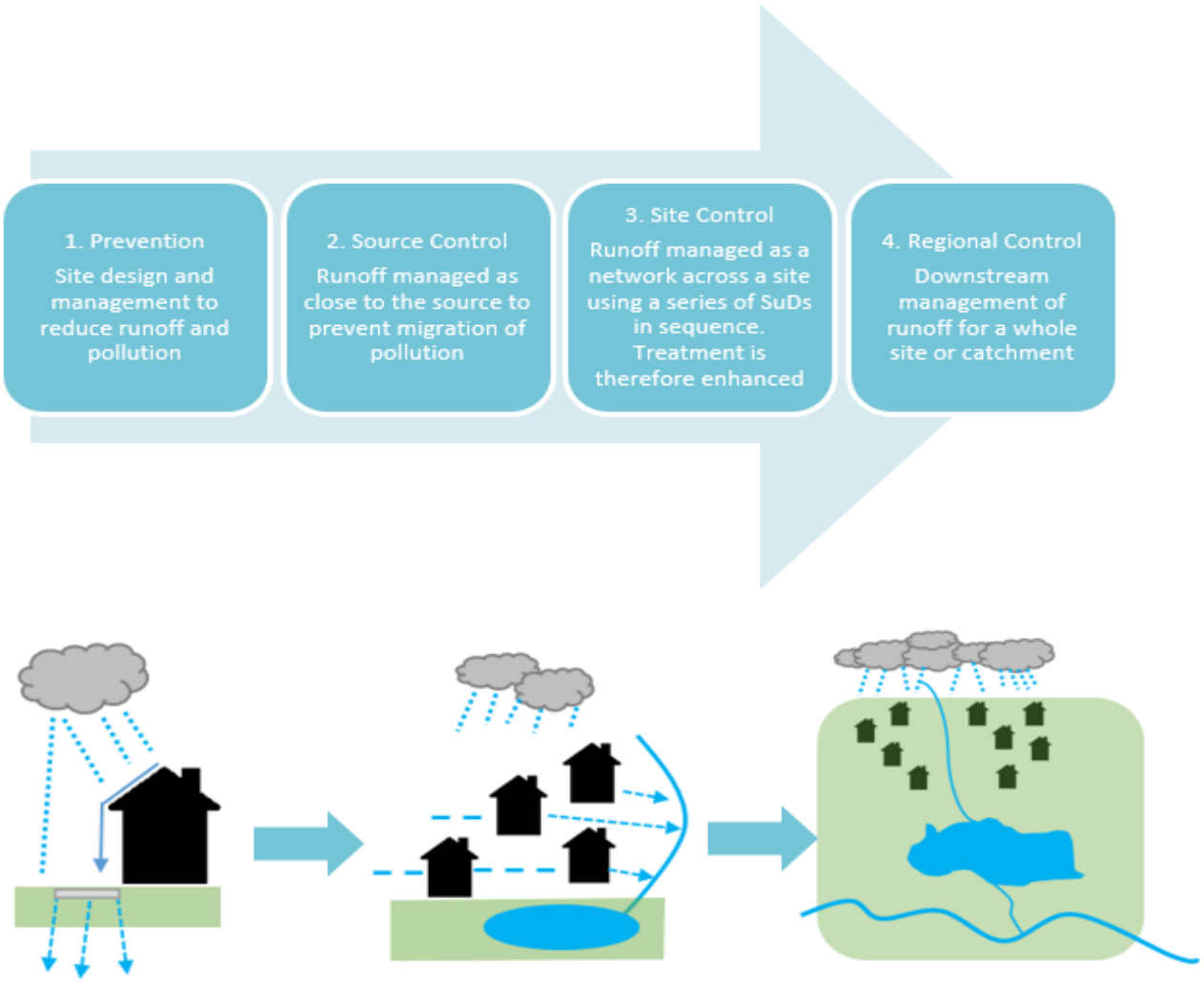

Figure 9-2: SuDS Management Train

9.4.4 SuDS considerations

The design of appropriate SuDS will be influenced by a number of physical and policy constraints. These should be taken into account and reflected upon during the conceptual, outline, and detailed stages of SuDS design. Table 9-1 details some possible constraints and how they may be overcome.

Drainage from new development sites or redeveloped sites should be designed in line with the drainage hierarchy (PPG: Flood Risk and Coastal Change Paragraph: 056) which initially promotes the use of infiltration prior to considering alternative drainage. For SuDS techniques that are designed to encourage infiltration, it is imperative that the water table is low enough to receive surface runoff waters. Most types of SuDS will be suitable in areas with permeable bedrock including features such as soakaways and infiltration basins. In areas with more impermeable geology, offsite discharge in accordance with the drainage hierarchy may be required to discharge surface water runoff from the site. In some cases, above-ground features such as attenuation ponds may be practical with a managed outlet or discharge point. Infiltration SuDS should be considered with caution within areas of possible subsidence or sinkholes.

Site-specific infiltration testing will need to be conducted early on as part of the design of the development in order to determine the impact of groundwater levels on the effectiveness of any drainage system. Groundwater monitoring is also encouraged and may be required in some locations.

Where sites lie within or close to Groundwater Vulnerability Zones (Section 9.5.1), Groundwater Source Protection Zones (GSPZs) (Section 9.5.2) or aquifers (Section 4.2.2), further restrictions may be applicable, and guidance should be sought from the LLFA and the EA.

Table 9-1: Example SuDS design constraints and possible solutions

Constraints	Solution
Land availability	SuDS can be designed to fit into small areas by utilising different systems. For example, features such as permeable paving and green roofs can be used in urban areas where space may be limited.
Contaminated soil or groundwater below site	SuDS can be placed and designed to overcome issues with contaminated groundwater or soil. Shallow surface SuDS can be used to minimise disturbance to the underlying soil. The use of infiltration should also be investigated as it may be possible in some locations within the site. If infiltration is not possible linings can be used with features to prevent infiltration.
High groundwater levels	Non-infiltrating features can be used. Features can be lined with an impermeable line or clay to prevent the egress of water into the feature. Additional, shallow features can be utilised which are above the groundwater table.

Constraints	Solution
Steep slopes	Check dams can be used to slow flows. Additionally, features can form a terraced system with additional SuDS components such as ponds used to slow flows.
Shallow slopes	Use of shallow surface features to allow a sufficient gradient. If the gradient is still too shallow pumped systems can be considered as a last resort.
Ground instability	Geotechnical site investigation should be done to determine the extent of unstable soil and dictate whether infiltration would be suitable or not.
Sites with deep backfill	Infiltration should be avoided unless the soil can be demonstrated to be sufficiently compacted. Some features such as swales are more adaptable to potential surface settlement.
Open space in floodplain zones	Design decisions should be done to take into consideration the likely high groundwater table and possible high flows and water levels. Features should also seek to not reduce the capacity of the floodplain and take into consideration the influence that a watercourse may have on a system. Facts such as siltation after a flood event should also be taken into account during the design phase.
Future adoption and maintenance	The LPA should ensure development proposals, through the use of planning conditions or planning obligations, have clear arrangements for on-going maintenance over the development's lifetime.

9.5 Other surface water considerations

9.5.1 Groundwater Vulnerability Zones

The 2015 EA published groundwater vulnerability maps provide a separate assessment of the vulnerability of groundwater in overlying superficial rocks and those that comprise of the underlying bedrock. The map shows the vulnerability of groundwater at a location based on the hydrological, hydro-ecological, and soil properties within a one-kilometre grid square.

The majority of Cotswold is classified as high groundwater vulnerability.

The groundwater vulnerability maps should be considered when designing SuDS. Depending on the height of the water table at the location of the proposed development site, restrictions may be placed on the types of SuDS appropriate to certain areas. Groundwater vulnerability maps can be found on Defra's interactive mapping (defra.gov.uk).

9.5.2 Groundwater Source Protection Zones (GSPZ)

The EA also defines GSPZs near groundwater abstraction points. These protect areas of groundwater used for drinking water. The GSPZ requires attenuated storage of runoff to prevent infiltration and contamination. GSPZs can be viewed on Defra's interactive mapping (defra.gov.uk). Three main zones are defined as follows:

- Inner protection zone (Zone 1) - areas from where pollution can travel to the groundwater source within 50 days or is at least a 50m radius.
- Outer protection zone (Zone 2) - areas from where pollution can travel to the groundwater source within 400 days or lies within the nearest 25% of the total catchment area (whichever is largest).
- Total catchment (Zone 3) - the total area needed to support removal/discharge of water from the groundwater source.

Online mapping shows there are currently 27 GSPZs which lie, fully or partially within Cotswold, located throughout the district.

Where a site is located in a GSPZ used for public water supply, applicants should engage with the Council to understand any concerns and any necessary mitigation measures to manage the risk of development to public water supply.

9.5.3 Nitrate Vulnerable Zones

Nitrate Vulnerable Zones (NVZs) are areas designated as being at risk from agricultural nitrate pollution. Nitrate levels in waterbodies are affected by surface water runoff from surrounding agricultural land entering receiving waterbodies. The level of nitrate contamination will potentially influence the choice of SuDS and should be assessed as part of the design process. 2025 - 2028 NVZs can be viewed on the EA's interactive mapping (data.gov.uk).

The majority of Cotswold District is designated as an NVS (2025 - 2028).If a site falls within a NVZ, these rules must be followed: Nitrate vulnerable zones (data.gov.uk). Landowners can appeal an NVZ designation once notified if their land (or part of it):

- Does not drain into water that has been identified as polluted
- Drains into water that should not be identified as polluted

9.5.4 Critical Drainage Areas

Local Authorities can choose to designate Critical Drainage Areas (CDAs) within their authority area; There are no CDAs currently designated within the district.

10 Flood warning and emergency planning

This section provides an overview of the requirements for emergency plans, including any local emergency planning arrangements, and an overview of the available flood alerts and warnings from the EA in Cotswold.

10.1 NPPF requirements

The NPPF Flood Risk Vulnerability and Flood Zone "incompatibility" table seeks to avoid inappropriate development in areas at risk from fluvial flooding. It is essential that any development which will be required to remain operational during a flood event is located in the lowest flood risk zones to ensure that, in an emergency, operations are not impacted upon by floodwater, or that such infrastructure is resistant to the effects of flooding such that it remains serviceable/operational during 'central' events for the majority of development types, and 'upper end' events for essential infrastructure, as defined in the Environment Agency's climate change allowances.

The outputs of this Level 1 SFRA should be compared and reviewed against any existing emergency plans and continuity arrangements. This includes any nominated rest and reception centres (and prospective ones), so that evacuees are outside of the high-risk Flood Zones and will be safe during a flood event. The EA's online FMfP should also be consulted to ensure the latest data is being considered.

10.2 Emergency planning

The Civil Contingencies Act 2004 lists local authorities, the EA and emergency services as Category 1 responders, responsible for reducing, controlling, and mitigating the effects of emergencies in both response and recovery phases.

The NPPF (Paragraph 181) requires site-level FRAs to demonstrate that "*any residual risk can be safely managed; and safe access and escape routes are included where appropriate, as part of an agreed emergency plan*."

In accordance with the NPPF, SFRAs and GCC's LFRMS (2014) can be used in the preparation and execution of a flood emergency plan as they can indicate areas that may be at risk of flooding. Emergency plans can be provided as part of a FRA or as a separate document. Decisions regarding whether an emergency plan is required sits with the LPA, with advice from the Council's emergency planning teams, the EA, and the LLFA.

According to the PPG, an emergency plan is needed wherever emergency flood response is an important component of making a development safe; this includes the free movement of people during a 'design flood' and potential evacuation during an extreme flood.

Emergency plans are essential for any site with transient occupancy in areas at risk of flooding, such as holiday accommodation, hotels, caravan, and camping sites (PPG: Flood risk and coastal change paragraph 043).

Emergency plans should consider:

- The type of flood risk present, and the extent to which advance warning can be given in a flood event.
- The number of people that would require evacuation from the area potentially at risk.
- The vulnerability of site occupants.
- The impact of the flooding on essential services e.g., electricity, gas, telecommunications, water supply and sewerage.
- Safe access and escape routes for users and emergency services (Section 10.2.1).

Further information is available from the following documents/websites with hyperlinks provided:

- The National Planning Policy Guidance (gov.uk)
- 2004 Civil Contingencies Act (legislation.gov.uk)
- Defra (2014) National Flood Emergency Framework for England (gov.uk)
- FloodRe (floodre.co.uk)
- The EA and Defra's Standing Advice for FRAs (gov.uk)
- EA's 'How to plan ahead for flooding' (gov.uk)
- Sign up for Flood Warnings with the EA (gov.uk)
- The National Flood Forum (nationalfloodforum.org.uk)
- 'Prepare for flooding' (gov.uk)
- ADEPT Flood Risk Plans for new development (adeptnet.org.uk)
- Environment Agency Community flood plan (2023)
- Environment Agency Personal flood plans (2023).

10.2.1 Safe access and escape routes

Safe access and escape routes need to be available during the design flood event with consideration of climate change. Access requirements are set out in the PPG: Flood Risk and Coastal Change (gov.uk) Paragraph: 047.

As part of an FRA, the developer should review the acceptability of the proposed access in consultation with the LLFA, the EA, and emergency planners. Site and plot specific velocity and depth of flood flows should be assessed against standard flood hazard criteria to ensure safe access and escape routes can be achieved during a flood.

10.3 Local arrangements for managing flood risk

The Gloucestershire Local Resilience Forum works to prepare for, respond to and recover from emergency incidents, including flooding. The LRF is a multi-agency partnership that brings together representatives from the emergency services, local authorities, the NHS, the Environment Agency and others. The LRF provide advice on flooding in their Community Risk Register and on the County Council website.

10.4 Flood alerts and flood warnings

The EA is the lead organisation for providing warnings of river flooding. Flood Warnings are supplied via the Flood Warning System (FWS) service, to homes and business within Flood Zones 2 and 3. The EA Sign up for Flood Warnings (gov.uk) page provides information on how to sign up for these warnings.

There are currently 18 Flood Alert Areas (FAA) and 19 Flood Warning Areas (FWAs) covering the district.

Flood alerts are issued when there is water out of bank for the first time anywhere in the catchment, signalling that 'flooding is possible', and therefore FAAs usually cover the majority of main river reaches.

Flood warnings are issued to designated FWAs (i.e., properties within the extreme flood extent which are at risk of flooding), when the river level hits a certain threshold; this is correlated between the FWA and the gauge, with a lead time to warn that 'flooding is expected'.

The FAAs and FWAs are included on the interactive GeoPDF mapping in Appendix B.

11 Cumulative Impact Assessment

This section details the cumulative impact assessment, which identifies which river catchments are most likely to be sensitive to increased flood risk as a result of future development.

11.1 Introduction

The cumulative impact of development should be considered at both the local plan making stage and the planning application and development design stages.

When allocating land for development, consideration should be given to the potential cumulative impact of the loss of floodplain storage volume from any source, as well as the impact of increased flows on flood risk downstream. Whilst the loss of storage for individual developments may only have a minimal impact on flood risk, the cumulative effect of multiple developments may be more severe. Similarly, the effect of the loss of surface water flow paths/exceedance paths from sewers, surface water ponding and infiltration can also give rise to cumulative effects and potentially exacerbate flood risk. There are also risks of development causing modified flow regimes from sites creating an alignment in peak flows in downstream watercourses and resulting in greater flood risk as a result of the development.

All developments are required to comply with the NPPF and demonstrate they will not increase flood risk elsewhere. Therefore, providing developments comply with the latest guidance and legislation relating to flood risk and sustainable drainage, and appropriate consideration is given to flow paths and storage proposals should normally not increase flood risk downstream.

Local planning policies can also be used to identify areas where the potential for development to increase flood risk is highest and identify opportunities for such new development to positively contribute to decreases in flood risk downstream.

There is currently no national guidance available for assessing the cumulative impacts of development. The cumulative impact assessment (CIA) in this SFRA provides a relative assessment of the catchments within Cotswold and are not comparable across other boroughs/districts. The full methodology for the CIA is set out in Appendix F.

11.2 Results

The CIA has identified the following catchments as high risk:

- Bretforton Bk - source to conf Broadway-Badsey Bk
- Broadway-Badsey Bk - source to conf R Avon
- Churn (Baunton to Cricklade)
- Coln (from Coln Rogers) and Thames (Coln to Leach)
- Evenlode (Source to Four Shires S) and Longborough Stream
- Knee Bk - source to conf Blockley Bk

- Swilgate - source to conf R Avon
- Swill Brook (source to Ashton Keynes)
- Tetbury Avon - unnamed trib to conf Sherston Avon
- Thames (Churn to Coln)
- Thames (Kemble to Waterhay Bridge)
- Thames (Leach to Evenlode)
- Thornhill Ditch and tributaries at Cotswolds Water Park
- Windrush (Slade Barn Stream to Dikler)

Specific recommendations for catchments identified as high risk, alongside broadscale recommendations applicable across the whole District, are set out in Appendix F.

12 Strategic flood risk solutions

This section sets out wider strategic solutions that may offer potential to reduce flood risk across Cotswold, including natural flood management. It also details notable partnership working opportunities within Cotswold.

Section 11 of this report and Appendix F consider the cumulative impacts of development across Cotswold and the catchments which are most sensitive to these impacts, and as such where strategic flood risk solutions may be most beneficial.

Where possible, developments should seek to help reduce flood risk in the wider area. The following sections outline different options which could be considered for strategic flood risk solutions. Any strategic solutions should ensure they are consistent with wider catchment policy and the local policies.

It is important that the ability to deliver strategic solutions in the future is not compromised by the location of proposed development. When assessing the extent and location of proposed development, consideration should be given to the requirement to secure land for flood risk management measures that provide wider benefits.

12.1 Partnership working

Flood risk to an area or development can often be attributed to multiple different sources, including fluvial, surface water and/or groundwater, which can become intertwined. Where complex flood risk issues are highlighted, it is important that all stakeholders are actively encouraged to work together to identify issues and provide suitable solutions.

12.1.1 Catchment Based Approach

The Catchment Based Approach (CaBA) (catchmentbasedapproach.org) was introduced by government to establish catchment partnerships throughout England to jointly deliver improved water quality and reduce flood risk, directly supporting achievement of many of the targets set out within government's 25-year Environment Plan. CaBA partnerships are actively working in all 100+ river catchments across England and cross-border with Wales.

The CaBA partnerships working within Cotswold include:

- Evenlode Catchment Partnership
- Windrush Catchment Partnership
- Upper Thames Catchment Partnership
- Bristol Avon Catchment Partnership
- Severn Vale Catchment Partnership

12.2 Biodiversity Net Gain

Biodiversity Net Gain (BNG) is a strategy to develop land and contribute to the recovery of nature. It is making sure the habitat for wildlife is in a better state than it was before development. BNG has been applicable since November 2023 for developments in the Town and Country Planning Act 1990, unless exempt, and has been applicable to small sites since April 2024. Exempt developments include existing planning applications, below threshold development and small home extensions. Further information is available on the Government BNG webpage (gov.uk). Strategic flood risk solutions can help developments achieve BNG requirements.

12.3 Natural Flood Management

12.3.1 Introduction to NFM

Development can provide opportunities to work with natural processes to help reduce flood and erosion risk, benefit the natural environment and reduce costs of schemes. This is known as Natural Flood Management (NFM) or nature-based solutions, a process whereby action is taken to mitigate flood risk by protecting, restoring and emulating natural processes. This approach aims to reduce flow volumes and delay the arrival of peak flood flow downstream.

Techniques and measures, which could be applied within in Cotswold include:

- Creation of offline storage areas.
- Re-meandering streams (creation of new meandering courses or reconnecting cut-off meanders to slow the flow of the river).
- Targeted woodland planting.
- Reconnection and restoration of functional floodplains (Section 12.4).
- Restoration of rivers and removal of redundant structures, i.e. weirs and sluices no longer used or needed (Section 12.5).
- Installation or retainment of large woody material in river channels.
- Improvements in management of soil and land use.
- Creation of rural and urban SuDS.

To maximise the benefits of NFM, it is important that land which is likely to be needed for NFM is protected by safeguarding land for future flood risk management infrastructure through local plan policy. This is particularly important for infrastructure that reduces the risk of flooding to large areas of existing development, or where options for managing risk in other ways are limited to achieve multiple benefits for flood risk and the environment.

It is important to recognise the value of maintenance or restoration of natural riparian zones, such as grasslands, which protect the soils from erosion and ‘natural’ meadows which can tolerate flood inundation. The use of blue green infrastructure throughout river corridors can also play a vital role in enhancing the river environment as well as safeguarding land from future development, protecting people and buildings from flooding and reducing flood risk downstream.

The Rivers Trust NFM National Map (theriverstrust.hub.arcgis.com) provides further information about completed and ongoing NFM schemes and community works.

12.3.2 Working with natural processes

The EA published their updated evidence base in February 2025 for Working with Natural Processes to reduce flood risk 2024 (gov.uk) to support the implementation of NFM, with maps showing locations with the potential for NFM measures. These maps are intended to be used alongside the evidence directory to help practitioners think about the types of measure that may work in a catchment and the best places in which to locate them.

12.3.3 Gloucestershire NFM Partnership

The Gloucestershire NFM Partnership was established in 2023, which brings together 18 local partners, including GCC, the EA and Natural England. The partnership aims to expand the scale, scope and impact of NFM measures in Gloucestershire. This will be done by creating a pipeline of NFM projects, sourcing funding and creating relationships with local communities and landowners.

12.3.4 Ongoing NFM schemes

12.3.4.1 Churn Waterways and Environment Partnership

The Churn Waterways and Environment Partnership aims to provide benefits to Cirencester's waterways whilst also protecting against drought and flooding through the implementation of nature-based solutions. The partnership is a collection of organisations including the Department for Environment, Food and Rural Affairs, the EA, Thames Water, Severn Trent and the National Trust.

12.3.4.2 Bledington

A collaboration is underway between the EA and GCC and Bledington Flood Group. Funding is provided by the EA through the Water Environment Improvement Fund to support NFM work on the Gawcombe and Idbury tributaries of the Westcote Brook Catchment, delivered by the Evenlode Catchment Partnership.

Further funding has also been obtained for NFM work on the Westcote Brook.

12.3.4.3 Batsford Estate, Moreton-in-Marsh

There are proposed NFM measures to be installed across the Batsford Estate, Moreton-in-Marsh. Phase 1 has been completed, which involved the installation of eight leaky barriers. The next phase involves the potential creation of wetlands with flood storage capacity.

12.3.4.4 Thames Source NFM

There are a number of schemes proposed within Cotswold under the Thames Source NFM project:

- Marsden - floodplain reconnection, in-channel deflectors, leaky dams and wetland creation
- Moor Wood - pond and wetland creation, ditch blocking and reconnecting small watercourses
- Hartleys Farm - leaky dams along two sections of the upper Churn and its tributaries
- Stratton Meadows - partial restoration of the Stratton Water meadow floodplain north of Cirencester

12.3.5 Completed NFM schemes

12.3.5.1 Windrush Floodplain Meadow Restoration

The first stage of this project aimed to restore floodplain meadows along the River Windrush. The initial tasks involved engagement with local landowners and a review of the land management plans developed as part of the Windrush Floodplain Meadow Strategy. In total, 16.75 hectares of land was sown with floodplain meadow seeds and plug planting to maximise establishment success. The second of this project designed NFM measures at three sites, particularly promoting wetland habitat creation, leaky dams and field bunds.

12.4 Catchment and floodplain restoration

Floodplain restoration represents the most sustainable form of strategic flood risk solution, by allowing watercourses to return to a more naturalised state, and by creating space for naturally functioning floodplains working with natural processes.

Although the restoration of floodplain is difficult in previously developed areas where development cannot be rolled back, the following measures should be adopted:

- Promoting existing and future brownfield sites that are adjacent to watercourses to naturalise banks as much as possible. Buffering areas around watercourses to provide an opportunity to restore parts of the floodplain through blue green corridors and helping to deliver BNG.
- Removing redundant structures to reconnect the river and the floodplain.
- Applying the sequential approach to avoid new development within the floodplain.

12.5 Structure removal and/or modification (e.g. weirs)

Structures, both within watercourses and adjacent to them can have significant impacts upon a river's regime, including alterations to the geomorphology and hydraulics of the channel through water impoundment and altering the sediment transfer regime, which over time can significantly impact the channel profile including bed and bank levels, alterations to flow regime and interruption of biological connectivity, including the passage of fish and invertebrates.

Many artificial in-channel structures (such as weirs and culverts) can sometimes be redundant and/or serve little purpose. Opportunities for the removal of such structures

should be investigated where feasible. The need to do this is heightened by climate change, for which restoring natural river processes, habitats and connectivity are vital adaptation measures. However, it also must be recognised that some artificial structures may have important functions or historical/cultural associations, which need to be considered carefully when planning and designing restoration work.

In the case of weirs, whilst weir removal should be investigated in the first instance, in some cases it may be necessary to modify a weir rather than remove it. For example, by lowering the weir crest level or adding a fish pass. This will allow more natural water level variations upstream of the weir and remove a barrier to fish migration.

Developers should investigate the 'opening up' or 'daylighting' of existing culverts where possible and should not construct new culverts on site except for short lengths to allow essential infrastructure crossings for access.

12.6 Riverbank stabilisation

Any practice that may cause riverbank erosion should be avoided. Landowners should be encouraged to avoid using machinery and vehicles close to or within the watercourse unless in the circumstances where machinery and vehicles are required for watercourse maintenance such as desilting, grass cutting, or removal of vegetation. Care should be taken not to destabilise the banks.

There are several techniques that can be employed to restrict the erosion of riverbanks. In an area where bankside erosion is particularly bad and/or vegetation is unable to properly establish, ecologically sensitive bank stabilisation techniques, such as willow spiling, can be particularly effective. Live willow stakes thrive in the moist environment and protect the soils from further erosion allowing other vegetation to establish and protect the soils. Other approaches include the planting of brash or small trees, large wood, large trees and root wads.

12.7 Green infrastructure

Green infrastructure (GI) is a planned and managed network of natural environmental components and green spaces that intersperse and connect the urban centres, suburbs and rural fringe and consist of:

- Open spaces – parks, woodland, nature reserves, lakes.
- Linkages – blue green river corridors and canals, and pathways, cycle routes and greenways.
- Networks of “urban green” – private gardens, street trees, verges and green roofs.

The identification and planning of GI are critical to achieving sustainable growth. It merits forward planning and investment as much as other socio-economic priorities such as health, transport, education and economic development. GI is also central to climate change action and is a recurring theme in planning policy. With regards to flood risk, green spaces can be used to manage storm flows and free up water storage capacity in existing

infrastructure to reduce risk of damage to urban property, particularly in urban centres and vulnerable urban regeneration areas. GI can also improve accessibility to waterways, improve water quality, support regeneration, and improve opportunities for leisure, economic activity, and biodiversity through delivery of BNG.

13 Recommendations and next steps

13.1 Requirements for a Level 2 SFRA

Following the application of the Sequential Test using Appendix D and E of this Level 1 SFRA, where sites cannot be appropriately accommodated in low-risk areas, the Council may need to show that sites proposed for allocation can be safe for their lifetime. Some sites may also require application of the Exception Test. In these circumstances, a Level 2 SFRA is required, to assess in more detail the nature and implications of the flood characteristics in order for the LPA to allocate such sites in the new local plan. However, a Level 2 SFRA does not negate the need for a site-specific FRA at the planning application stage.

As part of this Level 1 SFRA, an initial site screening exercise using the Council's potential development site boundaries and the latest flood risk data has been undertaken to help inform the application of the Sequential Test and the subsequent potential requirement for a Level 2 SFRA.

Appendix E provides a strategic assessment of the suitability, relative to flood risk both now and in the future, of the sites to be considered for allocation in the Council's new Local plan, summarising the outcomes of the sites screening assessment spreadsheet in Appendix D.

SFRA Strategic Recommendation B applies to sites where a Level 2 SFRA may be required in order to allocate. Of the 170 potential development sites screened, Strategic Recommendation B applies to 124 sites. A Level 2 SFRA may not be required for all of these sites, depending on the proportion and spatial variation of risk across each site. The sites where Strategic Recommendation B applies should be reviewed by the Council to identify those where further assessment would be required in order to allocate.

13.2 Recommendations from SFRA findings

The following overarching SFRA recommendations have been developed to guide future development and inform planning decisions across Cotswold in relation to flood risk. These recommendations should be read alongside national and local policies and are intended to support the allocation of sites and planning applications, ensuring that flood risk is appropriately considered at all stages of the planning process.

- New development should be directed to areas with the lowest probability of flooding (Flood Zone 1). Development within Flood Zones 2 and 3 should only be considered if no reasonably alternative sites exist. Development should also be directed away from the climate change flood risk zones.
- There should be no residential development within Flood Zone 3a, the modelled climate change flood outlines, and the Flood Zones plus Climate Change flood risk area. More vulnerable development is required to be subject to and to pass the Exception Test if it is proposed within Flood Zone 3a.

