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Tamworth Borough Level 2 Strategic Flood Risk Assessment

Final report

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This report describes work commissioned by Tamworth Borough Council by an instruction dated 21 April 2026. The Client's representative for the contract was Richard Powell of Tamworth Borough Council. Sarah Hambling, Chloe Connett, Charlotte Murray, Helen Beresford and Jolie Taberner 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 21 April and 17 July 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.

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Abbreviations

AEP	Annual Exceedance Probability
AIMS	Asset Information Management System
BGS	British Geological Survey
CC	Climate Change
CCTV	Closed Circuit Television
EA	Environment Agency
FAA	Flood Alert Area
FMfP	Flood Map For Planning
FRA	Flood Risk Assessment
FWA	Flood Warning Area
GIS	Geographical Information System
JBA	Jeremy Benn Associates
LiDAR	Light Detection And Ranging
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
mAOD	metres Above Ordnance Datum
NaFRA2	National Flood Risk Assessment 2
NPPF	National Planning Policy Framework
OS	Ordnance Survey
PPG	Planning Practice Guidance
RBD	River Basin District
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
TBC	Tamworth Borough Council

Definitions

1D model: One-dimensional hydraulic model, typically representing a watercourse and structures within the channel (for example bridges and culverts).

2D model: Two-dimensional hydraulic model, typically representing the floodplain flows.

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 chance 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.

Dry island: Land which may not be at risk of flooding itself but is surrounded by flood risk and therefore may become cut off during a flood event.

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

Green infrastructure: A network of natural environmental components and green spaces that intersperse and connect the urban centres, suburbs, and urban fringe.

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.

Local Planning Authority (LPA): The local government body which is responsible by law to exercise planning functions for a particular area.

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

Major development: Defined in the National Planning Policy Framework 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 provide in the [Town and Country Planning \(Development Management Procedure\) \(England\) Order 2015 \(gov.uk\)](#).

Natural Flood Management: 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 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: 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.

Risk Management Authority: The Environment Agency, Lead Local Flood Authorities, District and Borough Councils in an area where there is no unitary authority, Coast Protection Authorities in coastal areas, Water and sewerage companies, Internal Drainage Boards, and Highways authorities.

Standard of Protection (SoP): Defences are provided to reduce the risk of flooding (typically from a river, sea or surface water). A Standard of Protection is usually described in terms of an AEP flood event. For example, a flood embankment could be described as providing a 1% AEP Standard of Protection

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: Sustainable Drainage Systems are 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

Introduction and context

This Level 2 Strategic Flood Risk Assessment (SFRA) document was prepared with the purpose of providing part of the evidence base for the Local Plan 2022 - 2043 for Tamworth Borough Council (TBC). It follows on from Tamworth Borough Council (TBC) Level 1 SFRA produced in 2025 and should be read in conjunction.

The primary purpose of the Level 2 SFRA is to provide an appropriate understanding of the level of flood risk affecting development included in the updated Local Plan. The assessment takes into account all sources of flooding and considers other factors affecting flood risk such as residual risk. The information provided as part of the Level 2 SFRA enables TBC to apply the Exception Test to sites in accordance with the National Planning Policy Framework (NPPF).

SFRA objectives

The Government's Planning Practice Guidance (PPG) on Flood Risk and Coastal Change advocates a tiered approach to risk assessment involving Level 1 and Level 2 SFRAs.

After completing the Level 1 SFRA and the 'Call for Sites' process, TBC have undertaken the Sequential Test and have shortlisted sites which cannot be relocated outside of flood risk areas due to additional planning factors. The Level 2 assessment aims to build on identified risks from the Level 1 SFRA in order to provide a greater understanding of fluvial, surface water, groundwater, sewer, and reservoir related flooding risks to these shortlisted sites. From this, TBC and developers can make more informed decisions regarding future development. The Level 2 assessment also identifies sites requiring further risk analysis at the site-specific Flood Risk Assessment (FRA) stage.

Summary of Level 2 SFRA

TBC provided 33 sites to be assessed within this Level 2 SFRA. A GIS exercise was undertaken to screen these sites against all sources of flood risk (detailed in Section 5.1). Each site was then looked at individually to assess the nature of the risk on the site.

A Red-Amber-Green (RAG) assessment was then carried out based on the following criteria:

- 'Red sites' have been identified as being at risk from fluvial flooding within the EA Flood Map for Planning or EA detailed hydraulic model outputs, significant surface water risk (based on EA data) or at risk from ordinary watercourses. For these sites an individual detailed site assessment has been undertaken, and GeoPDF mapping has been produced to inform the application of the Exception Test.
- 'Amber sites' have been identified with a reduced risk of flooding, including surface water risk impacting access and escape, groundwater emergence risk, and proximity to a canal. These have been identified within this report with more

general flood risk advice for developing the site. However, please note all the above risks of flooding identified are critical to ensuring no adverse impacts.

- 'Green sites' have been assessed as requiring no further assessment.

Following the initial RAG assessment, TBC reviewed the sites and removed any sites with an existing full planning permission, as these will already have been subject to a more detailed site-specific assessment, and sites that are part of larger regeneration schemes that will be brought forward in future and assessed at that time. Furthermore, TBC decided to combine sites in close proximity, so consolidated three sites into one site. The final Level 2 assessment covers 13 'Red sites' and 7 'Amber sites'. The 'Red sites' are detailed in Section 5.2 and the 'Amber sites' in Section 5.4.

For the 13 'Red sites' taken forward, an individual detailed site assessment has been undertaken (Appendix A) and a GeoPDF map produced (Appendix B). The 'Amber sites' have been assessed in Section 5.4 of this report, with overview mapping provided in Appendices C and D.

The following points summarise the Level 2 assessment:

- **Fluvial flooding** - Most of the sites assessed within this Level 2 SFRA are at risk of fluvial flooding. There are several sites that are at significant fluvial risk with most of the site inundated with significant fluvial depths which present a constraint to development. The most significant risk of fluvial flooding is shown within sites 18/011, 24/591, 22/096, 23/575, and 18/028. Detailed hydraulic modelling is likely to be required for these sites during a site-specific Flood Risk Assessment (FRA) to understand the risk and test mitigation measures.
- **Flood Warning Areas (FWAs)** - Sites 18/011, 22/095, 22/096, 24/591, and combined sites 18/009, 18/023, 23/575 are located within existing EA FWAs. For proposed development within existing EA FWAs, developers should consult the EA to ensure that adequate flood warning procedures and evacuation processes are in place and that Risk Management Authorities (RMAs) are not put under any additional burden.
- **Surface water flooding** - Surface water tends to follow topographic flow routes, for example, along watercourses or isolated pockets of ponding where there are topographic depressions. The sites assessed at highest risk of surface water flooding are 18/018, 18/019, 18/028, and 18/029.
- **Access and escape routes** - Sites 18/011, 20/089, 22/096, 23/585, 24/591 and combined sites 18/009, 18/023, 23/575 have potential access and escape route issues as a result of fluvial flooding of the sites and/or surrounding roads. Furthermore, site 18/007 has potential access and escape route issues due to the risk which bisects the site, and 18/028 has potential access and escape route issues as a result of surface water flooding. At these sites, consideration should be made as to how safe access and escape routes can be provided during flood events, both for people and emergency vehicles. Consideration should also be given to the nature of the risk, for example whether the flooding forms a flow path

or bisects the site meaning access across the site from one side to another may be compromised.

- **Climate change** - Fluvial and surface water climate change mapping indicates that flood extents are predicted to increase. As a result, the depths, velocities, and hazard of flooding may also increase. The significance of the increase will depend on the topography of the site and the climate change percentage allowance used. Site-specific FRAs should confirm the impact of climate change using latest guidance. It is recommended that TBC as LPA work with other RMAs to review the long-term sustainability of existing and new development in these areas when developing climate change plans and strategies for the borough.
- **Historic flooding** - five sites (18/002, 18/007, 20/89, 24/591, and combined 23/575, 18/023, 18/009) are shown to be within the historic flood map and recorded flood outlines. Staffordshire County Council provided a dataset of historic hotspot flooding incidents. None of the sites are shown to have a record of flooding within the site boundary.
- **Sewer flooding** - Severn Trent Water provided their Hydraulic Sewer Flood Risk register which identifies properties which have reported sewer flooding incidents between June 1997 and August 2024. There are no incidents recorded within any of the proposed sites, but there are incidents in close proximity of some sites. The available data should always be supplemented by direct consultation with Severn Trent Water 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.
- **Groundwater flooding** - The risk of groundwater flooding is shown to vary across the study area. Several sites are shown to have a high risk of groundwater emergence. The sites most at risk of groundwater emergence are 18/007 18/011, 24/591, 22/095, 22/096, and combined 23/575, 18/023, 18/009. Several of the sites are also shown to have a negligible risk of groundwater emergence due to the nature of the underlying local geological deposits. An appropriate assessment of the groundwater regime for a site should be carried out at the site-specific FRA stage.
- **Reservoir flooding** - There are several sites (18/002, 18/007, 18/011, 24/591, 23/585, 22/095, 22/096, 20/089 and combined 18/009, 18/023, 23/575) assessed within the detailed site assessments that are shown to be at risk of reservoir flooding. The level and standard of inspection and maintenance required under the Reservoirs Act means that the risk of flooding from reservoirs is very low. However, there is a residual risk of a reservoir breach, and this risk should be considered in any site-specific FRA.
- **Canal flooding** - Several development sites (20/089, 23/585, and 24/591) are in close proximity of a canal. This presents a residual flood risk in the event of a breach or overtopping incident. The Canal & River Trust have been consulted and provided breach and overtopping data for the canals within the study area, however there are no events within the study area. For development proposed in

close proximity to a canal, the developer should consult with the Canal and River Trust at an early stage. Any development proposed adjacent to a canal should include a detailed assessment of how a canal breach would impact the site, as part of a site-specific Flood Risk Assessment. Guidance on development near canals is available from the [Canal and River Trust \(canalrivertrust.org.uk\)](https://canalrivertrust.org.uk).

