

JBA Project Code	2025s0951
Contract	TMBC L2 SFRA scoping exercise
Client	Tonbridge and Malling Borough Council
Day, Date and Time	October 2025
Author	Hannah Booth BSc (Hons)
Reviewer / Sign off	Ed Hartwell BSc MSc MCIWEM C.WEM
Subject	TMBC L2 SFRA scoping exercise

1 Introduction

JBA Consulting undertook the Level 1 Strategic Flood Risk Assessment (SFRA) for Tonbridge and Malling Borough Council. Following this, a number of sites were identified by Tonbridge and Malling Borough Council as potentially requiring a Level 2 SFRA.

In order to provide guidance on which of these sites should be taken forward to a Level 2 SFRA, JBA Consulting has undertaken a Level 2 SFRA scoping exercise.

The results of the scoping exercise can be found in Appendix A.

2 Level 2 SFRA site scoping methodology

2.1 Sites provided by Tonbridge and Malling Borough Council

As part of the Level 1 SFRA, 475 sites were screened against a suite of available flood risk data to provide a summary of risk to each site. The screening was undertaken using GIS software that computes a range of flood risk metrics based on flood and receptor datasets.

The site screening identified the proportion of the site at fluvial, tidal and surface water flood risk now and in the future. The site screening also identified if the site is located within an area which could be affected by a wet day reservoir breach and if the site is potentially at risk of groundwater flooding.

Tonbridge and Malling Council then filtered the sites further based on size and other constraints such as the greenbelt and national landscape and ecological constraints. Tonbridge and Malling Council reduced the number of sites to potentially be taken forward for consideration in a Level 2 SFRA to 62 sites. JBA Consulting were then appointed to scope which of these sites would require a detailed assessment as part of the Level 2 SFRA.

2.2 Data sources

The results of the Level 1 SFRA site screening were used to inform the Level 2 SFRA scoping exercise. The datasets used and the reasons for their inclusion are outlined below:

- The proportion of the site falling within the **fluvial 1% Annual Exceedance Probability (AEP) plus 27% climate change allowance and the tidal 0.5% AEP plus Upper End Climate Change allowance**. This scenario represents the fluvial and tidal future Flood Zone 3a, with the Environment Agency's recommended climate change allowance, which should be considered for residential development¹.
- The proportion of the site within the **surface water 0.1% AEP event**. This represents the proxy for the Upper End surface water climate change allowance.
- Whether the site includes an area in **Flood Zone 1 affected by a wet day reservoir**. This dataset shows if a reservoir were to breach, the site could be affected but it would not be affected by a fluvial event on its own. This will also identify locations where proposed development could result in a change to the risk designation of an upstream reservoir.
- **Potentially at high risk of groundwater flooding**. This dataset uses the JBA Groundwater Flood Map high risk areas. This zone shows areas which are potentially at a higher risk of groundwater flooding than other areas.

2.3 Sequential approach at a site level

The Environment Agency's Flood Risk assessment guidance¹ was updated in April 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 in areas at risk of any source of current or future flooding."*

Therefore, in cases where the proportion of the site at future flood risk from fluvial, tidal or surface water sources is small, a sequential approach at the site level would be appropriate and enable development to be located in areas at 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 less vulnerable development 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, and therefore a Level 2 Assessment would not be required.

However, there is currently no guidance available to confirm what would be considered a "small" proportion of the site. Through discussions with Tonbridge and Malling Borough Council, and based on JBA's experience, two proportions were identified as "small" for

¹ Environment Agency (2024) Flood risk assessment: flood zones 1, 2, 3 and 3b
[Flood risk assessment: flood zones 1, 2, 3 and 3b - GOV.UK](#)

Tonbridge and Malling Borough Council's assessment and review. These proportions were 1-10% and 1-20% of the site at risk of flooding from one or more sources.

2.4 Site preferability

Using the premise that if a “small” proportion of the site is at risk of flooding, a sequential approach at the site level can be undertaken, and the site would not require a Level 2 assessment, JBA Consulting were able to categorise sites based on preferability. The “most preferable” being those sites which are not predicted to flood (i.e. 0% of the site is at risk from all sources). Sites where there is a “small” proportion of the site at risk, from one or more sources of flooding, were considered “less preferable”. For those sites where the proportion of the site at risk is considered too large for the sequential approach at a site level to be undertaken, these were considered the “least preferable”.

Tonbridge and Malling Borough Council requested that two preferability categories were prepared assuming that a “small” proportion of the site is 1-10% and 1-20%. The two preferability categories and descriptions are outlined in Table 2-1 for 1-10% and Table 2-2 for 1-20%.

Table 2-1: Preferability based on the definition of a “small” proportion of the site being 1-10%

Category	Description
Most preferable	0% of the site is at risk from either surface water, fluvial or tidal sources
Less preferable	Greater than 0% to 10% the site is at risk from either surface water, fluvial or tidal sources
Least preferable	Greater than 10% of the site is at risk from either surface water, fluvial or tidal sources

Table 2-2: Preferability based on the definition of a “small” proportion of the site being 1-20%

Category	Description
Most preferable	0% of the site is at risk from either surface water, fluvial or tidal sources
Less preferable	Greater than 0% to 20% the site is at risk from either surface water, fluvial or tidal sources
Least preferable	Greater than 20% of the site is at risk from either surface water, fluvial or tidal sources

2.5 Reservoir inundation and groundwater flood risk

As noted in the Methodology in Support of Performing the Sequential Test (found in Appendix C of the Level 1 SFRA), the readily available data for groundwater flood risk and reservoir inundation do not provide the same certainty as the fluvial, tidal and surface water flood risk datasets. However, these can be used to identify sites where further work will be required to address the risk. The sites impacted were identified as part of the scoping exercise.

