

Harrogate District Local Plan: Flood Risk Sequential Test Update



January 2018

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1 Introduction

1 Introduction

- 1.1** The council is preparing a new district-wide Local Plan to cover the period 2014 to 2035. The Local Plan will set out how much land should be provided to accommodate the new homes and jobs that will be needed in the district over this period and where this development should be located.
- 1.2** A key consideration when selecting sites for future development is an understanding of the flood risk associated with each site. This report sets out the results of the sequential test for sites selected as draft allocations for new homes, jobs, Gypsy and Traveller pitches and educational facilities in the Harrogate District Local Plan Publication Draft 2018.
- 1.3** The Local Plan growth strategy sets out that provision will be made for a minimum of 14,049 new homes, including affordable housing; six Gypsy and Traveller pitches; and a minimum of 38 hectares (ha) of new employment land.
- 1.4** It identifies that the need for growth will be met, as far as possible, in those settlements that are well related to the key public transport corridor. The scale of development will reflect:
- the settlement's role and character.
 - its relationship to the public transport corridor.
 - the need to deliver new homes and jobs.
 - the need to maintain or enhance services and facilities in rural villages.
- 1.5** The scale of development will also have regard to the capacity of infrastructure within a settlement and the time-frame for any necessary investment and improvement .
- 1.6** The growth strategy sets out a settlement hierarchy that differentiates the roles of the types of settlements in the district and groups together settlements with similar roles. New development will be located according to the settlement hierarchy as follows:
- **Main Settlements:** Major allocations of land will be provided to deliver new homes, employment land and other uses, where necessary, in the main settlements or on land specifically identified for employment purposes outside of a main settlement. These settlements are:
 - Harrogate, Knaresborough and Ripon
 - **Local Service Centres:** allocations of land will be provided for new homes and local job opportunities. These settlements are:
 - Boroughbridge, Masham and Pateley Bridge.
 - **Primary and Secondary Service Villages:** allocations of land for new homes, with new village shops and businesses encouraged to support their continued sustainability.
 - **Primary Service Villages** are Green Hammerton, Hampsthwaite, Killinghall, Kirkby Malzeard, Pannal, Ripley, Spofforth, Summerbridge and Tockwith.
 - **Secondary Service Villages** are Askwith, Beckwithshaw, Birstwith, Bishop Monkton, Bishop Thornton, Burnt Yates, Burton Leonard, Dacre/Dacre Banks, Darley, Dishforth, Follifoot, Glasshouses, Goldsborough, Grantley, Great Ouseburn, Grewelthorpe, Huby, Kettlesing Bottom, Kirby Hill, Kirk Hammerton, Kirkby Overblow, Lofthouse, Long Marston, Markington, Marton cum Grafton, North

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Rigton, North Stainley, Nun Monkton, Roecliffe, Sharow, Sicklinghall, Skelton on Ure and, Staveley.

- **Smaller Villages:** small-scale development on windfall (non-allocated) sites and rounding off. These settlements are:
 - Arkendale, Baldersby, Bewerley, Brearton, Copgrove, Copt Hewick, Cowthorpe, Farnham, Galphay, Hunsingore, Kirk Deighton, Little Ouseburn, Little Ribston, Littlethorpe, Marton-le-Moor, Melmerby, Middlesmoor, Minskip, Rainton, Ramsgill, Sawley, Scotton, South Stainley, Studley Roger, Weeton, Whixley and Winksley.

- 1.7** The growth strategy also identifies that the council is planning for the delivery of a new settlement within the broad location of Green Hammerton/Cattal. The land to be allocated for this development will be determined through the preparation and adoption of a separate Development Plan Document (DPD).
- 1.8** Over the course of preparing the Local Plan a large number of sites have been put forward to be considered for inclusion in the plan. These sites have been included in Strategic Housing and Employment Land Availability Assessment (SHELAA) documents prepared and updated during plan preparation. The SHELAA identifies whether a site has some potential for development for housing, employment use, mixed use or Gypsy and Traveller pitches. It sets out realistic assumptions about the availability, suitability and deliverability of land to meet the needs of the district over the plan period, including the development capacity for each site. Importantly, the SHELAA does not determine whether a site should be allocated for development within the Local Plan but it does form part of the evidence base to inform plan preparation, including helping to demonstrate that enough land can be identified to meet policy requirements.
- 1.9** To determine the selection of sites included as draft allocations in the plan, a detailed consideration of sites has been undertaken. This began with the preparation of a Sustainability Appraisal / Strategic Environmental Assessment decision making framework. This framework was used to assess sites against 16 Sustainability Appraisal objectives covering a range of social, environmental and economic issues.
- 1.10** More detailed assessments of a range of factors were also carried out, where relevant, and their findings were used to inform the relevant parts of the Sustainability Appraisal assessment. These included highway and transport considerations; impacts on landscape, ecology, the historic environment and local distinctiveness; desk-based land drainage assessments; and assessments of site deliverability.

2 Policy Background

2 Policy Background

National Planning Policy Framework and Flood Risk

- 2.1** National planning policies relevant to climate change, flooding and coastal change are set out in section 10 of the National Planning Policy Framework (NPPF) (2012).
- 2.2** Paragraph 100 of the NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing risk elsewhere. It also requires Local Plans to be supported by a Strategic Flood Risk Assessment (SFRA) and include policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other flood risk management bodies, such as lead local flood authorities and internal drainage boards.
- 2.3** Paragraph 100 also identifies that Local Plans should apply a sequential, risk-based approach to the location of development to avoid, where possible, flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:
- applying the sequential test;
 - if necessary applying the exception test;
 - safeguarding land from development that is required for current and future flood management;
 - using opportunities offered by new development to reduce the causes and impacts of flooding; and
 - where climate change is expected to increase the flood risk so that some existing development may not be sustainable in the long term, seeking to facilitate the relocation of development including housing to more sustainable locations.