- **Defences** - sites 18/011 and 24/591 are in areas that benefit from defences along the River Tame although latest hydraulic modelling undertaken by the EA shows these defences have a much lower standard of protection than the 1% AEP design standard and overtop in the 5% or 2% AEP flood events. Further consultation will be required with the EA at an early stage to understand plans to improve the fluvial defences along the River Tame through Tamworth.
- **SuDS** - A strategic assessment was conducted of SuDS options using regional datasets. A detailed site-specific assessment of suitable SuDS techniques would need to be undertaken at site-specific level to understand which SuDS option would be best. Further consultation will be required with the LLFA at an early stage as the fluvial risk at several of the sites will present a significant constraint to implementation of SuDS.

Recommendations

Section 8 sets out the recommendations based on the findings of this Level 2 SFRA. This includes recommendations for applying the Exception Test, where required, requirements for developers in developing the Local Plan allocations, and guidance for windfall sites and development of sites not included within the Local Plan

1 Introduction

1.1 Purpose of the Strategic Flood Risk Assessment

Paragraph 171 of the [National Planning Policy Framework \(NPPF\) \(2024\) \(gov.uk\)](#) states that '*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.*'

1.2 Levels of SFRA

The [Planning Practice Guidance \(PPG\) Flood risk and coastal change \(gov.uk\)](#) advocates a staged approach to risk assessment and identifies two levels of a Strategic Flood Risk Assessment (SFRA):

- A Level 1 assessment, which all Local Planning Authorities (LPAs) are required to undertake. Where potential site allocations are at low flood risk and where development pressures are low a Level 1 assessment is likely to be sufficient, without the LPA progressing 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, or if an 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 within a Flood Zone and assessment of all sources of flooding.

This SFRA report fulfils the requirements for a Level 2 assessment of development sites identified for potential allocation within Tamworth Borough and has been prepared in accordance with the NPPF (2024) and PPG (2022).

This report should be read alongside the TBC Level 1 SFRA and builds upon information presented within the Level 1 SFRA.

1.3 SFRA objectives

The objectives of this Level 2 SFRA are to:

1. Provide individual flood risk analysis for site options using the latest available flood risk data, thereby assisting the Council in applying the Exception Test, where required, to their proposed site options in preparation of their Local Plan.

2. Using the available data, provide information and comprehensive mapping presenting flood risk from all sources for the site.
3. Provide recommendations for making sites safe throughout their lifetime.
4. Take into account most recent policy and legislation in the NPPF, PPG, EA SFRA Guidance, and LLFA SuDS guidance.

1.4 Consultation

SFRAs should be prepared in consultation with other RMAs.

In addition to the TBC as the LPA, the following parties have been consulted during the preparation of the Level 2 SFRA through data requests and draft report reviews:

- Staffordshire County Council
- EA
- Seven Trent Water

1.5 How to use this report

Table 1-1 below outlines the contents of this report and details how different users can apply this information.

Table 1-1: Outline of the contents of each section of this report.

Section	Contents	How to use
1. Introduction	Outlines the purpose and objectives of the Level 2 SFRA.	For general information and context.
2. Policy and strategy for flood risk management	Includes information on the implications of recent changes to planning and flood risk policies and legislation and signposts to relevant sections of the Level 1 SFRA.	Users should refer to this section and the relevant sections of the Level 1 SFRA for any relevant policy which may underpin strategic or site-specific assessments.
3. Sequential and Exception Tests	Signposts to relevant sections of the Level 1 SFRA for information on the Sequential and Exception Tests.	Users should refer to this section and the relevant sections of the Level 1 SFRA to understand and follow the steps required for applying the Sequential and Exception Tests.
3. Information used in the Level 2 SFRA	Summarises the data used in the Level 2 detailed site assessments and mapping.	Users should refer to this section in conjunction with the detailed site assessments (Appendix A) and mapping (Appendix B) to understand the data presented.
4. Level 2 Assessment Methodology	Summarises the sites taken forward to a Level 2 assessment and the outputs produced for each of these	Users should refer to this section in conjunction with the detailed site assessments (Appendix A) and mapping (Appendix B) to

Section	Contents	How to use
	sites.	understand the data presented.
6. Flood risk management requirements for developers	Identifies the scope of the assessments that must be submitted in Flood Risk Assessments (FRAs) supporting applications for new development. Refers to relevant sections in the Level 1 SFRA for mitigation guidance.	Developers should use this section alongside the relevant sections of the Level 1 SFRA to understand requirements for FRAs, which conditions/guidance documents should be followed, and information on flood mitigation options.
7. Surface water management and SuDS	Signposts to relevant sections of the Level 1 SFRA for information on the management of surface water including types of SuDS, SuDS policy and guidance, and SuDS constraints.	Developers should use this section alongside the relevant sections of the Level 1 SFRA to understand what national, regional, and local SuDS standards are applicable.
8. Summary of Level 2 assessment and recommendations	Summarises the results and conclusions of the Level 2 assessment, and signposts to the Level 1 SFRA for planning policy recommendations.	Developers and planners should use this section to see a summary of the Level 2 assessment and understand the key messages from the detailed site assessments. Developers should refer to the Level 1 SFRA recommendations when considering requirements for site-specific assessments.
Appendix A: Detailed site assessments	Provides a detailed summary of flood risk for sites requiring a more detailed assessment, which considers flood risk, emergency planning, climate change, broadscale assessment of possible SuDS, Exception Test requirements, and requirements for site-specific FRAs.	Planners should use this appendix to inform the application of the Sequential and Exception Tests, as relevant. Developers should use these assessments to understand flood risk, access and escape route requirements, climate change, SuDS, and FRA requirements for site-specific assessments.

Section	Contents	How to use
Appendix B: GeoPDF Mapping	Provides mapping of the flood risk at each of the sites afforded a detailed site assessment. Includes depth, velocity and hazard information for fluvial and surface water flood risk where available, alongside climate change risk.	Planners should use this appendix to inform the application of the Sequential and Exception Tests, as relevant. Developers should use these assessments to understand flood risk, access and escape route requirements, climate change, SuDS, and FRA requirements for site-specific assessments.
Appendix C: Amber Site Surface Water Mapping	Provides mapping of each of the sites identified to be at amber risk due to minor surface water issues	Planners should use this appendix to inform the application of the Sequential and Exception Tests, as relevant. Developers should use these assessments to understand flood risk, access and escape route requirements, climate change, SuDS, and FRA requirements for site-specific assessments.
Appendix D: Amber Site Groundwater Emergence Mapping	Provides mapping of each of the sites identified to be at amber risk due to risk of groundwater emergence.	Planners should use this appendix to inform the application of the Sequential and Exception Tests, as relevant. Developers should use these assessments to understand flood risk, access and escape route requirements, climate change, SuDS, and FRA requirements for site-specific assessments.

1.6 SFRA study area

TBC's administrative area (referred to hereafter as the study area) covers an area of approximately 30.9km² located in the southeast Staffordshire, in the West Midlands of England. The study area is predominantly urban, covering Tamworth and Wilnecote.

The study area is bordered by two neighbouring authorities: Lichfield District to the north and west and North Warwickshire District to the south and east.

The water service provider for the borough is South Staffordshire Water and sewerage provider for the borough is Severn Trent Water.

The key watercourses which run through the study area are the River Anker, River Tame, Kettle Brook, and Fazeley Brook.

The Coventry Canal runs through the centre of the study area. Additionally, the Birmingham and Fazeley Canal is present along the western borough boundary but does not pass through the study area.

For further details and mapping of the study area, see Section 1.4 of the TBC Level 1 SFRA report.