3 Results

A total of 62 sites were provided by Tonbridge and Malling Borough Council and have been categorised by preferability. The results of the scoping exercise can be found in Appendix A.

The number of sites identified within each preferability category has been calculated. This was undertaken to assess the number of sites within each category, if a “small” proportion

of the site is considered to be 1-10% compared to 1-20%. The results are outlined in Table 3-1.

Table 3-1: Number of sites within each preferably category

Category	Number of sites in each category	
	A “small” proportion is considered as 1-10% of the site	A “small” proportion is considered as 1-20% of the site
Most preferable (0% of the site at risk)	13	13
Less preferable (a “small” proportion of the site at risk)	29	35
Least preferable (proportion of the sites at risk is too large for a sequential approach at the site level to be undertaken)	20	14

A total of 9 sites were identified to be located within or partially Flood Zone 1 and affected by a wet day reservoir. 22 sites were noted to be potentially at risk of groundwater flooding.

4 Implications for the Level 2 SFRA

The implications of the scoping exercise on the requirements for the Level 2 SFRA are outlined in this section.

4.1 Preferability category and site summaries

Level 2 SFRAs typically consist of a main report, along with a detailed assessment and flood risk site summary for each site considered. These site summaries, along with relevant flood risk mapping, are presented as appendices to the main report.

The requirements for each site within the Level 2 SFRA will be determined by the preferability category.

No detailed site summary of flood risk will be required for sites considered “most preferable”.

For sites considered “less preferable”, no detailed site summary of flood risk will be required. However, these sites will be listed in the main SFRA report, noting that a small proportion of the sites are at flood risk, and a sequential approach should be undertaken at the site level. This will include a requirement for developers to place less vulnerable

aspects of the development (such as public open space, biodiversity and amenity areas) in the areas at risk of flooding.

A detailed site summary of flood risk will be required for each site considered to be “least preferable”.

4.2 Groundwater and reservoir flood risk

Level 2 sites identified as potentially at risk of groundwater flooding will be listed within the main Level 2 SFRA report. It will be noted that the groundwater flood risk dataset should be interpreted as an initial indicative tool to assess groundwater flood risk at preliminary stages of planning/site allocation. Where mapping indicates a risk of groundwater flooding, a detailed assessment should be undertaken to confirm the risk to the site as part of any planning application, which may require ground investigations. No detailed site summary assessment will be undertaken for groundwater flood risk as part of the Level 2 SFRA.

Similarly, Level 2 sites identified to be within Flood Zone 1 but affected by a wet day reservoir breach, will be listed in the main report. Recommendations will be made to address this risk through a detailed flood risk assessment as part of any planning application.

4.3 Safe access and egress

A high-level assessment of safe access and egress for the “least preferable” sites was undertaken as part of the scoping exercise. This identified possible access locations at each site and whether access and egress would be possible based on flood extents. Where the extents predict that safe access and egress may not be possible, further work assessing flood depths and hazard will be required within the detailed site summary.

It will be noted in the Level 2 SFRA that access and egress for the sites not requiring a detailed site summary assessment should still be considered and investigated prior to any development.

4.4 Additional modelling

Potential additional modelling requirements have been identified as part of the scoping exercise for the “least preferable” sites. Any modelling requirements will be confirmed with the Environment Agency at project inception.

5 Summary

A total of 62 sites were provided by Tonbridge and Malling Borough Council to be included in the scoping exercise. The number of sites to be taken forward to a Level 2 SFRA depends on the definition of a “small” proportion of the site. A sequential approach can be undertaken at the site level which involves incorporating the less vulnerable aspects of the in the areas at risk of flooding. If a “small” proportion of the site is at risk, or the site is not predicted to be at risk, a detailed assessment at the Level 2 SFRA stage will not be required.

Two options were considered as a definition of a “small” proportion of the site, which were 1-10% and 1-20% of the site. If a “small” proportion is considered as 1-10% of the site, 20 sites will require a detailed Level 2 SFRA site summary assessment. If a “small” proportion is considered as 1-20% of the site, 14 sites will require a detailed Level 2 SFRA site summary assessment.

A total of 9 sites were identified to be located within or partially Flood Zone 1 and affected by a wet day reservoir. 22 sites were noted to be potentially at risk of groundwater flooding. Recommendations for detailed flood risk assessment will be outlined for these sites in the main Level 2 SFRA report.

A summary of the implications and number of sites affected is outlined in Table 5-1. The full scoping exercise can be found in Appendix A.

Table 5-1: Summary of implications of preferability category

Site preferability	Implications	Number of sites if 1-10% is considered as a “small” proportion of the site	Number of sites if 1-20% is considered as a “small” proportion of the site
Most preferable	- No detailed site summary of flood risk will be required. - If there is a risk of groundwater or reservoir flooding, the site will be listed in the main SFRA report and recommendations made for the detailed flood risk assessment. - A general point will be made in the Level 2 SFRA that safe access and egress should be considered and investigated for all sites prior to any development.	13	13
Less preferable	- No detailed site summary of flood risk will be required. - However, these sites will be listed in the main SFRA report as requiring the sequential approach to be undertaken at the site level. - If there is a risk of groundwater or reservoir flooding, the site will be listed in the main SFRA report and recommendations made for the detailed flood risk assessment. - A general point will be made in the Level 2 SFRA that safe access and egress should be considered and investigated for all sites prior to any development.	29	35
Least preferable	- A detailed site summary of flood risk will be required for each site. - If there is a risk of groundwater or reservoir flooding, the site will be listed in the main SFRA report and recommendations made for the detailed flood risk assessment. - Safe access and egress will be assessed in the detailed site summary. - Additional modelling may be required.	20	14

Technical Note

Appendices

A Level 2 SFRA Site Scoping