Draft Flood Risk Sequential and Exception Test

Supplementary Planning Document

January 2021

EAST RIDING
OF YORKSHIRE COUNCIL

Contents

Please note this SPD cross references to the appendices of a number of other documents. The appendices of the other documents are alphabetical. The appendices of this document are numerical.

Contents

Introduction

This Supplementary Planning Document (SPD) replaces the Flood Risk Note for the Planning Application Process, which was initially published in 2010. The SPD has been prepared to provide assistance to developers, applicants, and Local Planning Authority officers on how to apply local and national planning policy using, amongst other evidence, the Council's Strategic Flood Risk Assessment (SFRA). It aims to promote transparency and consistency in the approach East Riding of Yorkshire Council will take to applying the flood risk Sequential and Exception Tests. The Note/SPD were updated in:

- 2014 to reflect the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (PPG);
- 2017 to reflect changes to consultee arrangements, experience of carrying out the Sequential and Exception Tests, and in light of the adoption of the Local Plan;
- 2018 to reflect the updated sustainability appraisal objectives for the Local Plan Review; and
- 2021 to become SPD, reflect the revised NPPF (2019) and the new evidence base, including the Strategic Flood Risk Assessments (2019 and 2020).

The NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere. To achieve this aim it sets out a number of requirements for Local Planning Authorities, including:

- preparation of **Strategic Flood Risk Assessments** to inform local planning decisions and provide a starting point for site-specific Flood Risk Assessments;
- application of a **Sequential Test** to planning applications to ensure that new development is located in areas at lowest flood risk as far as possible; and
- application of an **Exception Test** for certain applications where development is proposed in a higher flood risk area (e.g. where alternative sites are not available in a lower flood risk area), in order to demonstrate that the development is justified and can be made safe.

The NPPF also requires developers/applicants to prepare site-specific **Flood Risk Assessments** (FRAs) to be submitted with all applications:

- In zones 2, 3a and 3b);

- Over 1 Hectare in site area;
- On land which has been identified by the Environment Agency as having critical drainage problems;
- On land identified in the SFRA as being at future risk of flooding; or
- On land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

The Local Plan Strategy Document (2016) also requires the Sequential and Exception Tests to be applied using the Council's SFRA and the Environment Agency's Flood Map. It requires development to be steered to reasonably available sites at a lowest risk of flooding, and where it is not possible to take a sequential approach to site lay-out and design. The Strategy Document committed to preparing a SPD in relation to the Sequential Test, appropriate areas of search, the Exception Test, and site mitigation and design/ safety requirements.

This SPD deals with each of the aspects above, set out on a step-by-step basis. Figure 1 provides the framework for how flood risk should be considered as well as providing the structure for this SPD. Each chapter of this SPD is dedicated to the relevant step.

In practice not all proposals are required to complete every step. Figure 2 provides a detailed flow chart of how to apply the process in practice. At the end of each chapter of this document there is a box that supports the applicant/officer/decision maker in determining which step to move onto. The boxes in each chapter relate to the considerations in the flowchart.

