



Flood Risk and the Sequential Test for Site Allocations

Background Paper

South Downs Local Plan

September 2017

A decorative graphic at the bottom of the page consisting of several overlapping, wavy, grey lines that create a sense of movement and depth, resembling a stylized horizon or a series of ripples.

I. INTRODUCTION

Key policies covered:

- Site Allocations

- 1.1 This background paper outlines how flood risk associated with the site allocations in the Local Plan has been addressed. It summarises relevant national policy and key evidence base studies and explains how the Sequential Test has been applied to the site allocations. The details of this test are set out in the Site Allocations Flood Risk Sequential Test Report attached as Appendix I to this paper.

2. NATIONAL PARK PURPOSES / DUTY AND SPECIAL QUALITIES

- 2.1 The South Downs National Park contains a diverse range of groundwater and surface water features, including aquifers, rivers, lakes, springs, winterbournes, estuaries and open coastline. This water environment is a key part of what makes the National Park special and contributes to its natural beauty, biodiversity, tranquil and special places, farming and enterprise. It also provides opportunities for recreation related to the second purpose of National Parks. The water environment also delivers essential ecosystem services.
- 2.2 Alongside this, the river courses that run through the landscape and the underlying geology make certain areas of the National Park more at risk from flooding. This is illustrated by the catastrophic flood that took place in the market town of Lewes, in the eastern part of the National Park in 2001. Reducing the National Park's vulnerability to the impacts of climate change, and making it more resilient to flooding, is a therefore key objective of the Local Plan.

3. NATIONAL POLICY AND GUIDANCE

Vision and Circular for National Parks

- 3.1 The Vision and Circular for English National Parks states that National Parks should lead the way in adapting to and mitigating climate change. The South Downs National Park Climate Change Adaptation Plan explains that the South Downs is particularly vulnerable to the impacts of present and future climate change. It sets out a range of responses to the risks and opportunities from climate change, including flood management and effective water management.

The National Planning Policy Framework and Flood Risk and Coastal Change Planning Practice Guide

- 3.2** The National Planning Policy Framework (NPPF)¹ and its associated Flood Risk and Coastal Change Planning Practice Guidance (PPG)² form the primary source of statutory planning guidance with regard to new development and flood risk for England. These documents explain that a key part of promoting sustainable development is ensuring that where new development has to take place in areas of higher flood risk, it is safe from flooding, and does not itself increase flood risk to others.
- 3.3** The main approach of the NPPF and PPG with regards to flood risk is to steer new development away from areas of flood risk, as far as possible, through the application of the ‘Sequential Test’. Development in areas of higher flood risk should only be permitted where this test has determined that it is required in order to fulfil other local plan policy requirements. A further test, the ‘Exception Test’ has to be satisfied to demonstrate that development in areas of high flood risk has wider sustainability benefits that outweigh flood risk. In addition, the development needs to be safe for its lifetime, without increasing flood risk elsewhere, and where possible, reduce flood risk overall. The NPPF explains that the preparation of a Strategic Flood Risk Assessment provides the evidence base to facilitate the application of these tests. (NPPF paragraph 100).

4. LOCAL CONTEXT AND EVIDENCE

Strategic Flood Risk Assessment (SFRA) Studies

- 4.1** A SFRA is a study carried out by a local planning authority to assess the risk to an area from flooding from all sources, now and in the future, taking into account the impacts of climate change. It is also used to assess the impact that land use changes and development in the area will have on flood risk.
- 4.2** To support the policies associated with flooding in the Local Plan and the proposed site allocations, the SDNPA commissioned Amec Foster Wheeler to undertake a Level I SFRA alongside a Water Cycle Study in April 2015³. This document provides an overview of the different types and locations of flood risk across the National Park area and a screening assessment for flood risk for sites being considered for allocation in the Local Plan at that time. However, as a result of changes to sites within the Strategic Housing Land Availability Assessment (SHLAA) and consultation on the Preferred Options Local Plan, the proposed housing allocations in the Local Plan were revised. This resulted in the need for further screening of potential housing allocations in relation to flood risk. In addition, detailed flood risk information was needed to inform site allocations that were considered to be at risk of flooding.

¹ Department for Communities and Local Government, 2012. National Planning Policy Framework, published March 2012.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf.

² Department for Communities and Local Government, 2014. Flood Risk and Coastal Change – Planning Practice Guidance, published March 2014. <https://www.gov.uk/guidance/flood-risk-and-coastal-change>.

³ Level I SFRA and Water Cycle Study 2015 Amec Foster Wheeler

<http://www.southdowns.gov.uk/planning/national-park-local-plan/evidence-and-supporting-documents/>

- 4.3** An update to the Level 1 SFRA and a more detailed Level 2 SFRA⁴ was therefore commissioned from the same company in the Summer of 2017. The 2017 SFRA study has assessed all allocated sites in the Local Plan that are at risk from fluvial and tidal flooding; surface water flooding and groundwater flooding. It also includes information on the effects of climate change and how this might further increase flood risk across the National Park area.
- 4.4** The findings of both SFRA studies has also informed the Local Plan Sustainability Appraisal (SA).