Flood Risk and Climate Change Planning Practice Guidance

- 2.4** More detailed technical guidance on how planning can take account of the risks associated with flooding when preparing Local Plans and assessing planning applications in order to meet the requirements of the NPPF is set out in the Flood Risk and Climate Change Planning Practice Guidance (FRCC-PPG) (2014).
- 2.5** The sequential, risk-based approach to the location of development required by NPPF is based around the flood risk management hierarchy, in which actions to manage flood risk should be considered in the following sequence: avoid, substitute, control then mitigate. This is illustrated in Figure 2.1.

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Figure 2.1: Flood Risk Management Hierarchy

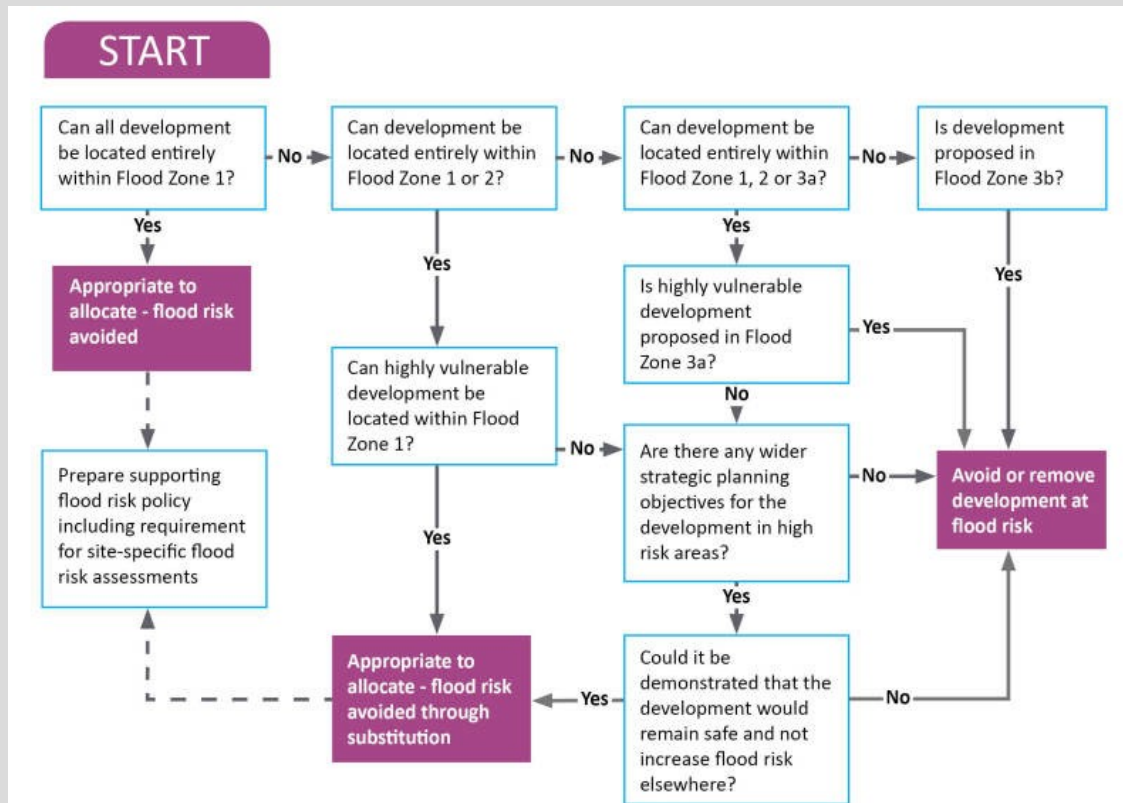


Figure 2.1 Flood Risk Management Hierarchy

- 2.6** Paragraph 18 of the FRCC-PPG explains that the sequential approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk.
- 2.7** In terms of river (fluvial) or sea flooding the overall aim is to steer new development to low risk areas (flood zone 1). Where there are no reasonably available sites in flood zone 1, the flood risk vulnerability of land uses and reasonably available sites in medium risk areas (flood zone 2) should be considered, applying the exception test if required. Only where there are no reasonably available sites in flood zones 1 and 2 should the suitability of sites in higher risk areas (flood zone 3) be considered. This should take into account the flood risk of land uses and the likelihood of meeting the requirements of the exception test if required.

Harrogate District Level 1 Strategic Flood Risk Assessment Update

- 2.8** A level 1 strategic flood risk assessment (SFRA) update was prepared by consultants JBA on behalf of the council in 2016 to support the development of the Harrogate District Local Plan. This document forms part of the evidence base for the Local Plan but also provides evidence for developers to assess flood risk at a strategic level and to determine the requirements of an appropriate site-specific flood risk assessment.
- 2.9** The SFRA update covers the whole of Harrogate district. It describes the sources of flooding and goes on to explain how the likelihood (probability) and consequences of flooding relate to the flood risk (actual and residual). It provides an overview of the key planning and flood risk documents that have shaped the current planning framework, setting out the context of the

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council's responsibilities and duty in respect of managing flood local risk. It also provides a strategic overview of flood risk from all sources within the district using the best available information at the time of publication.

