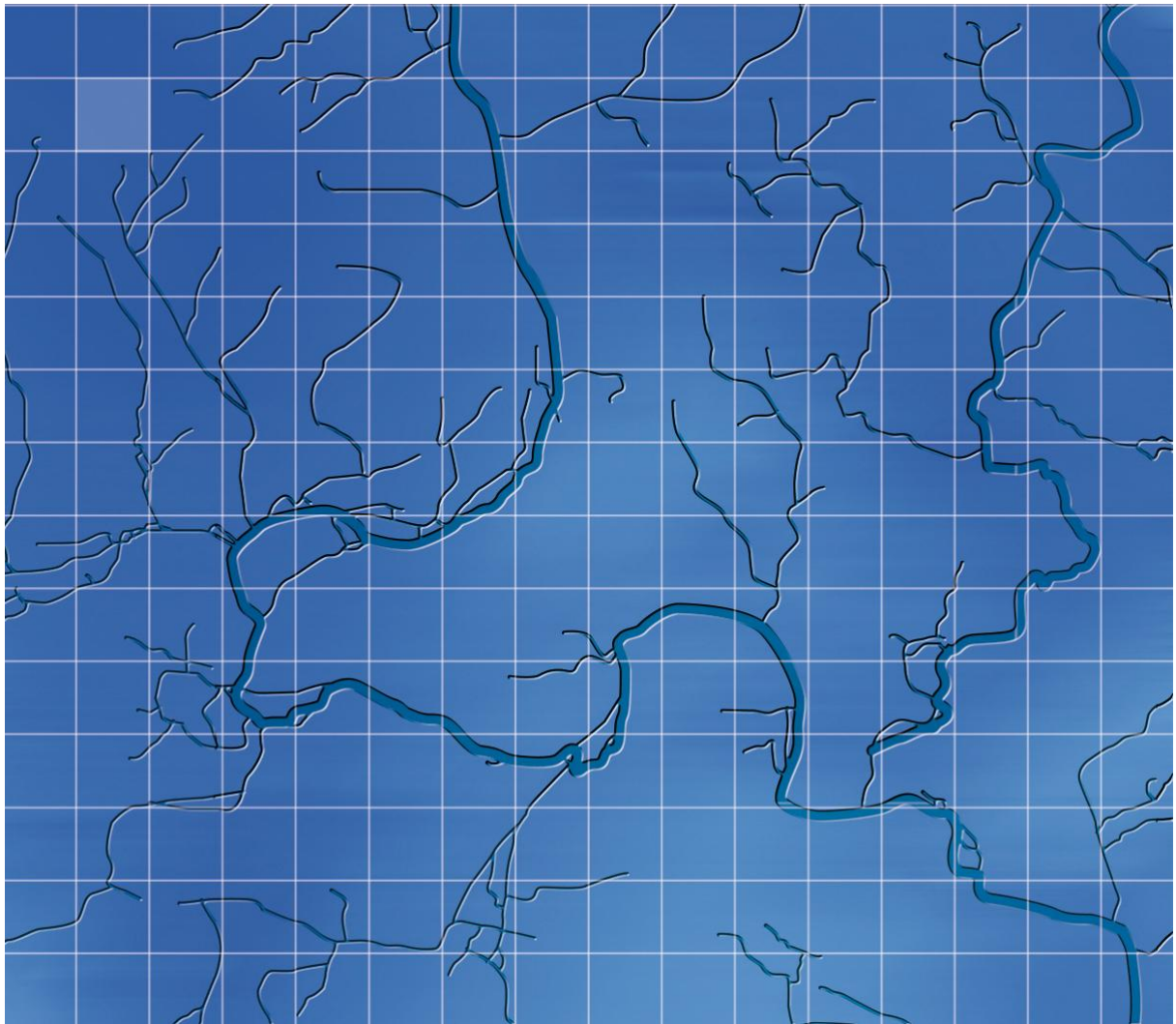


Mansfield District Council

September 2026

Mansfield District Level 2 Strategic Flood Risk Assessment



WHS

Mansfield District Council

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Document issue details

WHS10323

Version	Issue date	Issue status	Prepared By	Approved By
1.2	04/09/2026	Final	Daniel Hamilton (Principal Consultant)	Paul Blackman (Director)

For and on behalf of Wallingford HydroSolutions Ltd.