- Where development is proposed within Flood Zone 2, and whilst accounting for climate change, consideration should be given to locating dwellings above ground floor level. Ground floor areas should be limited to less vulnerable uses, such as retail, restaurants, office space, or car parking, where compatible with local policy.
- There should be no development within Flood Zone 3b (functional floodplain). Areas of functional floodplain would ideally remain as or be converted to open greenspace, providing multifunctional ecology, social and amenity benefits, as well as for flood attenuation and storage.
- Consideration should be given to areas that may be needed for future flood risk management features and structures. Areas at high risk from fluvial flooding could be considered as appropriate areas to safeguard for flood storage.
- A site-specific flood risk assessment should accompany planning applications where development is proposed within Flood Zones 2 and 3a, at risk from climate change, at risk from any other flood source, or within Flood Zone 1 and the site area is 1 hectare or greater.
- Built development within 8m of the bank top of a main river, culvert or flood defence should be discouraged. Focus should be for the preservation of the watercourse corridor, wildlife habitat, flood flow conveyance and future watercourse maintenance or improvement, with a focus on achieving BNG.
- For all new development situated within flood risk areas, planning applications should be accompanied by an emergency plan that is proportionate to the risk. This should set out clear procedures for safe evacuation, identify safe access and escape routes and account for the vulnerability of site users during a flood event.
- Space should be provided for the inclusion of SuDS on all allocated sites, outline proposals and full planning applications. SuDS design should demonstrate how constraints have been considered and how the design provides multiple benefits e.g. landscape enhancement, biodiversity, recreation, amenity, leisure, and the enhancement of historical features.
- Where development is located behind a flood defence or within a defended area, consideration should be given to the potential safety of the development, FFLs and for safe access and escape routes in the event of rapid inundation of water due to a defence breach with little warning.
- The cumulative impact assessment recommendations, outlined in Appendix F, should be considered for all development within the district.

13.3 Recommendations for further work

The SFRA process has developed into more than just a planning tool. Sitting alongside the Sustainability Appraisal and Local Flood Risk Management Strategy, it can be used to provide a much broader and inclusive vehicle for integrated, strategic and local flood risk management and delivery.

There are several studies listed in Table 13-1 that may be of benefit to the LPA, in developing the flood risk evidence base to support the delivery of the new Local Plan, or to the LLFA to help fill critical gaps in flood risk information that have become apparent through the preparation of this Level 1 SFRA.

Table 13-1: Potential further works and assessments

Type	Study	Reason
Understanding of local flood risk	Level 1 SFRA update	When there are changes to: the predicted impacts of climate change on flood risk; national flood modelling; detailed flood modelling - such as from the EA or LLFA; the local plan, spatial development strategy or relevant local development documents; local flood management schemes; flood risk management plans; local flood risk management strategies; national planning policy or guidance (2025 reforms of the PPG); or after a significant flood event.
	Level 2 SFRA	Reviewing of EA flood zones in those areas not covered by existing detailed hydraulic models (i.e., the FMfP does not cover every watercourse such as those <3km^2 in catchment area or ordinary watercourses). If a watercourse or drain is present on OS mapping but is not covered by the FMfP, this does not mean there is no potential flood risk. A model or further investigation may therefore be required to ascertain the flood risk, if any, to any nearby sites.
	Level 2 SFRA	Further, more detailed assessment of flood risk to high and medium risk sites both now and in the future as notified by this Level 1 SFRA, following application of the Sequential Test.
	SWMP/ detailed surface water modelling	The LLFA may wish to produce a SWMP for Cotswold based on the most up to date surface water flood risk information and climate change allowances or consider targeted areas of high surface water flood risk.
Residual risk	Level 2 SFRA	Residual risk from flooding as a result of defence breaches and asset blockages should continue be mitigated through sequential testing to steer development to lower risk areas and identifying opportunities for property flood resilience measures for properties at residual risk.
Flood storage and attenuation	Working with Natural Processes	Further assessment of WwNP options in upper catchments to gauge possible areas for Natural Flood Management. Promote creation of floodplain and riparian woodland, floodplain reconnection and runoff attenuation features where the research indicates that it would be beneficial to the authority area.
Water	Water Cycle	To ensure sufficient provision of infrastructure for water supply and wastewater for new development.

Type	Study	Reason
resources	Study	Particularly relevant to intensification of urban development or the development of large strategic sites.
Data collection	Flood incident data	The Council should record flood events including such information as date, location, weather, flood source (if apparent without an investigation), impacts (properties flooded or number of people affected) and response by any RMA. This should be made available in GIS format.
	FRM Asset Register	The LLFA should continue to update and maintain its asset register as per FWMA requirements.
Risk assessment	Asset inspection	The LLFA should carry out condition inspections of critical flood risk management assets (see Section 6.4).
Capacity	SuDS review / guidance	The LLFA and LPA should clearly identify requirements of developers for inclusion of SuDS in new developments. Internal capacity, within the Council should be in place to deal with SuDS applications, set local specifications and set policy for adoption and future maintenance of SuDS.
Partnership	Water companies	The Council should continue to collaborate with water companies on sewer and surface water projects to ensure their assets can remain operational and resilient at all times across the district and that capacity for new development is appropriate.
	EA	The Council should continue to work with the EA on fluvial flood risk management projects. Potential opportunities for joint schemes to tackle flooding from all sources should be identified.
	Community	Continued involvement with the community through existing flood risk partnerships.

Appendices

A Planning Policy Framework and Flood Risk Policy

B Interactive GeoPDF Mapping

C Functional Floodplain Delineation

D Site Screening Assessment

E Site Assessment Summary

F Cumulative Impact Assessment

G Data Sources

H Sequential Test Guidance

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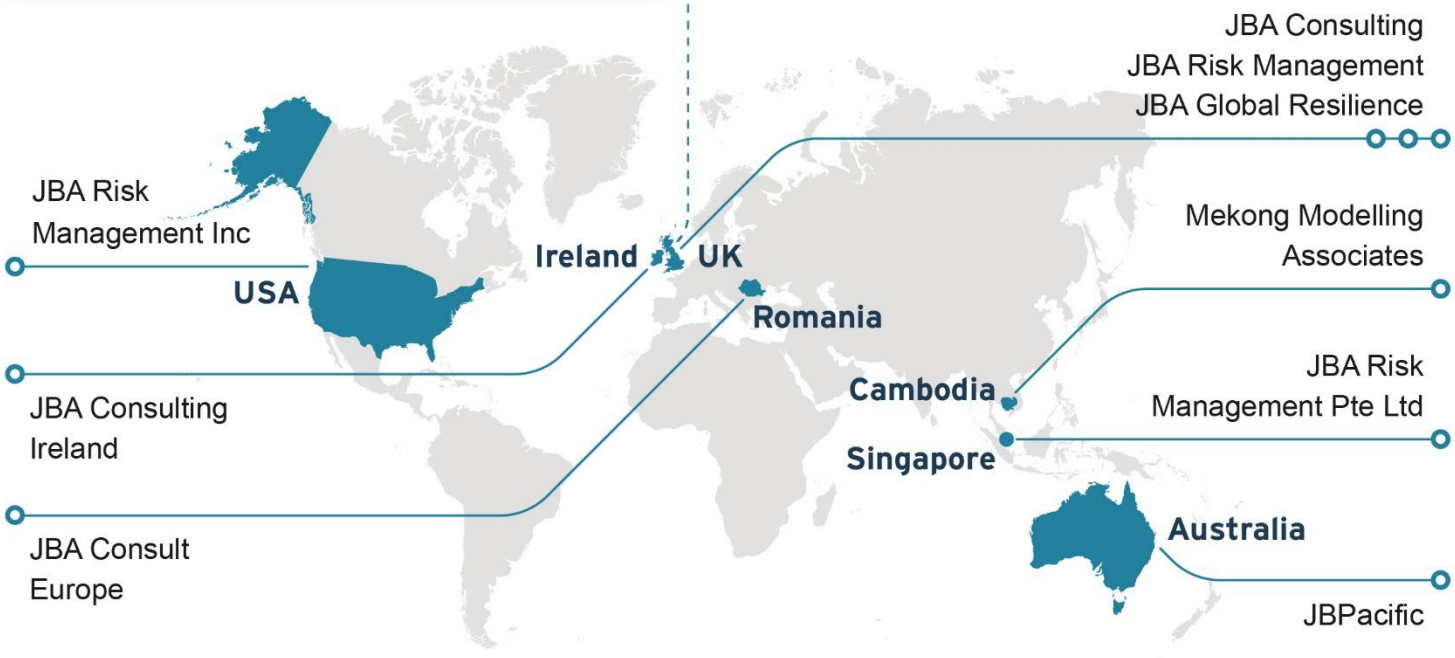

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Cotswold District Council Level 1 SFRA Update

Appendix A - Planning Policy Framework and Flood Risk Policy

Final

Prepared for	Date
Cotswold District Council	June 2026

COTSWOLD
District Council

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Abbreviations

BNG	Biodiversity Net Gain
CFMP	Catchment Flood Management Plan
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
EU	European Union
FRA	Flood Risk Assessment
FRMP	Flood Risk Management Plan
FRR	Flood Risk Regulations
GMCA	Greater Manchester Combined Authority
IWMP	Integrated Water Management Plan
LLFA	Lead Local Flood Authority
LFRMS	Local Flood Risk Management Strategy
LNRS	Local Nature Recovery Strategy
LPA	Local Planning Authority
NPPF	National Planning Policy Framework
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Practice Guidance
RBMP	River Basin Management Plan
REUL	Retained European Union Law
RMA	Risk Management Authority
SuDS	Sustainable drainage systems
SWMP	Surface Water Management Plan
WCS	Water Cycle Study
WFD	Water Framework Directive
WRMP	Water Resource Management Plan

1 Key legislation for flood and water management

1.1 Flood and Water Management Act (2010)

The Flood and Water Management Act (2010) (gov.uk) was passed in April 2010 following the recommendations made within the Pitt Review (2009) following the flooding in 2007. It aims to create a simpler and more effective means of managing both flood risk and coastal erosion, establishing the lead role for local authorities, as Lead Local Flood Authorities (LLFAs), designed to manage local flood risk (from surface water, ground water and ordinary watercourses) and to provide a strategic overview role of all flood risk for the Environment Agency (EA).

1.2 Water Framework Directive (2000)

The European Water Framework Directive (WFD) (2000) was transposed into English Law by the Water Environment Regulations (2017) (gov.uk). The WFD aims to deliver improvements across Europe in the management of water quality and water resources. This is enforced through a series of plans called River Basin Management Plans (RBMPs). Cotswold District Council is covered mostly by the Thames RBMP, with the south west of the district being covered by the Severn RBMP.

1.3 Flood Risk Regulations (2009)

The Flood Risk Regulations (FRRs) 2009 translated the European Union (EU) Floods Directive into UK law setting the requirement for Member States to complete an assessment of flood risk, known in England as a Preliminary Flood Risk Assessment (PFRA). This information was then used to identify areas where there is a significant risk of flooding (Flood Risk Areas), where States had to undertake Flood Risk and Hazard Mapping and produce Flood Risk Management Plans (FRMPs). This cycle was repeated on a six-yearly basis.

As of 1 January 2024, the Retained EU Law (Reform and Revocation) Bill automatically repealed any Retained EU Law (REUL) not otherwise preserved or replaced in UK law before the end of 2023, including the FRRs 2009 which transposed the EU Floods Directive into legislation. This is because much of the FRRs duplicated existing domestic legislation, namely the Flood and Water Management Act 2010.

The Government expects to see continued implementation of the Flood Risk Management Plans 2021-2027, with funding for this still in place over the six-year period. The full list of relevant measures for managing flood risk within the Thames and Severn river basin districts can be found on the EA's flood plan explorer.

1.3.1 Flood Risk Areas

The second cycle PFRAs published in 2017 reviewed the 2011 PFRAs and were published as addendums. The 2017 updates used all relevant current flood risk data and information to assess whether any flood events had changed the understanding of significant flood risk in each constituent authority since 2011.

The PFRA methodology, based on the EA's Final PFRA Guidance and DEFRA's Guidance on selecting Flood Risk Areas, did not identify any additional Flood Risk Areas within Gloucestershire. There has been no change to the assessment of risk in the Cotswold District since the first cycle 2011 PFRA and the understanding of past flood risk has not changed. Future flood risk is revised due to the creation of the Annual Implementation Plan in 2014, which is a process for prioritising areas requiring flood alleviation.

1.4 Environmental permitting

The Environmental Permitting Regulations (2018) (gov.uk) set out where developers will need to apply for additional permission (as well as planning permission) to undertake works to an ordinary watercourse or main river. This includes flood risk activities, for example:

- On or within 8 metres of a fluvial main river.
- On or within 8 metres of a non-tidal flood defence structure or culvert.
- Involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert; and
- In a floodplain more than 8 metres from the riverbank, culvert or flood defence structure and you don't already have Planning Permission.

Environmental permits may also be required from the EA to discharge runoff, trade effluent or sewage into a main river. They may also be required in relation to groundwater activities, where there may be a risk of groundwater contamination.

The Land Drainage Act (1991) (gov.uk) sets out where developers will need to apply for additional permission (as well as planning permission) to undertake works to an ordinary watercourse. The LLFA should also be consulted before undertaking any works on ordinary watercourses.

1.5 Byelaws

Land Drainage Byelaws outline legal obligations and responsibilities when undertaking works on or close to a watercourse, for the purpose of preventing flooding, or mitigating any damage caused by flooding.

The district is covered by the Thames Region Byelaws and Midlands and Severn Byelaws enforced by the EA. These byelaws apply to activities around main rivers, flood defences and floodplains.

1.6 Additional legislation

Additional legislation relevant to development and flood risk in the district include:

- Town and Country Planning Act (1990) (gov.uk), Water Industry Act (1991) (gov.uk), Land Drainage Act (1991) (gov.uk), Environment Act (1995) (gov.uk), which set out the regulations for development on land in England and Wales.
- The Environment Act 2021 (gov.uk) requires developers to provide Biodiversity Net Gain (BNG) and for Local Planning Authorities (LPAs) to develop Local Nature Recovery Strategies (LNRS). Strategic site allocations in Local Plans which present opportunities for BNG or areas for habitat improvement/creation identified by the LNRS could have parallel opportunities to contribute to reduced flood risk from a range of sources.
- Other environmental legislation such as the Habitats Directive (1992) (gov.uk), Environmental Impact Assessment Directive (2014) (gov.uk), and The Environmental Assessment of Plans and Programmes (Amendment) Regulations 2020 (gov.uk) which apply as appropriate to strategic and site-specific developments to guard against environmental damage.
- The Planning and Compulsory Purchase Act (2004) (gov.uk) Section 19(1A) which requires LPAs to include in their Local Plans 'policies designed to secure that the development and use of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change.'

2 Key national, regional and local policy documents and strategies

Table 2-1 summarises relevant national, regional, and local flood risk policy and strategy documents and how these apply to development and flood risk. Hyperlinks are provided to external documents. These documents may:

- Provide useful and specific local information to inform Flood Risk Assessments (FRAs) within the local area.
- Set the strategic policy and direction for flood risk management and drainage – they may contain policies and action plans that set out what future flood mitigation and climate change adaptation plans may affect a development site. A developer should seek to contribute in all instances to the strategic vision for flood risk management and drainage in the district.
- Provide guidance and/or standards that inform how a developer should assess flood risk and/or design flood mitigation and sustainable drainage systems (SuDS).

The following sections provide further details on some of these documents and strategies.

Please note that the links to these documents may change over time and any requests for these documents should be directed toward the author.

Table 2-1: National, regional, and local flood risk policy and strategy documents

Policy level	Document, lead author and date	Contextual information	Policy and measures	Development design requirements	Next update due
National	National Flood and Coastal Erosion Risk Management Strategy for England (EA) 2020 (gov.uk)	Yes	Yes	No	2026
National	National Planning Policy Framework updated in February 2025 (gov.uk)	Yes	Yes	Yes	2026
National	Planning Practice Guidance (PPG): Flood risk and coastal change (gov.uk) updated in September 2025	Yes	Yes	Yes	-

Policy level	Document, lead author and date	Contextual information	Policy and measures	Development design requirements	Next update due
National	Building Regulations Part H (MHCLG) 2010 (gov.uk)	Yes	No	Yes	-
Regional	Thames Catchment Flood Management Plan (EA) 2009 (gov.uk)	Yes	Yes	No	-
Regional	Bristol Avon Catchment Flood Management Plan (EA) 2012 (gov.uk)	Yes	Yes	No	-
Regional	Severn Tidal Tributaries Catchment Flood Management Plan (EA) 2009 (gov.uk)	Yes	Yes	No	-
Regional	Thames River Basin District River Management Plan (EA) 2022 (gov.uk)	Yes	Yes	No	-
Regional	Severn River Basin District River Management Plan (EA) 2022 (gov.uk)	Yes	Yes	No	-
Regional	Thames River Basin District Flood Risk Management Plan (EA) 2023 (gov.uk)	Yes	Yes	No	2028
Regional	Severn River Basin District Flood Risk Management Plan (EA) 2023 (gov.uk)	Yes	Yes	No	2028
Regional	Thames Water Water Resources Management Plan (2024)	Yes	No	No	2028 / 2029
Regional	Thames Water Drainage and Wastewater management plan (2023)	Yes	No	No	2028

Policy level	Document, lead author and date	Contextual information	Policy and measures	Development design requirements	Next update due
Regional	Severn Trent Water Resources Management Plan (2024)	Yes	No	No	2028 / 2029
Regional	Severn Trent Drainage and Wastewater management plan (2023)	Yes	No	No	2028
Regional	Wessex Water Water Resources Management Plan (2024)	Yes	No	No	2028 / 2029
Regional	Wessex Water Drainage and Wastewater Management Plan (2023)	Yes	No	No	2028
Regional	South West Water Water Resources Management Plan (2024)	Yes	No	No	2028 / 2029
Local	Cotswold District Council Local Plan Partial Update: Water Cycle Study (2025)	Yes	No	No	2026
Regional	Climate change guidance for development and flood risk (EA) last updated May 2022 (gov.uk)	Yes	No	Yes	-
Local	Gloucestershire Local Flood Risk Management Strategy (2014)	Yes	Yes	Yes	2026

2.1 The National Flood and Coastal Erosion Risk Management Strategy for England

The National Flood and Coastal Erosion Risk Management Strategy for England (gov.uk) provides the overarching framework for future action by all Risk Management Authorities (RMAs) to tackle flooding and coastal erosion in England. The Strategy looks ahead to the year 2100 and the actions needed to address the challenge of climate change.

The Strategy has been split into three high level ambitions:

- Climate resilient places.
- Today's growth and infrastructure resilient in tomorrow's climate.
- A nation ready to respond and adapt to flooding and coastal change.

The Strategy was laid before parliament in July 2020 for formal adoption and published alongside a Policy Statement for Flood and Coastal Erosion Risk Management (gov.uk).

The implementation of the National Strategy leads to the publication of new guidance and practice focused on resilience. It will be important to adjust the content of the SFRA, as and when required, so that changes in approach are captured in the delivery of the Local Plan.

The National Strategy is due to be updated in 2026.

2.2 Catchment Flood Management Plans

Catchment Flood Management Plans (CFMPs) are high-level strategic plans providing an overview of flood risk across each river catchment, published between 2009 and 2012. The EA use CFMPs to work with other key-decision makers to identify and agree long-term policies for sustainable flood risk management. However, the CFMPs have been largely superseded by Flood Risk Management Plans (FRMP).

There are six pre-defined national policies provided in the CFMP guidance, and these are applied to specific locations through the identification of 'Policy Units'. These policies are intended to cover the full range of long-term flood risk management options that can be applied to different locations in the catchment.

Cotswold district is covered by the Thames CFMP, Bristol Avon CFMP and the Severn Tidal Tributaries CFMP. The primary policy option in each of the areas of Cotswold district covered by the three plans is Preferred Policy Option 6: Areas of low to moderate flood risk where we will take action with others to store water or manage runoff in locations that provide overall flood risk reduction or environmental benefits.

2.3 Flood Risk Management Plans

FRMPs set out how organisations, stakeholders and communities will work together to manage flood risk. The FRMP designates specific measures for authorities to manage flood risk within each river basin district. For Cotswold, the key measures include:

- Engage with property owners to improve their understanding of residual risk and measures they can take to prepare for flooding and recovery in locations in

Gloucestershire where the Environment Agency is delivering property flood resilience measures
- Work with communities at risk to raise awareness and increase their preparedness for flooding, including what they can do themselves in Gloucestershire
- Update the Gloucestershire County Council website to improve signposting and accessibility to flood information and facilitate better flood reporting
- Promote natural flood risk management as a complementary element of flood risk management schemes and work with landowners to identify locations for natural flood management measures
- Regularly review Local Flood Risk Management Strategy Implementation Plan, taking into account recent flood events, and produce a prioritised list of capital works
- Work together to create a centralised data base for flood alleviation schemes to effectively co-ordinate where future resources can be targeted

The full list of relevant measures for managing flood risk within the Thames and Severn river basin districts can be found on the EA's flood plan explorer.

2.4 Thames Regional Flood and Coastal Committee

Cotswold District Council (the Council) is a member of the Thames Regional Flood and Coastal Committee (RFCC). The RFCC, established by the EA, brings together relevant members appointed by the LLFAs to:

- Ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines,
- Encourage efficient, targeted and risk-based investment in flood and coastal erosion risk management that represents value for money and benefits local communities,
- Provide a link between the EA, LLFA, other RMAs, and other relevant bodies to build understanding of flood and coastal erosion risks in its area.

2.5 Local Flood Risk Management Strategy

Local Flood Risk Management Strategies (LFRMS) set out how the LLFA (Gloucestershire County Council (GCC)) will manage local flood risk i.e. surface water runoff, groundwater, and ordinary watercourses, for which they have a responsibility, and the work that other RMAs are doing to manage flood risk across the district.

The Gloucestershire County Council LFRMS was approved in Summer 2014 and sets out Gloucestershire's strategy for managing local flood risk over a 10-year period. The aim of the Local Strategy is to 'work in partnership with local communities, and organisations responsible for managing flood risk, in order to better understand and reduce local flood risk in Gloucestershire where it is economically, technically, socially, and environmentally feasible to do so'.

The LFRMS provides an overall picture of flood risk across Gloucestershire and outlines how the LLFA will coordinate and manage flood risk along with other RMAs. The strategy sets out the policy direction for flood defence consenting, thresholds for formal flood investigations, formal partnership and management arrangements, details regarding the asset register, and a great deal of general advice and guidance relating to flood mitigation and resilience.

GCC developed the following six strategic objectives to manage and understand flood risk across the county:

- Objective 1 - improve our understanding of flood risk;
- Objective 2 - put in place plans to manage these risks;
- Objective 3 - avoid inappropriate development and ensure new development does not increase flooding elsewhere;
- Objective 4 - increase public awareness of flooding and encourage local communities to take action;
- Objective 5 - ensure close partnership working and co-ordination with other risk management authorities in Gloucestershire; and
- Objective 6 - support response to, and recovery from, flooding incidents.

The LFRMS for Gloucestershire should be updated to align with the National Flood and Coastal Erosion Risk Management Strategy for England, 2020. However, the National Strategy is due to be updated by the EA in 2026.

2.6 Local policy and guidance for SuDS

The National Planning Policy Framework (NPPF) states that: "*Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal*." (Paragraph 182) and "*Development should only be allowed in areas at risk of flooding where… it can be demonstrated that… c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate*" (Paragraph 181).

At the time of writing, the following documents and policies are relevant to SuDS and surface water in the district. Hyperlinks are provided to external documents:

- Defra National standards for sustainable drainage systems (gov.uk), 2025.
- SuDS Manual (C753) (ciria.org), published in 2007 and updated in 2015.
- Building Regulations Part H (MHCLG) (gov.uk), 2010.
- Gloucestershire SuDS Design and Maintenance Guide, 2015.
- Cotswold District Green Infrastructure Strategy, 2024

Further information on SuDS requirements and design considerations can be found in the main SFRA report and Water Cycle Study report.

2.7 Water Cycle Studies

Water Cycle Studies (WCSs) assist local authorities to select and develop growth proposals that minimise impacts on the environment, water quality, water resources, infrastructure, and flood risk and help to identify ways of mitigating such impacts.

A Water Cycle Study for the Cotswold District Council Local Plan Partial Update was published in July 2025. However, the WCS is scheduled to be updated in 2026 to support the full new Local Plan for Cotswold District.

2.8 Surface Water Management Plans (SWMPs)

SWMPs outline the preferred surface water management strategy in a given location and establish a long-term action plan to manage surface water in a particular area. They are intended to influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning, and future developments.

At the time of writing, there is no SWMP for Cotswold or within Gloucestershire.

2.9 Water Resource Management Plans (WRMPs)

Under the duties set out in sections 37A to 37D of the Water Industry Act 1991, all water companies across England and Wales must prepare and maintain a WRMP. This must be prepared at least every five years and reviewed annually.

WRMPs should set out how a water company intends to achieve a secure supply of water for their customers and a protected and enhanced environment. The WRMPs that cover the district are:

- Thames Water - Water Resources Management Plan (2024) which covers the period 2025 to 2075
- Severn Trent - Water Resources Management Plan (2024) which covers the period 2025 to 2050
- Wessex Water - Water Resources Management Plan (2024) which covers the period 2025 to 2080
- South West Water - Water Resources Management Plan (2024) which covers the period 2025 to 2050

2.10 Drainage and Wastewater Management Plans (DWMPs)

Water and sewage companies must produce a Drainage and Wastewater Management Plan (DWMP), covering a minimum of 25 years, which looks at current and future capacity, pressures, and risks to their networks such as climate change and population growth. They detail how a company plans to work with RMAs and drainage asset owners to manage future pressures. The DWMPs that cover the district are:

- Thames Water Drainage and Wastewater management plan (2023)
- Severn Trent Drainage and Wastewater management plan (2023)
- Wessex Water Drainage and Wastewater Management Plan (2023)

Updated DWMPs are due to be published in August 2028.

2.11 Local Plans

A Local Plan is a statutory document prepared in consultation with the local community. It is designed to promote and deliver sustainable development. Local Plans must set out a clear vision, be kept up to date and set out a framework for future development of the local area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure as well as safeguarding the environment and adapting to climate change and securing good design.

Local Plans set the context for guiding decisions and development proposals and along with the NPPF, set out a strategic framework for the long-term use of land and buildings, thus providing a framework for local decision making and the reconciliation of competing development and conservation interests.

The NPPF requires that the evidence base for the Local Plan must clearly set out what is intended over the lifetime of the plan, where and when this will occur and how it will be delivered. The NPPF states that Local Plans should be supported by a SFRA and should take account of advice provided by the EA and other flood risk management bodies. Each constituent authority has its own Local Plan and accompanying SFRA. The Local Plan SFRAs are used to ensure that when allocating land or determining planning applications, development is located in areas at lowest risk of flooding. Policies to manage, mitigate and design appropriately for flood risk should be written into the Local Plans, informed by both the SFRA and the Sustainability Appraisal.

The 23 key settlements within Cotswold, as defined in the Local Plan, are:

- Andoversford
- Bledington
- Blockley
- Bourton-on-the-Water
- Chipping Campden
- Cirencester
- Siddington
- Down Ampney
- Evenlode
- Fairford
- Kemble
- Lechlade
- Lower Slaughter
- Mickleton
- Moreton-in-Marsh
- Naunton
- Northleach
- South Cerney

- Stow-on-the-Wold
- Tetbury
- Upper Rissington
- Weston-sub-Edge
- Willersey

2.12 Neighbourhood plans

created by the Localism Act 2011, a neighbourhood plan is a document produced by a local community that sets out planning policies for their area and can be used to:

- Protect local green spaces;
- Encourage better designed places;
- Bring forward housing that meets local needs.

Neighbourhood planning groups can use the information in this SFRA to assess the risk of flooding to sites within their community. 10 areas have been designated as neighbourhood plan areas within Cotswold District:

- Stow-on-the-Wold and the Swells Neighbourhood Plan - following referendum, the plan was made by the Council on 3 October 2024.
- Down Ampney Neighbourhood Plan - following referendum, the plan was made by the Council on 6 March 2024.
- Fairford Neighbourhood Plan - following referendum, the plan was made by the Council on 5 June 2023.
- South Cerney Neighbourhood Plan - following referendum, the plan was made by the Council in May 2021.
- Kemble and Ewen Neighbourhood Plan - following referendum, the plan was made by the Council in May 2021.
- Preston Neighbourhood Plan - following referendum, the plan was made by the Council in May 2021.
- Somerford Keynes and Shorncote Neighbourhood Plan - following referendum, the plan was made by the Council in May 2021.
- Lechlade on Thames Neighbourhood Plan - following referendum, the plan was made by the Council in November 2016.
- Northleach with Eastington Neighbourhood Plan - following referendum, the plan was made by the Council in March 2019.
- Tetbury and Tetbury Upton Neighbourhood Plan - following referendum, the plan was made by the Council in December 2017.

A further 11 areas have been approved to be designated as a neighbourhood and are developing their plans:

- Ampney Crucis
- Andoversford
- Blockley
- Chedworth

- Chipping Campden
- Cirencester
- Ebrington
- Moreton in Marsh
- Siddington
- Upper Rissington
- Willersey

Further guidance on the neighbourhood planning process within the district can be found on the neighbourhood planning page of the Council's website.

2.13 Additional guidance sections

2.13.1 Supplementary planning documents

Supplementary planning documents (SPDs) are used to add further detail to the policies set out in the Local Plan and to provide guidance for development on specific sites or particular issues.

the Council produced a Cirencester Town Centre SPD (2008) to amplify policies laid out in the Local Plan, particularly in relation to traffic management. GCC is also has a number of SPDs and guides available online.