Figure 1. Considering the flood risk process - step by step

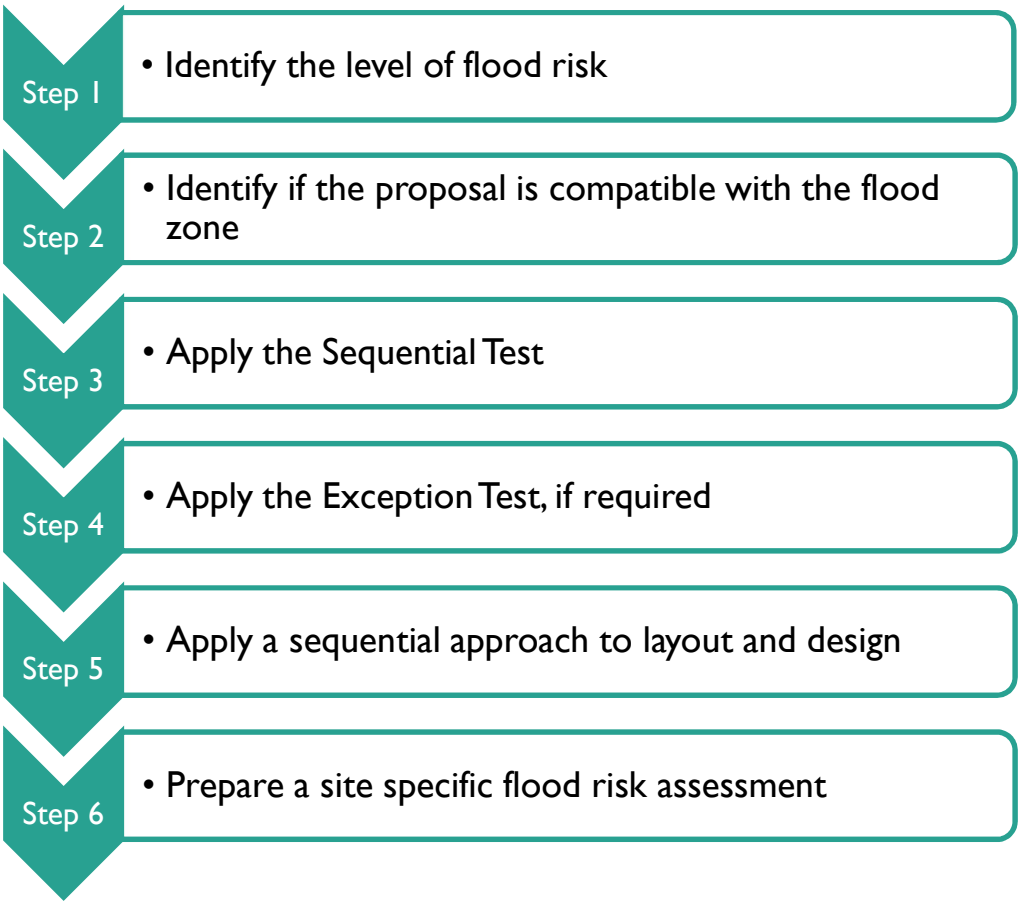
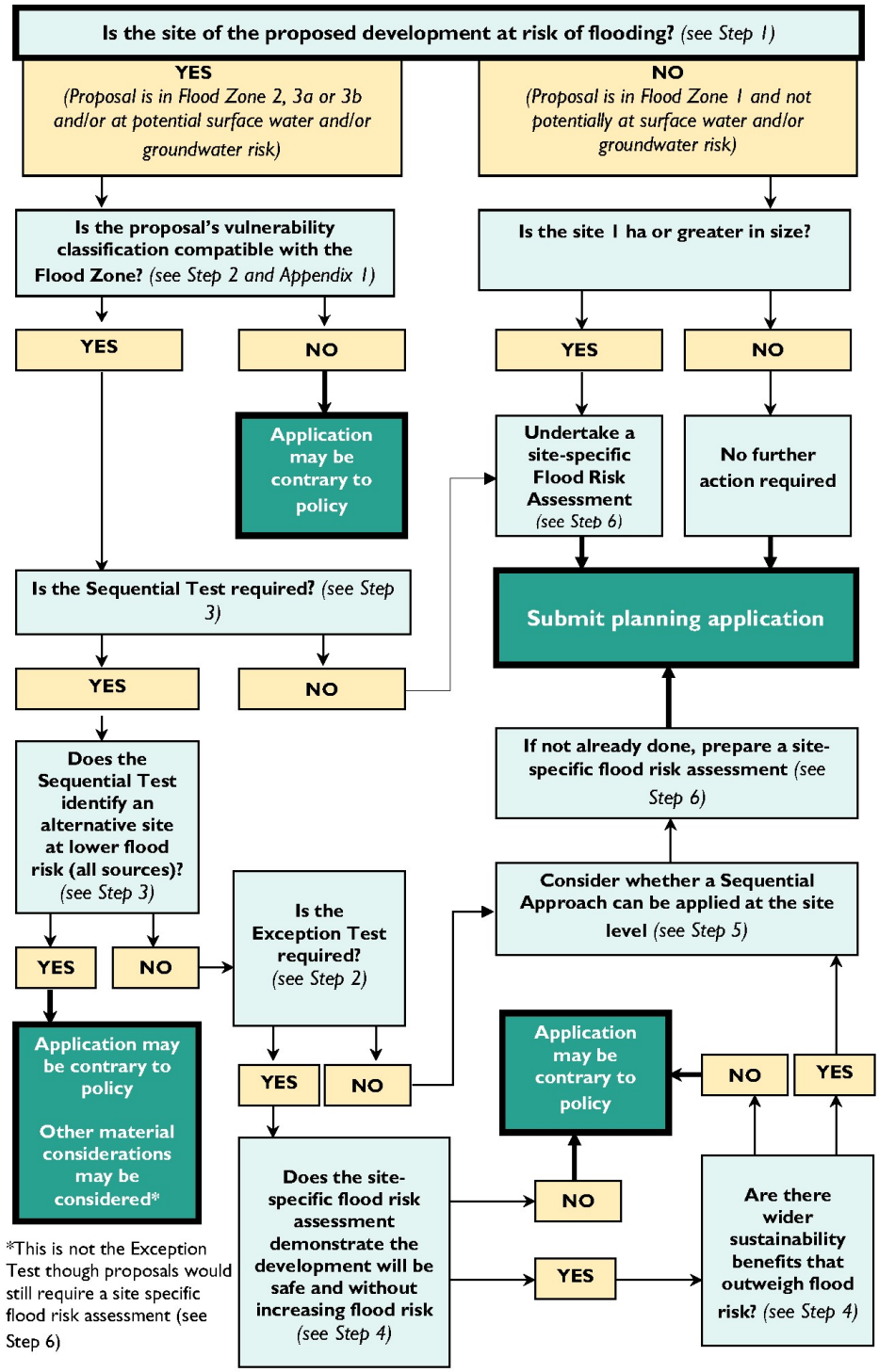