5. POLICY FORMULATION

Site Allocations and Management of Flood Risk

- 5.1** The NPPF requires Local Planning Authorities to take flood risk into account when developing land allocations for Local Plans. As set out above, the main approach of National Guidance is to steer development away from areas at risk of flooding through the application of the Sequential Test. In undertaking this test, screening information from both SFRA studies has been used to inform the Strategic Housing Land Availability Assessment (SHLAA) and the Sustainability Appraisal of the Local Plan, in order to identify options with the lowest risk of flooding and to apply the Sequential Test to site allocations, while still meeting National Park purposes and duty.
- 5.2** How the Sequential Test has been applied to site allocations in the South Downs Local Plan and the results of this are set out Appendix I to this report in the paper 'Site Allocations Flood Risk Sequential Test Report September 2017'.
- 5.3** The results of this report highlight that any sites where significant and irreconcilable flood issues have been identified, these have not been taken forward for the purposes of the Local Plan. Sites with some risk of flooding that need to be allocated to meet Local Plan objectives, have been subject to further assessment in the combined Level 1 Update and Level 2 SFRA 2017 study. As set out above, this study has assessed the level of flood risk, from all sources, across all site allocations in the Local Plan. This information has been used to help inform the application of the Sequential Test by identifying the extent of flood risk across the site, including as a result of climate change impacts. The study also provides a series of flood risk management policy recommendations to manage future flood risk at the site, and to enable, if necessary, the application of the Exception Test. These recommendations have been included as supporting text and policy criteria in the Local Plan site allocation policies and are intended to guide the approach to flood risk management, from the earliest stages of site assessment, through to finalisation of the development layout and design. This will help to ensure that the development is safe from flooding over its lifetime, without causing flood risk elsewhere.

⁴ Combined Level 1 Update and Level 2 SFRA 2017 Amec Foster Wheeler

<http://www.southdowns.gov.uk/planning/national-park-local-plan/evidence-and-supporting-documents/>

6. CONCLUSIONS

- 6.1** Flood events are becoming more frequent in the UK due to climate change and development pressures. Managing flood risk therefore, is an increasingly important issue for the SDNPA in planning for development and assessing planning applications. The SDNPA recognises that full consideration of flood risk and climate change in development proposals is an integral part of delivering a sustainable pattern of development for the National Park. With this in mind, the SDNPA, through its Strategic Flood Risk Assessment studies, has sought to deliver a robust evidence base to inform its policy approach to managing this issue.
- 6.2** The approach to the management of flood risk associated with site allocations detailed above, will help to ensure that the communities within the National Park are less vulnerable to flooding, including as a result of climate change. On-going working with key partners including the Environment Agency and Lead Local Flood Authorities will also be key to making the National Park more resilient to flooding now and in the future.

APPENDIX I: FLOOD RISK AND THE SEQUENTIAL TEST FOR SITE ALLOCATIONS

Site Allocations Flood Risk Sequential Test Report

South Downs Local Plan

September 2017

I. INTRODUCTION

- 1.1 This report provides the evidence base to prove that the Sequential Testing methodology has been applied in accordance with the requirements of the National Planning Policy Framework (NPPF) in allocating development sites within the National Park. It firstly sets out an overview of the spatial strategy of the Local Plan to explain why in undertaking the Sequential Test, the area of search for alternative sites is at the individual settlement scale. Following this the document applies the Sequential Test methodology to the allocation sites. This has involved screening sites to establish their level of flood risk. Where sites are identified as at potential risk of flooding, an assessment has been undertaken to identify whether it is possible for this development to be directed to alternative locations with a lower risk of flooding.
- 1.2 The application of the Sequential Test has been informed by the SDNPA's Strategic Flood Risk Assessment (SFRA) and Water Cycle study 2015 and combined Level 1 Update and Level 2 SFRA 2017. This report has also been informed by the Local Plan Sustainability Appraisal (SA) and the Strategic Housing Land Availability Assessment (SHLAA).

2. LOCAL PLANNING CONTEXT

- 2.1 The South Downs Local Plan is the first Local Plan to plan for the National Park as a single entity. Importantly, it is founded on National Parks' primary purpose which is 'to conserve and enhance the natural beauty, wildlife and cultural heritage of the area.' The Local Plan also has regard to National Parks' duty 'to seek to foster the economic and social well-being of the local communities within the National Park.'
- 2.2 In light of this, and the different character areas across the National Park, the spatial strategy for the South Downs Local Plan is for a medium level of growth dispersed across the towns and villages. This reflects the historic delivery rate of new homes within the National Park area.
- 2.3 This dispersed approach is supported by the Sustainability Appraisal (SA) of the Local Plan as it would do the most to promote the vitality of a wide range of settlements in the National Park and support the rural economy, while protecting and enhancing the special qualities of the National Park. The spatial strategy also reflects the outcome of public consultation and strong community support for addressing local housing need within many settlements across the National Park. Also material is the very large geographical extent of the National Park, spanning 3 counties and stretching over 80 miles east to west, and incorporating parts of four housing market areas. In light of this, the area of search for alternative options for site allocations at less risk of flooding has been restricted to individual settlements as opposed to a search National Park wide.