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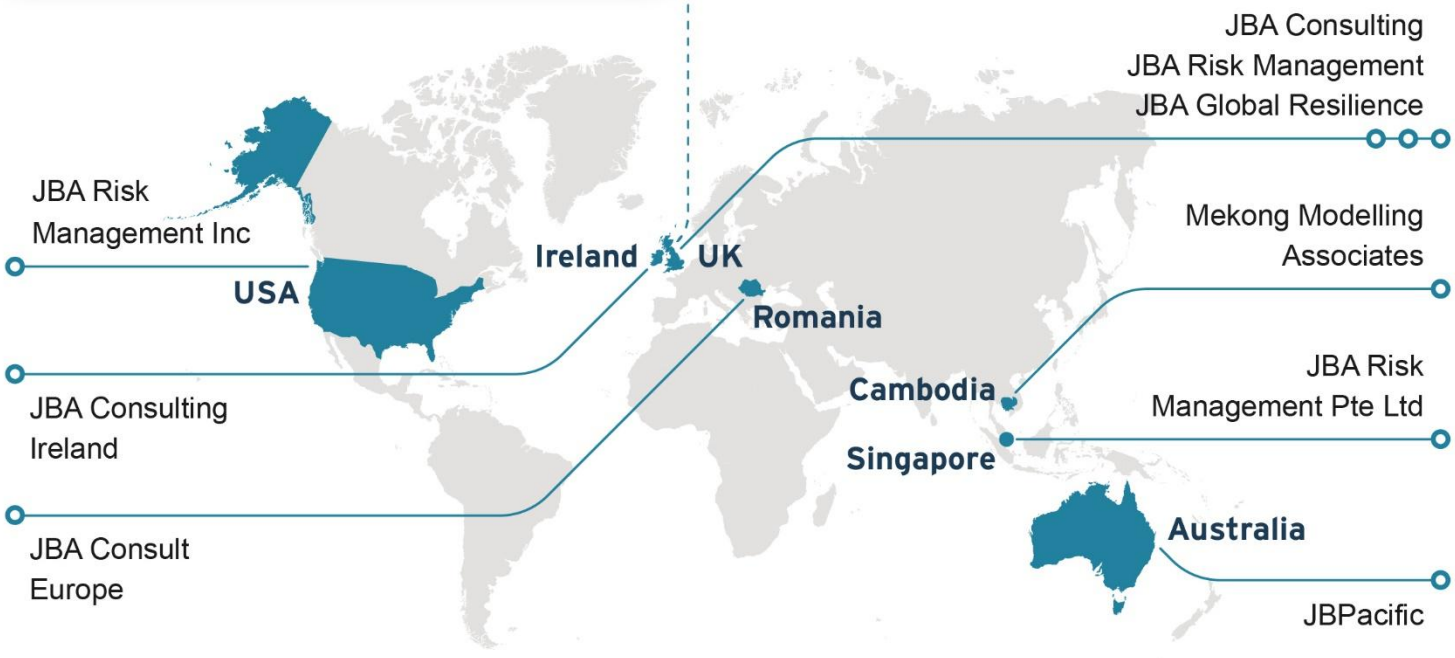

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Appendix B: Interactive Mapping - Layers Explanation Note

Prepared for
Cotswold District Council

Date
XXX

COTSWOLD District Council

Layer name	Explanation
Flood Zones	This layer displays Flood Zone 3b (functional floodplain) as delineated through the SFRA, as well as Flood Zone 3a and Flood Zone 2 from the Environment Agency's Flood Map for Planning - Flood Zones dataset.
Flood Zones plus climate change (EA)	This layer displays the Environment Agency's Flood Map for Planning - Flood Zones plus Climate Change dataset.
Fluvial Climate Change	This layer displays the future functional floodplain, as delineated through the SFRA, as well as the modelled flood outlines from the Environment Agency's detailed hydraulic models, where available. The 100-year event plus 30% climate change and 100-year event plus 43% climate change are shown. These correspond with the Central and Higher Central climate change peak river flow allowances for the Cotswolds Management Catchment.
Historic Flooding	This layer displays the Environment Agency's Historic Flood Map and Recorded Flood Outlines datasets. It also displays a layer which aggregates the historic flood incidents records of the Lead Local Flood Authority, Cotswold District Council, Thames Water, Severn Trent Water and Wessex Water to display the number of incidents per ward.
Reservoir Flooding	This layer displays the Environment Agency's Dry Day and Wet Day Reservoir Flood Extents datasets.
Flood Risk Management	This layer displays the Environment Agency's AIMS Spatial Flood Defences (inc. standardised attributes) dataset. The dataset has been filtered to show only raised flood walls and embankments and has been symbolised based on the asset condition score. The Environment Agency's Flood Map for Planning (Rivers and Sea) - Water Storage Areas, Flood Warning Areas and Flood Alert Areas datasets are also shown.
Working with Natural Processes (WwNP)	This layer displays the Environment Agency's Working With Natural Processes (WwNP) layers.
Risk of Flooding from Rivers and Sea (RoFRS)	This layer displays the Environment Agency's Risk of Flooding from Rivers and Sea (RoFRS) dataset.
Risk of Flooding from Surface Water (RoFSW)	This layer displays the Environment Agency's Risk of Flooding from Surface Water (RoFSW) dataset. The low

Layer name	Explanation
	risk flood extent can be used as a proxy for the medium risk plus climate change flood extent.
Groundwater Emergence	This layer displays JBA's Groundwater Emergency Map.
Bledington Brook 2012	This layer displays the modelled flood outlines from the Bledington Brook 2012 model*.
Churn (Baunton to Siddington) 2011	This layer displays the modelled flood outlines from the Churn (Baunton to Siddington) 2011 model*.
Daglingworth Stream FRA 2016	This layer displays the modelled flood outlines from the Daglingworth Stream FRA 2016 model*.
Windrush (Bourton-on-the-Water) 2014	This layer displays the modelled flood outlines from the Windrush (Bourton-on-the-Water) 2014 model*.
Thames (MRL to St Johns) 2014	This layer displays the modelled flood outlines from the Thames (MRL to St Johns) 2014 model*.

* In the legend of the modelled flood outline layers, Q100, Q100 + CC43 etc. refers to the fluvial 100-year and fluvial 100-year plus 43% climate change events. In hydrology, Q used to represent flow, so Q100 means the flow during a 100-year event.

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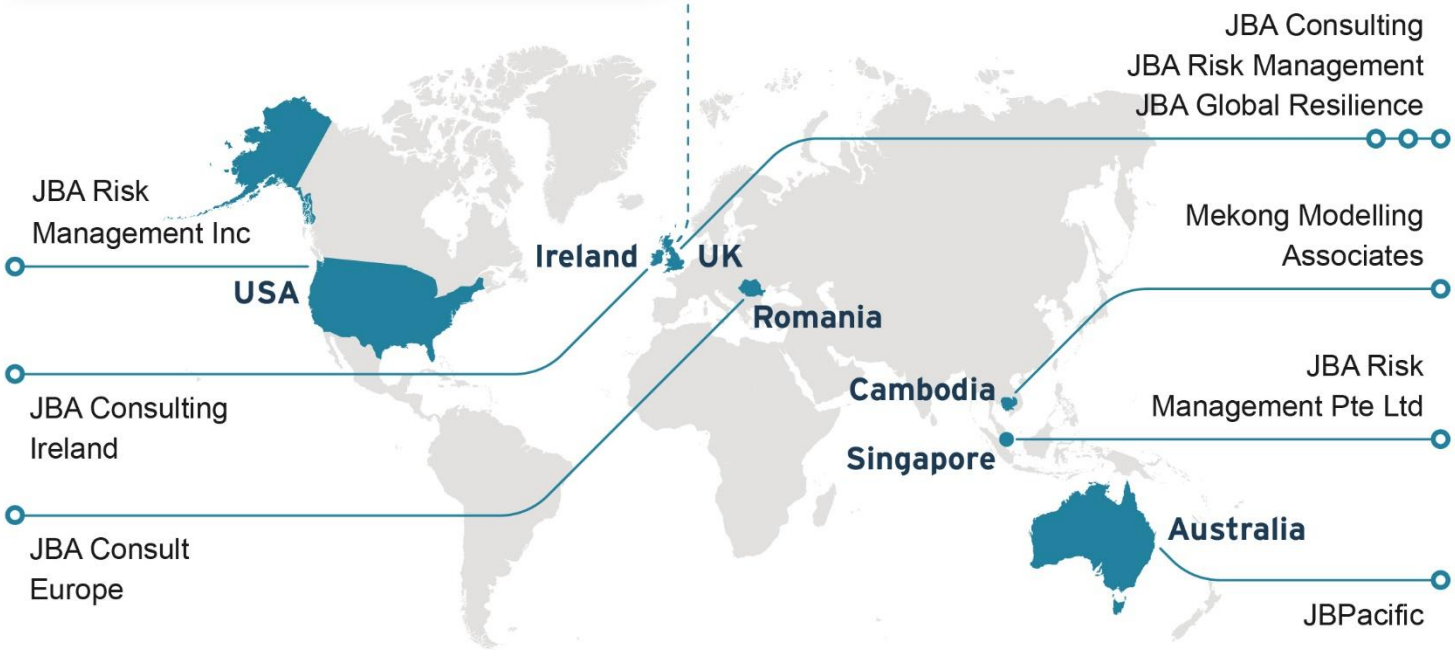

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Cotswold District Council Level 1 SFRA Update

Appendix C - Functional Floodplain Delineation

Final

Prepared for	Date
Cotswold District Council	June 2026

COTSWOLD
District Council

Document Status

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Abbreviations

AEP	Annual Exceedance Probability
EA	Environment Agency
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MFO	Modelled Flood Outline
SFRA	Strategic Flood Risk Assessment

1 Introduction

The Flood Risk and Coastal Change Planning Practice Guidance (FRCC-PPG) states that local planning authorities (LPA) should identify and assess, in their Strategic Flood Risk Assessments (SFRA), areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency (EA). The functional floodplain (Flood Zone 3b) extent for Cotswold has therefore been updated and delineated as part of this Level 1 SFRA using the most up-to-date data available from the EA. The previous functional floodplain extent, delineated for the 2023 Cotswold Level 1 SFRA, has been superseded by more up-to-date modelled outputs, and new national flood mapping, as updated by the EA as part of the Flood Map for Planning updates. This methodology note explains the delineation process.

Note that the functional floodplain (Flood Zone 3b) is not included in the Flood Map for Planning. Although the EA now publishes the Rivers and Sea 3.3% defended extent, the functional floodplain should also account for other available data indicating land where water has to flow, or which stores water, in times of flooding. This SFRA therefore sub-divides Flood Zone 3 into Flood Zone 3a and Flood Zone 3b (functional floodplain). This distinction is for the use of the LPA and developers in development planning and management. Flood Zone 3a is Flood Zone 3 of the Flood Map for Planning that is not functional floodplain.

The LPA, Lead Local Flood Authority (LLFA) and the EA must all agree on the extent of the functional floodplain outline and the methodology used. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. The local knowledge of the LPA, LLFA and EA is therefore crucial in defining the functional floodplain as robustly and realistically as possible.

2 Functional floodplain definition

The EA's SFRA guidance (2025) states that the Level 1 SFRA should include the functional floodplain extent on maps with a detailed explanation of how the functional floodplain was defined. This methodology note provides this definition.

The guidance states that functional floodplain should show land that:

"Would flood from rivers or the sea with an annual probability of 1 in 30 (3.3%), with flood risk management features and structures operating effectively

Would normally form the river channel

Is designed to flood (such as flood attenuation schemes), even if it would only flood in more extreme events (such as 0.1% annual probability)"

How to Prepare an SFRA, Environment Agency, 2025

Regarding the impact of defences on the functional floodplain:

"In any modelling used to identify the functional floodplain, include existing defences and other flood risk management features and structures.

You may not need to designate the functional floodplain in locations where evidence shows flooding would be prevented by existing flood defences, flood risk management features or structures, or buildings"

How to Prepare an SFRA, Environment Agency, 2025

Regarding the impact of existing buildings on the functional floodplain:

"The footprints of existing buildings may be removed from functional floodplain extents. However, it may be simpler to include existing buildings and use local policies to control the redevelopment or changes of use that may be acceptable.

Use local policies or guidance to explain the approach you will take when buildings are demolished in functional floodplain. It may be reasonable to assume that sites revert to functional floodplain when buildings have been demolished for more than a year."

How to Prepare an SFRA, Environment Agency, 2025

If there is not enough detailed modelled information available to identify the functional floodplain, this should be made clear on the Level 1 SFRA maps to ensure risk isn't underestimated. In these areas, site-specific flood risk assessments should determine whether a site is affected by functional floodplain through additional modelling. If sites are proposed for development in such areas in the local plan, a Level 2 SFRA will be required to robustly map the functional floodplain extent.

3 Available datasets

3.1 EA detailed flood modelling

Areas within the modelled defended 3.3% Annual Exceedance Probability (AEP) extent should be considered as functional floodplain, which is defined as land having a 3.3% or greater annual probability of flooding with consideration of flood defence infrastructure.

Based on the guidance outlined in Section 2, the modelled flood outlines (MFO) listed in Table 3-1 below were provided by the EA to assist in the update of the 2023 functional floodplain outline. Where possible, direct modelling of the present day 3.3% AEP defended event has been used to delineate the functional floodplain in areas where there are up to date and finalised models. Where the present day 3.3% AEP defended event was not included within a detailed model, the next available defended event was used where available, as agreed with the EA.

The Daglingworth Stream (2016) model was provided, however the EA have advised this has now been superseded by the Flood Map for Planning. Therefore, this watercourse has been represented by the EA Rivers and Sea 3.3% defended flood risk extent in the functional floodplain.

Table 3-1: Available EA detailed models and modelled flood outlines

Model	Year	Annual Exceedance Probability	Defended?
Churn (Baunton to Siddington)	2011	3.3%	Yes
Thames (St Johns to Shifford)	2011	1%	Yes
Bledlington Brook	2012	1%	Yes
Thames (MRL to St Johns)	2014	2%	Yes
Windrush (Bourton-on-the-Water)	2018	2%	Yes
Where no defences exist, it indicates that there are no defences present along the watercourse. The defended event would be used in preference to the undefended event where available.			

3.2 EA Rivers and Sea 3.3% defended flood risk extent

The EA has published the Rivers and Sea 3.3% defended event extent for both present day and accounting for climate change. The defended scenario considers the presence of flood defences and assumes that they operate in the way they were designed to function. This scenario does not include any asset failure or removal scenarios.

The River and Sea 3.3% defended event extent has been used to represent the functional floodplain in areas where no suitable detailed modelling is available, as agreed with the EA.

3.3 Additional datasets

- EA Statutory Main River Map
  - To define areas of the functional floodplain that are designated as main river by the EA.
  - This dataset includes both open channel and culverted watercourses.
  - The dataset has been buffered by 8m either side of the channel line to broadly represent the width of the river across the area. It is recognised that this is an approximation. Policy relating to functional floodplain applies to the actual location of the river and not the buffered channel within the functional floodplain mapping in locations where they may differ.
- EA Flood Map for Planning - Water Storage Areas
  - To define areas of land which store water during a flood event.
  - Water Storage Areas should be consulted on for appropriateness with the EA.
  - The Water Storage Area dataset has been reviewed, and it was found that there is one EA defined Water Storage Area within Cotswold, located in Dowdeswell Nature Reserve.

4 Functional floodplain delineation methodology

4.1 GIS methodology

The below steps summarise the methodology used to delineate the functional floodplain:

- All EA detailed models (Table 3-1) supplied for consideration within this assessment were included within the functional floodplain extent where appropriate outputs were available.
- The EA Rivers and Sea 3.3% defended extent was used to define the functional floodplain in areas not subject to detailed modelling.
- All main river channels, including culverted sections of river, were added to the functional floodplain outline. This is required by the EA SFRA guidance to define areas that would normally form the river channel and where water has to flow in times of flooding. At a local scale, this may lead to some inaccuracies, especially in hydrologically complex areas where there are man-made interactions or interactions with other bodies of water such as reservoirs or canals.
- Recognising this, functional floodplain policy relates to the river and not the mapping where they are different. For main rivers, the functional floodplain should include for an 8m buffer either side of the channel to allow for access to the channel for maintenance and to avoid the requirement for environmental permits.
- Each polygon within the functional floodplain GIS outline has been attributed with the source dataset so it is possible to easily ascertain which dataset each polygon within the outline is based on.
- Checks on the geometry of the functional floodplain outline were carried out to ensure geometric correctness in GIS.

4.2 Methodology hierarchy

The hierarchy of methods used to define the functional floodplain is outlined below:

1. Use of the 3.3% AEP defended event (or next available defended event) MFO's where available in detailed local models
2. Use of the or next available defended event MFO's where available in detailed local models
3. Use of the EA Rivers and Sea 3.3% defended flood risk extent (downloaded December 2025)
4. Use of the EA Water Storage areas dataset
5. Use of the buffered EA Statutory Main River Map (8 metres either side of the channel).

Table 4-1 provides a description of each source attribute within the functional floodplain dataset.

Table 4-1: Functional floodplain source attribute definitions

Source attribute	Description
Churn (Baunton to Siddington) 2011 3.3% AEP Defended Extent	Detailed model output from the Churn (Baunton to Siddington) 2011 model.
Thames (St Johns to Shifford) 2011 1% AEP Defended Extent	Detailed model output from the Thames (St Johns to Shifford) 2011 model.
Bledlington Brook 2012 1% AEP Defended Extent	Detailed model output from the Bledlington Brook 2012 model.
Thames (MRL to St Johns) 2014 2% AEP Defended Extent	Detailed model output from the Thames (MRL to St Johns) 2014 model.
Windrush (Bourton-on-the-Water) 2018 2% AEP Defended Extent	Detailed model output from the Windrush (Bourton-on-the-Water) 2018 model.
EA Rivers and Sea 3.3% AEP Defended Extent	Areas of the functional floodplain defined by the EA's Rivers and Sea 3.3% defended flood risk extent dataset. This has only been used in areas where suitable detailed modelling is unavailable.
EA Flood Storage Areas	Areas of the functional floodplain defined by the EA Water Storage Area dataset.
EA Main River	8m buffered polygon of the Statutory Main River map indicating areas of fluvial river channel.

4.3 Culverted rivers

The EA Statutory Main River Map includes a high-level and approximate representation of culverted sections of watercourses. These sections are subject to a higher degree of uncertainty as it is more challenging to identify and verify below ground alignments. Within culverted sections, functional floodplain policy relates to the actual confirmed alignment of culverted sections, as identified through site investigation, rather than the alignment shown in the functional floodplain where it differs. The EA or LLFA may be able to advise on the culverted sections in the functional floodplain for main rivers and ordinary watercourses respectively.

It is recommended that investigations of onsite culverted watercourses to establish their full route, condition and capacity are carried out through a site-specific flood risk assessment and incorporated into the surface water sustainable drainage strategy, as required.

4.4 Waterbodies

The EA Statutory Main River Map contains open river channels and culverted sections of channel only and do not include other types of waterbody such as reservoirs, canals, lakes or ponds. Waterbodies are only included in the delineated functional floodplain where they are present within the EA Rivers and Sea 3.3% defended extent or detailed model outputs. There is no reliable dataset to identify waterbodies that can be used to delineate the functional floodplain.

4.5 Unmodelled watercourses

The functional floodplain extent does not map the flood risk from unmodelled watercourses. Watercourses have only been included in the functional floodplain extent where they have been designated as main river by the EA. Functional floodplain policy applies to all watercourses within the Cotswold authority area. Site-specific FRA's could consider modelling the 3.3% AEP event to define the functional floodplain for sites situated within the vicinity of an unmodelled watercourse. As a conservative proxy, the 1% AEP surface water event could be considered as functional floodplain in the absence of suitable detailed modelling.

4.6 Buildings and infrastructure

Buildings and infrastructure within the functional floodplain have been retained within the outline, i.e. they have not been removed on the assumption that floodwater ingress may occur. The EA's SFRA guidance states that you do not need to designate functional floodplain in locations where evidence shows flooding would be prevented by existing buildings, however it is considered simpler to include existing buildings and use local policies to control the redevelopment or changes of use that may be acceptable. Such policies could include no increase in development footprint for buildings within the functional floodplain, converting disused buildings to greenspace or the installation of resilience measures.

4.7 Dry islands

Areas of higher land shown as 'dry islands' within the functional floodplain should also be considered undevelopable, where safe access and escape routes are unachievable. The only exception to this is for water compatible or essential infrastructure uses. It has been assumed that any 'dry islands' within the functional floodplain outlines should be considered as functional floodplain where these areas are located within Flood Zone 3 of the EA's Flood Map for Planning.

5 Future functional floodplain

In addition to the present day functional floodplain outline, a future functional floodplain outline, as advised in EA guidance, has been delineated. Table 5-1outlines the available climate change model outputs that have been used to delineate the future functional floodplain.

Table 5-1: EA detailed model climate change allowances

Model	Year	Annual Exceedance Probability	Climate change allowance
Churn (Baunton to Siddington)	2011	3.3%	30%
Thames (MRL to St Johns)	2014	2%	30%

Suitable outputs were only available for two models. No suitable 3.3% AEP defended event climate change modelling was available within the other supplied EA detailed models, therefore the Rivers and Sea 3.3% defended event plus climate change extent has been used to represent the future functional floodplain in all other areas. The climate change allowances used to produce this dataset are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

The future functional floodplain indicates areas likely to be within the functional floodplain in the future. The future functional floodplain extent should not be included in the functional floodplain designation and is not included in any policy for planning decisions.

6 Conclusions

The draft functional floodplain outline should be assessed and agreed upon by the LPA, LLFA and the EA. The extent of both the present day and future functional floodplain outlines produced from this Level 1 SFRA should always be assessed in greater detail where any more detailed study such as a Level 2 SFRA or site-specific FRA are undertaken. The future functional floodplain extent should not be included in the functional floodplain designation as it is not included in national policy.

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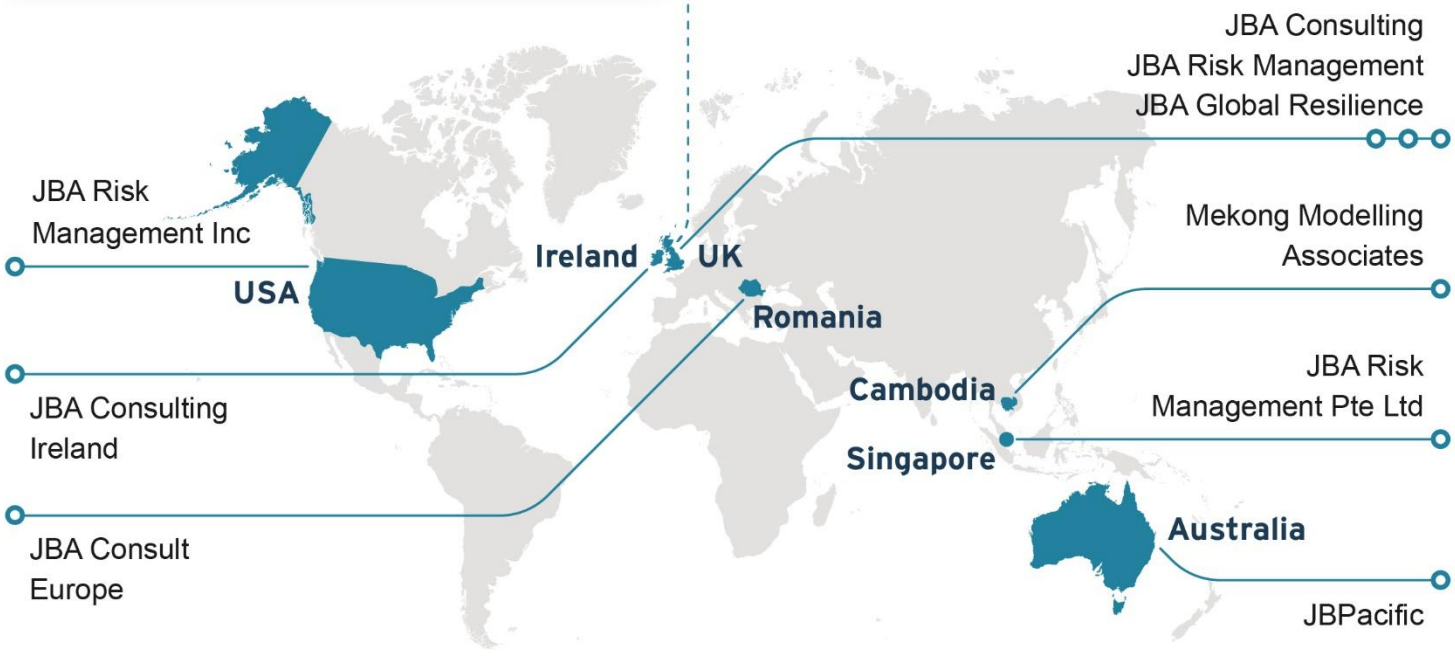

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Cotswold District Council

Level 1 SFRA Local Plan Sites Assessment

01 June 2026

Key

Key	
Flood Zone 3b	The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason
Flood Zone 3a / Functional floodplain plus climate change / Flood Zone 3a plus climate change	
Flood Zone 2	
Flood Zone 1 + Surface Water	
Flood Zone 1	

Summary Table

Proposed Use	Number of Sites	Area (ha)	Fluvial Flood Zone Coverage: Flood Zone 1 Area (ha)	Flood Zone 1 No. 100%	Flood Zone 2 Area (ha)	Flood Zone 2 No.	Flood Zone 3a Area (ha)	Flood Zone 3a No.	Flood Zone 3b Area (ha)	Flood Zone 3b No.	Risk of Flooding from Surface Water: Very Low Risk (less than 1 in 1000 year) Area (ha)	Very Low Risk No. 100%	Low Risk (1 in 1000 year outline) Area (ha)	Low Risk No.	Medium Risk (1 in 100 year outline) Area (ha)	Medium Risk No.	High Risk (1 in 30 year outline) Area (ha)	High Risk No.	Risk of Flooding from Fluvial Climate Change: FMfP Flood Zones + climate change (additional risk) Area (ha)	FMfP No.	Modelled undefended 1% AEP + central climate change allowance (additional risk) Area (ha)	Modelled No.	Functional floodplain + climate change (additional risk) Area (ha)	Functional floodplain No.	Risk of Flooding from Surface Water Climate Change: Medium Risk plus Climate Change (using Low Risk as a proxy) Area (ha)	Medium Risk plus CC No.	Reservoir Flooding: Reservoir Flood Maps Dry Day Extent Area (ha)	Reservoir No.
Housing	160	1564.20	1533.77	125	3.71	35	2.08	27	24.65	26	1495.89	20	34.29	139	11.08	121	22.95	107	4.08	36	0.42	10	1.57	27	34.29	139	0.12	2
Employment	6	165.15	162.61	4	0.55	2	0.28	2	1.70	2	156.30	0	3.90	6	1.40	6	3.56	6	0.96	2	0.00	0	0.27	2	3.90	6	0.00	0
Mixed Use	5	284.67	284.67	4	0.00	1	0.00	0	0.00	0	275.24	0	5.76	5	1.92	5	1.75	5	0.00	1	0.00	0	0.00	0	5.76	5	0.00	0
Education	1	2.39	2.39	1	0.00	0	0.00	0	0.00	0	2.18	0	0.20	1	0.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0
Car Park	1	2.13	1.05	0	1.05	1	0.01	1	0.01	1	0.94	0	0.23	1	0.19	1	0.76	1	0.01	1	0.00	0	0.01	1	0.23	1	0.00	0
TOTAL	**173**	**2018.54**	**1984.49**	**134**	**5.31**	**39**	**2.37**	**30**	**26.37**	**29**	**1930.55**	**20**	**44.38**	**152**	**14.59**	**134**	**29.03**	**119**	**5.05**	**40**	**0.42**	**10**	**1.84**	**30**	**44.38**	**152**	**0.12**	**2**