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1 Introduction

Wallingford HydroSolutions (WHS) Ltd has been commissioned by Mansfield District Council (MDC) to undertake a Level 2 Strategic Flood Risk Assessment (SFRA) to inform the Local Plan review's site selection process. This has been completed in accordance with the National Planning Policy Framework (NPPF)¹, Planning Practice Guidance (PPG)² and associated guidance from the Environment Agency (EA)³.

An initial screening assessment was undertaken at 24 sites identified as potential allocations for residential development to determine which sites require a level 2 assessment. Following this analysis, 7 sites were identified as requiring a Level 2 SFRA. The location of all 24 sites is shown in Figure 1, with those scoped in and out of the level 2 SFRA highlighted. Section 2 of this report provides more detail on the screening assessment.

Each level 2 site assessment includes a detailed review of flooding at each of the sites based on available model data, flood defence information, surface water flood mapping, historical flood data and information on other relevant flood sources. From this information the appropriateness of development on the sites has been determined. The assessments also include guidance for the preparation of site-specific Flood Risk Assessments (FRAs) and site drainage.

This document details the methodology applied. The specific site assessments are provided in Appendix 1 which detail the results of the flood risk analysis along with the conclusions and recommendations reached for each of the sites.

¹ Ministry of Housing Communities & Local government (2024) National Planning Policy Framework
https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

² UK Government (2025) Planning practice guidance- Flood risk and coastal change
<https://www.gov.uk/guidance/flood-risk-and-coastal-change>

³ Environment Agency (2026) <https://www.gov.uk/guidance/how-to-prepare-a-strategic-flood-risk-assessment>