Strategic Housing Land Availability Assessment (SHLAA)

- 2.4 The SHLAA 2016⁵ was undertaken to provide evidence of the development potential of sites identified across the National Park. The capacity for individual settlements to accommodate new housing informed the approach taken, by showing that there were suitable, available and achievable sites across the National Park, in smaller as well as larger settlements. The SHLAA

⁵ South Downs National Park Strategic Housing Land Availability Assessment (SDNPA, 2016)

assessed over 500 sites and found an overall theoretical capacity of 2,902 homes from the sites identified. However, this did not include all extant permissions, and did not apply the draft spatial strategy.

- 2.5 Given the National Park's primary purpose, the first stage of the assessment was to consider the landscape sensitivity of the site. As well as this, a number of other factors or constraints were taken into account, including flood risk, in assessing the suitability of a site for housing development. The SHLAA therefore has been used to identify sites that may not be suitable for development as a result of significant flooding issues.

Sustainability Appraisal (SA) and consideration of flood risk through site selection

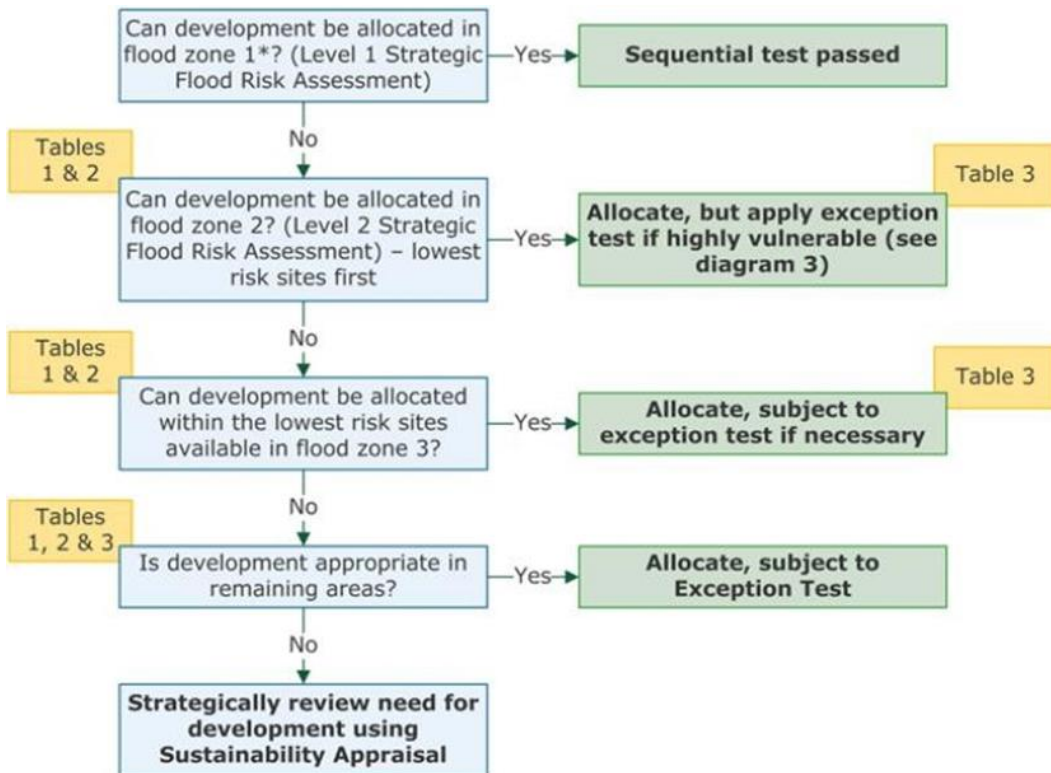
- 2.6 The SA for the South Downs Local Plan has assessed potential site allocations against nine sustainability themes. One of these themes is climate change adaptation. Within this theme, the aim is to minimise the risk of flooding to new development through the application of the Sequential and Exception tests, and to ensure that the NPA is directing development away from areas at risk of flooding.
- 2.7 Sites where significant and irreconcilable flood risk issues have been identified in the SHLAA and SA have not been taken forward for the purposes of the Local Plan. However, the SA explains that there are a few sites where there is the potential for some flood risk, nevertheless their allocation would help to meet the Local Plan policy objectives and deliver a range of positive sustainability outcomes.
- 2.8 As set out in the Flood Risk Background Paper, the provisions of the NPPF enables such development to be taken forward through the application of the Sequential Test (and if necessary, applying the Exception Test) and safeguarding land from development that is required for current and future flood management.