Main Table

Site Reference	Site Name	Proposed Use	Area (ha)	Fluvial Flood Zone Coverage: Flood Zone 1 Area (ha)	Flood Zone 1 %	Flood Zone 2 Area (ha)	Flood Zone 2 %	Flood Zone 3a Area (ha)	Flood Zone 3a %	Flood Zone 3b Area (ha)	Flood Zone 3b %	Risk of Flooding from Surface Water: Very Low Risk (less than 1 in 1000 year) Area (ha)	Very Low Risk %	Low Risk (1 in 1000 year outline) Area (ha)	Low Risk %	Medium Risk (1 in 100 year outline) Area (ha)	Medium Risk %	High Risk (1 in 30 year outline) Area (ha)	High Risk %	Risk of Flooding from Fluvial Climate Change: Flood Zones + climate change (additional risk) Area (ha)	Flood Zones + CC %	Modelled undefended 1% AEP + central climate change allowance (additional risk) Area (ha)	Modelled %	Functional floodplain + climate change (additional risk) Area (ha)	Functional floodplain %	Risk of Flooding from Surface Water Climate Change: Medium Risk plus Climate Change (using Low Risk as a proxy) Area (ha)	Medium Risk plus CC %	Reservoir Flooding: Reservoir Flood Maps Dry Day Extent Area (ha)	Reservoir %
13/05306/FUL	Land north of Cirencester Road, GL8 8SA	Housing	2.060	2.060	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.535	74.525	0.373	18.111	0.080	3.906	0.071	3.459	0.000	0.000	0.000	0.000	0.000	0.000	0.373	18.111	0.000	0.000
15/01567/OUT	Land at Broadway Farm	Housing	3.349	3.349	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.260	97.342	0.040	1.182	0.010	0.291	0.040	1.185	0.000	0.000	0.000	0.000	0.000	0.000	0.040	1.182	0.000	0.000
16/00054/OUT	The Steadings	Housing	120.303	120.303	100.000	0.000	0.000	0.000	0.000	0.000	0.000	117.413	97.598	1.248	1.038	0.261	0.217	1.381	1.148	0.000	0.000	0.000	0.000	0.000	0.000	1.248	1.038	0.000	0.000
19/00086/OUT	Land to east of Evenlode Road	Housing	3.587	3.587	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.521	98.160	0.049	1.372	0.013	0.351	0.004	0.117	0.000	0.000	0.000	0.000	0.000	0.000	0.049	1.372	0.000	0.000
19/02248/FUL	Land at Dunstall Farm, Fosseway	Housing	16.401	15.501	94.512	0.275	1.676	0.009	0.055	0.616	3.755	16.041	97.808	0.154	0.942	0.070	0.429	0.135	0.822	0.042	0.259	0.000	0.000	0.009	0.053	0.154	0.942	0.000	0.000
20/04147/FUL	Coln House School, Horcott Road, GL7 4DB	Housing	1.020	1.020	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.899	88.153	0.100	9.763	0.016	1.596	0.005	0.488	0.000	0.000	0.000	0.000	0.000	0.000	0.100	9.763	0.000	0.000
21/00549/FUL	Northfield Garage, London Road, GL8 8HW	Housing	0.942	0.942	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.760	80.616	0.132	13.989	0.034	3.658	0.016	1.737	0.000	0.000	0.000	0.000	0.000	0.000	0.132	13.989	0.000	0.000
22/03666/FUL	Old Quarries, Rectory Lane, GL8 8NJ	Housing	2.963	2.888	96.808	0.019	0.646	0.024	0.799	0.052	1.745	2.963	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.457	0.000	0.000	0.025	0.853	0.000	0.000	0.000	0.000
22/03770/OUT	Land west of Hatherop Road	Housing	7.704	7.704	100.000	0.000	0.000	0.000	0.000	0.000	0.000	7.558	98.106	0.067	0.870	0.018	0.237	0.061	0.787	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.870	0.000	0.000
23/01513/FUL	Land north of Oddington Road	Housing	1.969	1.969	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.969	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/01597/OUT	Land west of Kingshill Lane	Housing	13.510	13.510	99.997	0.000	0.003	0.000	0.000	0.000	0.000	12.792	94.686	0.395	2.925	0.129	0.954	0.194	1.435	0.000	0.000	0.000	0.000	0.000	0.000	0.395	2.925	0.000	0.000
23/02682/FUL	Land west of Worwell Farmhouse, Cirencester Road, GL8 8RY	Housing	2.454	2.454	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.330	94.935	0.086	3.488	0.039	1.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.086	3.488	0.000	0.000
24/00627/FUL	Former CoOperative Food, Station Road	Housing	1.358	1.358	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.243	91.525	0.081	5.995	0.022	1.639	0.011	0.841	0.000	0.000	0.000	0.000	0.000	0.000	0.081	5.995	0.000	0.000
25/01717/FUL	Hatherop Road	Housing	7.704	7.704	100.000	0.000	0.000	0.000	0.000	0.000	0.000	7.558	98.106	0.067	0.870	0.018	0.237	0.061	0.787	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.870	0.000	0.000
A11B	Land north-west of Andoversford	Housing	0.519	0.519	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.399	76.939	0.038	7.354	0.007	1.374	0.074	14.333	0.020	3.856	0.000	0.000	0.000	0.000	0.038	7.354	0.000	0.000
A2	Land to rear of Templefields and Crossfields	Housing	2.307	2.307	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.281	98.861	0.026	1.139	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	1.139	0.000	0.000
A3A	Land north-west of Andoversford	Housing	2.529	2.319	91.712	0.097	3.838	0.032	1.260	0.081	3.190	2.410	95.327	0.036	1.429	0.013	0.530	0.069	2.714	0.075	2.966	0.000	0.000	0.016	0.630	0.036	1.429	0.000	0.000
A3B	Land north-west of Andoversford	Housing	2.712	0.737	27.166	0.250	9.205	0.181	6.672	1.545	56.957	2.423	89.340	0.170	6.266	0.041	1.526	0.078	2.867	0.304	11.198	0.000	0.000	0.155	5.701	0.170	6.266	0.000	0.000
B56	Land off Mallard Crescent	Housing	1.831	1.831	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.720	93.903	0.072	3.912	0.006	0.330	0.034	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.072	3.912	0.000	0.000
BK11	Former Station Road Allotments	Housing	1.461	1.461	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.318	90.196	0.130	8.927	0.013	0.877	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130	8.927	0.000	0.000
BK14A	The Limes, Station Road	Housing	1.516	1.432	94.461	0.035	2.316	0.012	0.790	0.037	2.431	1.480	97.631	0.036	2.369	0.000	0.000	0.000	0.000	0.033	2.188	0.000	0.000	0.009	0.578	0.036	2.369	0.000	0.000
BK8A	Land at Sheafhouse Farm	Housing	0.548	0.548	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.521	95.149	0.027	4.851	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	4.851	0.000	0.000
BK8B	Land west of Sheaf House Farm Buildings	Housing	0.386	0.386	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.386	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
C101A	Forum, Magistrates Court, Police Station	Housing	0.103	0.103	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.103	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
C101B	Forum, Magistrates Court, Police Station	Housing	0.237	0.237	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.217	91.390	0.010	4.221	0.010	4.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	4.221	0.000	0.000
C106B	Old Station, Sheep Street, Brewery	Housing	0.651	0.651	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.605	92.928	0.020	3.136	0.005	0.738	0.021	3.198	0.000	0.000	0.000	0.000	0.000	0.000	0.020	3.136	0.000	0.000
C135	Waterloo Car Park, 27–27A Dyer Street	Housing	0.674	0.039	5.784	0.204	30.288	0.326	48.315	0.105	15.613	0.654	97.052	0.020	2.948	0.000	0.000	0.000	0.000	0.028	4.137	0.349	51.714	0.043	6.408	0.020	2.948	0.000	0.000
C149A	Old Station, Sheep Street, Brewery	Housing	0.433	0.433	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.405	93.539	0.010	2.417	0.004	0.962	0.013	3.082	0.033	7.609	0.000	0.000	0.000	0.000	0.010	2.417	0.000	0.000
C149B	Old Station, Sheep Street, Brewery	Housing	0.706	0.706	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.619	87.554	0.056	7.995	0.029	4.169	0.002	0.281	0.081	11.483	0.000	0.000	0.000	0.000	0.056	7.995	0.090	12.712
C186	Steadings southern extension, Cirencester	Housing	10.813	10.813	100.000	0.000	0.000	0.000	0.000	0.000	0.000	10.673	98.703	0.116	1.075	0.015	0.138	0.009	0.083	0.000	0.000	0.000	0.000	0.000	0.000	0.116	1.075	0.000	0.000
C187	Steadings southern extension, Cirencester	Housing	86.360	86.360	100.000	0.000	0.000	0.000	0.000	0.000	0.000	84.661	98.034	1.028	1.191	0.209	0.242	0.460	0.533	0.000	0.000	0.000	0.000	0.000	0.000	1.028	1.191	0.000	0.000
C52	Waterloo Car Park, 27–27A Dyer Street	Housing	0.294	0.294	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	42.704	0.126	42.770	0.008	2.827	0.034	11.699	0.000	0.000	0.000	0.000	0.000	0.000	0.126	42.770	0.000	0.000
C57	Forum, Magistrates Court, Police Station	Housing	0.543	0.543	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.542	99.983	0.000	0.014	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000
C70	Old Station, Sheep Street, Brewery	Housing	0.641	0.641	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.531	82.853	0.055	8.653	0.054	8.393	0.001	0.100	0.068	10.540	0.000	0.000	0.000	0.000	0.055	8.653	0.000	0.000
C71	Land adjacent 'Donside', off Barnway	Housing	0.332	0.320	96.176	0.005	1.504	0.008	2.272	0.000	0.047	0.332	99.813	0.001	0.187	0.000	0.000	0.000	0.000	0.010	2.926	0.000	0.000	0.007	2.046	0.001	0.187	0.000	0.000
C81B	Land west of Gardner Way	Housing	1.610	1.610	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.604	99.615	0.006	0.385	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.385	0.000	0.000
C97	Old Station, Sheep Street, Brewery	Housing	0.381	0.381	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.309	81.201	0.037	9.615	0.008	1.979	0.027	7.205	0.002	0.631	0.000	0.000	0.000	0.000	0.037	9.615	0.028	7.348
CC10A	Land east of Chandlers, Station Road	Housing	0.729	0.330	45.198	0.242	33.199	0.157	21.603	0.000	0.000	0.236	32.372	0.113	15.567	0.053	7.329	0.326	44.731	0.008	1.146	0.000	0.000	0.030	4.154	0.113	15.567	0.000	0.000
CC59	Campden End, Park Road	Housing	0.418	0.334	80.058	0.083	19.942	0.000	0.000	0.000	0.000	0.417	99.980	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000
CC66B	Land north-west of Aston Road	Housing	0.535	0.535	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.535	99.999	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CC68	Land at Aston Road	Housing	13.033	13.033	100.000	0.000	0.000	0.000	0.000	0.000	0.000	12.861	98.679	0.032	0.243	0.013	0.098	0.128	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.243	0.000	0.000
DA12	Land east of Oak Road	Housing	3.192	3.192	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.882	90.290	0.238	7.445	0.045	1.397	0.028	0.868	0.000	0.000	0.000	0.000	0.000	0.000	0.238	7.445	0.000	0.000
DA13	Land east of Broadleaze	Housing	3.183	3.183	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.142	98.709	0.018	0.579	0.006	0.185	0.017	0.527	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.579	0.000	0.000
DA16	Land west of Church Lane	Housing	0.810	0.810	99.979	0.000	0.021	0.000	0.000	0.000	0.000	0.810	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DA32	Land north of Chestnut Close and Suffolk Place	Housing	13.439	9.370	69.726	0.099	0.739	0.144	1.072	3.825	28.464	12.786	95.144	0.348	2.586	0.153	1.135	0.152	1.135	0.016	0.116	0.000	0.000	0.148	1.099	0.348	2.586	0.000	0.000

Site Reference	Unmodelled watercourse within 10m of site in Flood Zone 1?	Risk of groundwater emergence (JBA Groundwater Map)	Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see SFRA Report)	Development Considerations	Recommended Next Steps	Council Decision on Site for Local Plan	JBA Comments on Council Review
13/05306/FUL	No	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
15/01567/OUT	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
16/00054/OUT	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
19/00086/OUT	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
19/02248/FUL	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
20/04147/FUL	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
21/00549/FUL	No	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
22/03666/FUL	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
22/03770/OUT	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
23/01513/FUL	No	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
23/01597/OUT	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk (Flood Zone 2) from fluvial sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
23/02682/FUL	Yes	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
24/00627/FUL	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
25/01717/FUL	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
A11B	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
A2	No	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
A3A	N/A	No risk.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
A3B	N/A	No risk.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
B56	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
BK11	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
BK14A	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
BK8A	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent).	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
BK8B	No	No risk.	More Vulnerable	Strategic Recommendation D	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA.	LPA to make decision on allocation.	Does not require a SFRA Level 2 or a specific requirement for a Flood Risk Assessment in the Local Plan.	Agreed
C101A	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
C101B	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
C106B	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
C135	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
C149A	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
C149B	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence and at risk of flooding from reservoirs.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
C186	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
C187	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
C52	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail.
C57	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
C70	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
C71	N/A	No risk.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
C81B	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
C97	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence and at risk of flooding from reservoirs.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
CC10A	N/A	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high risk (Flood Zone 3a) from fluvial sources. Exception test required.	Carry out Level 2 SFRA to further assess risk and the likelihood of the site passing the exception test. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. An Exceptions Test would be undertaken through Level 2 SFRA. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
CC59	N/A	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk (Flood Zone 2) from fluvial sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
CC66B	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
CC68	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
DA12	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
DA13	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
DA16	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
DA32	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed

Flood Zone 3b	The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason
Flood Zone 3a / Functional floodplain plus climate change / Flood Zone 3a plus climate change	
Flood Zone 2	
Flood Zone 1 + Surface Water	
Flood Zone 1	

Main Table

Site Reference	Site Name	Proposed Use	Area (ha)	Fluvial Flood Zone Coverage: Flood Zone 1 Area (ha)	%	Flood Zone 2 Area (ha)	%	Flood Zone 3a Area (ha)	%	Flood Zone 3b Area (ha)	%	Risk of Flooding from Surface Water: Very Low Risk (less than 1 in 1000 year) Area (ha)	%	Low Risk (1 in 1000 year outline) Area (ha)	%	Medium Risk (1 in 100 year outline) Area (ha)	%	High Risk (1 in 30 year outline) Area (ha)	%
DA5	Land at Rooktree Farm	Housing	4.926	4.926	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.720	95.804	0.083	1.688	0.040	0.815	0.083	1.693
DA8	Land at Broadleaze	Housing	0.419	0.419	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.391	93.223	0.028	6.777	0.000	0.000	0.000	0.000
F20A	Land south-east of Fairford	Housing	5.758	5.740	99.677	0.019	0.323	0.000	0.000	0.000	0.000	5.738	99.645	0.010	0.167	0.011	0.188	0.000	0.000
F39C	Land west of Terminus Cottage and Station Cottage	Housing	1.846	1.846	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.565	84.759	0.155	8.390	0.094	5.117	0.032	1.735
F52	Land west of Terminus Cottage and Station Cottage	Housing	1.488	1.488	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.138	76.441	0.226	15.159	0.048	3.201	0.077	5.199
F53A	Land at Totterdown Hill, Horcott	Housing	12.818	12.818	100.000	0.000	0.000	0.000	0.000	0.000	0.000	11.312	88.245	0.304	2.373	0.086	0.672	1.116	8.709
F57	Land north-east of Fairford	Housing	72.828	72.828	100.000	0.000	0.000	0.000	0.000	0.000	0.000	71.772	98.550	0.397	0.545	0.197	0.271	0.462	0.634
K12	Land south-west of Kemble	Housing	114.773	114.773	100.000	0.000	0.000	0.000	0.000	0.000	0.000	108.532	94.563	3.473	3.026	1.099	0.958	1.669	1.454
K9	Land south of Home Farm and east of the railway line	Housing	3.664	3.664	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.267	89.175	0.117	3.182	0.052	1.418	0.228	6.225
L19	Land south of Butler's Court	Housing	0.955	0.765	80.117	0.133	13.926	0.007	0.742	0.050	5.215	0.781	81.752	0.158	16.513	0.017	1.734	0.000	0.000
L33	Land south of Ferrers Park	Housing	10.019	10.019	100.000	0.000	0.000	0.000	0.000	0.000	0.000	9.695	96.766	0.258	2.571	0.066	0.656	0.001	0.006
M11	Land at Bourton Road	Car Park	2.127	1.048	49.271	1.053	49.486	0.013	0.594	0.014	0.649	0.939	44.145	0.232	10.913	0.192	9.032	0.764	35.910
M12B	Land at Evenlode Road Phase 2	Housing	3.110	3.110	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.049	98.056	0.039	1.249	0.010	0.322	0.012	0.373
M19C	Dunstall Farm, Fosseway	Housing	28.749	21.834	75.949	0.291	1.014	0.351	1.221	6.272	21.817	27.960	97.256	0.256	0.891	0.126	0.439	0.407	1.415
M28B	Land west of Aldi	Housing	1.029	0.978	95.047	0.012	1.174	0.006	0.553	0.033	3.226	0.746	72.521	0.248	24.088	0.035	3.391	0.000	0.000
M31	Land north of Todenham Road	Housing	50.391	50.391	100.000	0.000	0.000	0.000	0.000	0.000	0.000	48.596	96.438	0.773	1.534	0.176	0.349	0.846	1.678
M63	British Legion Site	Housing	0.286	0.076	26.679	0.210	73.321	0.000	0.000	0.000	0.000	0.049	17.297	0.007	2.621	0.007	2.346	0.222	77.735
M70	Land south of highway depot, Evenlode Road	Housing	7.573	7.573	100.000	0.000	0.000	0.000	0.000	0.000	0.000	7.417	97.942	0.039	0.513	0.024	0.316	0.093	1.229
M71A	Land east of Cotswold Business Village, south of London Road	Housing	10.599	10.199	96.230	0.054	0.508	0.025	0.234	0.321	3.028	10.531	99.362	0.047	0.442	0.006	0.053	0.015	0.144
M71B	Land south of Fire Service College	Housing	12.276	11.476	93.490	0.113	0.924	0.061	0.500	0.624	5.086	11.785	96.002	0.408	3.322	0.049	0.402	0.034	0.274
M72	Fire Service College	Housing	35.201	35.201	100.000	0.000	0.000	0.000	0.000	0.000	0.000	30.248	85.930	1.764	5.011	0.998	2.835	2.191	6.224
M76	Land west of Highway Depot Evenlode Road	Housing	3.245	2.879	88.717	0.052	1.612	0.046	1.432	0.267	8.239	3.050	94.008	0.088	2.711	0.048	1.468	0.059	1.814
M77	Land west of housing on Evenlode Road	Housing	11.004	5.973	54.284	0.134	1.220	0.062	0.563	4.834	43.933	10.850	98.599	0.129	1.173	0.015	0.141	0.010	0.087
M79	The Fire Service College (Site B)	Education	2.385	2.385	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.185	91.579	0.201	8.417	0.000	0.004	0.000	0.000
M82	Land at Foxcote Court	Housing	13.734	13.374	97.382	0.010	0.071	0.040	0.292	0.310	2.255	13.461	98.015	0.128	0.934	0.030	0.219	0.114	0.832
M83	Land at Coldicote Farm	Housing	18.288	16.020	87.599	0.217	1.188	0.139	0.762	1.911	10.450	18.082	98.876	0.123	0.672	0.028	0.153	0.055	0.299
M9	Land adjacent 'South Croft', Evenlode Road	Housing	1.227	1.227	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.219	99.289	0.005	0.397	0.004	0.315	0.000	0.000
M9A	Land adjacent 'South Croft', Evenlode Road	Housing	0.560	0.560	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.560	100.000	0.000	0.000	0.000	0.000	0.000	0.000
M9B	Land rear of Housing Evenlode Road	Housing	0.341	0.341	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.341	100.000	0.000	0.000	0.000	0.000	0.000	0.000
M9C	Land adjacent River Evenlode	Housing	1.332	1.277	95.872	0.008	0.596	0.003	0.237	0.044	3.296	1.244	93.352	0.089	6.648	0.000	0.000	0.000	0.000
M9D	Land at Evenlode Road	Housing	0.292	0.292	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.285	97.364	0.002	0.650	0.006	1.986	0.000	0.000
ME6	Fire Service College	Employment	8.483	8.483	100.000	0.000	0.000	0.000	0.000	0.000	0.000	6.822	80.422	0.603	7.114	0.269	3.167	0.789	9.297
MK12A	Land south-west of Mickleton	Housing	1.563	1.563	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.821	52.508	0.362	23.182	0.130	8.329	0.250	15.981
MK13	Land south-west of Mickleton	Housing	6.381	6.381	100.000	0.000	0.000	0.000	0.000	0.000	0.000	5.626	88.173	0.539	8.447	0.080	1.255	0.136	2.125
MK18	Land south-west of Mickleton	Housing	3.327	3.327	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.280	68.530	0.526	15.801	0.197	5.908	0.325	9.762
MK20B	Land north of Broadway Road and east of Norton Brook	Housing	10.529	9.031	85.773	0.416	3.949	0.184	1.749	0.898	8.529	10.392	98.697	0.093	0.881	0.044	0.422	0.000	0.000
MK2B	Land north-east of Mickleton	Housing	2.079	2.079	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.079	100.000	0.000	0.000	0.000	0.000	0.000	0.000
MK2C	Land north-east of Mickleton	Housing	3.004	3.004	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.004	100.000	0.000	0.000	0.000	0.000	0.000	0.000
N14B	Land adjoining East End and Nostle Road	Housing	2.734	2.734	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.696	98.594	0.038	1.406	0.000	0.000	0.000	0.000
R281	Land between Pine Corner and the A419	Housing	3.965	3.965	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.951	99.654	0.004	0.091	0.010	0.250	0.000	0.005
R282A	Land enclosed by Witpit Lane, Dairy Lane and the A419 (By-Pass)	Housing	3.154	3.154	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.900	91.951	0.215	6.805	0.039	1.244	0.000	0.000
R282B	Field south-west of Preston	Housing	5.008	5.008	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.794	95.726	0.051	1.017	0.099	1.978	0.064	1.279
R283	Land opposite Preston Place	Housing	0.201	0.201	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.201	100.000	0.000	0.000	0.000	0.000	0.000	0.000
R469	The Nurseries, The Butts, Cricklade Street	Housing	0.280	0.280	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.280	100.000	0.000	0.000	0.000	0.000	0.000	0.000
R518A	Land at Ermin Farm	Housing	14.340	14.340	100.000	0.000	0.000	0.000	0.000	0.000	0.000	14.225	99.203	0.081	0.566	0.007	0.047	0.027	0.185
R518B	Land adjacent Ermin Farm Cottage	Housing	5.955	5.955	100.000	0.000	0.000	0.000	0.000	0.000	0.000	5.931	99.594	0.024	0.406	0.000	0.000	0.000	0.000
R519	Land south of Preston	Housing	18.447	18.447	100.000	0.000	0.000	0.000	0.000	0.000	0.000	18.250	98.930	0.076	0.413	0.062	0.338	0.059	0.319
R520A	Site 3, Land located between Preston and the A419	Housing	11.245	11.245	100.000	0.000	0.000	0.000	0.000	0.000	0.000	11.127	98.953	0.062	0.548	0.004	0.031	0.053	0.468
R520B	Site 3, Land located between Preston and the A419	Housing	5.469	5.469	100.000	0.000	0.000	0.000	0.000	0.000	0.000	5.464	99.911	0.005	0.089	0.000	0.000	0.000	0.000
R521	Land at Preston (Site 1)	Housing	5.105	5.105	100.000	0.000	0.000	0.000	0.000	0.000	0.000	5.035	98.620	0.070	1.378	0.000	0.002	0.000	0.000
R522	Land located between Preston and the A419 (Site 2)	Housing	22.576	22.576	100.000	0.000	0.000	0.000	0.000	0.000	0.000	22.282	98.698	0.214	0.946	0.046	0.204	0.034	0.152
R571A	Land at Driffield	Housing	111.347	111.347	100.000	0.000	0.000	0.000	0.000	0.000	0.000	108.625	97.555	1.588	1.426	0.440	0.396	0.694	0.623
R571B	Rats Castle Plain	Housing	6.355	6.355	100.000	0.000	0.000	0.000	0.000	0.000	0.000	6.355	100.000	0.000	0.000	0.000	0.000	0.000	0.000
R583	Land north of Ampney Crucis	Housing	84.097	84.097	100.000	0.000	0.000	0.000	0.000	0.000	0.000	83.134	98.855	0.627	0.746	0.154	0.183	0.181	0.216

Site Reference	Risk of Flooding from Fluvial Climate Change: Flood Zones + climate change (additional risk) Area (ha)	%	Modelled undefended 1% AEP + central climate change allowance (additional risk) Area (ha)	%	Functional floodplain + climate change (additional risk) Area (ha)	%	Risk of Flooding from Surface Water Climate Change: Medium Risk plus Climate Change (using Low Risk as a proxy) Area (ha)	%	Reservoir Flooding: Reservoir Flood Maps Dry Day Extent Area (ha)	%	Unmodelled watercourse within 10m of site in Flood Zone 1?
DA5	0.000	0.000	0.000	0.000	0.000	0.000	0.083	1.688	0.000	0.000	No
DA8	0.000	0.000	0.000	0.000	0.000	0.000	0.028	6.777	0.000	0.000	No
F20A	0.053	0.928	0.000	0.000	0.000	0.000	0.010	0.167	0.000	0.000	N/A
F39C	0.000	0.000	0.000	0.000	0.000	0.000	0.155	8.390	0.000	0.000	No
F52	0.000	0.000	0.000	0.000	0.000	0.000	0.226	15.159	0.000	0.000	Yes
F53A	0.000	0.000	0.000	0.000	0.000	0.000	0.304	2.373	0.000	0.000	No
F57	0.000	0.000	0.000	0.000	0.000	0.000	0.397	0.545	0.000	0.000	Yes
K12	0.000	0.000	0.000	0.000	0.000	0.000	3.473	3.026	0.000	0.000	No
K9	0.000	0.000	0.000	0.000	0.000	0.000	0.117	3.182	0.000	0.000	No
L19	0.000	0.000	0.001	0.092	0.007	0.742	0.158	16.513	0.000	0.000	N/A
L33	0.000	0.000	0.000	0.000	0.000	0.000	0.258	2.571	0.000	0.000	No
M11	0.013	0.594	0.000	0.000	0.010	0.453	0.232	10.913	0.000	0.000	N/A
M12B	0.000	0.000	0.000	0.000	0.000	0.000	0.039	1.249	0.000	0.000	No
M19C	0.149	0.518	0.000	0.000	0.343	1.193	0.256	0.891	0.000	0.000	N/A
M28B	0.007	0.722	0.000	0.000	0.006	0.553	0.248	24.088	0.000	0.000	N/A
M31	0.000	0.000	0.000	0.000	0.000	0.000	0.773	1.534	0.000	0.000	Yes
M63	0.000	0.000	0.000	0.000	0.000	0.000	0.007	2.621	0.000	0.000	N/A
M70	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.513	0.000	0.000	Yes
M71A	0.020	0.189	0.000	0.000	0.024	0.231	0.047	0.442	0.000	0.000	N/A
M71B	0.047	0.383	0.000	0.000	0.054	0.444	0.408	3.322	0.000	0.000	N/A
M72	0.000	0.000	0.000	0.000	0.000	0.000	1.764	5.011	0.000	0.000	No
M76	0.015	0.453	0.000	0.000	0.039	1.192	0.088	2.711	0.000	0.000	N/A
M77	0.036	0.331	0.000	0.000	0.052	0.470	0.129	1.173	0.000	0.000	N/A
M79	0.000	0.000	0.000	0.000	0.000	0.000	0.201	8.417	0.000	0.000	No
M82	0.006	0.041	0.000	0.000	0.040	0.289	0.128	0.934	0.000	0.000	N/A
M83	0.164	0.897	0.000	0.000	0.143	0.782	0.123	0.672	0.000	0.000	N/A
M9	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.397	0.000	0.000	No
M9A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
M9B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
M9C	0.005	0.412	0.000	0.000	0.003	0.193	0.089	6.648	0.000	0.000	N/A
M9D	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.650	0.000	0.000	No
ME6	0.000	0.000	0.000	0.000	0.000	0.000	0.603	7.114	0.000	0.000	No
MK12A	0.000	0.000	0.000	0.000	0.000	0.000	0.362	23.182	0.000	0.000	Yes
MK13	0.000	0.000	0.000	0.000	0.000	0.000	0.539	8.447	0.000	0.000	Yes
MK18	0.000	0.000	0.000	0.000	0.000	0.000	0.526	15.801	0.000	0.000	Yes
MK20B	0.143	1.361	0.000	0.000	0.119	1.131	0.093	0.881	0.000	0.000	N/A
MK2B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
MK2C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
N14B	0.000	0.000	0.000	0.000	0.000	0.000	0.038	1.406	0.000	0.000	No
R281	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.091	0.000	0.000	No
R282A	0.000	0.000	0.000	0.000	0.000	0.000	0.215	6.805	0.000	0.000	No
R282B	0.000	0.000	0.000	0.000	0.000	0.000	0.051	1.017	0.000	0.000	No
R283	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
R469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
R518A	0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.566	0.000	0.000	Yes
R518B	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.406	0.000	0.000	Yes
R519	0.000	0.000	0.000	0.000	0.000	0.000	0.076	0.413	0.000	0.000	Yes
R520A	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.548	0.000	0.000	Yes
R520B	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.089	0.000	0.000	Yes
R521	0.000	0.000	0.000	0.000	0.000	0.000	0.070	1.378	0.000	0.000	Yes
R522	0.000	0.000	0.000	0.000	0.000	0.000	0.214	0.946	0.000	0.000	Yes
R571A	0.000	0.000	0.000	0.000	0.000	0.000	1.588	1.426	0.000	0.000	Yes
R571B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No
R583	0.000	0.000	0.000	0.000	0.000	0.000	0.627	0.746	0.000	0.000	Yes