2 Policy and strategy for flood risk management

The flood risk management roles and responsibilities for different organisations and relevant legislation, policy and strategy are detailed within Section 2 of the TBC Level 1 SFRA.

This contains details on:

- Key legislation for flood and water management.
- Key national, regional, and local policy documents and strategies.
- Roles and responsibilities for flood risk management in study area.

The following section(s) summarise any changes to flood risk legislation, policy, and strategy since publication of the Level 1 SFRA.

2.1 National Planning Policy Framework

The [NPPF \(December 2024\) \(gov.uk\)](#) sets out the 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:

“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” (Paragraph 171).

The [Flood Risk and Coastal Change PPG \(gov.uk\)](#), last updated September 2025, 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.

At the time of writing, consultation on the proposed reforms and further changes to the NPPF has been recently completed and the Government are currently analysing the feedback. The draft consultation version contains amendments to the structure of the NPPF, in addition to changes to reflect the recent updates to the PPG.

3 Sequential and Exception Tests

Information on planning policy for flood risk management is detailed in Section 3 of the TBC Level 1 SFRA. Users should consider this section within the Level 1 SFRA to understand national planning policy guidance and how to evidence that a proposed development will pass the Sequential Test, and if necessary, the Exception Tests.

Section 3 contains detail on:

- the NPPF and PPG;
- the risk-based approach; and
- the Sequential and Exception Tests.

4 Information used in the Level 2 SFRA

This section outlines the datasets used in assessing the Local Plan proposed development sites in the Level 2 SFRA Appendix A.

It should be noted that datasets used to inform this SFRA may be updated following the publication of this SFRA and new information on flood risk may be produced by RMAs. This new information (such as updated mapping and modelling) may supersede the information included in this SFRA. Guidance should be sought from the LPA, LLFA, and the EA as appropriate to check the most up to date source of information is used for future flood risk assessment.

4.1 Historic flooding

Historic flooding was assessed using EA's Historic Flood Map, EA's Recorded Flood Outlines, and Staffordshire County Council flood hotspot data. The EA's Historic Flood Map and EA's Recorded Flood Outlines datasets have been used to understand whether historic flooding has been recorded at the sites in question. Staffordshire County Council provided a dataset of historic flood incidents from 1990 and 2024 and postcode locations of flood reports since 2015.

It is important to note that the absence of historic flood records does not mean that an area has never flooded, only that records are not held. For previously undeveloped sites, it is likely that historic flooding incidents may have gone unreported due to a lack of site use or interest. In addition, it is also possible that flooding mechanisms have changed since the date of a recorded flooding incident, making it more or less likely for flooding to occur on site.

4.2 River networks

Main Rivers are represented by the EA's Statutory Main River layer. Ordinary Watercourses are represented by the Detailed River Network. Caution should be taken when using these layers to identify culverted watercourses which may appear as straight lines but, in reality, are not.

4.3 Fluvial flooding

4.3.1 Flood Zones 2 and 3a

For sites at fluvial risk from the River Tame, the EA's 2023 detailed hydraulic model has been used to assess the fluvial risk, including depth, velocity, and hazard information. This data is available for the following events:

- 1% AEP defended and undefended
- 0.1% AEP defended

For these sites the EA Flood Map for Planning (FMfP) Flood Zones 2 and 3 have also been referred to, although the EA intend to update the FMfP with the outputs from the River Tame modelling in future.

For sites at fluvial risk from the River Anker Flood Zones 2 and 3a from the EA FMfP have been used to inform the fluvial risk as the 2011 modelling has been superseded by the new national modelling. For these sites depth, velocity, and hazard information was not made available for use within this assessment.

4.3.2 Flood Zone 3b

Flood Zone 3b has been represented using the Rivers and Sea 3.3% AEP defended extent, as defined within the Tamworth Level 1 SFRA Main Report. There is currently no available depth, velocity, or hazard information available for this dataset.

4.3.3 Ordinary watercourses

For ordinary watercourses that are not included within the EA FMfP, the risk of flooding has been assessed using the available surface water mapping data (see Section 4.5).

4.4 Flood defences

Current flood defence information has been taken from the EA's Asset Information Management System (AIMS) Spatial Defences dataset. These datasets include all flood defences currently owned, managed or inspected by the EA and include information pertaining to their current condition and standard of protection.

4.5 Surface water flooding

The EA's Surface Water Spatial Planning Dataset, released in May 2026, has been used within this assessment to inform the extent and depth of surface water risk. Velocity and hazard data is not currently available within this dataset, therefore the Risk of Flooding from Surface Water (RoFSW) map has been used within this assessment to inform the velocity and hazard of surface water risk.

4.6 Climate change

Climate change mapping is shown in the mapping in Appendix B for fluvial and surface water flooding using modelled outputs with the latest climate change uplifts where available.

4.6.1 Climate change allowances for peak flows

Climate change is expected to increase the peak flows of rivers, meaning that flows which were previously thought to be extreme will now be considered far more possible. Areas benefiting from flood defences will find the standard of protection changes over time with overtopping of defences more likely unless they are upgraded.

Peak river flow climate change allowances developed by the EA are divided into a series of Management Catchments. TBC is covered by one Management Catchment, with the relevant allowances for each Management Catchment detailed in Table 4-1.

Table 4-1: Peak river flow allowances for the Tame, Anker and Mease 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)
Central	10	11	22
Higher Central	15	17	30
Upper End	24	30	51

The following methodology outlines the approach to assessing climate change for each Flood Zone:

- Flood Zone 3b plus climate change:
 - As none of the EA hydraulic models provided for this SFRA currently have available outputs for the 3.3% AEP or 3.3% AEP plus climate change events, the NAFRA2 3.3% AEP plus climate change outputs have been used to represent this scenario.
- Flood Zone 3a plus climate change
 - For sites at risk along the River Tame, the detailed hydraulic modelling outputs have been used for the 1% AEP plus 22% (Central) and 30% (Higher Central) climate change, including available depth, velocity, and hazard information.
 - Where detailed modelling or results have not been made available the Rivers and Sea 1% AEP plus climate change layer has been used, which represents the 2080s Central allowance.
- Flood Zone 2 plus climate change
 - None of the EA hydraulic models have available outputs, so the Rivers and Sea 1% AEP plus climate change layer has been used which represents the 2080s Central allowance.

4.6.2 Climate change allowances for peak rainfall

Climate change is predicted to result in wetter winters and increased summer storm intensity in the future. This increased rainfall intensity will affect land and urban drainage systems, resulting in surface water flooding, due to the increased volume of water entering the systems.

Peak rainfall climate change allowances developed by the EA are divided into the same Management Catchment as peak river flows and are detailed in Table 4-2.

Table 4-2: Peak rainfall intensity allowances for small and urban catchments for the Tame, Anker, and Mease Management Catchment.

Allowance category	Total potential change (%) anticipated for '2050s' (2022 to 2060) for 3.3% AEP	Total potential change (%) anticipated for '2050s' (2022 to 2060) for 1% AEP	Total potential change (%) anticipated for '2070s' (2061 to 2125) for 3.3% AEP	Total potential change (%) anticipated for '2070s' (2061 to 2125) for 1% AEP
Upper end	35	40	35	40
Central	20	20	25	25

The EA's Surface Water Spatial Planning Dataset, released in May 2026, has been used within this assessment to inform the extent and depth of surface water risk with climate change. Climate change outputs are available for the 3.3%, 1%, and 0.1% AEP events with the Upper End climate change allowance for the 2070s epoch. There is currently no available velocity or hazard information to use within this assessment.

In addition, the 0.1% AEP surface water extent can be used as an indication of the impact of climate change on surface water flood risk from smaller watercourses, which are too small to be covered by the EA's Flood Zones.

4.7 Groundwater flooding

The JBA Groundwater Emergence map has been used to assess potential areas that are likely to be at higher risk of groundwater flooding. 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. Surface water mapping and topographic data is used to gain an understanding of the overland flow routes which may be impacted by this emergence.

The JBA Groundwater Emergence mapping is categorised into five different classes; a detailed description of the classes is in Table 4-3 below.

Table 4-3: JBA Groundwater Emergence Map category descriptions.

Category	Potential risk
Groundwater levels are either at or very near (within 0.025m of) the ground surface.	Within this zone there is a risk of groundwater flooding 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.

Category	Potential risk
Groundwater levels are between 0.025m and 0.5m below the ground surface.	Within this zone there is a risk of groundwater flooding to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.
Groundwater levels are between 0.5m and 5m below the ground surface.	There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.
Groundwater levels are at least 5m below the ground surface.	Flooding from groundwater is not likely.
No risk.	This zone is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.

4.7.1 Groundwater flooding and climate change

The impact of climate change is more uncertain for groundwater flooding associated with rivers and land catchments and those watercourses where groundwater has a large influence on winter flood flows. Changes in frequency and intensity of groundwater flooding due to climate change would depend on the flooding mechanism and geological characteristics.