- 2.10** In accordance with the FRCC-PPG, the SFRA update identifies areas of functional flood plain (flood zone 3b). A further indicative flood zone has also been delineated called flood zone 3ai. Flood zone 3ai includes developed land with the same level of flood risk as flood zone 3b where water would flow or be stored in times of flooding if not already constrained by development. Should sites in flood zone 3ai become available for development then both the risk at the site and the role of the site in managing flood risk in the surrounding area should be carefully considered with no increase in development footprint occurring.
- 2.11** Finally, the SFRA update includes an assessment of the suitability, relative to the risk of fluvial and/or surface water flooding, of potential development sites submitted to the council and included in the 2016 SHELAA. This information has been used as part of the evidence to inform this sequential test as part of the site selection process.

Harrogate District Level 1 Strategic Flood Risk Assessment Update - Addendum

- 2.12** In 2017 the council commissioned consultants JBA to produce an addendum to their 2016 level 1 SFRA update in order to assess fluvial and surface water flood risk to an additional 40 potential development sites, and to make recommendations on their suitability relative to flood risk. Whilst some of the additional sites were included in the SFRA for the first time, others were reassessed following changes to the site boundaries. This information has been used as part of the evidence to inform this sequential test as part of the site selection process.
- 2.13** Within the addendum it is explained that, as part of the research, the Environment Agency confirmed that there had been no updates to the extent of flood zones 2 and 3 within the district since the 2016 document was produced. As a result the same flood zones used for the 2016 were used for the addendum, thus ensuring a consistent and up-to-date approach.

Applying the Sequential Test 3

3 Applying the Sequential Test

Applying the Sequential Test

- 3.1** One of the key factors in the assessment of sites as part of the Sustainability Appraisal has been to understand the level of flood risk associated with each site. To inform the selection of sites as draft allocations for development, the sequential approach for allocation in a Local Plan, as set out in the Flood Risk and Coastal Change Planning Practice Guidance (FRCC-PPG) and illustrated in figure 3.1, has been used. The sequential approach has been informed by the Harrogate District Level 1 Strategic Flood Risk Assessment (SFRA) Update (2016) and the SFRA update addendum (2018).

Figure 3.1 Application of sequential test in Local Plan preparation

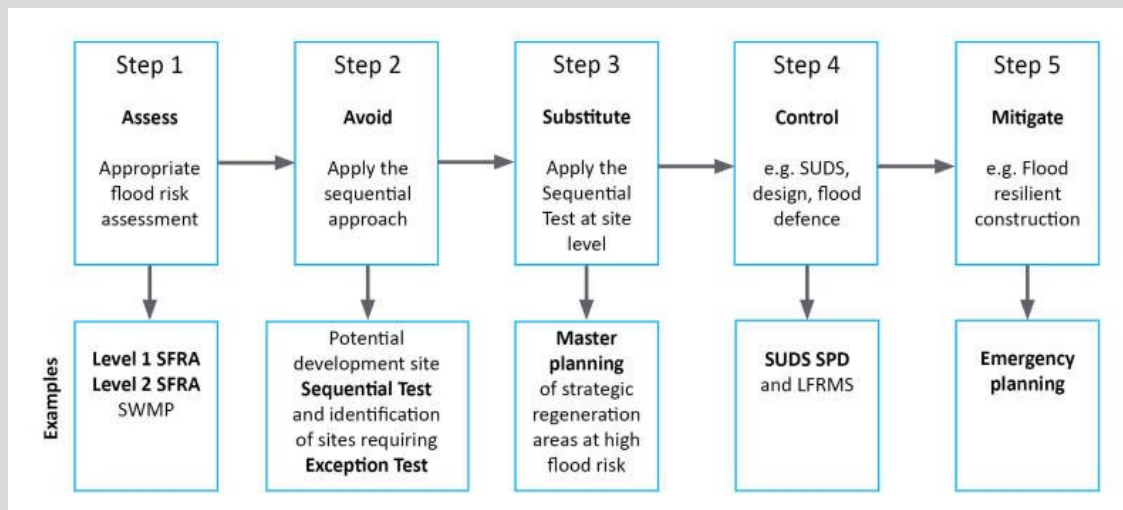


Figure 3.1 Application of sequential test in Local Plan preparation

- 3.2** Within the SFRA documents the flood risk associated with each potential development site has been assessed using a high-level screening exercise where the extent of each site has been overlaid against mapped data of flood zones to identify the amount and location of each flood zone within each site. The SFRA also assesses the risk of surface water flooding for each site in the same way using the Environment Agency's updated Flood Map for Surface Water dataset.
- 3.3** For sites selected as allocations, there must be no increase in surface water run-off as a result of development taking place. As a minimum, discharge should be restricted to the existing greenfield run-off rate. If not calculated, the greenfield run-off from a 1 in 1 year storm (1.4l/s/ha) should be used. For any previously developed (brownfield) areas a 30% minimum reduction in surface water will be expected.
- 3.4** Attenuation and long term storage should be provided to accommodate at least a 1 in 30 year storm. The design should ensure that storm water resulting from a 1 in 100 year event (plus 30% to account for climate change) and drainage system surcharge can be stored on site without risk to people or property and without overflowing into watercourses.

3 Applying the Sequential Test

- 3.5** The detailed flood zone data and surface water risk data for each of the sites assessed are set out in the Development Site Assessment spreadsheets associated with both the SFRA update and the SFRA update addendum (appendix 1 in both cases).
- 3.6** The sequential test uses the information in the council's SFRA to ensure that unless there are robust planning reasons, development should take place in accordance with the growth strategy on land that has a low probability of risk of flooding (in flood zone 1). If however there is a lack of suitable alternative sites in those areas that are at lowest risk of flooding, then the sequential test allows the council to assess and, if necessary, allocate land for development in those areas of medium probability of risk of flooding, (flood zone 2). Furthermore, if having assessed all sites in areas of low or moderate risk, the council cannot allocate sufficient land to meet its development needs, then it may still be able to allocate land for development in areas of high probability of risk of flooding, (flood zone 3).
- 3.7** In selecting sites for inclusion as draft allocations in the Local Plan preference has been given to locating development on land within flood zone 1 that has minimal surface water risk. As explained in section 1, the issue of flood risk forms one part of the evidence base for selecting draft allocations. The following section sets out those sites that are considered to be the most sustainable, taking into account flood risk.