Site Reference	Risk of groundwater emergence (JBA Groundwater Map)	Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see SFRA Report)	Development Considerations	Recommended Next Steps	Council Decision on Site for Local Plan	JBA Comments on Council Review
DA5	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
DA8	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
F20A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
F39C	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
F52	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
F53A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
F57	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
K12	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
K9	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
L19	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
L33	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M11	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	Less Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M12B	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M19C	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M28B	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M31	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
M63	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk (Flood Zone 2) from fluvial sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
M70	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
M71A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
M71B	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M72	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M76	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M77	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M79	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M82	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
M83	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M9	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M9A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
M9B	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
M9C	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
M9D	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
ME6	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	Less Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
MK12A	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
MK13	No risk	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
MK18	No risk	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
MK20B	No risk	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed
MK2B	No risk	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
MK2C	No risk	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
N14B	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R281	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R282A	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R282B	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R283	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
R469	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
R518A	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R518B	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R519	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R520A	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R520B	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R521	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R522	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R571A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage
R571B	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed
R583	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage

Flood Zone 3b
Flood Zone 3a / Functional floodplain plus climate change / Flood Zone 3a plus climate change
Flood Zone 2
Flood Zone 1 + Surface Water
Flood Zone 1

The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason

Main Table

Site Reference	Site Name	Proposed Use	Area (ha)	Fluvial Flood Zone Coverage								Risk of Flooding from Surface Water								Risk of Flooding from Fluvial Climate Change						Risk of Flooding from Surface Water Climate Change		Reservoir Flooding		Unmodelled watercourse within 10m of site in Flood Zone 1?	Risk of groundwater emergence (JBA Groundwater Map)	Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see SFRA Report)	Development Considerations	Recommended Next Steps	Council Decision on Site for Local Plan	JBA Comments on Council Review
				Flood Zone 1		Flood Zone 2		Flood Zone 3a		Flood Zone 3b		Very Low Risk (less than 1 in 1000 year)		Low Risk (1 in 1000 year outline)		Medium Risk (1 in 100 year outline)		High Risk (1 in 30 year outline)		Flood Zones + climate change (additional risk)		Modelled undefended 1% AEP + central climate change allowance (additional risk)		Functional floodplain + climate change (additional risk)		Medium Risk plus Climate Change (using Low Risk as a proxy)		Reservoir Flood Maps Dry Day Extent									
				Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%								
R591	Former Godwin Pumps factory Springfield Road, GL7 5BX	Housing	1.982	1.982	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.952	98.525	0.018	0.929	0.011	0.545	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.929	0.000	0.000	No	Groundwater emergence is not likely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R592	Land at Springfield Road	Housing	1.505	1.505	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.493	99.228	0.002	0.133	0.010	0.639	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.133	0.000	0.000	No	Groundwater emergence is not likely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R607	Land north of London Road	Housing	1.064	1.064	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.946	88.880	0.042	3.983	0.010	0.903	0.066	6.234	0.000	0.000	0.000	0.000	0.000	0.000	0.042	3.983	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R634	Land south of Blackthorns	Housing	0.815	0.815	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.815	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed.
R635	Land south of Church Farm	Housing	2.273	2.273	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.273	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed.
R636	Land south of Preston House	Housing	2.215	2.215	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.957	88.336	0.258	11.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.258	11.664	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
R637	Land west of Harnpit to Witpit Lane	Housing	2.619	2.619	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.410	91.996	0.180	6.858	0.018	0.688	0.012	0.458	0.000	0.000	0.000	0.000	0.000	0.000	0.180	6.858	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
R638	Land around Foxleaze	Housing	13.322	13.322	100.000	0.000	0.000	0.000	0.000	0.000	0.000	13.010	97.657	0.300	2.250	0.012	0.093	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	2.250	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
R639	Land west of Ermin Farm buildings	Housing	1.930	1.930	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.930	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed.
R640	Land south of Ermin Farm	Housing	6.793	6.793	100.000	0.000	0.000	0.000	0.000	0.000	0.000	6.757	99.476	0.012	0.177	0.012	0.171	0.012	0.177	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.177	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
S14B	Land off Oddington Road (A436) (remaining land after 23/01513/FUL)	Housing	0.293	0.293	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.293	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	Groundwater emergence is not likely.	More Vulnerable	Strategic Recommendation D	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA.	LPA to make decision on allocation.	Does not require a SFRA Level 2 or a specific requirement for a Flood Risk Assessment in the Local Plan.	Agreed.
S55B	Land adjoining Tall Trees, Oddington Road	Housing	0.580	0.580	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.569	98.123	0.008	1.318	0.003	0.549	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.008	1.318	0.000	0.000	No	Groundwater emergence is not likely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
SD11A	Land south of Spire View	Housing	4.762	4.758	99.912	0.004	0.088	0.000	0.000	0.000	0.000	4.745	99.639	0.005	0.109	0.012	0.252	0.000	0.000	0.000	0.000	0.004	0.088	0.000	0.000	0.005	0.109	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency detailed modelling. Exception test required. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk and the likelihood of the site passing the exception test. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. An Exceptions Test would be undertaken through Level 2 SFRA. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
SD11B	Land south of Spire View	Housing	5.239	5.050	96.401	0.075	1.429	0.028	0.540	0.085	1.630	5.231	99.848	0.008	0.152	0.000	0.000	0.000	0.000	0.023	0.441	0.010	0.191	0.000	0.000	0.008	0.152	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
SD12	Land north of Nursery View and east of Ashton Road	Housing	4.793	4.793	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.606	96.106	0.021	0.441	0.037	0.762	0.129	2.692	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.441	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
SD15	Plummers Farm, east of Aston Road	Housing	3.176	3.171	99.827	0.005	0.173	0.000	0.000	0.000	0.000	3.145	99.019	0.025	0.800	0.001	0.025	0.005	0.156	0.014	0.448	0.000	0.000	0.000	0.000	0.025	0.800	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
SD17	Land east of Siddington Road and west of Bluebell Drive	Housing	0.635	0.294	46.345	0.339	53.333	0.000	0.000	0.002	0.322	0.583	91.831	0.040	6.341	0.012	1.828	0.000	0.000	0.125	19.727	0.000	0.000	0.000	0.000	0.040	6.341	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed.
SD18	Land south of Spire View	Housing	3.672	3.096	84.305	0.147	4.017	0.010	0.273	0.419	11.406	3.527	96.046	0.067	1.836	0.008	0.218	0.070	1.900	0.034	0.380	0.040	1.090	0.080	2.174	0.067	1.836	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed.
SD19	Land south of Spire View	Housing	2.135	2.135	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.058	96.406	0.037	1.725	0.026	1.237	0.013	0.632	0.000	0.000	0.000	0.000	0.000	0.000	0.037	1.725	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
SD20	Land north of Clark's Lane and south of Old Canal	Housing	21.677	21.677	100.000	0.000	0.000	0.000	0.000	0.000	0.000	21.469	99.044	0.102	0.470	0.006	0.026	0.100	0.460	0.000	0.000	0.000	0.000	0.000	0.000	0.102	0.470	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
SD3	Land north of Nursery View and east of Ashton Road	Housing	1.616	1.616	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.552	96.036	0.034	2.106	0.018	1.115	0.012	0.743	0.000	0.000	0.000	0.000	0.000	0.000	0.034	2.106	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
SD9A	Barton Farm - Part 1	Housing	4.304	4.304	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.304	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Site is at risk of groundwater emergence.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	If this site was allocated in the Local Plan, the site allocation policy would specify that a Flood Risk Assessment would be required for this site as part of a planning application.	Agreed.
SD9B	Barton Farm - Part 2	Housing	4.620	4.620	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.576	99.044	0.016	0.345	0.003	0.056	0.026	0.555	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.345	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
SD9C	Barton Farm - Part 3	Housing	9.774	9.774	100.000	0.000	0.000	0.000	0.000	0.000	0.000	9.045	92.548	0.162	1.657	0.086	0.879	0.480	4.916	0.000	0.000	0.000	0.000	0.000	0.000	0.162	1.657	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
T31B	Land adjacent to Blind Lane	Housing	2.009	2.009	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.982	98.680	0.004	0.191	0.002	0.080	0.021	1.050	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.191	0.000	0.000	No	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
T71A	Land north-west of Highfield Cottage	Housing	2.159	2.159	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.158	99.926	0.001	0.028	0.000	0.000	0.001	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.028	0.000	0.000	Yes	There is a risk of emergence to subsurface assets but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
W11	Land between Colin Lane and future Heritage Railway	Housing	0.717	0.717	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	93.036	0.039	5.382	0.001	0.126	0.010	1.456	0.000	0.000	0.000	0.000	0.000	0.000	0.039	5.382	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
W4B	Land between Colin Lane and future Heritage Railway	Housing	1.817	1.817	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.168	64.251	0.433	23.799	0.074	4.051	0.144	7.899	0.000	0.000	0.000	0.000	0.000	0.000	0.433	23.799	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
W7A2	Land north of B4632 and east of employment estate	Housing	2.038	2.038	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.837	90.161	0.178	8.718	0.009	0.452	0.014	0.669	0.000	0.000	0.000	0.000	0.000	0.000	0.178	8.718	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
W7C	Land north of B4632 and east of employment estate (Site C)	Housing	0.558	0.558	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.558	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation D	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA.	LPA to make decision on allocation.	Does not require a SFRA Level 2 or a specific requirement for a Flood Risk Assessment in the Local Plan.	Agreed.
W8B	Land west of Field Close & north of B4632	Housing	2.890	2.890	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.301	79.622	0.323	11.167	0.134	4.649	0.132	4.562	0.000	0.000	0.000	0.000	0.000	0.000	0.323	11.167	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Agreed. An unmodelled watercourse must be modelled and risk quantified at the FRA stage.
23/02101/FUL	Land and properties at Berkeley Close, GL7 5UN	Housing	2.185	2.185	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.856	84.947	0.286	13.068	0.043	1.979	0.000	0.006	2.185	100.000	0.000	0.000	0.000	0.000	0.286	13.068	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	L2 SFRA required
24/01608/FUL	Land west of Down Ampney Football Club, Broadleaze	Housing	0.503	0.503	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.447	88.866	0.035	7.049	0.021	4.085	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035	7.049	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
25/00394/OPANOT	Units A B And C Querns Business Centre, Whitworth Road, GL7 1RT	Housing	0.163	0.163	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.163	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation D	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA.	LPA to make decision on allocation.	Does not require a SFRA Level 2 or a specific requirement for a Flood Risk Assessment in the Local Plan.	Agreed
BOWE1	Land north of Bourton Industrial Park	Employment	5.624	4.040	71.832	0.320	5.688	0.195	3.465	1.069	19.015	4.508	80.156	0.553	9.828	0.250	4.452	0.313	5.564	0.182	3.249	0.000	0.000	0.186	3.306	0.553	9.828	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	Less Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed.
C164A	Land east of Kingshill Lane	Mixed Use	41.961	41.961	100.000	0.000	0.000	0.000	0.000	0.000	0.000	41.079	97.900	0.512	1.219	0.117	0.279	0.253	0.602	0.000	0.000	0.000	0.000	0.000	0.000	0.512	1.219	0.000	0.000	Yes	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
C190	Steadings southern extension, Cirencester	Mixed Use	116.645	116.645	100.000	0.000	0.000	0.000	0.000	0.000	0.000	114.385	98.062	1.404	1.204	0.247	0.211	0.610	0.523	0.000	0.000	0.000	0.000	0.000	0.000	1.404	1.204	0.000	0.000	Yes	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
CCNE1	Land west of Battlebrook Drive, Station Road	Employment	1.031	1.031	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.962	93.291	0.014	1.394	0.019	1.808	0.036	3.507	0.000	0.000	0.000	0.000	0.000	0.000	0.014	1.394	0.000	0.000	Yes	No risk.	Less Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
DA15A	Land west of Church Lane	Housing	2.760	0.983	35.626	0.067	2.444	0.098	3.545	1.612	58.384	2.659	96.339	0.068	2.472	0.022	0.812	0.010	0.377	0.016	0.574	0.011	0.411	0.114	4.144	0.068	2.472	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed.
DA17A	Down Ampney Airfield (Site A)	Housing	12.691	12.691	100.000	0.000	0.000	0.000	0.000	0.000	0.000	11.977	94.375	0.517	4.076	0.093	0.729	0.104	0.820	0.000	0.000	0.000	0.000	0.000	0.000	0.517	4.076	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
DA20A	Castle Hill Farm (Site A)	Housing	31.678	31.678	100.000	0.000	0.000	0.000	0.000	0.000	0.000	28.144	88.845	1.637	5.166	0.707	2.230	1.190	3.758	0.000	0.000	0.000	0.000	0.000	0.000	1.637	5.166	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
DA21	Land between Poulton Road and Meysey Hampton Road	Housing	34.439	34.439	100.000	0.000	0.000	0.000	0.000	0.000	0.000	31.817	92.387	0.922	2.676	0.294	0.853	1.407	4.084	0.000	0.000	0.000	0.000	0.000	0.000	0.922	2.676	0.000	0.000	Yes	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
DA22A	Land north of Down Ampney (Site A)	Housing	38.332	38.232	99.739	0.004	0.010	0.048	0.125	0.048	0.125	34.547	90.126	1.577	4.115	0.887	2.313	1.321	3.447	0.285	0.744	0.000	0.000	0.048	0.125	1.577	4.115	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Site is at risk of groundwater emergence.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Risk is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
F57A	Land north-east of Fairford	Housing	2.202	2.202	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.160	98.082	0.019	0.883	0.022	0.989	0.001	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.883	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
F57B	Land north-east of Fairford	Housing	37.616	37.616	100.000	0.000	0.000	0.000	0.000	0.000	0.000	36.776	97.766	0.250	0.664	0.135	0.359	0.456	1.211	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.664	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
F57C	Land north-east of Fairford	Mixed Use	31.503	31.502	99.997	0.001	0.003	0.000	0.000	0.000	0.000	28.143	89.336	1.929	6.124	1.186	3.765	0.244	0.775	0.004	0.012	0.000	0.000	0.000	0.000	1.929	6.124	0.000	0.000	N/A	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency Flood Zones plus Climate Change. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a FRA will be required to confirm risk and design.
K15	Land south of Cotswold Airport	Employment	16.296	16.296	100.000	0.000	0.000	0.000	0.000	0.000	0.000	16.108	98.850	0.078	0.481	0.030	0.187	0.078	0.481	0.000	0.000	0.000	0.000	0.000	0.000	0.078	0.481	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M88A	Land east of Lemington Grange	Housing	2.927	2.927	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.837	62.752	0.422	14.430	0.183	6.263	0.485	16.555	0.000	0.000	0.000	0.000	0.000	0.000	0.422	14.430	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Present day and future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail.
M88B	Lemington Grange	Housing	19.599	19.599	100.000	0.000	0.000	0.000	0.000	0.000	0.000	18.479	94.287	0.366	1.867	0.152	0.774	0.602	3.072	0.000	0.000	0.000	0.000	0.000	0.000	0.366	1.867	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
M89	Land to south of Primrose Court Sewage Pumping Station	Employment	3.972	3.972	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.769	94.878	0.096	2.404	0.040	1.014	0.068	1.704	0.000	0.000	0.000	0.000	0.000	0.000	0.096	2.404	0.000	0.000	Yes	There is a risk of groundwater emergence to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.	Less Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
MK11A	Land east of Stratford Road (Site A)	Housing	4.837	4.837	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.825	99.743	0.012	0.257	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.257	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent).	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
MK16	Glebe Land, Broad Marston Road	Housing	1.073	1.073	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.537	50.030	0.236	21.984	0.146	13.616	0.154	14.371	0.000	0.000	0.000	0.000	0.000	0.000	0.236	21.984	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail. Agree unmodelled watercourse should be assessed at FRA stage.
MK17	Field adjoining Market Garden Close, Broad Marston Lane	Housing	2.313	2.313	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.966	84.996	0.191	8.247	0.024	1.052	0.132	5.704	0.000	0.000	0.000	0.000	0.000	0.000	0.191	8.247	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site-specific FRA.	Risk at this site is nominal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modelled and risk quantified at the FRA stage.
MK19	Land west of nurseries on Broad Marston Lane	Housing	7.830	7.059	90.157	0.075	0.959	0.066	0.839	0.630	8.045	6.855	87.547	0.443	5.663	0.173	2.213	0.358	4.578	0.028	0.356	0.000	0.000	0.047	0.604	0.443	5.663	0.000	0.000	N/A	No risk.	More Vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Noted. If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommended criteria can not be met.	Agreed.
MK1AB	Meadow View	Housing	6.678	6.678	100.000	0.000	0.000	0.000	0.000	0.000	0.000	5.274	78.979	1.132	16.955	0.120	1.791	0.152	2.275	0.000	0.000	0.000	0.000	0.000	0.000	1.132	16.955	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail.

Flood Zone 3b
Flood Zone 3a / Functional Floodplain + climate change
Flood Zone 3a (+ climate change)
Flood Zone 3a (core climate change)
Flood Zone 2
Flood Zone 1 + Surface Water
Flood Zone 1

The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason

Main Table

				Fluvial Flood Zone Coverage								Risk of Flooding from Surface Water						Risk of Flooding from Fluvial Climate Change								Risk of Flooding from Surface Water: Climate Change		Reservoir Flooding					
				Flood Zone 1		Flood Zone 2		Flood Zone 3a		Flood Zone 3b		Very Low Risk (less than 1 in 1000 year)		Low Risk (1 in 1000 year outline)		Medium Risk (1 in 100 year outline)		High Risk (1 in 30 year outline)		Flood Zones + climate change (additional risk)		Modelled undefended 1% AEP + central climate change allowance (additional risk)		Functional floodplain + climate change (additional risk)		Medium Risk plus Climate Change (using Low Risk as a proxy)		Reservoir Flood Maps Dry Day Extent		Unmodelled watercourses within 10m of site in Flood Zone 1?	Risk of groundwater emergence (JBA Groundwater Map)					
Site Reference	Site Name	Proposed Use	Area (ha)	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%			Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see SFRA Report)	Development Considerations	Recommended Next Steps	Council Decision on Site for Local Plan	JBA Comments on Council Review
MK21	Land east of Broad Marston Road (north of Glass House Road)	Housing	10.739	10.739	100.000	0.000	0.000	0.000	0.000	0.000	0.000	6.895	63.792	1.618	14.910	0.999	9.046	1.432	13.262	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.610	14.910	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site specific FRA.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail. Agree unmodelled watercourse should be assessed at FRA stage.
MK22	Land west of Stratford Road (opposite allotments)	Housing	7.997	7.997	100.000	0.000	0.000	0.000	0.000	0.000	0.000	6.934	87.146	0.821	10.312	0.072	0.905	0.130	1.639	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.821	10.312	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site specific FRA.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail. Agree unmodelled watercourse should be assessed at FRA stage.
MK23	Land at Broad Marston Road (opposite allotments)	Housing	4.778	4.778	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.309	71.199	0.897	18.781	0.232	4.852	0.256	5.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.897	18.781	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area. The unmodelled watercourse maybe quantified through a site specific FRA.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail. Agree unmodelled watercourse should be assessed at FRA stage.
MK3	Land at Prospect Gardens, Stratford Road, GL55 6SR	Mixed Use	12.620	12.620	100.000	0.000	0.000	0.000	0.000	0.000	0.000	10.585	83.877	1.221	9.675	0.305	2.378	0.514	4.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.221	9.675	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modified and risk quantified at the FRA stage.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree unmodelled watercourse should be modified and risk quantified at the FRA stage.
MK7	Land between Summerville Ltd. and Stratford Road	Housing	2.118	2.118	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.064	97.678	0.017	0.793	0.006	0.308	0.024	1.146	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.793	0.000	0.000	Yes	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree an unmodelled watercourse must be modified and risk quantified at the FRA stage.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. Agree unmodelled watercourse should be modified and risk quantified at the FRA stage.
MK9A	Land to rear of the Knoll, Whelford Road	Housing	2.618	2.618	100.000	0.000	0.000	0.000	0.000	0.000	0.000	2.402	95.383	0.055	2.343	0.036	0.938	0.034	1.305	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.055	2.343	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
MK9B	Land to rear of the Knoll, Whelford Road	Housing	3.193	3.193	100.000	0.000	0.000	0.000	0.000	0.000	0.000	3.041	95.224	0.098	3.069	0.045	1.409	0.009	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098	3.069	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
MK9C	Land to rear of the Knoll, Whelford Road	Housing	4.348	4.348	100.000	0.000	0.000	0.000	0.000	0.000	0.000	4.269	98.113	0.082	1.887	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	1.887	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future surface water risk (using the low risk surface water extent as a proxy for the medium risk plus climate change extent). Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
Other	Force Farm	Employment	129.743	129.743	99.264	0.230	0.177	0.000	0.000	0.618	0.476	124.126	95.670	2.522	1.927	0.730	0.558	2.277	1.755	0.270	0.207	0.000	0.000	0.091	0.070	2.522	1.927	0.000	0.000	N/A	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is low. Site should be withdrawn if those criteria cannot be met. A Level 2 SFRA may be required to confirm risk and design.	Site Allocation Unsuitable	Note: If a site allocation was pursued, a more detailed investigation through a Level 2 SFRA would be required to inform this process. Withdraw if recommendation criteria can not be met.	Site is nominal and isolated to one floodplain. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. FRA will be required to confirm risk and design.
RK09	Land south-west of Preston between Cirencester Road (A413) and A419	Mixed Use	81.946	81.946	100.000	0.000	0.000	0.000	0.000	0.000	0.000	81.046	98.901	0.698	0.852	0.070	0.086	0.133	0.162	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.698	0.852	0.000	0.000	Yes	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. If an unmodelled watercourse must be modified and risk quantified at the FRA stage.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
RK10	Land south of Driffield	Housing	53.721	53.721	100.000	0.000	0.000	0.000	0.000	0.000	0.000	53.055	98.759	0.270	0.502	0.187	0.348	0.207	0.423	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.270	0.502	0.000	0.000	Yes	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated. Site is at risk of groundwater emergence.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design. If an unmodelled watercourse must be modified and risk quantified at the FRA stage.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
RK08	Land south of The Folly	Housing	14.146	14.146	100.000	0.000	0.000	0.000	0.000	0.000	0.000	14.141	99.972	0.001	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.008	0.000	0.000	No	There is a risk of groundwater emergence to surface and subsurface assets. There is the possibility of groundwater emergence at the surface locally.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
RK16	Glebe Farm Yard, Hatherop	Housing	1.444	1.444	100.000	0.000	0.000	0.000	0.000	0.000	0.000	1.371	95.342	0.041	2.826	0.016	1.085	0.015	0.749	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	2.826	0.000	0.000	No	There is a risk of groundwater emergence to subsurface assets, but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
RK15	Land between disused canal and disused railway line, north of Park Wall	Housing	9.685	9.677	99.855	0.008	0.145	0.000	0.000	0.000	0.000	5.808	59.930	0.697	7.198	0.448	4.626	0.815	8.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.697	7.198	0.000	0.000	N/A	There is a risk of groundwater emergence to subsurface assets, but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future high risk from fluvial sources, based on Environment Agency detailed outline. Level 2 SFRA required due to high and/or medium risk through policy wording.	Carry out Level 2 SFRA to further assess risk and the likelihood of the site passing the exception test. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to further assess risk. An Exception Test would be undertaken through Level 2 SFRA. If this site was allocated in the Local Plan, the site allocation policy would require the unmodelled watercourse to be modified.	Risk at this site is minimal. I'd suggest this site does not require a L2 assessment and simple policy wording that development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.
LB14A	Upper Rissington Business Park	Employment	0.NaN	0.NaN	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.NaN	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No	Groundwater emergence is not likely.	More Vulnerable	Strategic Recommendation B	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA.	Does not require a SFRA Level 2 or a specific requirement for a Flood Risk Assessment in the Local Plan.	JBA to make decision on allocation.	Agreed
RK06	Land west of Field Close & north of B4032	Housing	1.093	1.093	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.713	65.309	0.199	17.936	0.074	6.727	0.113	10.340	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.199	17.936	0.000	0.000	No	No risk.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.	If a site allocation was pursued, a Level 2 SFRA would be undertaken to confirm surface water flood risk. If this site was allocated in the Local Plan, the site allocation policy would specify that built development can avoid the risk area and that a drainage strategy at the FRA stage should confirm risk and design.	Future risk at this site could be significant. I'd suggest this site may require a L2 assessment to assess risk in further detail. Agree unmodelled watercourse should be assessed at FRA stage.
Other	Andoren Cropie Strategic Site	Housing	13.997	13.997	99.993	0.001	0.007	0.000	0.000	0.000	0.000	13.853	98.979	0.067	0.482	0.021	0.153	0.016	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.482	0.000	0.000	No	Development not permitted in Flood Zone 3b. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is low. Site should be withdrawn if those criteria cannot be met. A Level 2 SFRA may be required to confirm risk and design.	Site Allocation Unsuitable		
RK03A	Andoren Cropie Strategic Site	Housing	10.016	10.016	100.000	0.000	0.000	0.000	0.000	0.000	0.000	9.736	97.228	0.216	2.155	0.046	0.460	0.018	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.216	2.155	0.000	0.000	Yes	There is a risk of groundwater emergence to subsurface assets, but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.		
RK03D	Andoren Cropie Strategic Site	Housing	13.997	13.997	100.000	0.000	0.000	0.000	0.000	0.000	0.000	13.853	98.979	0.067	0.482	0.021	0.153	0.016	0.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.482	0.000	0.000	No	There is a risk of groundwater emergence to subsurface assets, but surface manifestation of groundwater is unlikely.	More Vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Unmodelled watercourse should be investigated.	Carry out Level 2 SFRA to further assess risk. However, for sites with only a small area at risk, depending on the spatial variability of risk, it may be possible to address risk through policy wording.		

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Cotswold District Council Level 1 SFRA Update

Appendix E - Local Plan Sites Assessment Summary

Final

Prepared for	Date
Cotswold District Council	June 2026

COTSWOLD
District Council

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Contents

List of Tables

Abbreviations

AEP	Annual Exceedance Probability
ACDP	Areas with Critical Drainage Problems
BNG	Biodiversity Net Gain
EA	Environment Agency
FRA	Flood Risk Assessment
FRCC-PPG	Flood Risk and Coastal Change Planning Practice Guidance
GIS	Geographic Information System
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
NaFRA2	National Flood Risk Assessment 2
NPPF	National Planning Policy Framework
RFM	Reservoir Flood Map
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage System

1 Local Plan Sites Assessment

Appendix E provides a strategic assessment of the suitability, relative to flood risk, of the sites to be considered for allocation in Cotswold District Council's (the Council) new Local Plan, summarising the outcomes of the screening assessment presented in Appendix E.

The information and guidance provided in this Appendix can be used by the Local Planning Authority (LPA) to inform the application of the Sequential Test in the allocation of sites in the new Local Plan, and the development management process.

The LPA must use the spreadsheet in Appendix D to record their decisions on how to take each site forward for allocation or whether to withdraw a site from allocation, based on the evidence and strategic recommendations provided. Recording decisions in the Sites Assessment Spreadsheet demonstrates that a sequential, sustainable approach to development and flood risk has been adopted.

The Council provided a GIS layer containing 173 potential development sites. In order to inform the Sequential Test for the allocation of development through the new Local Plan, this assessment entails a high-level GIS screening exercise overlaying the potential development sites against present day risk Flood Zones 1, 2, 3a and 3b (the functional floodplain), calculating the area of each site at risk. Flood Zones 1, 2 and 3 are sourced from the Environment Agency's (EA) latest version of the Flood Map for Planning, downloaded in December 2025 for this Level 1 SFRA. Flood Zone 3 is split into Flood Zone 3a and Flood Zone 3b (functional floodplain) as part of this Level 1 SFRA, as required by the National Planning Policy Framework (NPPF), 2025.

The impacts of climate change on fluvial risk have also been included in the sites screening process using the delineated future functional floodplain extent and available EA detailed modelling. Following consultation with the EA, it was agreed that the NaFRA2 Flood Map for Planning Flood Zones plus Climate Change would be used to represent fluvial climate change for watercourses with no suitable detailed climate change modelling. See Section 1.1.2 for details.

Surface water risk to assessed sites is analysed by way of the EA’s latest version of the national scale Risk of Flooding from Surface Water (RoFSW) dataset, downloaded in December 2025, developed as part of the NaFRA2 project. The EA states that this dataset is generally not suitable for property level assessment, instead it provides an estimate of flood risk to an area of land. The modelling method used does not provide information relating to when floodwater may be deep enough to start causing damage or disruption to homes, roads or other infrastructure.

The updated EA RoFSW climate change extents represent the 2050s central allowance. EA SFRA guidance states *'Check your long term flood risk includes a climate change scenario for surface water flooding (note the time horizon and climate change scenario for surface water fall short of what’s needed for planning so additional assessment will be needed)'*. At this Level 1 SFRA stage, the 0.1% AEP present day surface water flood event has been

considered as a proxy for the 1% AEP plus climate change surface water flood event, as consulted on with the EA. It is recommended that if the RoFSW map was updated to make the recommended climate change allowances available (see main report), that this site screening assessment is updated to reflect that.

It is important to consider that each individual site will require further investigation, following this assessment, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances are discussed in Section 1.1. The outcomes of the site assessments are presented in the Sites Assessment Spreadsheet in Appendix D.