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.

4.8 Reservoir flooding

The risk of inundation as a result of a breach or failure of a number of reservoirs within the area has been identified from the EA's [Reservoir Flood Extents dataset \(gov.uk\)](https://www.gov.uk/government/datasets/reservoir-flood-extents). Although it is predicted that there is a risk to life if these reservoirs were to fail, the risk of such an event occurring is very low.

This dataset consists of flood extents for two scenarios including Dry Day and Wet Day, for all large, raised reservoirs. The Dry Day scenario shows flood extents in the event that reservoirs were to fail and release the water they hold when local rivers are at normal levels. The Wet Day scenario shows flood extents in the event that reservoirs were to fail and release the water they hold when local rivers are in flood.

Flood extents are not included for smaller reservoirs or for reservoirs commissioned after the reservoir modelling programme began in October 2016. Furthermore, only those reservoirs with an impounded volume greater than 25,000 cubic metres are governed by the Reservoir Act 1975.

4.9 Sewer flooding

Severn Trent Water are the water company responsible for the management of the sewerage networks across the study area.

Severn Trent Water provided their Hydraulic Sewer Flood Risk Register which identifies properties which have reported sewer flooding incidents between June 1997 and August 2024.

Due to licencing and confidentiality restrictions, sewer data has not been represented on the mapping, but incidents within the same postcode location as a site were referred to within the detailed site assessments.

Information provided within the Severn Trent Water Drainage and Wastewater Management Plan (DWMP) (severntrent.com) has also been used to inform the assessment of sewer risk.

4.10 Residual risk

Several sites assessed within study area are near culverted sections of watercourses which flow beneath roads, railway lines, and footpaths, and present a residual flood risk should they become blocked or collapse. Potential culvert blockages that may affect a site were identified on OS Mapping and the Detailed River Network, and through the Staffordshire County Council asset database to determine where watercourses flow into culverts or through structures (i.e. bridges) in the vicinity of the sites. Any potential locations were flagged in the detailed site assessments.

Several sites within study area are located within close proximity of raised flood defences which present a residual risk should they breach or be overtopped. Raised flood defences were identified using the EA AIMS Dataset.

4.11 Canal flooding

The Canal & River Trust were consulted to identify any instances of breaches and overtopping within the study area. The Coventry Canal flows through the centre of the borough and the Birmingham and Fazeley Canal is present along the western borough boundary and present a residual flood risk to sites assessed should a breach or overtopping occur.

Data provided by the Canal and Rivers Trust suggests there have been no records of breaching or overtopping within the study area. For further details of the canals in the study area, see Section 4.8.1 of the SoTCC Level 1 SFRA Main Report.

4.12 Depth, velocity, and hazard to people

The Level 2 assessment seeks to map the probable depth and velocity of flooding as well as the hazard to people and use this within the detailed site assessments. For this Level 2 assessment, depth, velocity, and hazard information has been made available for the following sources of flood risk:

- Fluvial - present day and climate change where the risk is informed by detailed modelling (River Tame). No depth, velocity, and hazard data has currently been made available where fluvial flood risk has been informed by the EA's national mapping.
- Surface water - the EA's Surface Water Spatial Planning Dataset includes depth data for present day and climate change. Velocity and hazard information from the EA's RoFSW has been used to assess present day risk but is not available to assess future risk.

Hazard to people has been assessed using the below formula as suggested in [Defra's Supplementary note on flood hazard ratings and thresholds for development planning and control purpose \(gov.uk\)](#). The different hazard categories are shown in Table 4-4. The hazard rating is described within the detailed site assessments both on the site and surrounding the site considering implications for access and escape during times of flood. Depending on the local characteristics, depth and velocity, floodwaters classified as 'Very Low Hazard' may allow for safe access and escape, but floodwaters classified as 'Danger for Some' or greater have been identified as presenting potential issues to access and escape.

Developers should also test the impact of climate change depths, velocities, and hazard on the site, as part of the site-specific FRA.

Table 4-4: Defra's 'Flood Risks to People' classifications

Description of Flood Hazard Rating	Flood Hazard Rating	Classification Explanation
Very Low Hazard/ Caution	<0.75	'Flood zone with shallow flowing water or deep standing water'
Danger For Some (i.e. children)	0.75 - 1.25	'Danger: flood zone with deep or fast flowing water'
Danger For Most	1.25 - 2.00	'Danger: flood zone with deep fast flowing water'
Danger For All	>2.00	'Extreme danger: flood zone with deep fast flowing water'

4.13 SuDS suitability

The hydraulic and geological characteristics of each site have been assessed to determine the factors that potentially constrain schemes for surface water management. This assessment is designed to inform the early-stage site planning process and is not intended to replace site-specific detailed drainage assessments. A high-level assessment of suitability of SuDS is included in the site assessments in Appendix A.

The assessment is based on catchment characteristics using the following data:

- EA 1m LiDAR
- [The British Geological Survey website \(bgs.ac.uk\)](#) geology and soils mapping
- JBA Groundwater Emergence Mapping (see Section 4.7 for further details)

- Historic landfill sites
- Groundwater Source Protection Zones
- Detailed River Network
- Surface water mapping
- Flood Zones derived as part of this Level 2 SFRA (see Section 4.3 for further details)

This data was then collated to provide an indication of particular groups of SuDS systems which might be suitable at a site. SuDS techniques were categorised into five main groups, as shown in Table 4-5.

Table 4-5: Summary of SuDS categories

SuDS Type	Technique
Source Controls	Green Roof, Rainwater Harvesting, Rain Gardens
Infiltration	Infiltration Trench, Infiltration Basin, Soakaway, Pervious Pavements
Detention	Pond, Wetland, Subsurface Storage, Shallow Wetland, Extended Detention Wetland, Pocket Wetland, Submerged Gravel Wetland, Wetland Channel, Detention Basin
Filtration	Surface Sand Filter, Sub-Surface Sand Filter, Perimeter Sand Filter, Bioretention, Filter Strip, Filter Trench
Conveyance	Dry Swale, Under-drained Swale, Wet Swale

The suitability of each SuDS type for the development sites has been described in the detailed site assessments, where applicable. The assessment of suitability is broadscale and indicative only; more detailed assessments should be carried out during the site planning stage to confirm the feasibility of different types of SuDS.

4.14 Emergency Planning

Flood Warning Areas (FWAs) and Flood Alert Areas (FAAs) are detailed in the EA's GIS datasets and can be used to inform emergency planning. FAAs inform the EA when there is flooding first in the catchment, irrespective of properties, hence this coverage tends to apply to whole watercourses or stretch of coastline. FWAs are derived from the extreme flood outline (0.1% AEP event), focussed on communities, properties, and/or infrastructure. Modelled depth, velocity and hazard data can be used to understand safe access and escape routes for each site.

4.15 Limitations and data gaps

Available data used to inform this Level 2 SFRA is presented in Sections 4.1 to 4.14, however data is continually being updated and revised. Whilst this SFRA represents a snapshot in time, as set out in the [EA's How to prepare a strategic flood risk assessment \(gov.uk\)](#), the SFRA should be regularly reviewed and updated when there are significant changes to data.

Table 4-6 provides a high-level summary of potential limitations of the data used and guidance for developers regarding further investigations.

Source of flood risk	Data limitation	Guidance for development
Historic	Historic flooding has been assessed using the EA's Historic Flood Map and SCC historic flood incident data. However, the absence of historic flood records does not mean that an area has never flood, only that records are not held. For previously undeveloped sites, it is likely that historic flooding incidents may not have been reported due to a lack of site use or interest. In addition, it is also possible that flooding mechanisms have changed since the date of a recorded flooding incident, making it more or less likely for flooding to occur on site.	Developers should consult with the EA, LLFA, and STW at an early stage to identify any known historic flooding issues.
Fluvial	For watercourses where detailed hydraulic modelling was not made available, national datasets have been used to assess present day and future fluvial risk. No depth, velocity or hazard data is available for these areas.	Developers should request the latest available fluvial modelling from the EA before progressing with any site-specific work. For any watercourses where modelling is not available, developers may need to undertake detailed hydraulic modelling as part of a site-specific FRA.
Fluvial (defended)	The EA AIMS spatial flood defence dataset has been used to represent fluvial flood defences. These have been included within the River Tame hydraulic modelling. The residual risk of breach of these defences has not been assessed. The EA have a project within the Flood and Coast Risk Management programme to improve the flood defences along the River Tame. There are currently no further details or timescales for this work, although the EA reported some early development work has been undertaken.	Early consultation should be undertaken with the EA to understand proposed works to improve the fluvial flood defences on the River Tame and potential to reduce the fluvial risk to the site. As part of a site-specific FRA, developers should consider the residual fluvial risk to the site, considering the lifetime of the development and standard of protection of the defences as well as the residual risk of a breach or