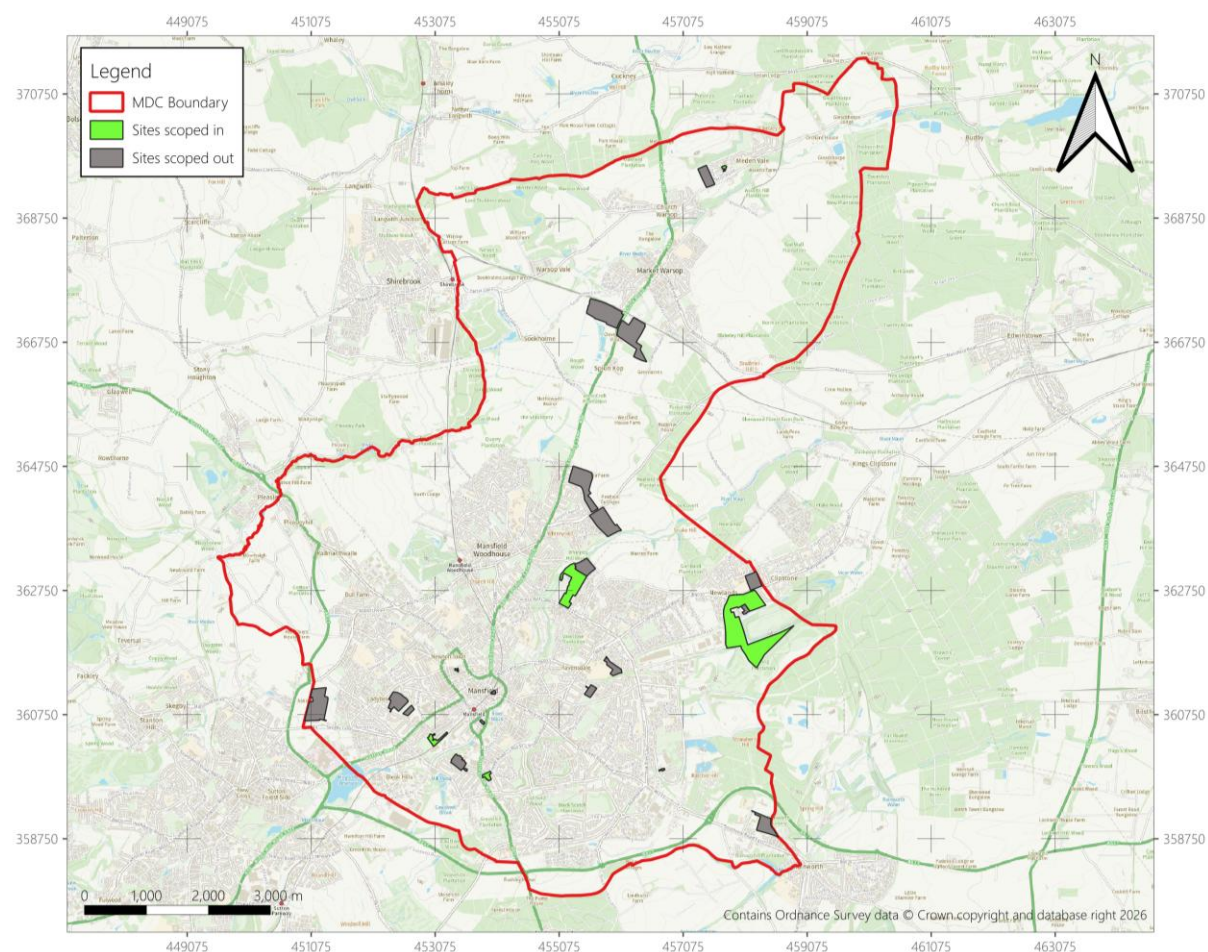


Figure 1- Site scoped in and out of Level 2 SFRA

2 Screening Assessment

The screening assessment first focused on fluvial and surface water flood risk at each of the sites. The assessment of fluvial flood risk utilised the Flood Map for Planning's (FMfP) baseline⁴ flood extents to measure the proportion of each site lying within Flood Zone 3a and Flood Zone 2. The climate change fluvial flood extents⁵ for the 1.0% AEP (annual exceedance probability) + Climate change (CC) and 0.1% AEP + CC were then used to assess the expected changes in Flood Zone 3a and 2 due to climate change. In addition to this the EA's 3.3% Defended Flood Extents were considered to quantify the baseline⁶ functional floodplain (Flood Zone 3b) and the expected changes in its extent due to climate change⁷ (3.3% AEP + CC).

⁴ EA (2026) *Flood Map for Planning – Flood Zones* <https://environment.data.gov.uk/dataset/04532375-a198-476e-985e-0579a0a11b47>

⁵ EA (2026) *Flood Map for Planning – Climate Change Extents (defended and undefended)* <https://environment.data.gov.uk/dataset/610d6830-0637-4f5b-b6ce-61f5fa5635d3>

⁶ EA (2026) *Flood Map for Planning – 3.3% AEP defended (present day)* <https://environment.data.gov.uk/dataset/56fb30ae-f20d-490a-9149-a94f3e640261>

⁷ EA (2026) *Flood Map for Planning – 3.3% AEP defended (Climate Change)* <https://environment.data.gov.uk/dataset/b9418b89-aa59-4153-91dd-470f473152dd>

In terms of surface water flood risk, the EA surface water flood maps were utilised to assess the proportion of each site at risk from surface water flooding. The EA's maps delineate areas at high (3.3% AEP), medium (1.0% AEP) and low risk (0.1% AEP) of surface water flooding. Both the baseline⁸ and climate change⁹ extents were considered.

In addition to considering the proportion of each site inundated, the flood risk to access and egress routes around each site was also considered. This assessment considered the same flood risk data as outlined above.

Following the assessment of flood risk, MDC was consulted to determine the current planning status of each site. A number of sites have already obtained planning permission or have submitted planning applications, with site-specific FRAs either underway or completed. Where this was the case, it was considered that a Level 2 SFRA was surplus to requirements.