1.1 Screening of potential sites

This section of the report draws together the screening results included in Appendix D. The LPA should use the spreadsheet to assist them in carrying out the Sequential Test. If sites cannot be directed to areas of low flood risk, or where wider strategic objectives require development in areas identified through this Level 1 SFRA to be at medium or high risk from flooding now or in the future, then the LPA should consider the Flood Risk Vulnerability Classifications and Flood Zones in the NPPF. The LPA must consider whether a more detailed Level 2 SFRA (including for application of the Exception Test where applicable) will be required before finalising sites for allocation in the new Local Plan. Strategic recommendations are based on Tables 1 and 2 of the Flood Risk and Coastal Change Planning Practice Guidance (FRCC-PPG) (Paragraphs 077 - 079), and Annex 3 of the NPPF.

The decision-making process on site suitability should be transparent and information from this Level 1 SFRA should be used to justify decisions to allocate land in areas shown to be at high or medium risk of flooding, from any source, now or in the future.

The Sites Assessment Spreadsheet provides a breakdown of each site and the area (in hectares) and percentage coverage of fluvial and surface water flood zones. Fluvial Flood Zones 3b, 3a, 2 and 1 are considered in isolation. Any area of a site within the higher risk Flood Zone 3b that is also within Flood Zone 3a is excluded from Flood Zone 3a and any area within Flood Zone 3a is excluded from Flood Zone 2. This allows for the sequential assessment of risk at each site by addressing those sites at higher risk first. The effects of climate change on fluvial flood risk have been assessed additionally to existing risk. Table 1-1 and Table 1-2 show the proposed use of the sites and the number of sites within each fluvial flood zone and each surface water flood zone respectively.

Table 1-1: Number of sites at risk from fluvial flooding

Proposed use	Number of sites within each flood zone						
	Flood Zone 1*	**Flood Zone 2**	**Flood Zone 3a**	**Flood Zone 3b**	**FMfP Flood Zones plus Climate Change**	**Modelled undefended 1% AEP + central climate change**	**Future functional floodplain**
Housing	125	35	27	26	36	10	27
Employment	4	2	2	2	2	0	2
Mixed Use	4	1	0	0	1	0	0
Education	1	0	0	0	0	0	0
Car Park	0	1	1	1	1	0	1
Total	**134**	**39**	**30**	**29**	**40**	**10**	**30**

*Sites with 100% area within Flood Zone 1

Note: sites may be in more than one flood zone. In reality, a site in Flood Zone 3a will also be within Flood Zone 2.

Table 1-2: Number of sites at risk from surface water flooding

Proposed use	Number of sites within each surface water flood zone				
	Very low risk zone (less than 0.1% AEP)*	**Low risk zone (0.1% AEP)**	**Medium risk zone (1% AEP)**	**High risk zone (3.3% AEP)**	**Medium risk plus climate change zone (0.1% AEP as proxy)**
Housing	20	139	121	107	139
Employment	0	6	6	6	6
Mixed Use	0	5	5	5	5
Education	0	1	1	0	1
Car Park	0	1	1	1	1
Total	**20**	**152**	**134**	**119**	**152**

*Sites with 100% area within the very low risk zone

Note: sites may be in more than one surface water risk category. In reality, a site in the high risk category will also be in the medium and low risk categories.

1.1.1 Strategic recommendations

The strategic recommendations are intended to assist the LPA in carrying out the Sequential Test and to highlight those sites at greatest flood risk. They do not account for local circumstances, only that part of a site area falls within a flood risk area.

Table 1-3 shows the number of sites each strategic recommendation applies to:

- Strategic Recommendation A - recommend for withdrawal if built development cannot avoid Flood Zone 3b;
- Strategic Recommendation B - Level 2 SFRA required due to high and/or medium risk now or in the future. Exception Test required if site is at high and/or medium fluvial risk now or in the future, and categorised as more vulnerable or essential infrastructure;
- Strategic Recommendation C - progress to developer-led Flood Risk Assessment (FRA); and
- Strategic Recommendation D - development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA. LPA to make decision on allocation.

Table 1-3: Number of sites per strategic recommendation

Proposed use	Number of sites assigned to each strategic recommendation			
	A	**B**	**C**	**D**
Housing	26	116	13	5
Employment	2	4	0	0
Mixed Use	0	5	0	0
Education	0	1	0	0
Car Park	1	0	0	0
Total	**29**	**126**	**13**	**5**

It is important to note that each individual site will require further investigation before development is allocated, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances may include the following:

- Flood depths, velocities, hazards will differ locally to each at risk site therefore modelled depth, hazard and velocity data should be assessed for the relevant flood event through a Level 2 SFRA;
- The RoFSW map is national scale and is not considered suitable for robustly identifying risk at the property level. For sites identified to be at medium or high risk from surface water based on the RoFSW, a proportionately more detailed assessment of surface water may reveal higher or lower risk to the site. The Lead Local Flood Authority (LLFA) should be consulted when considering development at such sites. The RoFSW map does not map flooding less than 0.075m (7.5cm)

in depth. Therefore, where the map may show no flooding, there may be shallow flooding up to a depth of 0.075m;

- Current surface water drainage infrastructure and sustainable drainage system (SuDS) suitability are likely to differ at each site considered to be at risk from surface water flooding. Further investigation may therefore be required for any site at high/medium surface water flood risk. The LLFA should require that planning applications must be accompanied by a drainage strategy appropriate to the level of risk, independent of the requirement for a site-specific FRA;
- If sites have planning permission but construction has not started, the SFRA will only be able to influence the design of the development e.g. finished floor levels;
- It may be possible at some sites to develop around the flood risk. Planners are best placed to make this judgement i.e. will the site still be deliverable if part of it needs to be retained to make space for floodwater? Yields may be impacted;
- Surrounding existing infrastructure may influence scope for layout redesign/removal of site footprints from risk;
- Some sites not currently shown to be at flood risk may be at residual risk through the failure of defences during a flood event or through blockage/failure of drainage assets such as culverts. Assessment may be required through a Level 2 SFRA;
- Safe and dry access and escape routes must exist at all times during a flood event for emergency response and evacuation. Emergency planners should be consulted and appropriate emergency plans put in place;
- Current land use. A number of sites included in the assessment are likely to be brownfield containing existing development structures, thus the existing development structure and footprint should be considered insofar that additional development should not lead to increased flood risk; and
- Existing planning permissions may exist on some sites where the EA may have already passed comment and/or agreed to appropriate remedial works concerning flood risk. Previous flood risk investigations/FRAs may already have been carried out at some sites. The LPA should be consulted.

1.1.1.1 Strategic Recommendation A - recommend for withdrawal if built development cannot avoid Flood Zone 3b

Strategic Recommendation A applies to any site where the following criteria is true:

- Any proportion of the site area is within the functional floodplain. The FRCC-PPG flood risk vulnerability and flood zone 'incompatibility' table (Table 2) states that only water compatible uses and essential infrastructure could be permitted in the functional floodplain, though any essential infrastructure must pass the Exception Test and water compatible uses must be designed and constructed to remain operational and safe for users in times of flood; must result in no net loss of floodplain storage; and must not impede water flows and not increase flood risk elsewhere. Development should not be permitted for any proportion of sites within the highly, more, or less vulnerable categories that fall within the functional floodplain.

It is important to state that it may still be possible to deliver a site that has been recommended for withdrawal from allocation upon more detailed investigation through a Level 2 SFRA and subsequent updates of the Flood Zone 3b outline through more detailed modelling, if applicable.

Depending on local circumstances, if it is not possible to remove the developable area from Flood Zone 3b to a lower risk zone then the site should not be allocated or permitted.

29 of the 173 potential development sites have been recommended for withdrawal if built development cannot avoid the functional floodplain.

Any area within Flood Zone 3b should be left as or converted to open green space. For smaller sites, this approach may be challenging to achieve compared to larger sites or strategic sites where there may be enough space to limit the impact through effective flood storage or blue green infrastructure. If this is not possible, the site should be withdrawn.

1.1.1.2 Strategic Recommendation B - Level 2 SFRA required due to high and/or medium risk now or in the future. The Exception Test may be required.

Strategic Recommendation B applies to any site where the following criteria is true:

- Any part of a site is within Flood Zone 3a (high risk)
- Any part of a site is within Flood Zone 2 (medium risk)
- Any part of a site is at future fluvial risk (based on the future functional floodplain extent, modelled undefended 1% AEP + 35% CC extent or the EA Flood Map for Planning Flood Zones plus Climate Change Extent)
- Any part of a site is within the high or medium risk surface water flood zones
- Any part of a site is within the medium risk surface water plus climate change extent (using the low risk surface water extent as a conservative proxy)

NOTE: the Exception Test only applies to sites at fluvial flood risk, depending on the vulnerability of the site use (see Table 2 of the FRCC-PPG). Less vulnerable uses of land do not require the Exception Test but may still require a Level 2 SFRA to show whether they can be safe for the lifetime of development.

According to diagrams 1, 2 and 3 and Table 2 of the FRCC-PPG, any site at high or medium flood risk now and in the future should be assessed in more detail through a Level 2 SFRA. Strategic Recommendation B applies to sites where a Level 2 SFRA is required, unless the LPA can state in local plan policy that built development can avoid the risk area. This may be applicable where the proportion of a site at risk is small or where the risk area is spatially isolated to specific areas of a site. A Level 2 SFRA Scoping Assessment will assist in identifying a final list of sites requiring a Level 2 assessment.

Sites included within Strategic Recommendation B may be subject to application of the Exception Test through a Level 2 SFRA i.e. more vulnerable sites in Flood Zone 3a. However, the Sequential Test should have been passed first, using this Level 1 SFRA, before the Exception Test is applied. The LPA should always attempt to avoid risk areas where possible.

Strategic Recommendation B applies to 126 of the 173 potential development sites assessed. 110 of these sites require a Level 2 SFRA to further inform on surface water flood risk only. A Level 2 Scoping Assessment will be required to confirm sites required for Level 2 assessment.

1.1.1.3 Strategic Recommendation C - allocate and progress to developer-led FRA

Strategic Recommendation C applies to any site where the following criteria is true:

- 100% within Flood Zone 1 (low risk) but with unmodelled watercourses on or within 10 metres of the site boundary
- 100% within Flood Zone 1 (low risk) and not shown to be at risk from high or medium surface water flooding, but is greater than 1 hectare in area
- 100% within Flood Zone 1 (low risk) and shown to be at low risk from surface water flooding, but is greater than 1 hectare in area
- 100% within Flood Zone 1 (low risk) and not shown to be at additional risk from climate change, but is greater than 1 hectare in area
- 100% within Flood Zone 1 (low risk) and shown to be at risk from other sources, i.e. groundwater emergence or reservoir flooding

Strategic Recommendation C applies to 13 of the 173 potential development sites assessed.

1.1.1.4 Strategic Recommendation D - development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA. LPA to make decision on allocation

Strategic Recommendation D applies to any site where the following criteria is true:

- 100% within Flood Zone 1 and not at high, medium or low risk from surface water flooding or at risk from other sources, and less than 1 hectare in area
- Site not shown to be at additional risk from climate change

Strategic Recommendation D applies to five of the 173 potential development sites assessed. Further investigation (i.e. FRA) may be required by the developer at the planning application stage if any further or new information becomes available since the publication of this Level 1 SFRA.

1.1.2 Assessment of climate change

The Site Assessment Spreadsheet highlights the potential additional risk to sites, where applicable, as a result of climate change. To represent the increased flood risk resulting from climate change in fluvially dominated scenarios, a future functional floodplain, as delineated in this Level 1 SFRA, detailed EA modelled fluvial climate change outputs and the EA Flood Map for Planning Flood Zones plus Climate Change Extents have been used.

The Spreadsheet highlights the **additional** risk to the potential development sites from climate change, i.e. areas at risk in the future that are not at risk in the present day. The Risk of Flooding from Fluvial Climate Change columns indicate the area of each site that intersects with each flood extent. This is based on the NaFRA2 climate change modelling

and available EA detailed model outlines. No additional modelling has been carried out for this Level 1 SFRA, as agreed with the EA.

The fluvial climate change scenarios assessed were:

- 3.3% AEP defended event + central climate change allowance (future functional floodplain)
- 1% AEP undefended event + central climate change allowance (EA detailed model flood outlines)
- Combined 1% AEP and 0.1% AEP undefended events + central climate change allowance (Flood Map for Planning - Flood Zones plus Climate Change Extent)

For representation of surface water climate change in this Level 1 SFRA, the low risk RoFSW extent is considered as a conservative proxy for the medium risk plus climate change extent. This approach has been widely accepted by the EA in the absence of suitable modelling.

1.1.3 Assessment of groundwater emergence risk

The Site Assessment Spreadsheet contains a flag for potential groundwater emergence risks within each site, informed by the JBA Groundwater Map. This flags the highest risk category present within the site, not the category that covers the largest area. This is to help to understand where there may be groundwater issues within the site that may require further investigation at the FRA stage.

The JBA Groundwater Map does potentially enable a risk-based approach to be taken as it depicts different levels of risk. However, this is based on the risk of emergence of groundwater and not the risk of flooding due to groundwater. It should be noted that the location of highest risk of emergence might not be coincident with the location at highest risk of flooding.

Therefore, it is recommended that groundwater flood risk is not considered in the Sequential Test on the basis that the JBA Groundwater Map does not provide the confidence or certainty required to undertake the Sequential Test. As the available mapping does not provide competent evidence on the relative risk of flooding, it could potentially result in inappropriate allocations if used without understanding the limitations of the data. Appendix H addresses the use of flood risk information in the application of the Sequential Test.

1.1.4 Assessment of reservoir risk

The EA's Reservoir Flood Map (RFM) (2021) shows where water may go in the unlikely event of a reservoir or dam failure. A 'dry day' scenario assumes that the water level in the reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level.

The RFM dry day extents have been considered within the Site Assessment Spreadsheet. This is a flag as to whether the site is at potential residual risk from a reservoir breach. The mapping does not describe a risk-based scenario as it does not provide the probability of a

dam failure but is intended to describe a 'worst credible case' in the unlikely scenario of a dam failure. Therefore, it is recommended that the RFM is not included in the Sequential Test as the available data is inappropriate to be used alongside risk mapping from other sources. Appendix H addresses the use of flood risk information in the application of the Sequential Test.

A more detailed assessment in a Level 2 SFRA would identify locations where proposed development could result in a change to the risk designation of a reservoir. If proposed sites are located in a zone at reservoir risk, it will be necessary to understand the extent to which the flooding could be made worse and to report on the implications with respect to allocating the land for development. On that basis such an approach is recommended. If proposed development is located in a high hazard zone in the vicinity of an existing dam structure the implications should be considered in a Level 2 SFRA or site-specific FRA and where appropriate an assessment made of whether alternative sites should be considered in accordance with the Sequential Test.

1.1.5 Assessment of unmodelled watercourses

The presence of nearby or onsite fluvial watercourses that have not been modelled through either EA detailed modelling or national scale modelling have been documented within the Site Assessment Spreadsheet. This indicates sites in Flood Zone 1 where there may be some fluvial risk present that hasn't been modelled or mapped by the EA. Where the watercourse is present within the RoFSW map, it may be appropriate to consider this as a proxy for the fluvial risk posed by smaller, unmodelled watercourses. For sites potentially impacted by unmodelled watercourses, it is recommended that the risk from the currently unmodelled watercourses is quantified through a site-specific FRA.

1.2 Summary of site assessment outcomes

There are several consequential development considerations which could come out of the site assessment Sequential Testing process. Each outcome is discussed below. The LPA should refer to Section 1.1 and Appendix D for details on the site assessments carried out for this Level 1 SFRA.

1.2.1 Rejection of site

A site which fails to pass the Sequential Test and/or the Exception Test should be rejected and development not permitted. Rejection would also apply to any built development within the functional floodplain (unless water compatible or essential infrastructure informed by a FRA). However, if the developer can avoid built development within the functional floodplain, part of the site could still be delivered.

In terms of surface water flood risk, if risk is considered significant (i.e. large, sporadic areas at medium or high risk now or in the future with major flow paths) or where the size of the site does not allow for onsite storage or application or appropriate SuDS then such sites could be rejected. The LLFA will be best placed to advise on site-specific surface water flood risk and whether sites can be taken forward or not.

1.2.2 Exception Test required

Applies to those sites that, according to diagrams 1, 2 and 3, and Table 2 of the FRCC-PPG, would require the Exception Test. Only less vulnerable land uses would not require application of the Exception Test in Flood Zone 3a. More vulnerable uses are only permitted if both parts of the Exception Test are passed. Passing the Exception Test at the plan making stage does not negate the requirement for a FRA at the planning application stage. A Level 2 SFRA will inform the application of the Exception Test and the likelihood of passing part b of the test. Where any new or updated flood risk data to become available at the planning application stage, then the Exception Test should be reapplied using the new data.

1.2.3 Consideration of site layout and design

Site layout and design are important to consider early on in the site planning stage where flood risk exists. The site area would have to be large enough to enable any alteration of the developable area of the site to remove development from a risk area, or to leave space for onsite storage of floodwater. Careful layout and design at the site planning stage may apply to such sites where it is considered viable based on the level of risk. Surface water risk and opportunities for SuDS should also be assessed during the planning stage. Blue green corridors can be used as multifunctional spaces providing mitigation for flood risk management, ecology, biodiversity net gain (BNG), and amenity and social benefits.

Any development within 8 metres of any flood defence structure or culvert on a non-tidal main river is likely to be a regulated flood risk activity under Schedule 25 of the Environment Permitting (England and Wales) Regulations 2016. Any site redesign, where Flood Zone 3a is included within the site footprint, should allow water to flow naturally or be stored in times of flood. Similarly, any change or alteration to an ordinary watercourse within a site would need consent from the LLFA under the Land Drainage Act 1991.

1.2.4 Site-specific Flood Risk Assessment

A site-specific FRA should assess whether a potential development site is likely to be affected by current or future flooding from any source. This should include referencing this Level 1 SFRA to help to establish sources of flooding. Further analysis should be performed to improve the understanding of flood risk including agreement with the LPA and the EA on areas of functional floodplain that may not have been robustly defined within this SFRA due to the absence of appropriate information from the EA. The LLFA should be consulted on risk from surface water and from ordinary watercourses.

For further detail regarding the requirements of a site-specific FRA, refer to Chapter 7 of the main report. Together with the information in the FRCC-PPG, there is further detail and support provided for the LPAs and developers online via:

- National flood risk standing advice for local planning authorities
- Preparing a flood risk assessment: standing advice
- Flood risk assessments: Applying for planning permission

- Flood risk assessment: Flood Zones 1, 2, 3 and 3b

1.2.5 Sites passing the Sequential and Exception Tests

Development sites can be allocated or granted planning permission through a suitable site-specific FRA, approved and signed off by the LPA, where the Sequential Test and the Exception Test (if required) are passed and agreement is reached between the LPA/LLFA, the EA, the water companies and any ancillary stakeholders. In addition, a site is likely to be allocated without the need to assess flood risk where the indicative use is for open space. Assuming the site is not to include any development or land raising / regrading works and is to be left open in its original state then the allocation is likely to be acceptable from a flood risk point of view. However, for sites where there is potential for flood storage, options should be explored as part of a FRA.

In terms of opportunities for reducing flood risk overall as a requirement of the Exception Test, the FRCC-PPG states:

"Developers should refer to the Strategic Flood Risk Assessments and site-specific Flood Risk Assessments to identify opportunities to reduce flood risk overall and to demonstrate that the measures go beyond just managing the flood risk resulting from the development. Reductions could be achieved, for example by:

- *Incorporating green infrastructure within the layout and form of development to make additional space for the flow and storage of flood water;*
- *Providing Sustainable Drainage Systems, that manage flood risk beyond the proposed site and above the usual standard, such as by removing surface water from existing combined sewers;*
- *Providing or making contributions to flood risk management infrastructure that will provide additional benefits to existing communities and/or by safeguarding the land that would be needed to deliver it." (Paragraph 37).*

1.2.6 Surface water flood risk to assessed sites

For sites at surface water flood risk, the following should be considered, proportionate to the risk shown by the RoFSW:

- More detailed surface water assessment or modelling may reveal increased risk or less risk to a site compared to what is shown by the national RoFSW. The LLFA should be consulted when considering development viability at such sites;
- The RoFSW map does not map flooding less than 0.075m (7.5cm) in depth. Therefore, where the map may show no flooding, there may be shallow flooding up to a depth of 0.075m;
- Outline drainage strategy to ascertain natural flow paths and topographic depressions, particularly for the larger sites which may influence development at sites elsewhere;
- A detailed site-specific FRA incorporating surface water flood risk management;

- Full drainage strategy encompassing detailed surface water modelling of proposed site layouts, attenuation areas, diversion of flow routes, SuDS;
- Ensuring future maintenance of surface water and SuDS assets through s106 agreements;
- The size of development and the possibility of increased surface water flood risk caused by development on current greenfield land (where applicable) and cumulative impacts of this within specific areas;
- Management and re-use of surface water onsite, assuming the site is large enough to facilitate this and achieve effective mitigation. Effective surface water management should ensure risks on and off site are controlled;
- Larger sites could leave surface water flood-prone areas as open greenspace, incorporating social and environmental benefits;
- SuDS must be used where possible for all developments of more than one property. Appropriate SuDS may offer opportunities to control runoff to greenfield rates or better. Restrictions on surface water runoff from new development should be incorporated into the development planning stage. For brownfield sites, where current infrastructure may be staying in place, then runoff should attempt to mimic that of greenfield rates, unless it can be demonstrated that this is unachievable or hydraulically impractical. Developers should refer to the 'National standards for sustainable drainage systems (SuDS)', updated July 2025, relevant Local Plan policies and other guidance documents cited in the main report. Note that SuDS should not be sited in locations of fluvial flood risk unless they are designed to mitigate for both sources of risk;
- Runoff up to and including the 1% Annual Exceedance Probability (AEP) should be managed onsite where possible, including for climate change;
- Measures of source control should be required for all development sites;
- Developers should be required to set part of their site aside for surface water management, to contribute to flood risk management in the wider area and supplement blue green infrastructure networks;
- Developers should be required to maximise permeable surfaces;
- Flow routes on new development where the sewerage system surcharges as a consequence of exceedance of the 3.3% AEP design event should be retained;
- It may be beneficial to carry out a local Surface Water Management Plan (SWMP) or wider drainage strategy for targeted locations with any known critical drainage problems. Investigation into the capacity of existing sewer systems would be required in order to identify critical parts of the system i.e. pinch points. Drainage model outputs could be obtained from the water company to confirm the critical parts of the drainage network and subsequent recommendations could then be made for future development i.e. strategic SuDS sites, parts of the drainage system where any new connections should be avoided, and parts of the system that may have any additional capacity and recommended runoff rates. A Water Cycle Study would help to inform this.

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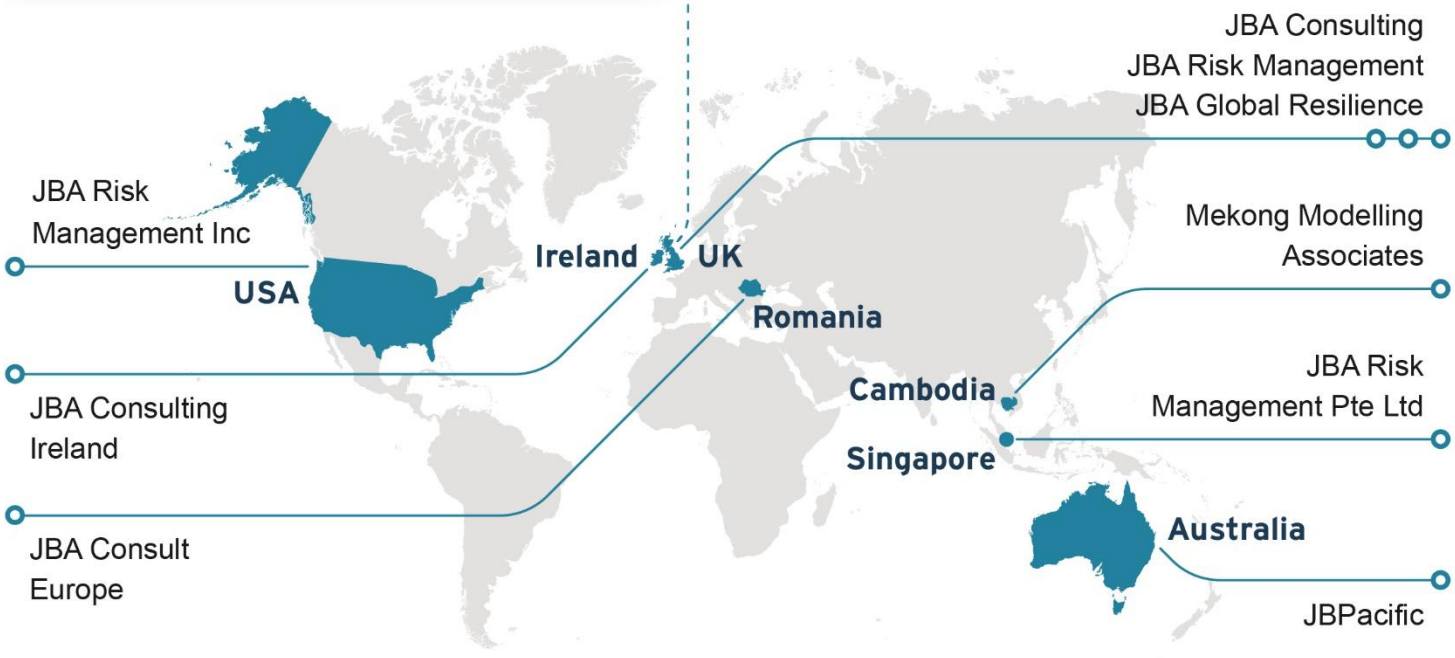

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Cotswold Level 1 Strategic Flood Risk Assessment

Appendix F - Catchment-level assessment of the cumulative impacts of development on flood risk

Final

Prepared for	Date
Cotswold District Council	June 2026

COTSWOLD
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Abbreviations

ACDP	Areas with Critical Drainage Problems
AEP	Annual Exceedance Probability
EA	Environment Agency
FRA	Flood Risk Assessment
GCC	Gloucestershire County Council
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LPU	Local Plan Update
NFM	Natural Flood Management
NPPF	National Planning Policy Framework
NRD	National Receptor Dataset
OS	Ordnance Survey
RAG	Red-Amber-Green
RFO	Recorded Flood Outline
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SuDS	Sustainable drainage systems
WFD	Water Framework Directive

1 Introduction

Cumulative impacts are defined as the effects of past, current and future activities on the environment. The below assessment is a catchment based approach, which indicates potential cumulative impacts on the Cotswold District Council (the Council) authority area. These cumulative impacts may be negative, such as development leading to an increase in the existing level of flood risk within a catchment. They may also be positive, such as effective surface water management within a development site helping to alleviate existing flooding issues within a catchment.

The cumulative impact of development should be considered at both the Local Plan making stage and the planning application and development design stages. Paragraph 171 of the National Planning Policy Framework (NPPF, 2025) states:

'Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.'

To understand the impact of future development on flood risk in the Council area, flood risk data has been compared with potential changes in developed area within each river catchment defined within the Water Framework Directive (WFD). This identifies the catchments where development may have the greatest impact on flood risk, and therefore where further assessment would be required within a site-specific Flood Risk Assessment (FRA).

Where catchments have been identified as sensitive to the cumulative impact of development, the assessment concludes with potential strategic planning policy suggestions to manage the risk.

2 Cumulative Impact Assessment Methodology

2.1 Cumulative impact of development and flood risk

2.1.1 Introduction

The cumulative impact of development is assessed in two parts. These comprise an evaluation of future development pressures within each WFD river waterbody catchment and an assessment of historical and predicted future flood risk. The approach to understanding the catchments most influenced by the cumulative impact of development is conceptualised in Figure 2-1.