3. METHODOLOGY

General Process

- 3.1 The Sequential Test is applied during preparation of a Local Plan to steer the allocation of development sites towards areas of lowest flood risk i.e. Flood Zone I.
- 3.2 The methodology used in this report conforms to the approach in the NPPF, as set out in Diagram 2 of the NPPF PPG, which is reproduced below as Figure I.

FIGURE 1: APPLICATION OF THE SEQUENTIAL TEST FOR LOCAL PLAN PREPARATION



3.3 Reference to Tables 1, 2, and 3 in this figure refers to tables in the NPPF PPG which provide definitions of Flood Zones, Development Vulnerability and the Flood Risk Vulnerability and Flood Zone Compatibility matrix respectively.

3.4 The allocations assessed in this report fall into two of the five vulnerability classes. The Gypsy and Traveller sites are classed as ‘Highly Vulnerable’ as they provide pitches for caravans to be used for permanent residential homes. Buildings used for dwelling houses are classified as ‘More Vulnerable’. The mixed use allocations will also fall into the ‘More Vulnerable’ class even though shops, restaurants, office space, and similar non-residential developments alone are classified as ‘Less Vulnerable’. Table 3 of the NPPF guidance combines the information in Tables 1 and 2 of the guidance to provide flood risk vulnerability and flood zone ‘compatibility’ matrix as shown in Figure 2 below.

**FIGURE 2: FLOOD RISK VULNERABILITY AND FLOOD ZONE
'COMPATIBILITY'**

Flood Zones	Highly Vulnerable Development (Gypsy and Traveller Sites)	More Vulnerable (Residential, Mixed Use)	Less Vulnerable (Commercial)
1 - Land having a less than 1 in 1,000 AEP of river or sea flooding	✓	✓	✓
2 - Land having between a 1 in 100 and 1 in 1,000 AEP of river flooding; or land having between a 1 in 200 and 1 in 1,000 AEP of sea flooding	Exception Test required	✓	✓
3a - Land having a 1 in 100 or greater AEP of river flooding; or Land having a 1 in 200 or greater AEP of sea flooding.	X	Exception Test required	✓
3b - This zone comprises land where water has to flow or be stored in times of flood. For the purposes of this report, and where appropriate modelling outputs are available, it has been defined as land having a less than or equal to 1 in 20 AEP risk of river or sea flooding.	X	X	X

Where: ✓ indicates development is appropriate and X indicates development is inappropriate. The full table is provided in the NPPF.

Specific Analysis Methodology

3.5 The 2017 SFRA screened 37 out of 41 proposed site allocations in the emerging Local Plan against high level, nationally available, tidal, fluvial, surface water and groundwater flood risk mapping data. Sites where planning permission has already been granted were not screened as part of this process.

3.6 A simple 'traffic-light' assessment methodology was employed to indicate the likelihood of flooding. In this respect, the likelihood of flooding for sites categorised as green is unlikely/none, therefore these sites were 'screened out' and not considered further. Sites categorised with a potential (amber) and likely (red), likelihood of flooding, were 'screened in' to undergo further assessment. For the detailed screening methodology and datasets used please refer to the Combined Level 1 Update and Level 2 SFRA 2017.

3.7 The screening process criteria are shown below in Figure 3:

FIGURE 3: SCREENING PROCESS CRITERIA

Likelihood of flooding	Fluvial/tidal	Surface Water	Groundwater
Likely	Within Flood Zone 2	Clear surface water flood pathways or areas of ponding within site boundary	On Chalk aquifer with topographic context suggesting emergence of groundwater likely (particularly as evidenced by surface water pathways through the site)
Possible	Within 50m of the edge of Flood Zone 2 and in a topographic setting which suggests climate change could increase flood risk over development lifetime.	Surface water flood risk affects small parts of site (e.g. along site boundary) or site access	On Chalk aquifer, but topographic context suggests less risk to site, although there could be risk to access or immediate environs. On Lower Greensand or minor aquifer and topographic context suggests potential for flooding (surface water pathways in or near site)
Unlikely / no risk	More than 50m away from edge of Flood Zone 2	Surface water flood risk does not affect either site or its access	Sites on aquifers, but at the tops of hills/on non-convergent valley side slopes where groundwater emergence is not considered likely. Sites on non-aquifer strata.

3.8 This screening information has been used to undertake the Sequential test and to direct development to sites or areas at least risk of flooding.