Table 1 summarises the findings of the screening assessment, with the reasons for scoping in or scoping out each site detailed in the final column.

⁸ EA (2026) *Risk of Flooding from Surface Water* <https://environment.data.gov.uk/dataset/b5aaa28d-6eb9-460e-8d6f-43caa71fbe0e>

⁹ EA (2026) *Risk of Flooding from Surface Water – Climate Change 1*
<https://environment.data.gov.uk/dataset/e5b38de2-99b3-44ee-b10c-b244926878ef>

Table 1- Level 2 SFRA Sites

Site Name	Area (ha)	No. dwellings	Present Day		Climate Change		Access	Reasons for Scoping in/Scoping out
			% site in FZ2	%site 0.1% SW AEP	% site FZ2	%site 0.1% SW AEP		
Sites Scoped In								
Former Victoria Court Flats	2.07	62	0.00	7.84	0.00	13.27	Compromised	Significant areas of surface water flood risk present in parts of the site and along site access routes.
Land at Lindley Street	0.18	8	0.00	72.43	0.00	72.59	Compromised	Significant surface water flood risk present in north of the site and along access routes.
Land North of Old Mill Lane	13.58	250	0.89	2.15	0.96	3.45	No significant barriers	Significant fluvial and surface water flood risk areas present within site boundary.
Land off Forest Road	1.18	35	0.00	7.68	0.00	8.22	No significant barriers	Significant area of surface water flood risk present in centre of the site.
Land South of Clipstone Road East	45.33	315	3.11	6.28	3.11	8.08	No significant barriers	Significant fluvial and surface water flood risk areas present within site boundary.
Melville Court	0.38	13	0.00	15.63	0.00	16.25	No significant barriers	Significant area of surface water flood risk present in centre of the site.
Shirland Drive Boiler House	0.20	7	0.00	0.00	0.00	0.13	Compromised	No flood risk areas within site boundary, however significant surface water flood risk to site access routes.
Sites Scoped Out								
Abbey Primary School	2.07	62	0.00	0.53	0.00	0.75	No significant barriers	Only limited area of surface water flooding (<1% of site area) and access not compromised.
Bridleways Guest House and Holiday Homes	1.16	5	0.00	0.00	0.00	0.05	No significant barriers	Only limited area of surface water flooding in climate change scenario (<1% of site area) and access not compromised.
Clipstone Football Ground	4.85	130	0.00	0.50	0.00	0.64	No significant barriers	Only limited area of surface water flooding (<1% of site area) and access not compromised.
Former Sherwood Hall School	3.16	52	0.00	4.56	0.00	6.02	Compromised	Significant surface water flood risk areas are present at the site, however, outline planning application supported by site specific FRA in April. Resolution to grant planning subject to completion of a S106 agreement.
Gregory Quarry	3.82	64	0.00	21.09	0.00	35.63	No significant barriers	Significant surface water flood risk areas are present at the site, however, outline planning application supported by a FRA has been submitted. EA has advised that planning permission should be subject to conditions addressing contamination risks. The LLFA has raised no objection, subject to conditions relating to surface water drainage.
Grove Street Car Park	0.29	10	0.00	0.00	0.00	0.00	No significant barriers	No flood risk at the site and access not compromised.
Kirkland Avenue Allotments	1.39	42	0.00	0.00	0.00	0.80	No significant barriers	Only limited area of surface water flooding in climate change scenario (<1% of site area) and access not compromised.