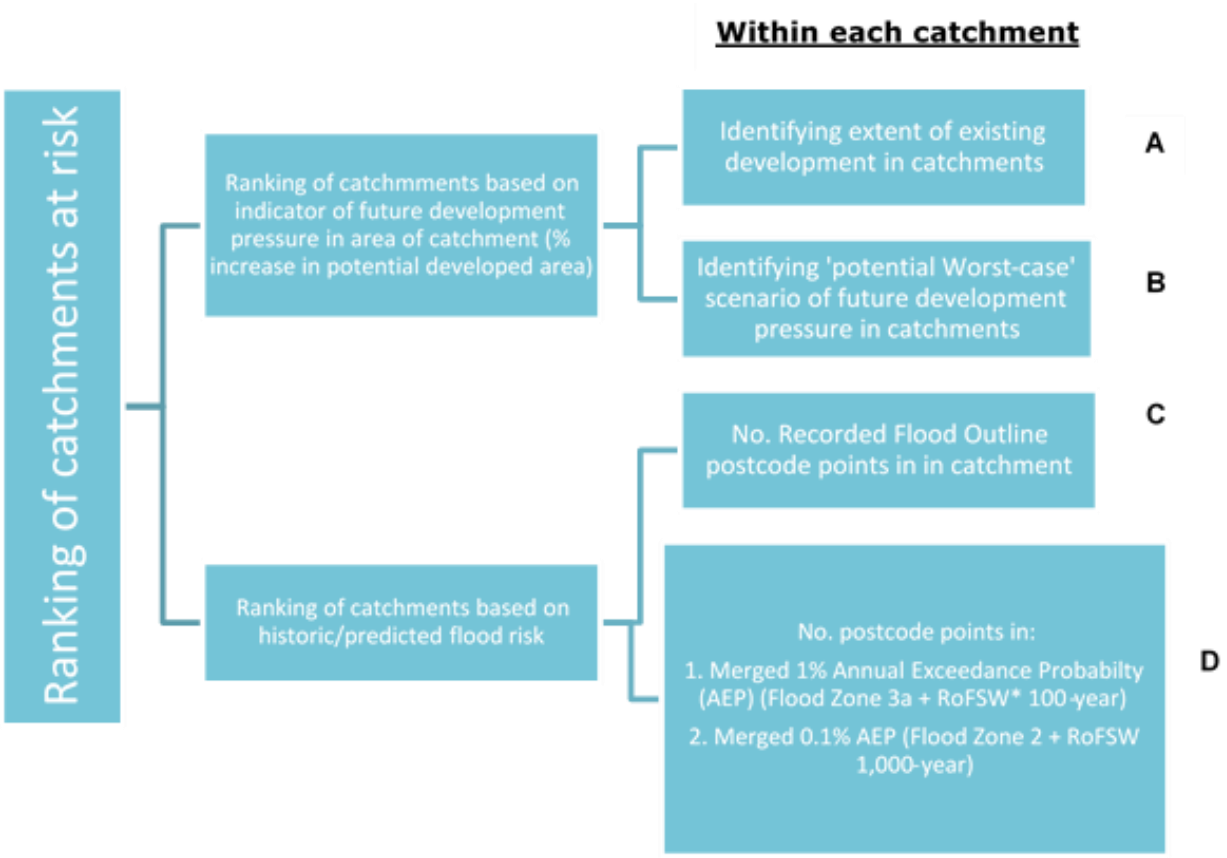

Figure 2-1: Overview of the method used in the cumulative impact assessment

**Risk of Flooding from Surface Water (RoFSW)*

2.1.2 Assessing existing and future development scenarios

To ensure that the strategic policies of the Local Plan Update (LPU) consider the impact of any future development on areas susceptible to flooding, the potential development pressures during the LPU period need to be considered. The impact of development is assessed by establishing a growth scenario of development already committed to prior to the preparation of the LPU, as well as the potential future development pressures during the active Local Plan period.

The assessment is undertaken on a river catchment scale, using catchments defined by the WFD. Several of the WFD river waterbody catchments assessed within the cumulative impact assessment cross administrative boundaries into neighbouring districts. To account for this in the study, all councils that share a WFD river waterbody catchment with Cotswold were contacted to provide information of future development within their administrative area. These councils are:

- Cheltenham Borough Council
- South Gloucestershire Council
- South Oxfordshire District Council
- Stratford-on-Avon District Council
- Stroud District Council
- Swindon Borough Council
- Tewkesbury Borough Council
- West Oxfordshire District Council
- Wiltshire Council
- Wychavon District Council
- Vale of White Horse District Council

The site allocation information provided by these neighbouring authorities was combined with that of the Council's to understand the risk to each WFD river waterbody catchment, based upon potential future growth.

It should be noted that the inclusion of potential future development pressures in neighbouring authorities makes the scoring method sensitive to future change, should any larger sites be removed, or additional sites come forward. However, it provides the best possible indication of development pressure across the Council area and catchments that feed into it. Potential future development information for the following neighbouring authorities, as either no allocation was provided or data was not provided in a spatial format suitable for consideration:

- Cheltenham Borough Council
- Stratford-on-Avon District Council
- Swindon Borough Council
- Tewkesbury Borough Council
- West Oxfordshire District Council
- Wychavon District Council

2.1.2.1 Existing development scenario (Part A - Figure 2-1)

To understand the level of existing development within the study area, the Ordnance Survey (OS) Open Codepoint dataset covering the Council area and neighbouring authority areas was used to establish the baseline growth scenario. This dataset provides postcode locations for Great Britain.

2.1.2.2 Indicator of development pressure (Part B - Figure 2-1)

To understand which catchments within the Council area are likely to experience the greatest pressure of future growth, all potential development sites within Cotswold, as well as the sites provided by the neighbouring authorities, were analysed. This analysis serves as an indicator of areas likely to be subject to the greatest development pressure in the future. At the time of preparing the assessment, this is the only spatial data indicator available, as definitive development areas have not yet been allocated within all the Local Plans of the neighbouring authorities.

This data allows calculation of the overall area of sites within each catchment that are either proposed or submitted to the relevant Local Planning Authority (LPA) for consideration to allocate within their Local Plans, illustrating the relative pressures on the catchments. The percentage total proposed area of development is calculated and ranked, with the catchment with the highest proportion of growth ranked as '1'.

2.1.3 Datasets used to assess future development pressures

Table 2-1 provides an overview of the datasets considered within the future development section of the cumulative impact assessment.

Table 2-1: Data considered within the development assessment and their purpose

Dataset	Coverage	Source of data	Purpose
Catchment boundaries	Cotswold District Council authority area	WFD river waterbody catchments (Environment Agency)	To identify and map catchments that will determine the study area extent
Existing development data	Catchments covering the Cotswold District Council authority area	Open Codepoint (Ordnance Survey)	To provide the existing development scenario
Local Plan potential future development sites	Catchments covering the Cotswold District Council authority area	Neighbouring authorities to Cotswold District	To provide an indicator of relative future development pressures within the study area

2.1.4 Assessing the sensitivity to flood risk

In addition to the assessment of future development pressures, a composite flood risk score is derived for each catchment. This is calculated by taking an average ranking of both recorded flood risk (historic incidents) and modelled (predicted) fluvial and surface water risk. To understand the relative flood risk within each catchment, a ranking system is adopted, with the worst-case flood risk numbered as '1'.

2.1.4.1 Historic flood risk (Part C - Figure 2-1)

To understand the impact to property from historic flood incidents, the EA Recorded Flood Outline (RFO) dataset was considered. This was intersected with the Codepoints within each catchment to provide a count for the number of historically impacted properties per catchment.

2.1.4.2 Sensitivity to increases in flood flows (Part D - Figure 2-1)

To understand the sensitivity of each catchment to increases in flood flows, an assessment of both fluvial and surface water flood risk was undertaken. This assessment provides an indication of where local topography makes an area more sensitive to increases in flood risk. This may be due to any number of reasons, including climate change, new development etc. It is not an absolute figure or prediction of the impact that new development will have on flood risk. Not all sources of flood risk have been considered in this assessment. This is because the available datasets for other sources of flooding are not based on a risk-based scenario, therefore they do not provide the probability of flooding in a given year.

The present day flood risk scenario is based on the 1 in 100-year (1% Annual Exceedance Probability (AEP)) event, using a combination of the EA Flood Zone 3 and medium risk RoFSW mapping. The future flood risk scenario is based on the 1 in 1000-year (0.1% AEP) event and is determined using a combination of the EA Flood Zone 2 and low risk RoFSW mapping. The fluvial and surface water flood extents are merged to prevent double counting of properties at risk where fluvial and surface water flood risks overlap.

The present and future flood risk scenarios have been separately intersected with the Codepoint dataset to approximate the number of properties at risk within each scenario. The difference between the number of properties within the present and future flood risk scenarios has been calculated and given as a percentage of the total number of Codepoints within the catchment. This gives an indication of which catchments are most sensitive to increases in surface water runoff upstream.

2.1.4.3 Datasets used to assess the sensitivity to flood risk

Table 2-2 provides an overview of the datasets considered within the flood risk section of the cumulative impact assessment.

Table 2-2: Data considered within the flood risk assessment and their purpose

Dataset	Coverage	Source of data	Purpose
Catchment boundaries	Cotswold District Council authority area	WFD river waterbody catchments (Environment Agency)	To identify and map catchments that will determine the study area extent
Property point data	Catchments covering the Cotswold District Council authority area	Open Codepoint (Ordnance Survey)	To provide an indication of the number of properties at risk
Historic flood incidents	Catchments covering the Cotswold District Council authority area	Recorded Flood Outlines (Environment Agency)	To understand which areas have been impacted by historic flooding
Fluvial flood zones	Catchments covering the Cotswold District Council authority area	Flood Map for Planning Flood Zones 2 and 3 (Environment Agency)	To understand the present day and potential future impacts of fluvial flooding
Surface water flood zones	Catchments covering the Cotswold District Council authority area	Risk of Flooding from Surface Water - low and medium risk (Environment Agency)	To understand the present day and potential future impacts of surface water flooding

3 Results

3.1 Introduction

The results are ranked for each of the above assessments from 1 to 59. For example, the catchment with the highest percentage of property points within the recorded flood outline dataset would be ranked as '1'. The individual historic flooding, flood risk sensitivity and future development pressure ranks are summed to give an overall ranking for each catchment. The catchment with the lowest combined rank is the most sensitive to the cumulative impact of development.

3.2 Cumulative impact assessment results

A Red Amber Green (RAG) rating is applied to the catchments, with red being high sensitivity, amber being medium sensitivity and green being low sensitivity. It should be noted that this assessment provides a relative assessment of sensitivity increases in flood risk and development between catchments within the study area. Catchments with an overall rank of less than 15 have been determined as high sensitivity catchments. Catchments with an overall rank of between 15 and 30 have been determined as medium sensitivity catchments. All other catchments have been identified as low sensitivity.

The following catchments have been identified as highly sensitive to the cumulative impacts of development:

- Bretforton Bk - source to conf Broadway-Badsey Bk
- Broadway-Badsey Bk - source to conf R Avon
- Churn (Baunton to Cricklade)
- Coln (from Coln Rogers) and Thames (Coln to Leach)
- Evenlode (Source to Four Shires S) and Longborough Stream
- Knee Bk - source to conf Blockley Bk
- Swilgate - source to conf R Avon
- Swill Brook (source to Ashton Keynes)
- Tetbury Avon - unnamed trib to conf Sherston Avon
- Thames (Churn to Coln)
- Thames (Kemble to Waterhay Bridge)
- Thames (Leach to Evenlode)
- Thornhill Ditch and tributaries at Cotswolds Water Park
- Windrush (Slade Barn Stream to Dikler)

The results of the cumulative impact are shown in Figure 3-1 and Table 3-1.

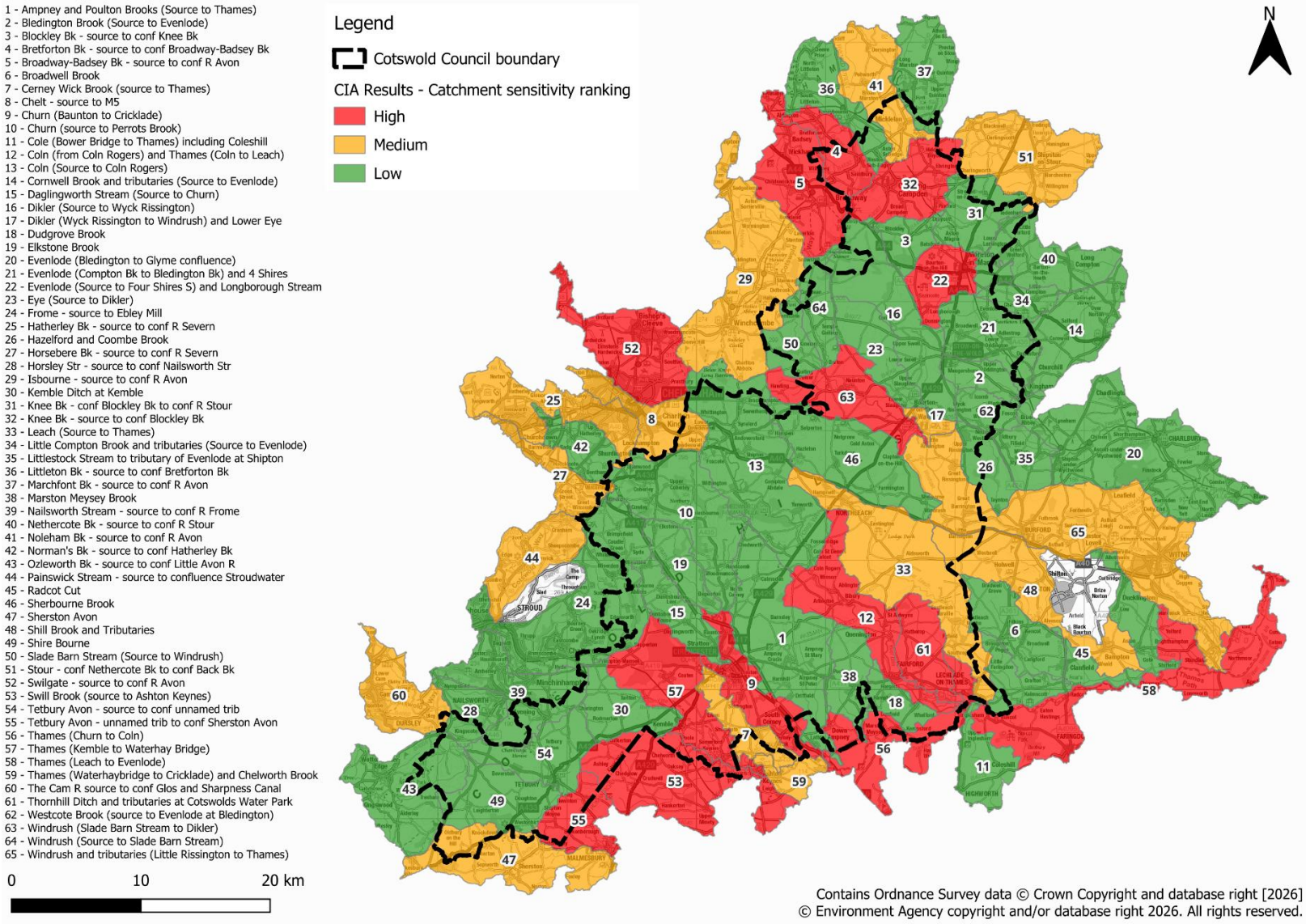

Figure 3-1: Sensitivity of catchments within and around the Cotswold study area to cumulative impacts

Table 3-1: Results of the cumulative impact assessment

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
1	Ampney and Poulton Brooks (Source to Thames)	2.4%	Medium	1	3.7%	Low	Low	35
2	Bledington Brook (Source to Evenlode)	0.1%	Low	2	3.7%	Low	Low	40
3	Blockley Bk - source to conf Knee Bk	0.2%	Low	0	1.1%	Low	Low	52
4	Bretforton Bk - source to conf Broadway-Badsey Bk	0.3%	Low	10	13.3%	High	High	4
5	Broadway-Badsey Bk - source to conf R Avon	0.0%	Low	38	13.3%	High	High	8
6	Broadwell Brook	0.0%	Low	1	4.2%	Low	Low	47

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
7	Cerney Wick Brook (source to Thames)	6.7%	High	0	4.7%	Low	Medium	27
8	Chelt - source to M5	0.0%	Low	46	12.6%	Medium	Medium	19
9	Churn (Baunton to Cricklade)	4.6%	High	12	9.2%	Medium	High	9
10	Churn (source to Perrots Brook)	0.0%	Low	0	1.5%	Low	Low	58
11	Cole (Bower Bridge to Thames) including Coleshill	0.0%	Low	3	2.9%	Low	Low	43
12	Coln (from Coln Rogers) and Thames (Coln to Leach)	0.1%	Low	20	9.7%	High	High	9
13	Coln (Source to Coln Rogers)	0.1%	Low	0	0.0%	Low	Low	55

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
14	Cornwell Brook and tributaries (Source to Evenlode)	0.0%	Low	0	3.3%	Low	Low	54
15	Daglingworth Stream (Source to Churn)	0.0%	Low	0	11.9%	Medium	Low	31
16	Dikler (Source to Wyck Rissington)	0.0%	Low	0	0.0%	Low	Low	59
17	Dikler (Wyck Rissington to Windrush) and Lower Eye	0.4%	Low	1	5.4%	Low	Medium	28
18	Dudgrove Brook	0.7%	Low	0	2.0%	Low	Low	45
19	Elkstone Brook	0.0%	Low	0	0.0%	Low	Low	59
20	Evenlode (Bledington to Glyme confluence)	0.0%	Low	12	3.9%	Low	Low	40

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
21	Evenlode (Compton Bk to Bledington Bk) and 4 Shires	1.5%	Medium	0	4.3%	Low	Low	34
22	Evenlode (Source to Four Shires S) and Longborough Stream	4.3%	High	28	14.3%	High	High	2
23	Eye (Source to Dikler)	0.0%	Low	0	2.3%	Low	Low	57
24	Frome - source to Ebley Mill	0.1%	Low	10	3.8%	Low	Low	46
25	Hatherley Bk - source to conf R Severn	0.0%	Low	41	14.3%	Medium	Medium	17
26	Hazelford and Coombe Brook	0.0%	Low	0	2.7%	Low	Low	56
27	Horsebere Bk - source to conf R Severn	0.0%	Low	13	9.4%	Medium	Medium	26

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
28	Horsley Str - source to conf Nailsworth Str	0.1%	Low	0	3.0%	Low	Low	50
29	Isbourne - source to conf R Avon	0.0%	Low	18	8.9%	Medium	Medium	22
30	Kemble Ditch at Kemble	0.4%	Low	0	0.0%	Low	Low	49
31	Knee Bk - conf Blockley Bk to conf R Stour	0.2%	Low	0	6.8%	Low	Low	36
32	Knee Bk - source to conf Blockley Bk	0.3%	Low	21	11.5%	High	High	6
33	Leach (Source to Thames)	0.1%	Low	12	5.9%	Medium	Medium	21
34	Little Compton Brook and tributaries (Source to Evenlode)	0.0%	Low	0	0.0%	Low	Low	59

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
35	Littlestock Stream to tributary of Evenlode at Shipton	0.0%	Low	1	5.3%	Low	Low	42
36	Littleton Bk - source to conf Bretforton Bk	0.0%	Low	2	9.6%	Medium	Low	30
37	Marchfont Bk - source to conf R Avon	0.0%	Low	0	8.7%	Low	Low	39
38	Marston Meysey Brook	0.0%	Low	1	2.3%	Low	Low	47
39	Nailsworth Stream - source to conf R Frome	0.1%	Low	4	6.0%	Low	Low	37
40	Nethercote Bk - source to conf R Stour	0.0%	Low	0	4.2%	Low	Low	50

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
41	Noleham Bk - source to conf R Avon	0.5%	Low	0	6.9%	Low	Medium	29
42	Norman's Bk - source to conf Hatherley Bk	0.0%	Low	2	7.6%	Low	Low	38
43	Ozleworth Bk - source to conf Little Avon R	0.2%	Low	4	4.9%	Low	Low	31
44	Painswick Stream - source to confluence Stroudwater	0.0%	Low	1	14.7%	Medium	Medium	23
45	Radcot Cut	0.0%	Low	9	4.3%	Medium	Low	31
46	Sherbourne Brook	0.0%	Low	0	0.0%	Low	Low	59
47	Sherston Avon	0.9%	Low	11	4.2%	Medium	Medium	16
48	Shill Brook and Tributaries	0.0%	Low	18	7.4%	Medium	Medium	23
49	Shire Bourne	0.0%	Low	0	0.0%	Low	Low	59

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
50	Slade Barn Stream (Source to Windrush)	0.0%	Low	0	0.0%	Low	Low	59
51	Stour - conf Nethercote Bk to conf Back Bk	0.0%	Low	13	11.5%	Medium	Medium	17
52	Swilgate - source to conf R Avon	0.0%	Low	165	13.6%	High	High	11
53	Swill Brook (source to Ashton Keynes)	0.8%	Low	16	11.5%	High	High	3
54	Tetbury Avon - source to conf unnamed trib	0.2%	Low	0	3.7%	Low	Low	43
55	Tetbury Avon - unnamed trib to conf Sherston Avon	2.8%	Medium	6	7.8%	Medium	High	11
56	Thames (Churn to Coln)	0.3%	Low	7	8.2%	Medium	High	13

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
57	Thames (Kemble to Waterhay Bridge)	0.6%	Low	12	9.6%	High	High	5
58	Thames (Leach to Evenlode)	0.1%	Low	29	8.9%	Medium	High	14
59	Thames (Waterhaybridge to Cricklade) and Chelworth Brook	0.0%	Low	5	13.3%	High	Medium	15
60	The Cam R source to conf Glos and Sharpness Canal	1.4%	Medium	7	6.4%	Low	Medium	20
61	Thornhill Ditch and tributaries at Cotswolds Water Park	2.3%	Medium	7	21.6%	High	High	1

Map label	Catchment name	Area of growth (%)	Growth RAG score	Codepoints in historic flood outlines	Increase in properties at flood risk (%)	Flood Risk RAG score	Overall RAG score	Overall rank
62	Westcote Brook (source to Evenlode at Bledington)	0.0%	Low	0	3.4%	Low	Low	53
63	Windrush (Slade Barn Stream to Dikler)	0.0%	Low	17	15.6%	High	High	7
64	Windrush (Source to Slade Barn Stream)	0.0%	Low	0	0.0%	Low	Low	59
65	Windrush and tributaries (Little Rissington to Thames)	0.0%	Low	52	9.0%	Medium	Medium	23

4 Assumptions and limitations

Table 4-1 sets out the assumptions and limitations of the cumulative impact assessment.

Table 4-1: Assumptions and limitations of the assessment

Assessment aspect	Assumption made	Details of limitation in method	Justification
Development pressure	Assumption of housing density and impermeable areas	Where potential development densities were not known for the sites, it is assumed that 70% of the site area would contribute surface water runoff to the wider catchment. This takes into account a 30% allowance for landscaping and requirements for sustainable drainage systems (SuDS) within sites, which lessens the impacts of new development	With housing densities and proportions of undeveloped areas not known, the approach aims to provide a more realistic indication of site development in the growth scenario
Development pressure	Current site use assumed to be greenfield (undeveloped)	The current use of the sites (e.g. greenfield/brownfield) is often undefined. Brownfield sites are likely to have a less significant impact on flood risk as they have previously been developed. Therefore, in absence of this information, a 'worst case' assessment is produced, which assumes that all sites are greenfield (undeveloped) and may overestimate the risk within each catchment	The assessment considers the 'worst case' development scenario, that all sites were greenfield (undeveloped) prior to growth. With the former land uses for each site not known, the approach overestimates the potential impact, but this is a precautionary approach
Development pressure	Potential development site area not provided for all neighbouring authorities	Potential development sites were available for consideration for the South Oxfordshire, South Gloucestershire, Stroud, Wiltshire and Vale of White Horse authority areas.	Potential development pressure was not taken into account for the WFD catchments shared between Cheltenham, Stratford-on-Avon, Swindon, Tewkesbury, West Oxfordshire and Wychavon. Cumulative

Assessment aspect	Assumption made	Details of limitation in method	Justification
			impacts were assessed through flood risk only. It is recommended that this assessment is updated should this information be made available.
Flood risk	Overlap between fluvial and surface water extents	The Risk of Flooding from Surface Water mapping identifies the lowest points in the landscape, and therefore low-lying river floodplains are also classified as being at surface water risk. This can lead to 'double counting' of flood risk.	To prevent double counting, the Flood Zone and Risk of Flooding from Surface Water datasets are merged, to create a composite flood risk layer, with any overlapping areas dissolved.
Flood risk	Conservative assumption of using the 1 in 1000-year event to represent the future 1 in 100-year event	The 1 in 1000-year has been used as a conservative proxy to represent the likely influence of climate change on a fluvial 1 in 100-year flood event to inform on the sensitivity of catchments to increases in flooding.	This approach has been taken to ensure a consistent approach between the consideration of fluvial and surface water flooding. There is no suitable surface water climate change information currently available from the EA at the time of writing.
Flood risk	Use of OS Code Point Open postcode point data to represent properties affected by historic/predicted flood risk	As postcode points represent the average location of all properties within a postcode area, there may be properties at the edges of a catchment or the study area which are counted within the neighbouring area or not picked up at all. The dataset is based on full postcodes.	The postcode points are an available open source dataset. Postcode area sizes are also relative to the density of properties in a location, providing better data coverage in areas where a greater number of properties were likely to be affected.

5 Planning policy considerations

5.1 Introduction

Catchment-specific planning policy considerations have been identified for the catchments where cumulative development is likely to have the greatest impact on flood risk to communities.

In addition to assessment at this Level 1 SFRA level, it is recommended that site-specific FRAs are required to include consideration of the cumulative effects of the proposed development. It should be demonstrated that flood risk downstream will not be made worse by the combination of effects from more than one development allocation.

Specific policy considerations are provided for each sensitivity category and are set out in Sections 5.2 to 5.4 below.

5.2 Considerations for all new development in Cotswold

The following planning policy considerations apply to development within all catchments:

- Developments should seek betterment of existing flood risks both within the site and in surrounding areas. As a minimum, developments must meet national and local standards for FRAs and surface water drainage strategies. By looking at flood risks beyond the site boundary, developers should be encouraged to implement sustainable solutions which manage flood risk.
- Major developments[1] should be accompanied by an overall surface water drainage strategy. This should cover:
    - How the cumulative impacts of potential peak rates and volumes of surface water runoff from development sites would impact on the peak flows, duration of flooding and timing of flood peaks on receiving watercourses. This should be used to develop and implement appropriate drainage sub-catchments for the management of surface water, as well as specific runoff rate and volume requirements for each phase of the development.
    - The risk of flooding from all sources, including for rainfall events greater than the design standard of the surface water drainage system should be taken into account. This is to ensure there is no flood risk to new properties, and that exceedance flows in extreme events are safely routed around those properties.
    - The consideration of how SuDS, natural flood management techniques, green infrastructure and green-blue corridors can be designed into the development

1 As defined in the NPPF as residential developments comprising 10 or more homes, or greater than 0.5 hectares in area, and for non-residential developments, additional floorspace of 1,000m^2 or more, or a site of 1 hectare or more, or as otherwise provided in the Town and Country Planning (Development Management Procedure) (England) Order 2015.

master plan to facilitate drainage flood risk management. As well as managing the quantity of water, they should also ensure the wider benefits of biodiversity, amenity, water quality and recreation are realised.
    - Based on the above, a drainage phasing plan aligned with the SuDS management train method should be developed. Firstly, it should consider how water can be infiltrated / stored at a plot level, then conveyed through the site. It should also identify any wider storage needs at a settlement level.
    - The provision of drainage shall be based on the drainage phasing plan, to ensure adequate drainage is provided and implemented throughout the lifetime of the development. This includes provision of adequate drainage during the construction phase, to manage the risk of flooding, erosion and pollution during construction.
    - The Council (as LPA), Gloucestershire County Council (GCC) (as Lead Local Flood Authority (LLFA)) and the EA should be consulted during the development of the surface water drainage strategy, subject to EA resource availability.
- In rural areas of the catchments, Natural Flood Management (NFM) techniques, such as woodland planting and earth bunds, can be used to slow down and store flood waters upstream of settlements.
- In urban and suburban locations, SuDS should be integrated into the site design, to manage the existing surface water flow paths on the site and to help mitigate the flood risks to downstream communities.
- Successive minor developments have the potential to significantly impact on existing surface water and flood risk issues, particularly as the LLFA is not currently consulted on such applications. Therefore, planning policy for minor developments should support existing LPA guidance on the reduction of existing runoff rates, through the use of SuDS.
- Any development within the fluvial floodplain (i.e. Flood Zones 3b, 3a and 2) should provide suitable flood compensation storage, in consultation with the EA, to avoid a net loss in floodplain storage.
- The LLFA and other Risk Management Authorities (RMAs) should use the information in the SFRA to inform a long term pipeline of flood alleviation studies and schemes to determine where further developer contributions on / off site would be beneficial.

5.3 Considerations for medium sensitivity catchments

The following planning policy considerations apply to development within those catchments identified as being at medium sensitivity. All new developments (other than minor extensions) in these catchments should:

- Incorporate SuDS and provide details of adoption, ongoing maintenance, and management, in line with the Gloucestershire SuDS Design and Maintenance Guide and the National Standards for SuDS. Preference will be given to above

ground, vegetated SuDS, which contribute to the conservation and enhancement of biodiversity and green infrastructure in the study area.

- Be incentivised to provide wider betterment by being requested to demonstrate in site-specific FRAs and surface water drainage strategies what measures can be put in place to contribute to a reduction in flood risk downstream. This may either be through provision of additional storage on site e.g. through oversized SuDS, natural flood management techniques, green infrastructure and green-blue corridors and/or by providing a Partnership Funding contribution towards a wider community scheme.
- Ensure both greenfield and brownfield developments are to aim to achieve greenfield runoff rates and volumes in their post-development state.
- Ensure Surface Water Management Plans are developed as required.