3.9 The full results of the screening exercise is set out in the combined Level 1 Update and Level 2 SFRA 2017 document.

4. RESULTS

- 4.1** The result of the SFRA screening exercise identified that out of the 37 sites that were screened for all types of flood risk, 32 of the site allocations in the South Downs Local Plan fall entirely within Flood Zone 1. These sites are considered to be at low risk of fluvial or tidal flooding and therefore pass the Sequential Test.
- 4.2** A significant number of the 32 sites are predicted to have some susceptibility to surface or groundwater flooding. Nevertheless, the SFRA has concluded that that no extensive areas of this type of flooding are located within these allocations and that any localised ponding that occurs is calculated to be shallow in depth. Furthermore, the SFRA report advises that these flood risks can be managed through the design and layout of the site and the use of other mitigation measures. Sites identified as being at risk from this localised surface and groundwater flooding have not therefore been included as part of the Sequential Test process.
- 4.3** Only five sites in the Local Plan were considered to be at risk of fluvial or tidal flooding either as a result of the site access or part of the site being included within Flood Zones 2 or 3 (including as result of climate change). These are therefore subject to the application of the Sequential Test and are:
- **SD56** - Shoreham Cement Works (River Adur);
 - **SD58** - Former Allotments, Alfriston (Cuckmere River);
 - **SD79** - Land at Old Malling Farm, Lewes (River Ouse);
 - **SD82** - Holmbush Caravan Park, Midhurst (tributary of the River Rother); and
 - **SD89** - Land at Pulens Lane, Sheet (River Rother).

Sequential Test Site Profiles

- 4.4** For these five sites, a profile has been produced to allow further analysis in terms of:
- Could the proposed site allocation be alternatively located in a site wholly within Flood Zone 1?
- 4.5** The SA and SHLAA have been used in the assessment of whether any reasonable alternative sites are available that are at less risk of flooding while still meeting National Park purposes and duty. The defined area of search in looking for alternative sites has been confined to individual settlements given the extent of the National Park area and the spatial strategy for the South Downs Local Plan.
- Can the more sensitive development use types be directed to parts of the site where the risks are lower for both occupiers and the premises themselves?
- 4.6** The extent of the different flood zone areas and consideration of whether the development is suitable within these has been assessed in accordance with Table A in this report. Identifying which parts of the site are at higher or lower risk of flooding will help to ensure that more vulnerable development is directed to areas at least risk of flooding. This analysis has also helped to determine whether the Exception Test is required as a result of more vulnerable development needing to be located within Flood Zone 3a or 3b. The 2017 SFRA study has

provided this information utilising Environment Agency (EA) river model outputs and flood zone maps to give further detail on flood risk.

- Impacts of climate change and Exception Test

- 4.7** In the absence of up to date climate change modelling for those sites that are at risk of fluvial or tidal flooding, the Environment Agency has advised that a 15m buffer is placed around Flood Zone 2 in order to assess the more severe impacts of climate change on fluvial flood risk. This will provide some indication of the additional area where development might become constrained for flood reasons in the future. It is recognised however, that this approach is somewhat simplistic in that it does not account for local topographical or hydraulic circumstances. The 2017 SFRA report therefore, where relevant, identifies where these topographical or hydraulic features would need to be factored in.
- 4.8** Paragraph 102 of the NPPF establishes the need for the Exception Test to be applied where it is not possible for development to be located within areas with a lower probability of flooding. For the Exception Test to be passed it must be demonstrated that: the development provides wider sustainability benefits to the community that outweigh flood risk; and a site-specific flood risk assessment 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. In light of potential changes to the extent of flood zones as a result of climate change impacts, the site profiles contain information to show how proposed site allocation would meet the Exception Test if it is proven necessary for any of the proposed housing development to be located within Flood Zones 3a or 3b. Information on the sustainability benefits of the proposed allocation is provided. In addition the recommendations of the 2017 SFRA report are included, namely that all sites affected by fluvial flood risk, where necessary, provide flood resilient design that is evaluated in a site specific SFRA using current EA climate change guidance.
- 4.9** The detailed site profiles for the five site allocations affected by fluvial flooding and how they meet the requirements of the Sequential Test are set out at the end of this report.

5. CONCLUSIONS

- 5.1** Utilising the methodology recommended by the NPPF, this report has assessed the sites proposed for allocation in the South Downs Local Plan against their vulnerability to flooding.
- 5.2** The SHLAA and SA, provided an early sifting process in that sites where significant and irreconcilable flood risk issues were identified were not taken forward for the purposes of the Local Plan.
- 5.3** Only five sites out of the 37 proposed allocations in the emerging Local Plan, that were screened for flood risk in the 2017 SFRA study, contain land that is within Flood Zone 2 and/or 3a and 3b.
- 5.4** These sites have been subject to more detailed analysis in terms of: whether any reasonable alternative sites were available that would still meet National Park purposes and duty and the objectives of the Local Plan; and on the level of flood risk within the site itself. This information is set out in Sequential Test Site Profiles at the end of this report.