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Land at Ashland Farm	14.14	350	0.00	0.76	0.00	1.35	No significant barriers	Only limited area of surface water flooding (<2% of site area) and access not compromised.
Land at New Mill Lane	5.33	120	0.00	0.01	0.00	0.42	No significant barriers	Only limited area of surface water flooding in climate change scenario (<1% of site area) and access not compromised.
Land North of Jenford Street	6.19	120	0.00	0.28	0.00	0.32	No significant barriers	Only limited area of surface water flooding in climate change scenario (<1% of site area) and access not compromised.
Land at Peafield Lane	11.16	254	0.00	0.00	0.00	0.00	No significant barriers	No flood risk at the site and access not compromised.
Land off Helmsley Road, Rainworth	6.36	170	0.00	3.77	0.00	8.80	No significant barriers	Significant areas of surface water flood risk are present on site. However, MDC is liaising with the developer, who has confirmed that a FRA will be submitted to assess and address surface water flood risk. The site is at an advanced stage of technical assessment and has submitted a surface water flood risk technical note.
Land off Mansfield Road (A60)	15.68	300	19.71	4.21	21.19	5.53	No significant barriers	Significant areas of fluvial and surface water flood risk are present on site. However, outline planning application has been submitted with FRA supporting this.
Land off Netherfield Lane	4.95	107	0.00	0.18	0.00	0.67	No significant barriers	Only limited area of surface water flooding in climate change scenario (<1% of site area) and access not compromised.
Land off Peafield Lane	13.38	330	0.00	0.62	0.00	1.28	No significant barriers	Only limited area of surface water flooding (<2% of site area) and access not compromised.
Land South East of Mansfield Road, Market Warsop	15.67	295	0.00	2.95	0.00	4.51	No significant barriers	Areas of surface water flood risk are present on site, however these are not expected to present major barriers to development. A planning application (full) has been submitted for the site, which includes an FRA. The LLFA currently objects to the planning application, however this is not on the basis of flood risk, rather they require more detail on the management of surface water and the provision of SuDS designs. The EA has advised that planning permission should be subject to conditions addressing contamination risks.
Toothill Lane Car Park (south)	0.32	11	0.00	0.10	0.00	0.15	Compromised	Only limited area of surface water flooding in climate change scenario (<1% of site area). There are some minor areas of surface water flooding shown along the site access, but these are limited in extent and considered manageable.

3 Methodology

3.1 Sources of Data

This Level 2 SFRA presents an assessment of the risk of flooding from all relevant sources at each of the sites. To inform this, existing information and model data have been identified and collated for different sources of flooding. Specifically, the latest national and available detailed model data for Mansfield District have been incorporated into the site-specific assessments, along with details on flood defences, surface water flooding, groundwater conditions, reservoir flooding and flood warning areas.

The main sources of data used to inform this SFRA include:

- EA Fluvial Flood Maps for Planning^{10, 11} – to quantify baseline (Flood Zone 3a & Flood Zone 2) and climate change (1.0% AEP + CC & 0.1% AEP +CC) fluvial flood extents
- EA 3.3% Defended Flood Extents^{12, 13} – to quantify baseline (Flood Zone 3b) and climate change (3.3% AEP + CC) fluvial flood extents.
- Risk of flooding from Rivers and Seas (ROFRS) Depth data¹⁴ – to obtain depth information at sites at significant fluvial flood risk where no detailed modelling is available.
- EA Surface Water Flood Maps^{15, 16} – to quantify the baseline and climate change pluvial flood extents and from ordinary watercourses not captured in the EA Fluvial Flood Maps.
- Surface Water Spatial Planning Depths¹⁷ – to obtain depth information for sites at significant pluvial flood risk and/or at risk from ordinary watercourses not captured in the EA Fluvial Flood Maps.
- EA Reservoir Flood Mapping^{18, 19} – to quantify reservoir flood extents in a wet and dry day scenario
- EA Historical Flood Map²⁰ and Recorded Flood Outlines²¹ – to review historical flood events at or in the vicinity of sites.
- Hydraulic modelling data from the Mansfield Maun (2024) model²²

¹⁰ EA (2026) *Flood Map for Planning– Flood Zones* <https://environment.data.gov.uk/dataset/04532375-a198-476e-985e-0579a0a11b47>

¹¹ EA (2026) *Flood Map for Planning – Climate Change Extents (defended and undefended)* <https://environment.data.gov.uk/dataset/610d6830-0637-4f5b-b6ce-61f5fa5635d3>