Source of flood risk	Data limitation	Guidance for development
		overtopping event.
Surface water (present day)	National surface water mapping does not account for culverts, structures, channel hydraulics or sewer capacity, and this is deemed to potentially overestimate risk and therefore the confidence in this dataset is reduced.	In areas of surface water flood risk developers should investigate surface water risk in more detail at the planning application stage.
Surface water (climate change)	The EA FMfP Surface Water Spatial Planning Dataset does not include velocity and hazard information.	In areas of surface water risk developers may need to undertake surface water hydraulic modelling as part of a site-specific FRA to fully inform the surface water risk, including velocity and hazard information.
Groundwater	No national risk-based mapping is currently available to assess groundwater flood risk. The JBA Groundwater Emergence Map used in this assessment 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. However, groundwater emergence will not always correlate to groundwater flooding.	Developers should undertake a site-specific assessment of the groundwater regime as part of a site-specific FRA appropriate to the level of groundwater risk identified and size of the site.
Reservoir	EA reservoir mapping has been used to identify whether sites assessed within this SFRA are at risk of inundation. This is a worst-case scenario model rather than risk-based, and no depth, velocity, or hazard information has been made available.	For sites shown to be at risk of inundation, the residual risk of reservoir flooding at the site will need to be considered further at the site-specific FRA stage by the developer. An emergency plan may be required, demonstrating that the residual risks to the site can be safely managed and that appropriate evacuation plans are in place. Developers should contact the reservoir owner or undertaker in the first instance.

Source of flood risk	Data limitation	Guidance for development
Sewer	The data used to inform the sewer flood risk for this SFRA was the Hydraulic Sewer Flood Risk register supplied by Severn Trent Water. This register is not a comprehensive 'at risk register' and consequently, specific locations within Tamworth at risk of sewer flooding cannot be identified solely based on this dataset. The register relies on reporting, does not account for blockages and only represents a snapshot in time.	Developers should consult Severn Trent Water at an early stage on drainage proposals for the site to identify any potential constraints or existing sewer flooding issues that may not have been identified through this high level assessment.
Residual risks (i.e. culvert watercourses)	Culverts are not fully represented within the EA FMfP Surface Water Spatial Planning Dataset. Potential residual risk associated with culverts has been identified within the detailed site assessments, but no blockage modelling has been undertaken.	Developers may need to undertake detailed hydraulic modelling of the residual risk posed by culvert blockages as part of a site-specific FRA.

5 Level 2 Assessment Methodology

This section outlines how sites were screened against flood risk datasets to determine which sites required a Level 2 detailed site assessment. It also identifies other sites, referred to in this SFRA as 'amber sites', at lower risk with general recommendations for developers.

5.1 Site screening

TBC provided 33 sites for assessment. These sites were screened using an 'overlap analysis' tool in GIS. This analysed various flood risk datasets against the site allocations layer and calculated the percentage cover for each flood risk dataset against each site. This was used to provide a summary of risk to each site, including:

- the proportion of the site in each Flood Zone derived from detailed hydraulic model outputs where available, and where detailed modelling was unavailable the information is taken from the EA's NaFRA2 FMfP (see Section 4.2 for a summary of how the Flood Zones were derived for this SFRA).
- the proportion of the site affected by climate change within the derived from available outputs from the EA's detailed hydraulic model outputs and where detailed modelling was unavailable the information is taken from the EA's NaFRA2 datasets.
- whether the site is shown to be at risk from surface water flooding in the Surface Water Spatial Planning mapping for the 3.3%, 1%, and 0.1% AEP present day and climate change events.
- whether the site is within, or partially within, the reservoir Dry Day or Wet Day flood extents.
- whether the site is within, or partially within, the EA Historic Flood Map dataset.
- whether the site is within 10m of watercourses shown within the EA's Detailed River Network dataset or canals shown within the EA Artificial Water Bodies Canal dataset.
- whether the site is at risk from groundwater emergence using the JBA Groundwater Emergence Map.

The results of the screening provide a quick and efficient way of identifying sites that are likely to require a Level 2 assessment, assisting TBC with Sequential Test decision-making so that flood risk is taken into account when considering allocation options.

The screening also provides an opportunity to identify sites which may show to be 100% in Flood Zone 1, but upon visual inspection in GIS, have an ordinary watercourse flowing through or adjacent to them. Although there are no Flood Zone maps available for these watercourses, it does not mean the watercourse does not pose a risk, it just means no modelling has yet been undertaken to identify the risk.

Flood Zones are not provided for specific sites or land where the catchment of the watercourse falls below 3km². For this reason, the Flood Zones are not of a resolution to be used as application evidence to provide the details of possible flooding for individual properties or sites and for any sites with watercourses on, or adjacent to the site. The EA FMfP Surface Water Spatial Planning dataset has been used to assess flood risk in these cases because it is comparable to fluvial flooding from smaller watercourses and is therefore a reasonable representation of the floodplain of such watercourses to use for a strategic assessment.

5.2 Sites taken forward to a Level 2 assessment

TBC provided 33 sites to be assessed within this Level 2 SFRA. A GIS exercise was undertaken to screen these sites against all sources of flood risk (detailed in Section 5.1). Each site was then looked at individually to assess the nature of the risk on the site.

A Red-Amber-Green (RAG) assessment was then carried out based on the following criteria:

- 'Red sites' have been identified as being at risk from fluvial flooding within the EA Flood Map for Planning or EA detailed hydraulic model outputs, significant surface water risk (based on EA data) or at risk from ordinary watercourses. For these sites an individual detailed site assessment has been undertaken, and GeoPDF mapping has been produced to inform the application of the Exception Test.
- 'Amber sites' have been identified with a reduced risk of flooding, including surface water risk impacting access and escape, groundwater emergence risk, and proximity to a canal. These have been identified within this report with more general flood risk advice for developing the site. However, please note all the above risks of flooding identified are critical to ensuring no adverse impacts.
- 'Green sites' have been assessed as requiring no further assessment.

Following the initial RAG assessment, TBC reviewed the sites and removed any sites with an existing full planning permission, as these will already have been subject to a more detailed site-specific assessment, and sites that are part of larger regeneration schemes that will be brought forward in future and assessed at that time. Furthermore, TBC decided to combine sites in close proximity, so consolidated three sites into one site.

The final Level 2 assessment covers 13 'Red sites' and 7 'Amber sites'. The 'Red sites' that have been assessed within the Level 2 SFRA through individual detailed site assessments are detailed in Table 5-1. Section 5.3 sets out what is contained within the detailed site assessments.

Table 5-1: Sites assessed through the Level 2 SFRA

Site Code	Location	Key source of flood risk	FZ3b (%)	FZ3a (%)*	FZ2 (%)*	SW 3.3% AEP (%)	SW 1% AEP (%)	SW 0.1% AEP (%)
18/002	Ashlands Farm Land, Ashby Road, Tamworth	Fluvial	21	23	24	0	1	4
18/007	Land off Tamworth Road/Wigford Road	Fluvial	7	26	44	2	3	8
23/575	Land adjacent to Millfield House off Lichfield Road (A51)	Fluvial	78	96	100	0	3	10
18/023	Cotons Van Hire off Lichfield Road (A51)	Fluvial	1	20	87	0	0	<1
18/009	Millfield House, Lichfield Road, Tamworth	Fluvial	1	16	97	0	0	0
18/011	The Alders and Tame House, Lichfield Road, Tamworth	Fluvial	0	98	100	3	15	44
18/018	Arriva Bus Depot, Church Lane, Tamworth	Surface Water	0	0	0	0	<1	89
18/019	Northern Part of Beauchamp Employment Area, Hilmore Way, Tamworth	Surface Water	0	0	0	5	27	85

Site Code	Location	Key source of flood risk	FZ3b (%)	FZ3a (%)*	FZ2 (%)*	SW 3.3% AEP (%)	SW 1% AEP (%)	SW 0.1% AEP (%)
18/028	Treetops Garage, Dosthill, Tamworth	Fluvial	0	48	60	15	23	64
18/029	Wilnecote Railway Sidings off Watling Street, Tamworth	Surface Water	0	0	0	9	16	32
20/089	Land off Peelers Way, Kettlebrook	Fluvial	15	50	92	<1	1	3
22/095	Land North of Moor Lane, Amington	Fluvial	8	18	24	1	1	3
22/096	Land off Coton Lane	Fluvial	45	96	97	1	1	6
23/585	Land west of Dunstall Lane	Fluvial	1	6	7	4	6	9
24/591	EMP1 Land south of the A5	Fluvial	0	95	98	7	12	26

*Note for sites included within both the EA FMfP and the River Tame hydraulic model extents this column details the highest percentages across both datasets. The risk from each dataset is described in the detailed site assessment.