- 5.5** The site profiles have demonstrated that all of the five site allocations were needed to meet Local Plan objectives and no other suitable alternatives were available.
- 5.6** In addition, the site profiles show that only a part of each of the sites is at risk of fluvial flooding, with sufficient area remaining for all proposed housing allocations to be feasibly located within Flood Zone 1. In this respect, the Local Plan allocation policy criteria requires development to be directed to that part of the site that is within Flood Zone 1.
- 5.7** No extensive areas of surface and groundwater flooding were identified within the potential allocations in the Local Plan. Since these risks can be managed through site layout and the use of other mitigation measures, surface water and groundwater risks have not been included as part of the Sequential Test process. In this respect, policy criteria have been included with the Local Plan site allocation policies to manage surface and groundwater flood risk at these sites.
- 5.8** The report has therefore demonstrated that all the allocated sites would pass the Sequential Test.
- 5.9** The allocation sites that have passed the Sequential Test will still need to respond to and effectively mitigate any risk of flooding on the site, including as a result of climate change. The 2017 SFRA has included additional analysis to assess the future flood risk of climate change impacts. This work has identified a theoretical extent of the area at risk of flooding over the lifetime of the development.
- 5.10** This additional analysis has shown that: taking climate change into account and given that a range of levels of development is proposed at each site, sufficient land within the proposed sites still remains outside Flood Zone 3 to suggest that all five allocations could still be taken forward. However, should it be necessary for some vulnerable development to take place in areas of higher risk of flooding, the proposed development would need to meet the requirements of the Exception Test.
- 5.11** In order to demonstrate that the site allocation in principle would pass this test, the site profiles set out the wider sustainability benefits to the community that these allocations would provide. In addition, policy criteria to manage flood risk have been included within the relevant Local Plan and site allocation policies. These include the requirement for a site specific flood risk assessment (FRA) to ensure the proposed development itself will be safe from flooding over its lifetime and will not cause flooding elsewhere. The site allocations, if necessary, would therefore in principle pass the Exception Test.

6. SEQUENTIAL TEST SITE PROFILES

HOUSING ALLOCATIONS

Site Name and Address	SD 58: Former Allotments, Alfriston
Existing Use	Agricultural Buildings and Woodland
Proposed Use	Residential development (5 to 10 dwellings) including a contribution towards affordable housing.
Flood Zones	<p>85% of the site is within Flood Zone 1</p> <p>5% of the site is within Flood Zone 2</p> <p>10% of the site is within Flood Zone 3</p> <p>The 2017 SFRA has identified that the north eastern edge of the site is at risk of fluvial flooding with a tide locking component. Most of the site is at low risk of fluvial flooding but the proposed site access appears to be in the lowest part of the site and within Flood Zones 2/3. Climate change could increase this risk over the lifetime of the development. To account for this, a 15 m buffer has been applied to Flood Zone 2, giving an indication that potentially an additional 22 % (0.09 ha) of the site could be at risk of flooding over the lifetime of the development. As explained in the main report the impacts of climate change would need to be properly assessed through a site specific SFRA.</p>
Is the proposed use acceptable in this Flood Zone?	Yes, see Table A in main report
Is the site considered to be at risk from other forms of flooding?	The majority of the site is not at risk of surface or groundwater flooding, however the proposed site access may also be at risk from these sources as well as fluvial flooding.

Site Name and Address	SD79: Land at Old Malling Farm, Lewes
Existing Use	Agriculture
Proposed Use	Residential development of between 220 and 240 dwellings including Affordable Housing.
Flood Zones	<p>85% of the site is in Flood Zone 1</p> <p>8% of the site is in Flood Zone 2</p> <p>2% in Flood Zone 3a</p> <p>5% in Flood Zone 3b</p>

	<p>The SFRA has identified that a very small part of this site intersects the functional floodplain (Flood Zone 3b). This part is at risk from both fluvial and tidal flooding, with a tide locking element to the flood risk. Applying a 15m buffer to Flood Zone 2, to allow for climate change impacts, results in potentially an additional 23 % (23.2 ha) of the site at risk of flooding. However, the SFRA explains that realistically while climate change is likely to increase the depth of flooding in the Ouse Valley floodplain in the northern part of the site, this should not significantly increase flood extents because the edge of the floodplain is topographically well-defined.</p>
<p>Is the proposed use acceptable in this Flood Zone?</p>	<p>Yes, see Table A in main report</p>
<p>Is the site considered to be at risk from other forms of flooding?</p>	<p>The site access may be at risk from surface water flood risk. Groundwater emergence is most likely in the northernmost part of the site within the flood plain of the River Ouse. This may also occur in the centre of the site associated with springs along the boundary between the Grey and White Chalk.</p>
<p>Key requirements for satisfying Sequential and/or Exception Test</p> <p>Could the proposed development be alternatively located in a site wholly within Flood Zone 1?</p> <p>Can the more sensitive development use types be directed to parts of the site where the risks are lower for both occupiers and the premises themselves?</p>	<p>Lewes, as the largest market town in the South Downs National Park, is required by the Local Plan to provide 875 dwellings over the plan period to be met from strategic allocations in the Local Plan and site allocations in the Lewes Neighbourhood Plan.</p> <p>As a result of the extensive floodplain and surrounding sensitive and high quality landscape, there are no other options, other than this site, that would deliver similar strategic levels of development in Lewes. This is confirmed in the SA which explains that the policy will deliver a significant amount of new housing (including affordable housing) which will help meet local needs and support the vitality of Lewes.</p> <p>The majority of the site is located in Flood Zone 1 and all housing development at this site can feasibly be accommodated within this flood zone. The area in Flood Zone 3b could be used for open space or similar, so as to avoid placing vulnerable uses at flood risk.</p> <p>Summary</p> <p>This assessment concludes that this site passes the sequential test.</p> <p>No vulnerable development is proposed within the area of the site that lies within Flood Zone 3. In line with this, the site specific development criteria of Local Plan Policy SD 79 require that all housing is to be located in Flood Zone 1.</p>