¹² EA (2026) *Flood Map for Planning – 3.3% AEP defended (present day)* <https://environment.data.gov.uk/dataset/56fb30ae-f20d-490a-9149-a94f3e640261>

¹³ EA (2026) *Flood Map for Planning – 3.3% AEP defended (Climate Change)* <https://environment.data.gov.uk/dataset/b9418b89-aa59-4153-91dd-470f473152dd>

¹⁴ EA (2026) *Risk of Flooding from Rivers and Sea - Climate Change 1* <https://environment.data.gov.uk/dataset/de4079f2-3569-45b2-8009-a00bccc520a1>

¹⁵ EA (2026) *Risk of Flooding from Surface Water* <https://environment.data.gov.uk/dataset/b5aaa28d-6eb9-460e-8d6f-43caa71f8e0e>

¹⁶ EA (2026) *Risk of Flooding from Surface Water – Climate Change 1* <https://environment.data.gov.uk/dataset/e5b38de2-99b3-44ee-b10c-b244926878ef>

¹⁷ EA (2026) *Flood Map for Planning- Surface Water Spatial Planning Depths – Climate Change* <https://environment.data.gov.uk/dataset/cf8d4e8f-99b6-4e5d-bf56-7f80e93d0931>

¹⁸ EA (2026) *Reservoir Flood Extents - Wet Day (National)* <https://environment.data.gov.uk/dataset/d81646cf-37e5-4e71-bbcf-b7d5b9ca3a1c>

¹⁹ EA (2026) *Reservoir Flood Extents - Dry Day (National)* <https://environment.data.gov.uk/dataset/c66ee97f-49d2-454e-9a19-d48a47bd22ad>

²⁰ EA (2026) *Historic Flood Map*, <https://www.data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map>

²¹ EA (2026) *Recorded Flood Outlines*, <https://www.data.gov.uk/dataset/16e32c53-35a6-4d54-a111-ca09031eaaaf/recorded-flood-outlines>

²² EA (2024) *Mansfield Maun Products 5-7*

- Hydraulic modelling data from the Meden EA (2020) climate change update model²³
- EA Flood Defence Structures²⁴ – to assess existing formal and informal flood defences present at or in the vicinity of sites.
- EA Flood Warning Areas²⁵ – to identify areas where flood warnings are available.
- British Geological Survey (BGS) Geoviewer²⁶ – to determine local bedrock and its expected permeability informing assessment of groundwater flood risk.
- Soilsmap²⁷ – to determine local soil and its expected permeability informing assessment of groundwater flood risk.

3.2 Assessment of Flood Risk

For each site, all relevant sources of flood risk have been considered. It should be noted that sewer flooding has not been assessed directly. Severn Trent Water has provided DG5 sewer flood incident data, which is presented within the Level 1 SFRA²⁸. However, as this dataset is reliant on incident reporting and is provided for broad postcode areas, it was deemed inappropriate to assign a definitive sewer flood risk to individual sites based on this information.

Initially, the assessment focuses on flood extent, flood defence, site geology and flood warning information. Based on this initial assessment, the primary flood risk in terms of fluvial or surface water flooding is identified for a further detailed assessment. Where both sources are considered significant, fluvial and surface water flood risks are both examined in greater detail.

Note, in some cases the surface water flood mapping has been used to assess flood risk from ordinary watercourses not captured in the EA's fluvial mapping. The current NaFRA2 surface water mapping includes a 'drainage sump' which removes areas of fluvial flooding along 'main' watercourses (i.e. those being included in the fluvial models). However, some watercourses not accounted for within the fluvial models may not be removed by this 'drainage sump' and thereby are captured by the surface water flood maps. In this regard the flooding by the mapping may be both fluvial (river overtopping) and pluvial (overland flow) in origin. Where this is the case, the site reports will assess whether the surface water mapping acts as a reasonable proxy to assess fluvial flood risk from the watercourses it captures.