Site Assessments

- 3.8** The sites selected as draft allocations have been subject to the sequential test as set out in the tables below:

Sites at little or no risk of flooding

- 3.9** Table 3.1 shows those sites that are considered to be sustainable options for development, in locations that seek to deliver the council's growth strategy, which are wholly located within flood zone 1 and whose risk of surface water flooding is low. Consequently the principle of developing these sites for the proposed uses would pass the sequential test.
- 3.10** Site requirements, which accompany the allocation of individual sites within the Local Plan, set out that an assessment of flood risk will be required at the planning application stage for each of the sites. In addition new development on each site is required to have an effective and robust surface water drainage system that does not increase flood risk to adjacent properties and land within the catchment.
- 3.11** For sites that are less than 1 hectare, wholly within flood zone 1 and where the risk from surface water flooding is low but would nevertheless benefit from on-site investigation, a site-specific flood risk assessment will be required at the planning application stage.
- 3.12** A site-specific flood risk assessment will also be required for all sites that are greater than 1 hectare, wholly within flood zone 1 and where the risk from surface water flooding is low in order to ensure that site-specific drainage and surface water considerations are fully taken into account.
- 3.13** The objective of a site-specific flood risk assessment is to establish whether a proposed development is likely to be affected by current or future flooding from any source. This should include whether a development proposal will increase the flood risk elsewhere and whether the measures proposed to mitigate these effects and risks are appropriate.

Applying the Sequential Test 3

Draft allocation	Proposed use
Main Settlements	
Harrogate	
H3: Land at Kingsley Road	Residential
H6: BT Training Centre, St George's Road	Residential
H16: Playing Fields, Harrogate College	Employment
H17: Heath Lodge Care Home	Residential
H18: Greenfield Court, 42 Wetherby Road	Residential
H21: Land at Kingsley Drive	Residential
H22: Land at Granby Farm, Harrogate	Residential
H23: Land north of Kingsley Farm, Harrogate	Residential
H36: Former Police Training Centre, Yew Tree Lane	Residential
H37: Land at Station Parade	Mixed use
H46: Land at Otley Road	Residential
H48: Land adjacent to Kingsley Farm	Residential
H49: Windmill Farm, Otley Road*	Residential
H51: Land east of Lady Lane	Mixed use
H56: Land to the north of Cow Dyke Farm	Residential
H65: Harlow Nurseries	Residential
H69: Land to the east of Knox Hill, Harrogate	Residential
H70: Land east of Whinney Lane*	Residential
Knaresborough	
K17: Former Cattle Market	Mixed use
K21: Land south of Bar Lane and east of Boroughbridge Road	Residential
K22: Land at Orchard Close	Residential
K37: Land at Boroughbridge Road, Knaresborough	Residential
K40: Greenacres, Cass Lane	Gypsy and Traveller provision
K41: The Paddocks, Cass Lane	Gypsy and Traveller provision
K42: Thistle Hill Stables, Thistle Hill	Gypsy and Traveller provision
Ripon	
R1: Land adjacent to 63 Bondgate	Residential
R6: Land at Springfield Close Farm	Residential
R8: Land at West Lane	Residential
R23: Former Cathedral Choir School	Residential

3 Applying the Sequential Test

Draft allocation	Proposed use
R24: Deverell Barracks	Residential
R25: Claro Barracks	Mixed use
Local Service Centres	
Draft allocation	Proposed use
B2: Land west of Leeming Lane, Langthorpe, Boroughbridge	Residential
B4: Land north of Aldborough Gate, Boroughbridge	Residential
B10: Old Hall Caravan Park, Langthorpe, Boroughbridge	Residential
B11: Land at the Bungalow, Boroughbridge	Residential
B12: Land at Stumps Cross, Boroughbridge	Residential
B18: Old Poultry Farm, Leeming Lane, Langthorpe, Boroughbridge	Residential
B21: Land at Aldborough Gate, Boroughbridge	Residential
B22: Educational facilities for Boroughbridge High School, Boroughbridge	Educational facilities
M8: Land north of Swinton Road, Masham	Residential
M13: Land at Thorpe Road (smaller site), Masham	Residential
P1: Land south of Ashfield Court (smaller site), Pateley Bridge	Residential
P5: Grassfield Court, Pateley Bridge	Residential
P10: Grassfield House, Pateley Bridge	Residential
Primary Service Villages	
Draft allocation	Proposed use
GH2: Land at New Lane, Green Hammerton	Residential
GH4: Land to the east of Bernard Lane, Green Hammerton	Residential
GH5: Land to the north of Bernard Lane, Green Hammerton	Residential
GH9: Land west of B6265 and north of A59, Green Hammerton	Residential
HM7: Land at Brookfield Garth, Hampsthwaite	Residential
KL2: Land adjoining Grainbeck Manor, Killinghall	Residential
KL6: Land at Manor Farm, Killinghall	Residential
KL13: Former cricket club and adjoining land, Killinghall	Residential
KL20: Educational facilities for Killinghall Primary School	Educational facilities
KM1: Wensleydale Dairy Products Limited, Kirkby Malzeard	Residential
KM4: Land south of Richmond Garth, Kirkby Malzeard	Residential
KM5: Land east of Richmond Garth, Kirkby Malzeard	Residential
PN20: Educational facilities for Pannal Primary School	Educational facilities
SB5: Land at Braisty Woods, Summerbridge	Residential
SP4: Land at Castle Farm, Spofforth	Residential