5.3 Detailed site assessments

As part of the Level 2 SFRA, detailed site assessments have been produced for the 13 sites identified in Section 5.2. The site assessments can be found in Appendix A with the mapping shown in Appendix B. Table 5-2 sets out the information contained within each section of the site assessment.

Table 5-2: Summary of the information within each section of the detailed site assessments.

Section	Information
1. Background	• Location of the site • Area, current land use (greenfield/brownfield), proposed site use • Topography of the site • Geology and soil characteristics
2. Sources of flood risk	• Location of the site within the catchment • Existing drainage features • Fluvial – proportion of site at risk including description from mapping/modelling, utilising depth, hazard, and velocity information from detailed hydraulic models where available • Surface Water – proportion of site at risk including description from EA surface water mapping using available depth, hazard, and velocity information • Reservoir flood risk in both the Dry Day and Wet Day scenarios • Groundwater emergence risk • Sewer flood risk - reported incidences within the site and any additional known risks identified by Seven Trent Water • Flood history - historic incidents on or surrounding the site from Staffordshire County Council flooding hotspot dataset, the EA Recorded Flood Outline and Historic Flood Map datasets
3. Climate Change	• Fluvial climate change - summary of available climate change allowances and increase in flood extent compared to the 1% AEP event (Flood Zone 3a) • Surface water climate change - summary of available climate change allowances and increase in flood extent for the 3.3% AEP, 1% AEP, and 0.1% AEP events
4. Flood risk management infrastructure	• Flood risk management infrastructure • Description of residual risk
5. Emergency planning	• Flood warnings and alerts • Access and escape routes

Section	Information
6. Requirements for drainage control and impact mitigation	• Broadscale assessment of possible SuDS to provide indicative surface water drainage advice for each site assessed for the Level 2 SFRA. • Identification of potential SuDS constraints including Groundwater Source Protection Zones, and historic landfill sites
7. NPPF and planning implications	• Exception Test requirements • Requirements and guidance for site-specific Flood Risk Assessment • Guidance for site design and making development safe
8. Conclusions	• Summary of key risks to the site • Summarising considerations if development proceeds

5.4 Amber sites assessment

As set out in Section 5.2, 7 sites that are being taken forward by TBC were identified as 'amber sites' based on the surface water risk on or surrounding the site and/or groundwater emergence potential at the site. The following sections provide a more detailed overview of the flood risk at the identified 'amber sites' and general recommendations that should be applied to any future development at these sites. Mapping for these sites is included within Appendix C and Appendix D.

5.4.1 Surface water risk

Several sites have been identified as having minor surface water flood risk on the site and/or surrounding roads which could impede access and escape. Table 5-3 details the surface water risk at each site and static mapping is provided in Appendix C.

For these sites the developer should undertake a site-specific FRA and drainage strategy at the planning stage and carefully consider the surface water flow routes/areas at risk and how these will impact the site itself as well as access and escape routes.

The following considerations should be made for development in areas with a risk from surface water flooding:

- Development should be steered away from existing overland flow paths and the areas shown to be at risk from surface water flooding on the site.
- Existing flow paths should be retained and integrated with blue-green infrastructure and public open space.
- The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any surface water flow routes. A drainage strategy should help inform site layout and design to ensure runoff rates are as close as possible to pre-development greenfield rates, with

areas of surface water ponding used as open space and SuDS or water compatible/essential infrastructure uses only.

- Arrangements for safe access and escape routes will need to be provided for the 1% AEP surface event with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate measures, so development and occupants are safe.
- For any sites bisected by surface water flow paths, access and escape arrangements should be considered for each area of the site, should access between areas of the site not be possible.
- Provisions for safe access and escape routes should not impact on surface water flow routes or contribute to loss of floodplain storage. Consideration should be given to the siting of access points with respect to areas of surface water flood risk.

Table 5-3: Summary of surface water flood risk at 'amber sites'.

Site	Location	Summary of risk
18/015	Land off Gorsy Bank Road	The EA FMfP Surface Water Spatial Planning mapping shows the majority of the site is not at a surface water flood risk. In the 3.3% and 1% AEP events, there is an area of ponding in the northwest corner of the site and an area of ponding outside the northern boundary of the site. In the 0.1% AEP event, the ponding outside the northern border of the site increases in extent and encroaches into the site. The area of ponding within the site increases in extent and joins a flow path located outside the western side of the site on low lying ground. There is ponding on Gorsy Bank Road in all AEP events, but water remains shallow, below 0.30m. In the 0.1% AEP event velocities exceed 1.0m/s and have a hazard classification of 'Danger for Some' which may impact access and escape.
18/027	Seaton Hire and Land South of Wilnecote Lane	The EA FMfP Surface Water Spatial Planning mapping shows the majority of the site is not at a surface water flood risk. In the 3.3% and 1% AEP events, there is an area of ponding in the southern end of the site. There is an area of ponding outside the western boundary of the site. In the 1% AEP event, the extent slightly increases in extent. In the 0.1% AEP event, a flow path develops outside the western side of the site, flowing in a northerly direction. In the 1% and 0.1% AEP event, there are several areas of ponding outside the northern and southeastern borders of the site. There is a surface water flow path along Marlborough Way. In the 1% and 0.1% AEP events depths exceed 0.30m. Velocities are between 1.0m/s and 2.0m/s and have hazard values of 'Danger for Most'. Due to this, access and escape to the site may be impeded.

5.4.2 Groundwater emergence risk

Table 5-4 provides an overview of the sites identified to be at high risk of groundwater emergence based on the JBA Groundwater Emergence Mapping. Static mapping showing the emergence risk is provided in Appendix D.

For sites identified as susceptible to groundwater flooding, additional investigation work may be required to support the detailed design of the site and drainage system. This may include groundwater monitoring to demonstrate that a sufficient unsaturated zone has been provided above the highest occurring groundwater level.

The following considerations should be made for development in areas with a higher risk from groundwater flooding:

- A sequential approach should be adopted to the site layout, steering more vulnerable development to the lowest areas of flood risk.
- High groundwater levels could be a potential constraint in the design of the surface water drainage system, and Staffordshire County Council as LLFA should be consulted at an early stage.
- Attenuation features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity.
- Below ground development such as basements are not appropriate in areas of higher groundwater flood risk.
- Infiltration testing may be required in accordance with BRE365 at the locations of and depths commensurate with proposed infiltration features. This is particularly important in areas where the underlying geology means that the site is more impermeable.

Table 5-4: Summary of groundwater emergence risk at 'amber sites'.

Site	Location	Summary of risk
18/001	Norris Bros, Lichfield Street	The JBA Groundwater Emergence Map (5m resolution) shows that groundwater levels are between 0.025m and 0.5m below the ground surface across the entire site. Based on the site's underlying topography, any groundwater emerging is likely to flow in a southerly direction through the site.
18/015	Land off Gorsy Bank Road	The JBA Groundwater Emergence Map (5m resolution) shows that the majority of the site is at a negligible risk of groundwater emergence but in the southwest corner and western side of the site, ground water levels are between 0.025m and 0.5m below the ground surface. Based on the site's underlying topography, any groundwater emerging is likely to flow in a north westerly direction through and out of the site.
18/025	Former Wilnecote Youth Centre and adjacent former Social Services	The JBA Groundwater Emergence Map (5m resolution) shows that groundwater levels are between 0.025m and 0.5m below the ground surface across the entire site.

Site	Location	Summary of risk
	building, Wilnecote, Tamworth	Based on the site's underlying topography, any groundwater emerging is likely to flow in an easterly direction.
20/090	Land at Gorsey Bank Road	The site is comprised of two land parcels, one large and one small. The JBA Groundwater Emergence Map (5m resolution) shows that groundwater levels are between 0.025m and 0.5m below the ground surface across the majority of the small land parcel. The northeast corner is shown to be at a negligible risk of groundwater emergence. In the large land parcel, the JBA Groundwater Emergence Map (5m resolution) shows that groundwater levels are between 0.025m and 0.5m below the ground surface through the centre and in the northeast corner of the land parcel. The northwest corner and part of the eastern side of the parcel is shown to be at a negligible risk of groundwater emergence. Based on the site's underlying topography, any groundwater emerging is likely to flow in a north westerly direction.
23/573	Marmion House, Lichfield Street	The JBA Groundwater Emergence Map (5m resolution) shows that groundwater levels are between 0.025m and 0.5m below the ground surface across the entire site. Based on the site's underlying topography, any groundwater emerging is likely to flow in a southerly direction.

5.4.3 Canal risk

Canals are controlled water bodies which present a residual risk in the event of a breach or overtopping incident.

For development proposed in close proximity to a canal, the developer should consult with the Canal and River Trust at an early stage. Any development proposed adjacent to a canal should include a detailed assessment of how a canal breach or overtopping event would impact the site, as part of a site-specific Flood Risk Assessment. Guidance on development near canals is available from the [Canal and River Trust \(canalrivertrust.org.uk\)](http://canalrivertrust.org.uk).