5.4 Considerations for higher sensitivity catchments

The following planning policy considerations apply to development within those catchments identified as being at higher sensitivity. For all new developments (other than minor extensions) in these catchments, consider:

- National and local flood risk planning policy must be stringently applied within these areas, with flood risk from all sources given the appropriate priority, particularly when applying the sequential and exception tests.
- Both greenfield and brownfield developments to achieve 20% betterment over pre-development greenfield runoff peak flows[2] and volumes[3] in their post-development state, to counter cumulative impacts of development within the catchment.
- A surface water drainage strategy should be required for all developments in these catchments, regardless of development size. This would mean that a site-specific FRA would be required for all developments, regardless of their size.
- The EA may designate higher sensitivity catchments as Areas with Critical Drainage Problems (ACDPs) as required. If an area with critical drainage is identified, the LPA (supported by the LLFA) should draft a policy within their Local Plan to manage flood risk from local sources in these catchments with critical drainage problems.
- For larger sites and strategic developments (e.g. new settlements and urban extensions):
    - The LLFA, EA and LPA should be consulted at pre-application stage.
    - The FRA should examine the cumulative impacts of proposed peak surface water runoff rates and volumes from across the site on the peak flows, duration of flooding and timing of flood peaks in receiving watercourses. This

2 For the 1 in 1 year rainfall event and the 1 in 100 year rainfall event
3 For the 1 in 100 year, 6 hour rainfall event

should include the impact of other developments within the WFD catchment, if appropriate, as advised by the LPA/LLFA.
    - A surface water drainage strategy should be developed and implement appropriate drainage sub-catchments for the management of surface water, with specific runoff rate and volume requirements set for each sub-catchment, in line with the SuDS management train.
- Particular attention should be given to limiting runoff volumes to greenfield volume, with long-term storage to be provided where required. The timing of runoff released from the development site will need to be assessed against peak flow timings on the receiving watercourse, to ensure that discharges do not have a detrimental impact on downstream flood risk.
    - The timing of flows released from the development site will need to be assessed in the context of peak flows on the receiving watercourse.
    - Every opportunity should be taken to infiltrate and/or store water at a plot level.
    - Longer-term measures for managing flood risk should be considered, including river restoration and contributions to pipeline flood alleviation schemes.
- Where development sites receive runoff from, or drain towards, neighbouring authorities, the LPA should work closely with neighbouring LPAs and the LLFA to develop complementary local plan policies on cumulative flood risk and sustainable drainage.

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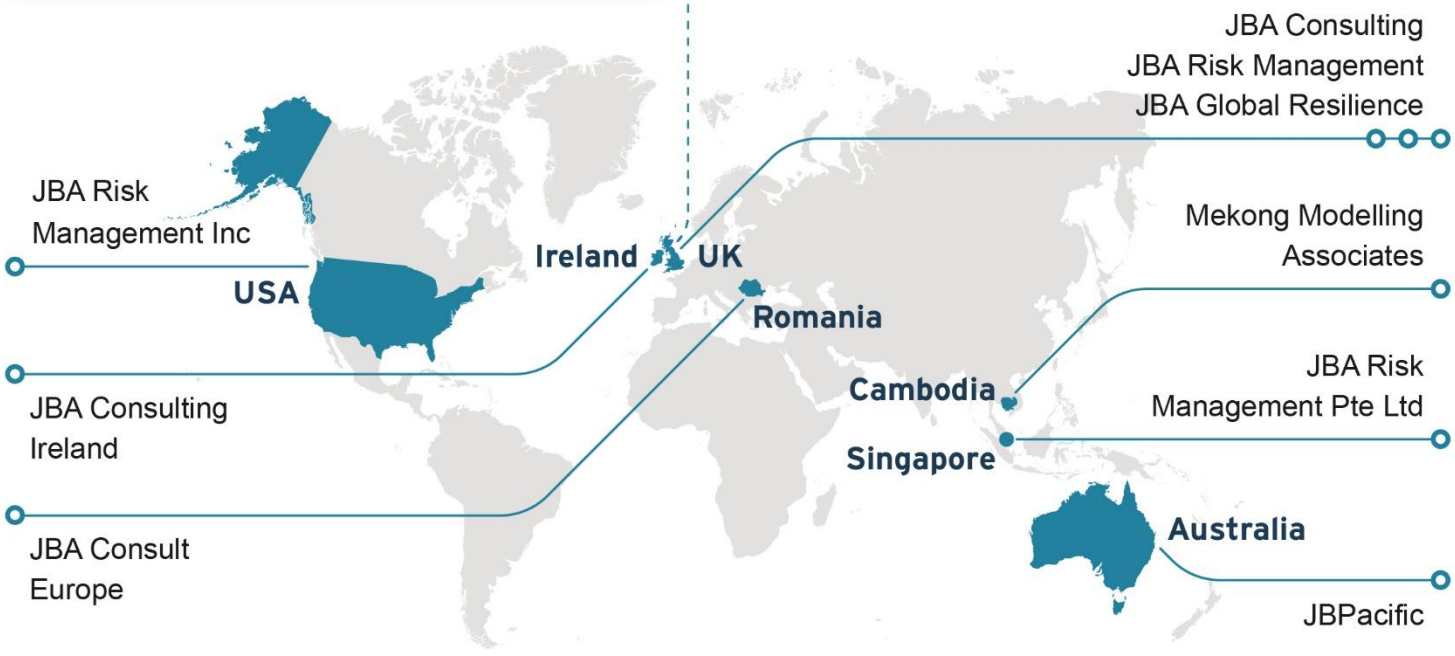

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Appendix G - Data Sources

This appendix provides details on the main data sources used as part of this Strategic Flood Risk Assessment (SFRA), including its purpose, licencing details, when the data was obtained for the SFRA, and where any updated data can be obtained by users of the SFRA.

Data used	Purpose of data	Data source	Date received	Where can data be obtained?	Licence details
Hydraulic models and outputs	Assess fluvial flood risk	Environment Agency	04/11/2025	Request from the Environment Agency via their Flood Map for Planning Service	Environment Agency Conditional Licence
Flood Map for Planning Flood Zones 2 and 3	Assess fluvial flood risk	Environment Agency	23/12/2025	Flood Map for Planning - Flood Zones	Open Government Licence
Risk of Flooding from Rivers and Sea	Assess fluvial flood risk	Environment Agency	23/12/2025	Risk of Flooding from RIvers and Sea	Open Government Licence
OS MasterMap Water Network	Assess fluvial flood risk	Environment Agency (via Cotswold District Council)	23/12/2025	Defra Data Services Platform (only available to specified users)	Environment Agency Conditional Licence
Risk of Flooding from Surface Water	Assess surface water flood risk	Environment Agency	23/12/2025	Risk of Flooding from Surface Water	Open Government Licence
JBA's Groundwater Emergence Map	Assess groundwater flood risk	JBA Consulting	23/12/2025	Request from JBA Consulting (subject to licence fee)	JBA Consulting Licence
Reservoir inundation mapping - Dry Day scenario	Assess reservoir flood risk	Environment Agency	23/12/2025	Reservoir inundation mapping - Dry Day scenario	Open Government Licence
Reservoir inundation mapping - Wet Day scenario	Assess reservoir flood risk	Environment Agency	23/12/2025	Reservoir inundation mapping - Wet Day scenario	Open Government Licence
Reservoir inundation mapping - Fluvial Contribution	Assess reservoir flood risk	Environment Agency	23/12/2025	Reservoir inundation mapping - Fluvial Contribution	Open Government Licence
Historic canal flooding breaches and overtopping information	Assessing flood risk from canals	Canal and River Trust	N/A	Request from the Canal and River Trust	N/A
LLFA historic flooding information	Understand historic flood risk	Gloucestershire County Council	06/03/2026	Request from Gloucestershire County Council	Gloucestershire County Council Data Sharing Agreement
Sewer Flooding Recorded Incidents	Understand historic flood risk	Water Company	05/01/2026	Request from Water Company	-
List of known locations of historic flooding incidents	Understand historic flood risk	Water Company	05/01/2026	Request from Water Company	-
Historic Flood Map	Understand historic flood risk	Environment Agency	23/12/2025	Historic Flood Map	Open Government Licence
Recorded Flood Outlines	Understand historic flood risk	Environment Agency	23/12/2025	Recorded Flood Outlines	Open Government Licence
Flood defence data from AIMS database	Assessing impact of defences	Environment Agency	23/12/2025	Flood defence data from AIMS database	Open Government Licence
LLFA Asset Register	Assessing impact of defences	Gloucestershire County Council	13/02/2026	Request from Gloucestershire County Council	Gloucestershire County Council Data Sharing Agreement
Aquifer designation map (bedrock geology)	Understanding the study area	Environment Agency (via Cotswold District Council)	23/12/2025	Defra Data Services Platform (only available to specified users)	Environment Agency Conditional Licence
Aquifer designation map (superficial deposits)	Understanding the study area	Environment Agency (via Cotswold District Council)	23/12/2025	Defra Data Services Platform (only available to specified users)	Environment Agency Conditional Licence
Environment Agency 1m LiDAR	Understanding the study area	Environment Agency	23/12/2025	LIDAR Composite Digital Terrain Model (DTM) - 1m	Open Government Licence
WFD catchment boundaries for CIA	Understanding the study area	Environment Agency	23/12/2025	WFD River Waterbody Catchments Cycle 2	Open Government Licence
Source Protection Zones (merged)	Understanding the study area	Environment Agency	23/12/2025	Source Protection Zones (merged)	Open Government Licence
Information on site allocations	Assessing the cumulative impacts of development	Stratford-on-Avon District Council	NOT RECEIVED	Request from Stratford-on-Avon District Council	-
Information on site allocations	Assessing the cumulative impacts of development	West Oxfordshire District Council	NOT RECEIVED	Request from West Oxfordshire District Council	-
Information on site allocations	Assessing the cumulative impacts of development	Vale of White Horse District Council	15/12/2025	Request from Vale of White Horse District Council	-
Information on site allocations	Assessing the cumulative impacts of development	Swindon Council	NOT RECEIVED	Request from Swindon Council	-
Information on site allocations	Assessing the cumulative impacts of development	Wiltshire Council	20/01/2026	Request from Wiltshire Council	-
Information on site allocations	Assessing the cumulative impacts of development	Stroud District Council	08/01/2026	Request from Stroud District Council	-
Information on site allocations	Assessing the cumulative impacts of development	Cheltenham District Council	NOT RECEIVED	Request from Cheltenham District Council	-
Information on site allocations	Assessing the cumulative impacts of development	Wychavon District Council	16/01/2025	Request from Wychavon District Council	-
Information on site allocations	Assessing the cumulative impacts of development	Tewkesbury District Council	NOT RECEIVED	Request from Tewkesbury District Council	-
Information on site allocations	Assessing the cumulative impacts of development	South Goucestershire Council	16/01/2026	Request from South Goucestershire Council	-
Flood Alert Areas	Flood warning and emergency planning	Environment Agency	23/12/2025	Flood Alert Areas	Open Government Licence
Flood Warning Areas	Flood warning and emergency planning	Environment Agency	23/12/2025	Flood Warning Areas	Open Government Licence

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Appendix H: Guide for using available flood risk data in applying the Sequential Test

1 Introduction

The aim of this appendix is to discuss the availability and limitations of data for assessing the risk from different sources of flooding both now and in the future within the Sequential Test, including a user guide for the Council to use the data supplied in the SFRA through the application of the Sequential Test for different sources of risk.

1.1 Policy requirements

The need to apply the Sequential Test is set out within the National Planning Policy Framework (NPPF) which was last updated in February 2025 and the Planning Practice Guidance - Flood Risk and Coastal Change (PPG) which was last updated in September 2025.

Paragraph 172 of the NPPF states that *"All plans should apply a sequential, risk-based approach to the location of development – taking into account **all sources of flood risk** and the **current and future impacts of climate change** – so as to avoid, where possible, flood risk to people and property"*

Paragraph 174 states that *"the aim of the sequential test is to steer new development to areas with the lowest risk of **flooding from any source**.[…] The strategic flood risk assessment will provide the basis for applying this test."*

Finally, paragraph 175 of the NPPF states that *"the sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk)"*

Therefore, in summary the NPPF sets out the requirement for considering all sources of flood risk, now and in the future when applying the Sequential Test. It also identifies certain circumstances where the Sequential Test would not be required where vulnerable elements are shown (through a site-specific Flood Risk Assessment) to be outside of areas at risk of flooding from any source.

Paragraph 017 of the PPG states that *"Where the Strategic Flood Risk Assessment, or other available flood risk maps or information, indicates that part or parts of a neighbourhood plan area may be at risk of flooding, the qualifying body should have regard to the National Planning Policy Framework's policies on flood risk. Where they are*

considering proposing development, they will need to show that this would be consistent with the local planning authority's application of the Sequential Test".

Paragraph 023 of the PPG states that *"The approach is designed to ensure that areas at little or no risk of flooding from* ***any source*** *are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in* ***current and future medium and high flood risk areas*** *considering* ***all sources of flooding including areas at risk of surface water flooding****.[…] Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk."*

Paragraph 024 of the PPG states *"Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites within medium risk areas; and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas. […] Initially, the presence of existing flood risk management infrastructure should be ignored, as the long-term funding, maintenance and renewal of this infrastructure is uncertain."*

Paragraph 027 states that *"In applying paragraph 175 a proportionate approach should be taken. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied."*

Therefore, in summary the PPG requires all sources of flooding to be considered within the Sequential Test, now and in the future. In cases where a site-specific Flood Risk Assessment shows a development at risk of surface water flooding can be made safe for its lifetime without increasing flood risk elsewhere then the surface water flood risk would not need to be considered within the Sequential Test. Therefore, reference within this document to application of the Sequential Test for surface water flooding is predominantly concerned with the application of this as part of the Local Plan where site-specific Flood Risk Assessments have not been prepared.

The PPG also makes clear that sources of flood risk other than river flooding need to be treated consistently with river (fluvial) flooding, in terms of mapping probability and vulnerability.

In addition, the PPG also notes that where Neighbourhood Plans are considering proposing development, they should address how this would be consistent with the local planning authority's application of the Sequential Test and if necessary, the Exception Test. If not, these tests will need to be re-visited on a local authority-wide basis.

1.2 Requirements for the Sequential Test

A basic requirement for the Sequential Test to be performed is that appropriate, competent mapping can be prepared to enable logical comparison of the flood risk from different sources at alternative locations, both now and in the future, as this is fundamental to establishing a logical “risk sequence”.

Section 2 describes the implications of including different sources of flooding both now and in the future in the Sequential Test. It also highlights matters to be considered and identifies a preferred approach. Table 4-1 and Table 4-2 provide a user guide for the Council to use to apply the Sequential Test for each source of flood risk and signposts to relevant sections of the SFRA.

1.3 The Exception Test

In circumstances where the Sequential Test has been performed and it is not possible for development to be located in areas with a lower risk of flooding, the Exception Test may be required. The Exception Test is a two-part process that requires preparation of evidence to demonstrate that development proposals at risk of flooding deliver wider sustainability benefits and can be made safe for the intended lifespan (thus it is a requirement to demonstrate that proposed development will be safe under climate change conditions).

Table 2 of the PPG sets out the requirements for the Exception Test but does not reflect the need to avoid flood risk from sources other than rivers. There is no guidance on how to consider other sources of flood risk. The Exception Test should only be applied, following the application of the Sequential Test, in the following instances:

- 'Essential infrastructure' in Flood Zone 3a or 3b
- 'Highly vulnerable' development in Flood Zone 2 (this is NOT permitted in Flood Zone 3a or 3b)
- 'More vulnerable' development in Flood Zone 3a (this is NOT permitted in Flood Zone 3b)

While the Exception Test is not explicitly required for sites at risk from other sources of flooding, the Local Planning Authority should follow a similar principle where sites are proposed that are at risk from other sources of flooding, carefully weighing up the wider benefits of development against the risk, ensuring that site users can be kept safe through the lifetime of the development and ensuring residual risk can be safely managed.

2 Sources of flooding in the Sequential Test

2.1 River (fluvial) risk

2.1.1 Recommendations for using river flood risk in the Sequential Test

The Environment Agency Flood Map for Planning and any available detailed local hydraulic models should be used to consider river flood risk in the Sequential Test.

It is recommended that the Sequential Test considers river (fluvial) flood risk as follows:

- The Sequential Test can be carried out using the river (fluvial) Flood Zones for present day low (Flood Zone 1), medium (Flood Zone 2) and high risk (Flood Zone 3a).
- Where detailed models are available and are more up to date, the 1% AEP and 0.1% AEP events should be assessed alongside the Flood Zones.
- In considering the impact of climate change:
    - The 1% AEP and 0.1% AEP events should be used with appropriate allowances for climate change.
    - Where detailed modelling is available and not included within the 'Flood Map for Planning - Flood Zones plus Climate Change' dataset, these should be used.
    - Elsewhere, the 'Rivers and Sea defended and undefended flood risk extents - climate change' dataset should be used. For river (fluvial) flooding, the dataset uses the 2080s epoch (2070-2125) Central allowance. These are provided for the 1% AEP, and 0.1% AEP events which are suitable for considering future flood risk to all development types other than essential infrastructure.

2.2 Surface water flood risk

2.2.1 Available data to assess surface water flood risk

The Environment Agency's Flood Map for Planning surface water flood risk (also known as the Risk of Flooding from Surface Water) mapping is available to assess surface water flood risk. The following points should be considered when using this mapping:

- The mapping based on a generalised modelling methodology. It is generally suitable for showing surface water flow routes at different probability flood events (3.3% AEP, 1% AEP and 0.1% AEP), although the uncertainty associated with the predicted outlines for the respective probabilities is high.
- It does not always include allowance for drainage features such as culverts and can over or underestimate flooding where there are linear features such as embankments.
- Unlike the Zone maps for river flooding the surface water mapping makes an allowance for the assumed performance of a local drainage system.

The nature of surface water flooding differs from that of river flooding:

- Normal profile of extent and shape of surface water flooding is a “dendritic” pattern that follows low lying topography and is not an extensive blanket, as is most often the case for river flooding.
- Surface water flood risk is normally more likely to be relatively short lived and much more localised than would be the case for river flooding (most likely being caused by local high intensity short duration rainfall events).

It is likely that in many circumstances surface water flood risk zones based on the surface water mapping could affect a relatively small proportion of a proposed allocation site, but in practical terms this might not in itself be a factor that demonstrates that the principle of development could not be supported.

2.2.2 Recommendations for using zone maps for surface water flooding

Note, changes to the PPG in September 2025 mean that the surface water does not need to be considered within the Sequential Test where a site-specific Flood Risk Assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development. It is anticipated that as part of the Local Plan allocation, the application of the Sequential Test for surface water flood risk would still be required as the majority of sites will not have a site-specific Flood Risk Assessment at this stage.

It is recommended that the Sequential Test considers surface water flood risk as follows:

- The Sequential Test can be carried out using the Flood Map for Planning surface water flood risk (also known as the Risk of Flooding from Surface Water) data for present day low (between 0.1 AEP% and 1% AEP events), medium (between 1% AEP and 3.3% AEP events) and high risk (greater than 3.3% AEP event) areas.
- Flood Map for Planning surface water flood risk (also known as the Risk of Flooding from Surface Water) dataset does not currently include climate change outputs for an appropriate epoch or allowance for planning purposes. As such, the low risk 0.1% AEP (1 in 1000-year) surface water extent should be used as a proxy for climate change. Once suitable climate change outputs are available, these should be used.

The use of these surface water events should be done with caution due to the highlighted uncertainties in the surface water modelling and mapping.

Surface Water mapping does not strictly describe the same conceptual risk zone as defined for river flooding (even though it is associated with the same probability) as the mapping is based on different assumptions and is filtered to remove shallow depths of water. However, it does create a product that can accommodate sequential testing, as it would facilitate strategic decisions that directed development to land in lower risk areas.

2.3 Groundwater flood risk

2.3.1 Available data to assess groundwater flood risk

The following source of groundwater mapping will be made available for use within this SFRA:

- JBA Groundwater Flood Emergence Map

The following points should be considered when using this dataset:

- The JBA Groundwater Flood Emergence Map does potentially enable a risk-based approach to be taken as it depicts different levels of risk. However, this is based on the risk of emergence of groundwater and not surface flooding due to groundwater and it should be noted that the location of highest risk of emergence might not be coincident with the location at highest risk of flooding. The analyses performed to prepare the mapping are all for a 1% AEP event and so provide a risk of groundwater emergence to the surface as they are based on predicted difference between groundwater level and the ground surface. Five zones are defined to describe the risk of groundwater being: at or very near ground surface; between 0.025m and 0.5m below the ground surface; between 0.5m and 5m below the ground surface; at least 5m below the ground surface; and negligible risk of groundwater flooding.
- The underlying challenge with this dataset is that there are uncertainties within the data and therefore it should not be used with confidence unless supported by more detailed local studies. The mapping provides an indication of where risk of elevated groundwater levels might be higher, but it would not be easy to defend.
- There is no climate change mapping available for groundwater and in view of the uncertainty in the present-day data it is unlikely that such mapping will be available in the near future.

2.3.2 Recommendations for using zone maps for groundwater flooding

It is recommended that groundwater flood risk is not considered in the Sequential Test on the basis that the JBA groundwater flood emergence map does not provide the confidence or certainty required to undertake the Sequential Test. As the available mapping does not provide competent evidence on the relative risk of flooding across the study area, it could potentially result in inappropriate allocations if used without understanding the limitations of the data.

JBA groundwater emergence mapping should therefore be used in conjunction with other relevant sources of flooding such as historical records so that areas can be identified that are unlikely to be affected by groundwater flooding (low potential) and also areas where groundwater flooding is potentially a material consideration can be identified (high potential). At the Level 2 SFRA stage (or for a site-specific Flood Risk Assessment), a site-specific assessment should be performed where the potential for groundwater flooding is high.

2.4 Sewer flood risk

2.4.1 Available data to assess sewer flood risk

The following data was available for use within this SFRA to assess sewer flood risk:

- Thames Water historic flooding incidences
- Thames Water Drainage and Wastewater Management Plan (DWMP)

The historic flooding incidences are only available at postcode level and thus mapping does not define the spatial extent or location of sewer flooding.

Mapping within the DWMP does not enable execution of risk based sequence.

2.4.2 Recommendations for using zone maps for sewer flooding

It is recommended that the sewer flood risk is not considered in the Sequential Test on the basis that the available information is not of an appropriate resolution or format to support spatial comparison of risk.

The data resolution provided in the DWMP is catchment scale and not applicable across the entire district. Consequently, it is not possible to take a risk-based approach using this data and it is not considered to be comparable to the river flooding information.

Where possible the historic flooding incidences and DWMP information should be used to inform the scope of site specific FRAs.

2.5 Reservoir flood risk

2.5.1 Available data to assess reservoir flood risk

The following data was available for use within this SFRA to assess reservoir flood risk:

- Environment Agency "Wet day" and "Dry day" reservoir inundation extents

The “wet day” mapping shows the predicted extent of a reservoir breach at the same time as a 0.1% AEP river flood (as this is a likely time when a reservoir might fail) and the "dry day" shows the failure just from the water retained by the dam. The fluvial contribution shows where the impact of "wet day" reservoir flooding affects the fluvial flood extent.

Neither set of mapping describes a risk-based scenario as they do not provide the probability of a dam failure but are intended to describe a “worst credible case”.

More detailed information on flood velocities and depths has been prepared as part of the modelling and mapping study, but this is not publicly available and can only be viewed by those with appropriate security classifications. The flood extents are publicly available.

The mapping does not provide climate change information on future flood risk and provision of such mapping is unlikely based on the existing methodology.

2.5.2 Recommendations for using zone maps for reservoir flooding

It is recommended that the available reservoir flood mapping is not included in the Sequential Test as the available data is inappropriate to be used alongside risk mapping from other sources when performing the Sequential Test.

An assessment of those sites identified to be at risk of inundation during dry day and wet day breach events should be included in the Level 2 SFRA.

The available information is not conceptually similar to the risks pertaining to river flooding as it shows the worst credible case and not the risk of flooding and so does not support a logical spatial comparison of risk that can be substantiated by appropriate evidence.

More detailed assessment in the Level 2 SFRA will identify locations where proposed development could result in a change to the risk designation of a reservoir. If proposed sites are located in a zone at reservoir risk, it will be necessary to understand the extent to which the flooding could be made worse and to report on the implications with respect to allocating the land for development. On that basis such an approach is recommended. If proposed development is located in a high hazard zone in the vicinity of an existing dam structure the implications should be considered in a Level 2 SFRA or site-specific FRA and where appropriate an assessment made of whether alternative sites should be considered in accordance with the Sequential Test.

3 Sequential approach at a site level

The Environment Agency's Flood Risk Assessment guidance was updated in October 2025. The guidance states that "*you may not need a sequential test if development can be laid out so that only elements such as public open space, biodiversity and amenity areas are located in areas at risk of any source of current or future flooding*." The premise of this was subsequently included within Paragraph 175 of the NPPF which was updated in February 2025.

Therefore, in cases where the proportion of the site at flood risk is small, a sequential approach at the site level would be appropriate and enable development to be located in areas of low risk of flooding (by avoiding high risk areas that might exist at a particular site). This involves incorporating the less vulnerable aspects of the development (such as public open space, biodiversity and amenity areas) in the areas at risk of flooding. The more vulnerable aspects would be incorporated within areas at lower risk, and a Sequential Test would not be required.

As this is a strategic assessment, the area required for public open space, biodiversity and amenity areas at each of the sites is not known. It is therefore appropriate to assume that a "small" proportion of the sites will be set aside for these purposes. As such, if a "small" proportion of the site is at risk, the Sequential and Exception Tests would not be required. The definition of "small" will be agreed with the Council, based on any open space policies within the Local Plan.

4 Summary of the Sequential Test methodology

Table 4-1: Summary of the Sequential Test methodology for fluvial and surface water flooding

Source of Flooding	High Risk	Medium Risk	Low Risk	Present Day Data	Future Risk Data	Relevant sections of the SFRA
Fluvial	Greater than 1% AEP (1 in 100 year) (FZ3)	Between 1% and 0.1% AEP (1 in 100 and 1 in 1000 year) (FZ2)	Less than 0.1% AEP (1 in 1000 year) (FZ1)	EA's Flood Zones 1, 2 and 3 use a risk-based approach. Where detailed models are available and more up to date the 1% AEP and 0.1% AEP events should be assessed alongside the Flood Zones.	Use the Rivers and Sea undefended flood risk extents - climate change dataset for the 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1,000-year) events. The Central Allowance should be used for the 2080s (2070-2121) epoch for all development other than Essential Infrastructure. Detailed modelling should be used where it is available and not included within the 'Rivers and Sea undefended flood risk extents - climate change' dataset.	4.4 – Fluvial Flood Risk 5.2 – Peak river flow allowances Appendix B – SFRA Mapping Appendix G - Data sources used in this SFRA
Surface Water	Greater than 3.3% AEP (1 in 30-	Between 3.3% AEP (1 in 30-year) and 1% AEP (1	Less than 1% AEP (1 in 100-year)	Environment Agency's Flood Map for Planning surface water flood risk (also known as the Risk of Flooding from Surface Water) mapping, 3.3% (1 in 30-year) and 1% AEPs (1 in	Appropriate climate change modelling is currently note available. Use 0.1% AEP (1 in 1,000-year) as a proxy for climate change Once suitable climate change datasets are available these	4.5 – Surface water flood risk 5.3 – Peak rainfall intensities

Source of Flooding	High Risk	Medium Risk	Low Risk	Present Day Data	Future Risk Data	Relevant sections of the SFRA
	year)	in 100-year)		100-year). Different assumptions are used to derive surface water risk than is the case for fluvial flood zones. Care should be taken using this dataset as in some areas it potentially does not provide the confidence or certainty required (for example where there is a risk of linear features impacting on flood extents).	should be used.	Appendix B – SFRA Mapping Appendix G - Data sources used in this SFRA

Table 4-2: Summary of the Sequential Test methodology for other sources of flooding

Source of Flooding	Assessing Risk	Present Day Data	Future Risk Data	Relevant sections of the SFRA
Groundwater	Screening to be undertaken to assess the potential susceptibility of all sites to groundwater emergence. Additional information may be required via a Level 2 SFRA or site-specific FRA where susceptibility is considered to be high.	Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from groundwater. Therefore, a precautionary approach should be taken, and all sites where groundwater emergence potential is identified to be high should be identified and assessed in a Level 2 SFRA or site-specific Flood Risk Assessment. The implications for sequential selection of alternative locations should be considered at that stage.	(not available)	4.7 – Groundwater flood risk 5.4 - (Impacts of climate change) Groundwater Appendix B – SFRA Mapping Appendix G - Data sources used in this SFRA
Sewer	Assessment of potential susceptibility of sites to sewer flooding to be undertaken via a Level 2 SFRA or site-specific FRA utilising available data from historic flood records and DWMP.	Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from sewers. Therefore, further assessment will be undertaken at a Level 2 SFRA where significant risk from sewers is noted. This may be through historical sewer flood records and additional information from water companies. The implications for sequential selection of alternative locations should be considered at	(not available)	4.6 – Sewer flood risk Appendix B – SFRA Mapping Appendix G - Data sources used in this SFRA

Source of Flooding	Assessing Risk	Present Day Data	Future Risk Data	Relevant sections of the SFRA
		that stage.		
Reservoir	Screening to be undertaken to identify sites where development is proposed in a high hazard zone. Additional information may be required via a Level 2 SFRA or site-specific FRA where susceptibility is considered to be high.	Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from reservoirs. In addition, the reservoir flood map identifies the consequence of a reservoir breach rather than risk, so applying high, medium and low 'risk' is not possible using this dataset. Therefore, a precautionary approach should be taken and sites where development is proposed in a high hazard zone will be identified and assessed in a Level 2 SFRA or site specific FRA. The implications for sequential selection of alternative locations should be considered at that stage.	(not available)	4.8.1 – Reservoir flood risk Appendix B – SFRA Mapping Appendix G - Data sources used in this SFRA

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