This detailed assessment considers the characteristics of the design flood event (i.e. the 1.0% Annual Exceedance Probability (AEP) event plus climate change). The assessment includes the use of relevant national modelling^{13, 16} and if available detailed modelling data^{21, 22} to evaluate:

- The speed of onset
- Flood depth
- Flood velocity
- Overall flood hazard (ZUK0) and potential impacts
- Access and Egress

²³ EA (2020) *Meden EA climate change updates Products 6-7*

²⁴ EA (2026) AIMS Spatial Flood Defences (inc. standardised attributes)
<https://www.data.gov.uk/dataset/cc76738e-fc17-49f9-a216-977c61858dda/aims-spatial-flood-defences-inc-standardised-attributes>

²⁵ EA (2025) *Flood Warning Areas*, <https://environment.data.gov.uk/dataset/87e5d78f-d465-11e4-9343-f0def148f590>

²⁶ BGS (2026) *BGS Geology Viewer*, <https://geologyviewer.bgs.ac.uk/>

²⁷ Cranfield Soil and Agrifood Institute (2026) *Soilsmap*, <http://www.landis.org.uk/soilsmap/>

²⁸ WHS (2026) *Mansfield District level 1 Strategic Flood Risk Assessment*, Mansfield Level 1 SFRA v4.0

Following a review of flood risk, flood defences and potential access and egress routes, an assessment was undertaken to determine whether a future site-specific FRA could demonstrate that the site is suitable for allocation for development.

The assessment first considers the overall confidence in the findings of the assessment of flood risk, taking into account the quality and availability of the underlying flood risk data. In general, confidence is considered high where the principal source of flood risk is informed by detailed modelling data, and moderate where the primary flood risk is based on national-scale modelling, as is often the case for pluvial flood risk. Low confidence is assigned where national-scale modelling is considered unreliable, for example, where it does not adequately reflect local topography.

The proposed development is then assessed against the flood risk vulnerability classifications and flood zone compatibility set out in the NPPF and presented in Table 2. Flood extents and hazard during the design flood event is also considered in relation to the scale and nature of the proposed development. Where relevant, any mitigation measures required to satisfy the Exception Test (see Section 3.3) are identified, including measures such as ground raising and the provision of compensatory flood storage. In addition to this where relevant, a high-level review of the sustainability benefits offered by the sites are discussed in the context of the exception test.

Table 2- Flood risk vulnerability and flood zone 'incompatibility'

Flood Zones	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	x	Exception Test required	✓	✓
Zone 3b	Exception Test required	x	x	x	✓

The site assessments also include guidance for the preparation of site specific FRAs, including key guidance and legislation to be considered, information about the use of SuDS and any other actions required at the planning stage considering the overall flood risk at the site and any uncertainties identified by the level 2 site assessment.

3.3 Exception Test

The NPPF outlines the use of the Exception Test for determining whether a particular development is suitable within areas vulnerable to flooding. The Exception Test is required if a development is:

- Highly vulnerable and in Flood Zone 2
- Essential infrastructure in Flood Zone 3a or 3b
- More vulnerable in Flood Zone 3a

The Exception Test comprises the following two requirements, which the NPPF states must be passed for development to go ahead:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk.
- It must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users without increasing flood risk elsewhere, and where possible, will reduce flood risk overall.

This Level 2 SFRA focuses on the second part of the Exception Test, considering the likelihood of each of the sites passing this element. This has considered i) the safety of future occupants in terms

of finished floor levels and safe access/egress, ii) whether the scale of development is appropriate with respect to off-site impacts and iii) whether flood risks onsite can be reduced.

In relation to the first part of the exception test, sustainability benefits will be confirmed and developed through the planning process. However, where relevant and where sufficient information is available, a high-level review of the sustainability benefits associated with a particular site is also provided.

The final layouts for each site are not available at this stage and would typically be determined at the planning stage. If the sites are allocated, a site-specific FRA will need to be undertaken at the planning application stage to provide a more detailed assessment of flood risk and design mitigation measures where required to ensure that the development is safe for its lifetime.

Appendix 1 – Site Specific Assessments