One site, 24/574 at Anker Sidings off Glascoate Road (B5000), is located within close proximity of a canal. The Coventry Canal runs along the eastern side boundary, located approximately 10m from the site. The canal is not raised adjacent to the site, however an overtopping incident could impact the site.

6 Flood risk management requirements for developers

The flood risk management requirements for developers are detailed within the TBC Level 1 SFRA (Section 8). Users should refer to this section for guidance on site-specific FRAs and other principles for managing flood risk in new development.

This contains details on:

- early consultation with statutory and non-statutory consultees;
- requirements for site-specific FRAs, including signposting to specific guidance; and
- emergency planning.

The sections below contain further information on emergency planning and the requirements for developer contributions.

6.1 Emergency planning

Safe access and escape routes from the site should be provided. The developer should seek to incorporate an emergency plan and a safe refuge point if the development site has been identified to be at risk of flooding. The local authority and Emergency Services should be consulted when designing an emergency plan.

This Level 2 assessment has identified 4 proposed sites (22/095, 22/096, 24/591, and combined 18/009, 18/023, 23/575) located within existing EA FWAs and 9 proposed sites (18/002, 18/007, 18/028, 20/089, 22/095, 22/096, 23/585, 24/591, and combined 18/009, 18/023, 23/575) located within existing EA FAAs. For proposed development within existing EA FWAs, developers should consult the EA to ensure that adequate flood warning procedures and evacuation processes are in place and that RMAs are not put under any additional burden.

Section 8.5 of the Level 1 SFRA report discusses NPPF requirements and what an emergency plan will need to consider and other relevant information on emergency planning. [Staffordshire Prepared \(staffordshireprepared.gov.uk\)](http://staffordshireprepared.gov.uk) provides further information.

The duration and onset of flooding affecting a site depends on several factors:

- Location of the site within the catchment: flooding is likely to be rapid and flashy in the upper catchment (e.g. small tributaries) and slower responding and longer in duration in the lower catchment.
- Upstream storage: floodplains, reservoirs, and other storage areas upstream of a site may provide some online flood storage that reduces the flood risk downstream and delays the onset of flooding.

- Timing of peak flow: at the confluence of the larger watercourses and smaller tributaries, there may be different timings of peak flows, for example smaller tributaries would peak much earlier than the larger catchments.
- The principal source of flooding: where this is surface water, depending on the intensity and location of the rainfall, flooding could be experienced within 30 minutes of the heavy rainfall event e.g., a thunderstorm. Typically, the duration of flooding for areas at risk of surface water flooding, or from flash flooding from small watercourses, is short (hours rather than days).
- The preceding weather conditions prior to the flooding: wet weather lasting several weeks will lead to saturated ground. Rivers respond much quicker to rainfall in these conditions.
- Whether a site is defended, noting that if the defences were to fail, a site could be affected by very fast flowing and hazardous water within 15 minutes of a breach developing (depending on the size of the breach and the location of the site in relation to the breach), causing danger to life.
- Catchment geology: the permeability of a catchment affects its response time, for example chalk catchments take longer to respond than clay catchments.

6.2 Developer contributions

In some cases, and following the 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 proposed new development and the existing local community. Developer contributions should include the following:

- Developers should check the online [Flood Map for Planning \(gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/362811/Flood_Map_for_Planning.pdf) in the first instance to identify any major changes to the Flood Zones and surface water risk and the [long-term flood risk mapping portal \(gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/362811/long-term_flood_risk_mapping_portal.pdf) for any changes to flood risk from inundation from reservoirs.
- Developer contributions can be made to maintenance and provision of flood risk management assets, flood warning and the reduction of surface water flooding (i.e. SuDS).
- Developers should also confirm that a development will not impact upon the ability of a floodplain to store or convey and seek opportunities to provide floodplain betterment, should the footprint of a development change.
- Where necessary, compensatory flood storage should be provided up to the 1% AEP plus climate change flood level and adjacent to the floodplain so that the flood storage can hydraulically fill and drain.
- Developers must be aware that that information within the Level 1 and Level 2 SFRAs will be a useful starting point for development considerations, however they must request the most recent data and update hydraulic modelling where required.

The council should only use planning obligations to secure contributions where it is satisfied that the contribution will fund works / measures which are:

- Necessary to make the development acceptable in planning terms;
- Directly related to the development; and
- Fairly and reasonably related in scale and kind to the development (Paragraph 57, NPPF).

7 Surface water management and SuDS

The Surface Water Management roles and responsibilities for different organisations and relevant legislation, policy and strategy are detailed within the TBC Level 1 SFRA (Section 9). Users should refer to this section when considering the different sources of flood risk to the site and how this can be mitigated in a sustainable way.

This contains detail on:

- role of the LLFA and LPA in surface water management;
- types of SuDS;
- sources of SuDS guidance; and,
- other surface water considerations including Groundwater Vulnerability Zones (GVZs), Groundwater Source Protection Zones (GSPZs), and Nitrate Vulnerability Zones (NVZs).

7.1 Updated SuDs guidance

Since publication of the Level 1 SFRA, the [Defra National standards for sustainable drainage systems \(SuDS\) \(gov.uk\)](#) were published in June 2025.

Previously SuDS guidance was developed to sit alongside the PPG and provide non-statutory standards as to the expected design and performance for SuDS. The new national remain as a non-statutory specification but form a material consideration for LPAs when assessing planning applications. These standards aim to reflect and reinforce good practice and use of SuDS, reflecting the four pillars of SuDS design.

The national standards contains 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.

8 Recommendations

8.1 Summary of findings

All sites assessed within this Level 2 SFRA will require a detailed site-specific FRA which considers all sources of flood risk. Most sites assessed within this Level 2 SFRA are at risk of flooding from multiple sources.

The key risk of flooding for sites assessed within this Level 2 SFRA is risk of fluvial flooding from the River Tame. Sites 18/011, 24/591, 22/096, 23/575, and 18/028 are at the most significant fluvial risk. Extents, depth, and hazard across these sites are significant and further consideration of these sites should be undertaken to assess whether these sites are deemed to be viable for the proposed development, particularly for those sites proposed for residential use.

Sites 18/011 and 24/591 are in area benefiting from formal flood defences along the River Tame, however, whilst these defences were built to provide protection up to a 1% AEP event, the latest hydraulic modelling from the EA shows the defences to overtop in much smaller flood events. The EA have a project within the Flood and Coast Risk Management programme to improve the flood defences along the River Tame. There are currently no further details or timescales for this work, although the EA reported some early development work has been undertaken. The EA should be consulted at an early stage for development of these sites. Defence improvements should also be considered for other sites along the River Tame. Based on their location, improvements to the flood defences could cause increased fluvial risk to other sites outside of the areas benefitting from these defences.

8.2 Considering the Exception Test for the proposed development sites

When required, to pass the Exception Test it must be shown that the development will provide wider sustainability benefits that outweigh the risk, and that the development will be safe throughout its lifetime without increasing risk elsewhere. The former is a planning-related consideration and the Level 2 SFRA helps to answer the latter part of the Test.

Some of the sites assessed in this Level 2 SFRA are at greater risk and will require careful consideration and significant mitigation to pass the flood risk element of the Exception Test, including 18/011, 22/096, and the combined sites (18/009, 18/023, 23/575).

The other sites are likely to pass the flood risk element of the Exception Test by:

- Undertaking a sequential approach to site planning so development is steered away from areas within the site at the highest risk.
- Considering safe access/escape routes in the event of a flood (from all parts of the site, if say the site is severed by a flood flow path). If access and escape are affected, a Flood Response Plan may be required.

- Designing buildings with finished floor levels above the estimated flood level (fluvial 1% AEP event with an allowance for climate change), including an allowance for freeboard.
- Using areas in Flood Zone 2 for the least vulnerable parts of the development in accordance with Table 2 in the PPG. No development should be permitted in Flood Zone 3b (aside from Essential Infrastructure).
- Testing flood mitigation measures if these are to be implemented, to ensure that they will not displace water elsewhere (for example, if land is raised to permit development on one area, compensatory flood storage will be required in another).
- Considering space for green infrastructure in the areas of highest flood risk.

Although not explicitly required within the PPG, consideration should be given to the surface water risk where this is high, with regards to the Exception Test.

If a site is split in future into smaller land parcels for development, and some of those parcels are in areas of flood risk, the Exception Test may need to be re-applied by the developer at the planning application stage.

8.3 Recommendations from the Level 1 SFRA

Recommendations from this report should be considered in addition to recommendations from the Level 1 SFRA, which still stand for the site allocations and any windfall development that comes forward. The recommendations for the Level 1 SFRA are set out in Section 10 of the TBC Level 1 SFRA.