Applying the Sequential Test 3

Draft allocation	Proposed use
Secondary Service Villages	
Draft allocation	Proposed use
BW9: Land to the south of Clint Bank, Birstwith	Residential
BW10: Land south of Wreaks Road (smaller site), Birstwith	Residential
BM2: Former allotments off Knaresborough Road, Bishop Monkton	Residential
BM3: Land at Church Farm, Bishop Monkton	Residential
BM4: Land at Knaresborough Road, Bishop Monkton*	Residential
BL9: Alfred Hymas site, Burton Leonard	Residential
DB3: Abbots Garage and adjacent land, Dacre Banks	Residential
DB5: Land to west of Dacre Banks (smaller site)	Residential
DF2: Land at North End, Dishforth	Residential
DR1: Land at Stumps Lane, Darley	Residential
DR14: Land at Sheepcote Lane (combined site), Darley	Residential
GB2: Land at Low Farm, Goldsborough	Residential
GB4: Land adjacent to cricket ground, Goldsborough	Residential
KB1: Land east of St John's Walk, Kirby Hill	Residential
KH4: Land north of Station Road, Kirk Hammerton	Residential
KH11: Land at Station Road, Kirk Hammerton	Residential
MG7: Land north of Braimber Lane (smaller site), Marton cum Grafton	Residential
MG8: Yew Tree Farm (smaller site), Marton cum Grafton	Residential
NS3: Land west of Cockpit Lane, North Stainley	Residential
SH1: Land at New Road, Sharow	Residential
SV1: Land between Minskip Road and Low Field Lane, Staveley	Residential
Smaller Villages	
Draft allocation	Proposed use
MB3: Land south of Barker Business Park, Melmerby	Employment
MB6: Land at Melmerby Industrial Estate	Employment
MB8: Land west of Barker Business Park (larger site), Melmerby	Employment

Table 3.1 Local Plan draft allocations wholly within flood zone 1 and with low risk of surface water flooding

*This site was originally assessed as part of the SFRA update but has subsequently been re-assessed in the SFRA update addendum following a change to the site boundaries.

3 Applying the Sequential Test

Sites with greater levels of flood risk

3.14 As informed by the Level 1 Strategic Flood Risk Assessment (SFRA) Update and Addendum, Sustainability Appraisal and the Local Plan growth strategy, the tables below identify those sites which are generally considered to be sustainable options for development that include land within flood zone 1, but also include land in other flood zones and/or are at higher risk from surface water flooding. The tables below contain the following information relating to these draft allocations:

- Local Plan site reference;
- Proposed use;
- Site area;
- An explanation of how each site is affected by flood risk; and
- A consideration of whether each site is considered to be sequentially acceptable.

Main Settlements	
Site reference	H2: Land north of Knox Lane, Harrogate
Proposed use	Residential
Site area	3.15ha (when assessed as part of the SFRA update addendum)
Flood risk	Around 98% of the site falls within flood zone 1 whilst the remainder falls in flood zones 2 and 3a (0.47% and 0.96% respectively)
Consideration	<p>Around 98% of the site falls within flood zone 1. The remainder, close to the Oak Beck to the north of the site, falls in flood zones 2 and 3a (0.47% and 0.96% respectively).</p> <p>Given the nature and location of the flood risk identified, it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved. Therefore the site can be allocated for residential development within the Local Plan, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2 or 3a.</p> <p>Following the Local Plan Additional Sites consultation, the site area has been reduced considerably (to 1.966ha) and the site now falls wholly within flood zone 1.</p> <p>Allocation of the site for residential use is considered sequentially acceptable as the site is wholly within flood zone 1 and is at low risk of surface water flooding.</p>

Table 3.2 Site H2

Main Settlements	
Site reference	H63: Dragon Road Car Park, Harrogate
Proposed use	Mixed use
Site area	0.8ha
Flood risk	Surface water: 0.02ha (3.01%) 1 in 30 year, 0.18ha (22.02%) 1 in 100 year and 0.29ha (36.59%) 1 in 1000 year.
Consideration	This is a brownfield site close to Harrogate town centre where the SFRA has identified a higher risk of surface water flooding on the site.

Applying the Sequential Test 3

Main Settlements	
Site reference	H63: Dragon Road Car Park, Harrogate
	Development of the site would conform with the objectives and growth strategy of the Local Plan. A drainage strategy for the site would be required, reflecting the brownfield character of the site and agreed prior to consent being granted including measures to mitigate the identified surface water flood risk.

Table 3.3 Site H63

Main Settlements	
Site reference	K23: Land north of Bar Lane and east of Boroughbridge Road, Knaresborough
Proposed use	Residential
Site area	0.683ha
Flood risk	The site is wholly within flood zone 1. In terms of surface water risk: 1.49% of the site area is within the high risk 1 in 30 year outline; 5.89% is within the medium risk 1 in 100 year outline; and 25.57% is within the low risk 1 in 1000 year outline.
Consideration	<p>Although the site is at low risk of fluvial flooding, it is overall at higher risk of flooding from surface water, particularly from the 1 in 1000 year extreme event. It is considered that a site-specific flood risk assessment incorporating surface water flood risk management could mitigate this risk.</p> <p>The allocation of the site for residential development within the Local Plan is considered to be sequentially acceptable as the site is capable of development on land wholly within flood zone 1 and surface water flood risk could be mitigated, subject to the following requirements at the planning application stage: a site-specific flood risk assessment and an effective and robust surface water drainage system proposal.</p>