Figure 2. Considering Flood Risk - The Process



Considerations the SPD Does and Does Not Cover

It is emphasised that this SPD does not cover how the Sequential and Exception Tests could be undertaken in every conceivable scenario. It aims to cover the most common situations with the aim that it will be relevant and helpful in the majority of circumstances. If you are in doubt about any stage of the process, please contact the Council's Planning & Development Management service (01482 393647).

This SPD focuses only on flood risk Sequential and Exception Test considerations in relation to planning applications. There are of course many other factors that are involved in determining a planning application, and it is not intended that this SPD is prescriptive nor does it prioritise flood risk over other planning considerations. Its purpose is to help case officers maintain a degree of consistency in applying professional judgement. Planning applications will continue to be determined on a case-by-case basis. The applicability of the SPD will be reviewed regularly – should there be any changes relevant to flood risk considerations, case officers will need to take these into account.

A separate Planning Note and Standing Advice on Sustainable Drainage Systems (SuDS) has been prepared by the Council in its capacity as both the Lead Local Flood Authority (LLFA) and the Local Planning Authority (LPA). The Planning Note and Standing Advice sets out:

- when the LLFA should be consulted;
- guidance on the design of SuDS;
- an explanation of what information is required in order for the LLFA to assess a proposal;
- an explanation of how climate change should be considered in the design of SuDS; and
- information relating to ongoing maintenance arrangements.

It also provides more detailed information in relation to adoption and ongoing maintenance of SuDS.

The Planning Note and Standing Advice is available to view on the Council's website:

http://www2.eastriding.gov.uk/environment/planning-and-building-control/design-of-surface-water-drainage-systems/

1 Step 1 – Identify the level of flood risk

1.1 The risk of flooding to the potential development site from all sources needs to be identified. Applicants should determine if the site is at risk from:

- Rivers and sea (fluvial and tidal risk), and
- Other sources, including
  - Surface water
  - Sewers
  - groundwater
  - reservoirs
  - Canals and Navigable Watercourses

1.2 Information on these sources is available in/on:

- Council's East Riding Flood Data Map,
- The Council's Strategic Flood Risk Assessments (SFRAs), produced in 2019 and 2020, and
- Some information, including the Flood Map for Planning, is also kept up to date by the Environment Agency.

1.3 More detail on assessing each of the sources of flooding and the suppliers of information is set out below.

East Riding Flood Data Map

1.4 The Flood Data map contains information from the SFRAs alongside Environment Agency Web Map Services and other useful flood risk information. The interactive map allows users to view the available flood risk information from different sources in one place rather than having to review separate documents. It is available at https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/strategic-flood-risk-assessment/ .

1.5 Please note that some data in this map provides live links to data owned by the Environment Agency.

East Riding of Yorkshire Strategic Flood Risk Assessment

1.6 The Council's SFRA can be accessed online at:

http://www2.eastriding.gov.uk/environment/planning-and-building-control/east-riding-local-plan/strategic-flood-risk-assessment/.

The SFRA identifies the risk from all known sources of flooding. It comprises:

- a 'Level 1' SFRA, which covers the whole East Riding, and
- additional 'Level 2' SFRAs for Goole and Hedon.

1.7 The Level 1 SFRA provides flood risk mapping for all sources of flooding (e.g. the sea, river(s), surface water and groundwater) as well as information on historic flooding incidents.

1.8 The Level 2 SFRAs provides detailed mapping of modelled defence breaches and overtopping scenarios in Goole and Hedon, where large areas of the town are at risk.

1.9 The SFRAs consider the impacts of climate change to ensure development is safe for its lifetime.

1.10 Appendix J, of the L1 SFRA identifies the locations where there is a risk of flooding from 1 or more sources and is the starting point for identifying if there is risk to a site. It shows the main risk in each location. **However, the risk from all sources needs to be understood.** Such an overview could also be obtained from the Flood Data Map by turning on all of the relevant layers (those detailed in the sections below).

1.11 The SFRAs contain information that is more detailed and locally specific than the EA's national mapping. However, the SFRA is a snapshot of a point in time. Therefore it may be necessary to use both sources of information.