8.4 Requirements for developers

The sections below set out requirements for developers to consider both for developing sites assessed within this Level 2 SFRA and for developing windfall sites.

8.4.1 Watercourses

Any sites located where there is a Main River (including culverted reaches of a Main River) will require an easement of 8m either side of the watercourse from the top of the bank. This may introduce constraints regarding what development will be possible and consideration will also need to be given for access and maintenance at locations where there are culverts. Developers will be required to apply for appropriate permits so the activity being carried out over easements does not increase flood risk. Further information relating to this can be viewed on the government website [Flood risk activities: environmental permits \(gov.uk\)](https://www.gov.uk/government/topics/flood-risk-management/flood-risk-activities).

Where no recent detailed hydraulic modelling is present, it is recommended that developers construct new, or update existing, detailed hydraulic models at these sites as part of a site-specific FRA using channel, structure, and topographic survey to confirm flood risk. Site-specific flood modelling will likely need to be developed in locations where it is necessary to understand the effects of proposed development schemes on the existing flood flow paths and flood volume storage, in the present day and in the future.

At the planning application stage, developers may need to undertake more detailed hydrological and hydraulic assessments of unmodelled watercourses and surface water interactions so that the potential effects of proposals can be evaluated at site level and ensure that there is no increase in risk off-site as a result of development. The modelling should evidence flood extents, depths, velocities and hazard (including latest climate change allowances), inform development zoning within the site and prove, if required, whether the Exception Test can be passed.

If an ordinary watercourse is within or immediately adjacent to the site area, consultation with the Staffordshire County Council as the LLFA should be undertaken. If alterations or discharges are proposed to the watercourse, a land drainage consent will be required.

Developers should be aware of the need to identify the route of, and flood risk associated with, any culverts within a site. CCTV condition survey will be required to establish the current condition of the culvert and hydraulic assessments will be necessary to establish culvert capacity of both culverts on site and those immediately offsite that could pose a risk to the site. The risk of flooding should be established using site survey, including the residual risk of culvert blockage.

8.4.2 Flood risk management infrastructure and residual risk

For sites where existing flood defences provide a reduction in the flood risk to the site, it is important to understand the standard of protection these structures and measures provide. It is also necessary to understand how this level of protection changes over time, considering the implications of climate change.

If flood defences are required to protect a development site, evidence will be required to show that the new development does not adversely impact and increase flood risk to other areas, for example that there is no net loss in floodplain storage in circumstances where this is a material consideration. It will need to be established that these defences can be appropriately managed and maintained during the lifetime of the development. In some cases, it will be a requirement to demonstrate that there is an appropriate level of commitment to the maintenance of the standard of protection afforded by existing defences, where reliance is placed on the standard they provide.

For sites along the River Tame, developers should consult with the EA at an early stage to understand proposals for improvements to the existing flood defences and how these may impact fluvial risk to the site.

Any development proposed adjacent to a canal should include a detailed assessment of how a canal breach would impact the site, as part of a site-specific FRA. The [Canal and River Trust \(canalrivertrust.org.uk\)](http://canalrivertrust.org.uk) provide guidance on development near canals.

For any sites shown to be at risk of reservoir flooding with the EA reservoir flood maps, the residual risk of reservoir flooding at the site will need to be considered further at the site-specific FRA stage. An emergency plan may be required, demonstrating that the residual risks to the site can be safely managed and that appropriate evacuation plans are in place.

8.4.3 Access and escape routes

Access and escape routes should be considered at the site, but also in the vicinity of the site, for example, a site may have low surface water risk, but in the immediate locality, access/escape routes to and from the site could be restricted for vehicles and/or people. For sites assessed within this Level 2 SFRA, an initial overview of potential access and escape options is provided within the detailed site assessments and potential constraints identified.

8.4.4 Surface water flood risk and SuDS

Surface water risk should be considered in terms of the proportion of the site at risk in the 3.3%, 1% and 0.1% AEP events (with an appropriate allowance for climate change), whether the risk is due to isolated minor ponding or deeper pooling of water, or whether the risk is due to a wider overland flow route.

A strategic assessment of SuDS options has been undertaken using regional datasets for sites assessed within this Level 2 SFRA. A detailed site-specific assessment of suitable SuDS techniques should be undertaken at site-specific level to understand which SuDS options are most appropriate. This may need to include infiltration testing to determine the suitability of infiltration methods.

Surface water risk and mitigation should be considered as part of a detailed site-specific FRA and surface water drainage strategy.

8.5 Use of SFRA data and future updates

It is important to recognise that the SFRA has been developed using the best available information at the time of preparation. This relates both to the current risk of flooding from all sources and the potential impacts of future climate change.

The SFRA should be a 'living document', and as a result should be updated when new information on flood risk, flood warning, or new planning guidance or legislation becomes available. New information may be provided by TBC, Staffordshire County Council as LLFA, the EA, and Severn Trent Water. Such information may be in the form of:

- New hydraulic modelling results.
- Flood event information following a future flood event.
- Policy or legislation updates.
- Updates to the EA flood mapping.
- New flood defence schemes or flood alleviation schemes.

The EA regularly reviews their flood risk mapping, and it is important that they are approached to determine whether updated information is available prior to commencing a detailed FRA.

It is recommended that the SFRA is reviewed in line with the EA's Flood Zone map updates to ensure latest data is still represented in the SFRA, allowing a cycle of review and a review of any updated data by checking with the above bodies for any new information.

Appendices

A Detailed site assessments

B GeoPDF mapping

C Amber Site Surface Water Mapping

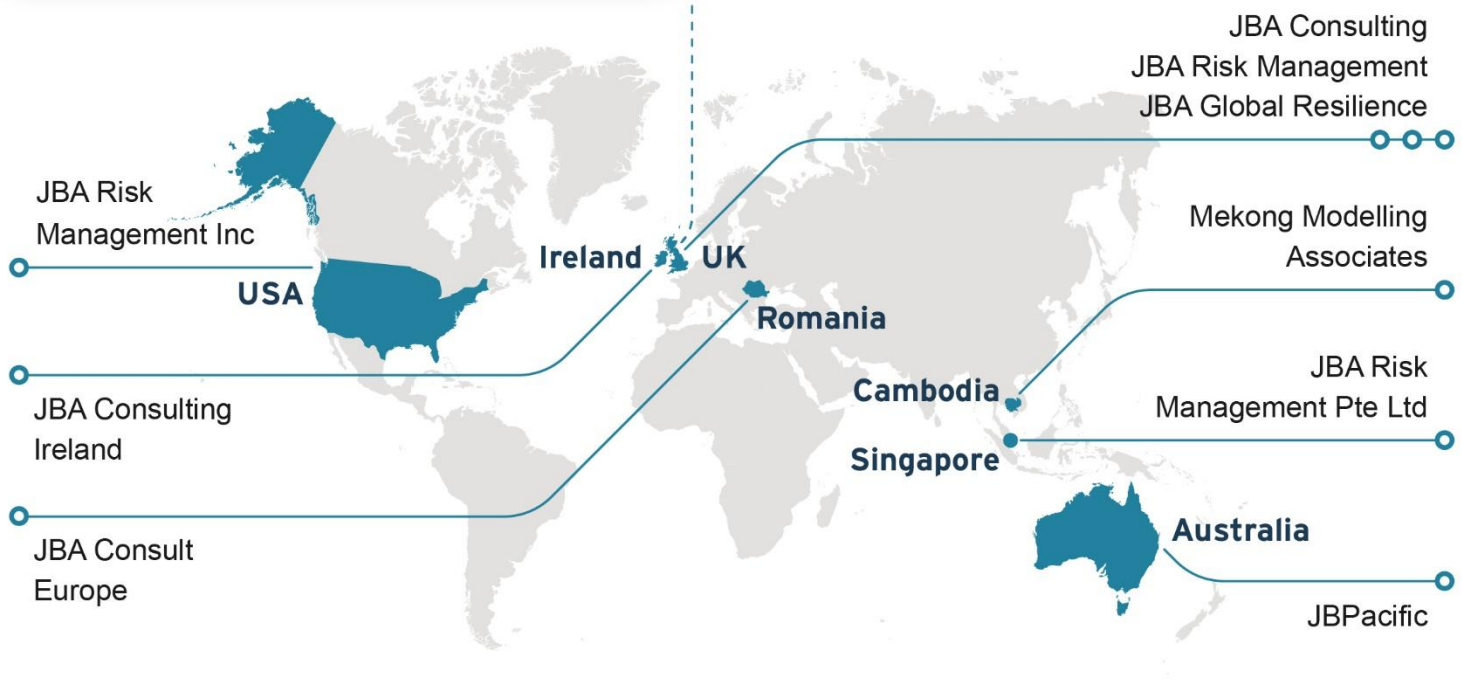
D Amber Site Groundwater Emergence Mapping



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