	<p>The site is considered an important strategic site that will deliver significant amount of new housing in Lewes.</p> <p>Any future development proposals will require the preparation of a site specific FRA utilising the recommendations in the 2017 SFRA report to address flood risk issues, including climate change impacts.</p>
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Site Name and Address	SD82: Holmbush Caravan Park, Midhurst
Existing Use	Caravan Park
Proposed Use	Residential development of between 50 to 70 dwellings including Affordable Housing
Flood Zone	<p>53% of the site is in Flood Zone 1</p> <p>9% in Flood Zone 2</p> <p>38% in Flood Zone 3</p> <p>Over half of the site is located in Flood Zone 1. The SFRA explains that there is a risk of fluvial flooding that coincides with the onsite pond connecting to the adjacent tributary of the River Rother. Applying a 15m buffer to Flood Zone 2, to allow for climate change impacts, results in potentially an additional 16% (0.77ha of the site) at risk of flooding. However the SFRA qualifies this in that realistically this likely to be limited to a narrow area of land adjacent to the pond.</p>
Is the proposed use acceptable in this Flood Zone?	Yes, see Table A in main report.
Is the site considered to be at risk from other forms of flooding?	The site is a former mineral extraction site for sands from the Lower Greensand. Small areas at the lowermost part of the site adjacent to the western boundary are at risk of surface water flooding. The pond on the site may represent the water table within the Lower Greensand aquifer. Significant rise in the water table is unlikely due to the high storage capacity of the sandstone aquifer and the likely good hydraulic connection to the stream to the west of the site.
Key requirements for satisfying Sequential and/or Exception Test	As one the four market towns in the National Park, Midhurst has been set a level of 175 new homes to be met from Local Plan allocations. In terms of the availability of alternative sites that are at less risk of flooding; all sites that were considered to have potential for development have either been allocated along with this one to meet the Local Plan housing target for the town or not taken forward as they were too small.

<p>Could the proposed development be alternatively located in a site wholly within Flood Zone 1?</p> <p>Can the more sensitive development use types be directed to parts of the site where the risks are lower for both occupiers and the premises themselves?</p>	<p>The site scores well in the SA as it makes good use of a redundant site and is fairly centrally located with good accessibility to services and facilities in the town.</p> <p>As a range of housing numbers is proposed for this site, it is considered that all proposed housing development can feasibly be accommodated within Flood Zone 1.</p> <p>Summary</p> <p>This assessment concludes that this site passes the Sequential Test.</p> <p>The site specific development criteria of Local Plan Policy SD 82 require that all housing is to be located sequentially only within Flood Zone 1.</p> <p>The site is considered important in helping to meet local housing need and deliver other sustainability benefits in Midhurst, including the regeneration of a redundant site that is within walking distance of the town centre.</p> <p>Any future development proposals will require the preparation of a site specific FRA utilising the recommendations in the 2017 SFRA report to address flood risk issues, including climate change impacts.</p>
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Site Name and Address	SD89 Land at Pulens Lane, Sheet
Existing Use	Paddock and Woodland
Proposed Use	Residential development of between 30 to 32 dwellings including Affordable Housing
Flood Zone	<p>82% of the site is in Flood Zone 1</p> <p>4% in Flood Zone 2</p> <p>14% in Flood Zone 3</p> <p>Only a relatively small area of the site immediately adjacent to the River Rother is at risk of fluvial flooding. Further analysis in the SFRA, to take into account climate change impacts, identifies that by applying a 15m buffer to Flood Zone 2 potentially an additional 19 % (0.67ha) of the site could be assessed to be at risk of flooding, including the likely access. However, the SFRA explains approximately 26% of the site in total is below an elevation of 50m and this provides a more realistic indication of the likely extent of future flood risk at this site.</p>
Is the proposed use acceptable in this Flood Zone?	Yes, see Table A in main report