Table 3.4 Site K23

Main Settlements	
Site reference	K24: Land at Halfpenny Lane and south of Water Lane, Knaresborough
Proposed use	Residential
Site area	7.606ha
Flood risk	The site is wholly within flood zone 1. In terms of surface water risk: 13.12% of the site area is within the high risk 1 in 30 year outline; 11.54% is within the medium risk 1 in 100 year outline; and 21.37% is within the low risk 1 in 1000 year outline.
Consideration	<p>Although the site is at low risk of fluvial flooding, it is overall at higher risk of flooding from surface water. It is considered that, with the developable area of the site estimated at 65%, a site-specific flood risk assessment incorporating surface water flood risk management could mitigate this risk.</p> <p>The allocation of the site for residential development within the Local Plan is considered to be sequentially acceptable as the site is capable of development on land wholly within flood zone 1 and surface water flood risk could be mitigated, subject to the following requirements at the planning application stage: a site-specific flood risk assessment and an effective and robust surface water drainage system proposal.</p>

Table 3.5 Site K24

Main Settlements	
Site reference	K25, Land at Highfield Farm, Knaresborough
Proposed use	Residential

3 Applying the Sequential Test

Main Settlements	
Site reference	K25, Land at Highfield Farm, Knaresborough
Site area	24.4ha
Flood risk	The majority of the site is in FZ1, but 0.32ha (1.3%) is in FZ2 and 1.86ha (7.61%) in FZ3a
Consideration	<p>The SFRA indicates that very small areas of the site fall within flood zones 2 and 3a. These areas are either side of a drain which follows the southern boundary of the site.</p> <p>Following a sequential approach to development within sites, development of the site will be capable of being directed away from those parts of the site within medium and high flood risk areas and appropriate mitigation will enable surface water effects to be addressed.</p> <p>The site is larger than 1 hectare and as such a site-specific FRA will be required at the planning application stage to demonstrate that the site can be developed safely.</p> <p>The allocation of the site for residential use is considered to be sequentially acceptable as the majority of the site is capable of development on land within flood zone 1 and flood risk from all sources will be mitigated through the preparation of a site-specific FRA.</p>

Table 3.6 Site K25

Main Settlements	
Site Reference	R5: Land north of King's Mead, Ripon
Proposed use	Residential
Site area	2.3703ha
Flood risk	Over 98% of the site falls within flood zone 1 whilst the remainder (1.41%), in the north-eastern corner, falls within flood zone 2.
Consideration	<p>With the developable portion of the site estimated at 75% it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.</p> <p>Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the area identified as being within flood zone 2.</p>

Table 3.7 Site R5

Main Settlements	
Site Reference	R27: Laver Banks, Clothholme Road, Ripon
Proposed use	Residential
Site area	8.455ha
Flood risk	Almost 94% of the site falls within flood zone 1 whilst the remainder, close to the River Laver in the south of the site, falls in flood zones 2 and 3a (5.93% and 0.2% respectively).
Consideration	As a result of large parts of the site being covered by woodland and scrub, including the areas not in flood zone 1, the gross housing area of the site is estimated at 2.8ha (33% of site area). With the developable portion of the site estimated at 75% of the gross housing area it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.

Applying the Sequential Test 3

Main Settlements	
Site Reference	R27: Laver Banks, Clothholme Road, Ripon
	Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2 or 3a. A site requirement for the provision of an enhanced GI corridor to buffer the River Laver in the south of the site, the areas where there is an identified flooding risk, is also included in the plan.

Table 3.8 Site R27

Local Service Centre	
Site reference	M11: Land at Westholme Road, Masham
Proposed use	Residential (when assessed as part of the SFRA update addendum)
Site area	2.66ha
Flood risk	Around 38% of the site falls within flood zone 1 whilst the remainder, roughly the northern half, falls in flood zones 2 and 3a (44.79% and 17.08% respectively).
Consideration	In September 2017 permission was granted, subject to the signing of a Section 106 agreement, for a mixed-use scheme of circa 60 dwellings and 750sqm employment floorspace. The application included the results of hydraulic modelling carried out by the applicant indicating that the risk of flooding is not as severe as that shown by the Environment Agency (EA) flood mapping. As a result, the site is no longer a residential allocation within the plan, nevertheless, its status as a mixed-use commitment is reflected in the plan.

Table 3.9 Site M11

Local Service Centre	
Site reference	P7, Former Highway Depot, Pateley Bridge
Proposed use	Residential
Site area	0.6ha
Flood risk	The majority of the site is in FZ1, but 0.02ha (3.78%) is in FZ2 and 0.1ha (0.91%) in FZ3a.
Consideration	<p>The SFRA indicates that small parts of this site fall within flood zones 2 and 3a. This is a brownfield site within the centre of the town and the areas of flood risk are at the south of the site.</p> <p>The allocation of the site for residential use is considered to be sequentially acceptable as the site will lead to the regeneration of a brownfield site and the majority of the site is capable of development on land within flood zone 1 through considering the site layout and design. This consideration will need to be informed by discussions with the council and Environment Agency, regarding access and egress to the site, as this can affect the overall design of the development.</p>

Table 3.10 Site P7

Primary Service Villages	
Site reference	HM9: Land to the north of Meadow Close, Hampsthwaite
Proposed use	Residential
Site area	4.49ha
Flood risk	Over 90% of the site falls within flood zone 1 whilst the remainder (7.57%), in the north-eastern corner, falls in flood zone 2.

3 Applying the Sequential Test

Primary Service Villages	
Site reference	HM9: Land to the north of Meadow Close, Hampsthwaite
Consideration	<p>With the developable portion of the site estimated at 75%, it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.</p> <p>Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the area identified as being in flood zone 2.</p> <p>Following the Draft Local Plan: Additional Sites consultation the site area has been reduced to 3.473ha. As the land removed from the site is wholly within flood zone 1 the percentages of the new site area not in flood zone 1 will be greater than those above. Nevertheless, the developable area continues to be estimated at 75% and the conclusion that the site is sequentially preferable remains valid.</p>

Table 3.11 Site HM9

Primary Service Villages	
Site Reference	PN17: Land adjoining Spring Lane, Pannal
Proposed use	Residential
Site area	3.23ha
Flood risk	Almost 98% of the site falls within flood zone 1 whilst the remainder, close to the Clark Beck in the east of the site, falls in flood zones 2 and 3a (0.53% and 1.76% respectively).
Consideration	<p>With the developable portion of the site estimated at 75% it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.</p> <p>Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2 or 3a. A site requirement for the provision of an enhanced GI corridor to buffer the Clark Beck in the east of the site, which are the areas where there is an identified flooding risk, is also included in the plan.</p>

Table 3.12 Site PN17

Primary Service Villages	
Site Reference	PN18: Employment site south of Almsford Bridge, Pannal
Proposed use	Employment
Site area	18.8ha
Flood risk	Over 99% of the site falls within flood zone 1 whilst the remainder, in the north-eastern corner, falls in flood zones 2 and 3b (0.01% and 0.04% respectively).
Consideration	<p>Given the nature location and extent of the flood risk identified, it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.</p> <p>Therefore it is considered that the allocation of the site for employment development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water</p>

Applying the Sequential Test 3

Primary Service Villages	
Site Reference	PN18: Employment site south of Almsford Bridge, Pannal
	drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2 or 3b. A site requirement for the north-eastern corner of the site to remain free of new built development in order to contribute to an enhanced GI corridor buffering the Crimple Beck is also included in the plan.

Table 3.13 Site PN18

Primary Service Villages	
Site Reference	PN19: Land to the west of Leeds Road, Pannal
Proposed use	Residential
Site area	16.8319ha
Flood risk	About 70% of the site falls within flood zone 1 whilst the remainder, alongside the Crimple Beck, falls in flood zones 2, 3a, 3ai, and 3b (3.66%, 21.68%, 0.03% and 4.85% respectively).
Consideration	<p>With the developable area of the site estimated at 55%, it is considered that a sequential approach to development within the site, where more vulnerable uses are directed away from flood risk areas, can be achieved.</p> <p>Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2, 3a, 3ai or 3b. A site requirement for the provision of a multi-functional GI corridor alongside the Crimple Beck north-eastern corner of the site to remain free of new built development in order to contribute to an enhanced GI corridor buffering the Crimple Beck is also included in the plan.</p>

Table 3.14 Site PN19

Primary Service Villages	
Site reference	SB1, Clough House Farm, Summerbridge
Proposed use	Residential
Site area	3.4ha
Flood risk	The majority of the site is in FZ1, but a small area (0.1%) is in FZ2 and 0.02ha (0.55%) in FZ3b.
Consideration	<p>The SFRA indicates that very small parts of this site fall within flood zones 2 and 3b. These areas are located to the west of the site alongside the river Nidd.</p> <p>Following a sequential approach to development within sites, development of the site will be capable of being directed away from the part of the site within medium and high flood risk areas and appropriate mitigation will enable surface water effects to be addressed.</p> <p>The site is larger than 1 hectare and includes land in areas of high flood risk and as such a site-specific FRA will be required at the planning application stage to demonstrate that the site can be developed safely.</p> <p>The allocation of the site for residential use is considered to be sequentially acceptable as the majority of the site is capable of development on land within flood zone 1 and flood risk from all sources will be mitigated through the preparation of a site-specific FRA.</p>

Table 3.15 Site SB1

3 Applying the Sequential Test

Primary Service Villages	
Site reference	SP6, Land at Massey Fold, Spofforth
Proposed use	Residential
Site area	4.3ha
Flood risk	The majority of the site is in FZ1, but 0.05ha (1.09%) is in FZ2 and 0.01ha (0.19%) in FZ3ai.
Consideration	<p>The SFRA indicates that very small parts of this site fall within flood zones 2 and 3ai. These areas are located to the east of the site alongside the river Crimple.</p> <p>Following a sequential approach to development within sites, development of the site will be capable of being directed away from the part of the site within medium and high flood risk areas and appropriate mitigation will enable surface water effects to be addressed.</p> <p>The site is larger than 1 hectare and includes land in areas of high flood risk and as such a site-specific FRA will be required at the planning application stage to demonstrate that the site can be developed safely.</p> <p>The allocation of the site for residential use is considered to be sequentially acceptable as the majority of the site is capable of development on land within flood zone 1 and flood risk from all sources will be mitigated through the preparation of a site-specific FRA.</p>

Table 3.16 Site SP6

Secondary Service Villages	
Site reference	Site DF4 - Land north east of Thornfield Avenue, Dishforth
Proposed use	Residential
Site area	1.6ha
Flood risk	The majority of the site is in FZ1, but 0.19ha (8.12%) is in FZ2. There are some adverse effects of additional surface water.
Consideration	<p>The SFRA indicates that a small area of the site falls within flood zone 2. This area lies on the north-eastern boundary of the site.</p> <p>Following a sequential approach to development within sites, development of the site will be capable of being directed away from the part of the site within medium and high flood risk areas and appropriate mitigation will enable surface water effects to be addressed.</p> <p>The site is larger than 1 hectare and as such a site-specific FRA will be required at the planning application stage to demonstrate that the site can be developed safely.</p> <p>The allocation of the site for residential use is considered to be sequentially acceptable as the majority of the site is capable of development on land within flood zone 1 and flood risk from all sources will be mitigated through the preparation of a site-specific FRA.</p>

Table 3.17 Site DF4

Secondary Service Villages	
Site Reference	MK8: Land to the south of High Mill Farm, Markington
Proposed use	Residential
Site area	1.7056ha
Flood risk	Over 99% of the site falls within flood zone 1 whilst the remainder falls in flood zones 2 and 3a (0.12% and 0.11% respectively).