<p>Is the site considered to be at risk from other forms of flooding?</p>	<p>Several isolated low points on the site, including the site access are at risk of surface water flooding. Groundwater emergence is most likely in the flood plain of the river.</p>
<p>Key requirements for satisfying Sequential and/or Exception Test</p> <p>Could the proposed development be alternatively located in a site wholly within Flood Zone 1?</p> <p>Can the more sensitive development use types be directed to parts of the site where the risks are lower for both occupiers and the premises themselves?</p>	<p>The Local Plan Strategic Policy SD 26 sets a figure of 31 dwellings to be allocated in Sheet, a fairly large village whose southern edges are now contiguous with Petersfield.</p> <p>Only this site was considered to have potential for development in the SHLAA. Other sites that were at less risk of flooding were rejected as they did not meet National Park purposes a result of not relating well to the existing settlement pattern and potentially having an adverse impact on the character and appearance of the landscape.</p> <p>The proposed allocation obtains a positive score in the SA as it is in good proximity to the services and facilities in Petersfield and public transport links.</p> <p>A concept plan to support the allocation has been prepared for this site which illustrates that the proposed housing development can be located in areas that are at least risk of flooding.</p> <p>In addition, it is proposed to manage any future flood risk at this site, if necessary, through the allocation policy criteria. These seek to ensure that, the residential development is sited in Flood Zone 1, flood resilient design is provided along with safe means of emergency access from the site and the inclusion of a buffer strip between the development and Flood Zone 3b, the extent of which should be investigated as part of the master planning process.</p> <p>Summary</p> <p>The assessment concludes that the proposed allocation passes the Sequential Test.</p> <p>The site is considered important in helping to meet local housing need and to deliver other sustainability benefits in the village.</p> <p>Any future development proposals will require the preparation of a site specific FRA utilising the recommendations in the 2017 SFRA report to address flood risk issues, including climate change impacts.</p>

MIXED USE DEVELOPMENT

Site Name and Address	SD 56: Shoreham Cement Works
Existing Use	Inactive chalk quarry and semi-derelict cement works
Proposed Use	Mixed use but primarily business uses and sustainable tourism, leisure uses
Flood Zone	<p>99% of the site is within Flood Zone 1</p> <p>Less than 1% of the site is within Flood Zone 2</p> <p>Less than 1% of the site is within Flood Zone 3a</p> <p>The majority of the site is sufficiently elevated and therefore realistically it is considered to be at no fluvial/tidal risk now or in the future. However, a small area that largely coincides with the access track heading northwest from the A283 and the western most boundary, is identified as susceptible to flooding with climate change allowances. Taking into account climate change it is suggested that an additional 1% (0.56 ha) of the site would be at risk of flooding.</p>
Is the proposed use acceptable in this Flood Zone?	Yes, the majority of the proposed uses are classed as less vulnerable.
Is the site considered to be at risk from other forms of flooding?	The SFRA identifies that the lowermost part of the site adjacent to the existing south west access and the wider road network in the vicinity of the site is at risk of surface water flooding. Groundwater emergence is most likely in the floodplain of the River Adur. Aerial photography does not show any water features within the former quarry void, suggesting the base of the void remains above the chalk water table.
Key requirements for satisfying Sequential and/or Exception Test	Shoreham Cement Works is a strategic allocation that has the potential to make a substantial contribution to delivering the vision of the Local Plan. The SA identifies that the redevelopment of this site for a mixed use will lead to significant positive effects on landscape quality, the setting of the historic environment, the rural economy (including the tourism and visitor economy) and cultural activity. It also explains that with appropriate planning for green infrastructure networks, there is also the potential for significant biodiversity enhancements to take place. Given the unique nature of this site and the opportunities it presents, no alternative approaches or sites are possible.
Should the proposed development be alternatively located in a site wholly within Flood Zone 1?	The vast majority of the site is located in Flood Zone 1, including as a result of climate change. In addition, most of the proposed uses at the site will be commercial development which is classed as a less vulnerable use and is therefore more appropriate in parts of the site that may be at higher risk of flooding.

Can the more sensitive development use types be directed to parts of the site where the risks are lower for both occupiers and the premises themselves?

The Local Plan requires that an Area Action Plan is prepared for the redevelopment of this site which will address in more detail its flood risk. This will cover the approach to layout of the development, taking into account the vulnerability of the proposed use; flood resilient design, where appropriate, and that safe means of access is provided during flooding.

Summary

The assessment concludes that the proposed allocation passes the Sequential Test.

This is a strategically important site that has the potential to make a substantial contribution to delivering the vision of the Local Plan.

An Area Action Plan is required for the redevelopment of the site which will utilise the recommendations in the 2017 SFRA report to address flood risk issues, including climate change impacts.