Applying the Sequential Test 3

Secondary Service Villages	
Site Reference	MK8: Land to the south of High Mill Farm, Markington
Consideration	<p>Whilst the area at risk from flooding is relatively small its location means that access to the highway could be affected. A recent permission for development on part of the site addresses this by taking access across adjacent land, which provides a greater opportunity for achieving a sequential approach within the remainder of the site.</p> <p>Therefore it is considered that the allocation of the site for residential development within the Local Plan is sequentially acceptable, subject to the following requirements at the planning application stage: a site-specific flood risk assessment; an effective and robust surface water drainage system proposal; and a development scheme that does not place non-compatible development in the areas identified as being in either flood zones 2 or 3a.</p>

Table 3.18 Site MK8

Secondary Service Villages	
Site reference	NS6, Land south of A6108 (smaller site), North Stainley
Proposed use	Residential
Site area	2.9ha
Flood risk	Surface water. 0.27ha (9.37%) 1 in 30 year, 0.44ha (15.03%) 1 in 100 year and 0.1.13ha (39.05%) 1 in 1000 year.
Consideration	<p>This is a greenfield site to the northwest of the village where the SFRA has identified a risk of surface water flooding on the site.</p> <p>Development of the site would conform with the objectives and growth strategy of the Local Plan. A drainage strategy for the site would be required. This should be agreed prior to consent being granted, including measures to mitigate the identified surface water flood risk.</p>

Table 3.19 Site NS6

Secondary Service Villages	
Site Reference	NS7: Educational facilities at North Stainley
Proposed use	Educational facilities
Site area	2.0073ha
Flood risk	The site is wholly within flood zone 1. In terms of surface water risk: 11.51% of the site area is within the high risk 1 in 30 year outline; 7.42% is within the medium risk 1 in 100 year outline; and 19.84% is within the low risk 1 in 1000 year outline.
Consideration	<p>Although the site is at low risk of fluvial flooding, it is overall at higher risk of flooding from surface water. It is considered that a site-specific flood risk assessment incorporating surface water flood risk management could mitigate this risk.</p> <p>The allocation of the site for educational facilities within the Local Plan is considered to be sequentially acceptable as the site is capable of development on land wholly within flood zone 1 and surface water flood risk could be mitigated, subject to the following requirements at the planning application stage: a site-specific flood risk assessment and an effective and robust surface water drainage system proposal.</p>

Table 3.20 Site NS7

3 Applying the Sequential Test

Smaller Villages	
Site reference	FX4, Strategic employment site to the south of the A59, Flaxby Green Park
Proposed use	Employment
Site area	40.3ha
Flood risk	The majority of the site is in FZ1, but 0.2ha (0.5%) is in FZ2 and 1.51ha (3.73%) in FZ3a. There are some adverse effects of additional surface water.
Consideration	<p>The SFRA indicates that very small areas of the site fall within flood zones 2 and 3a. These are small areas alongside the beck and pond on the western side of the site.</p> <p>Following a sequential approach to development within sites, development of the site will be capable of being directed away from the part of the site within medium and high flood risk areas and appropriate mitigation will enable surface water effects to be addressed.</p> <p>The site is larger than 1 hectare and as such a site-specific FRA will be required at the planning application stage to demonstrate that the site can be developed safely.</p> <p>The allocation of the site for employment is considered to be sequentially acceptable as the majority of the site is capable of development, through considering the layout and design of the site, on land within flood zone 1 and flood risk from all sources will be mitigated through the preparation of a site-specific FRA.</p>

Table 3.21 Site FX4

4 Conclusion

- 4.1** The application of the sequential test has demonstrated that the majority of the sites that the council is considering as sustainable options for meeting the need for new housing, employment land, Gypsy and Traveller pitches and educational facilities in the district are either wholly within flood zone 1, on sites where the developable area can be adjusted to avoid areas of flood risk, or on sites where drainage strategies will be required to demonstrate the mitigation that is necessary to overcome the identified surface water flood risk.
- 4.2** Chapter 10: Delivery and Monitoring of the Local Plan sets out a number of generic requirements for the development of all sites allocated in the plan. In addition, as part of the policies that allocate development sites, the plan includes site-specific requirements for the development of each site, where appropriate. Together these sections of the plan identify a range of requirements relating to flood risk and the sequential approach to development. Where relevant, these requirements include:
- Ensuring non-compatible development does not take place on land that is within medium or high risk flood zones;
 - The need to address flooding from all sources and not increase flood risk to adjacent properties and land within the catchment;
 - The need to submit a site-specific flood risk assessment alongside a planning application
 - The need for surface water and drainage strategies demonstrating appropriate surface water mitigation measures;
 - The need to consider the design and layout of sites, including the provision of green infrastructure and/or open space in areas of medium and high risk;
- 4.3** The overall conclusion is that the sequential test has been applied and been passed for the sites that are recommended as draft allocations in the Harrogate District Local Plan Publication Draft 2018. It is not considered that the exception test or further work in the form of a Level 2 SFRA is required because, in seeking to deliver the growth strategy, development can take place on sustainable sites within areas with the lowest probability of flood risk.