Tidal and Fluvial Flood Risk

Level 1 SFRA

1.12 The first part in this process is to identify whether the location of the proposed development is classified as having a high, medium or low probability of flooding from a river(s) and/or the sea, as per Figure 3.

Figure 3. Flood Zones

Flood Zone	Description
1	Low Probability: Less than a 1 in 1000 chance of river/sea flooding per year.
2	Medium Probability: Between a 1 in 100 and 1 in 1000 chance of river flooding per year or between a 1 in 200 and a 1 in 1000 chance of sea flooding per year.
3a	High Probability: A 1 in 100 or greater chance of river flooding or a 1 in 200 or greater chance of sea flooding per year.
3b	Functional Floodplain Land where water has to flow or be stored in times of flood.

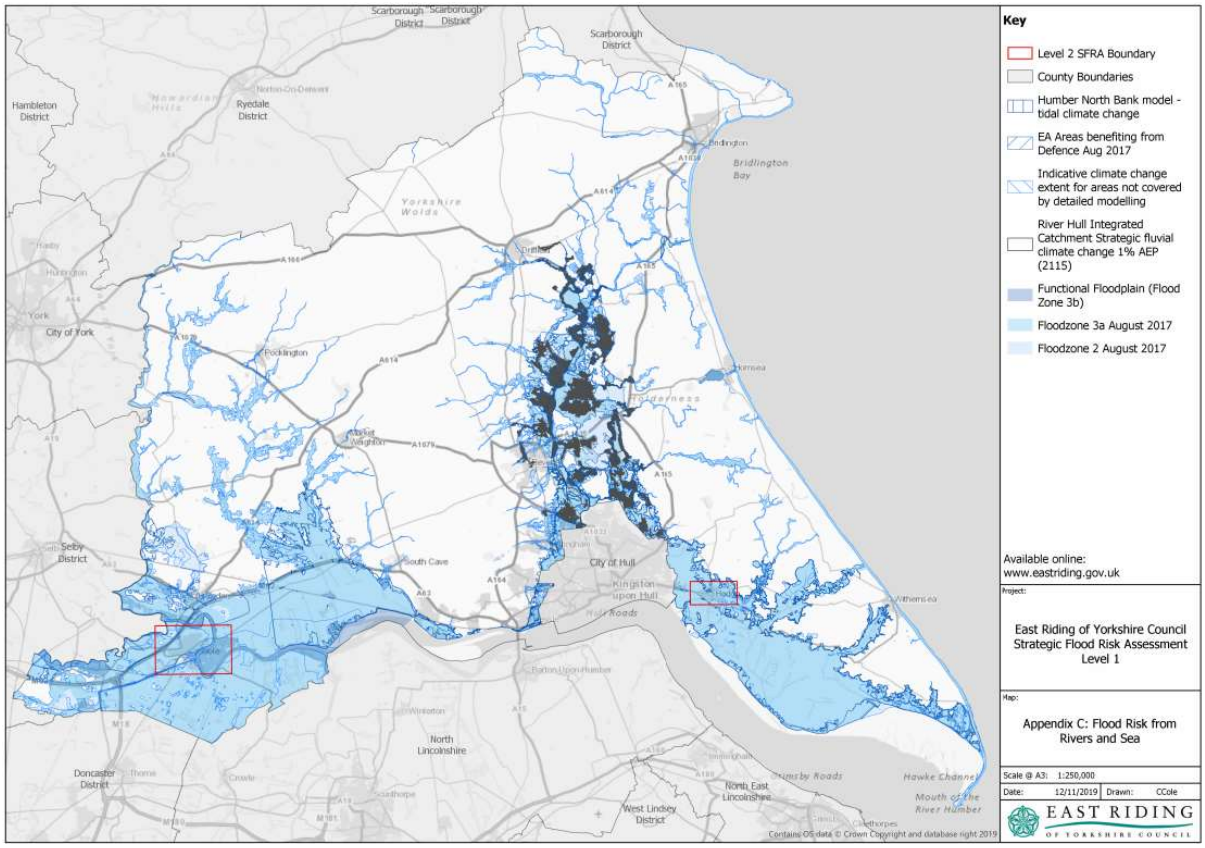
Source: PPG Table 1

1.13 Applicants should also consider the future risk of flooding to a site. The Level 1 SFRA identifies land that will become flood zone 3 in the future.

1.14 The information for identifying the risk of flooding to a site is available using:

- Level 1 SFRA Appendix C, which is replicated below as Figure 4, or
- Flood Data Map layers:
  - SFRA Functional Floodplain Flood Zone 3b,
  - SFRA Future Flood Zone 3a,
  - SFRA Flood Zone 3a (Based on Flood Zone 3 – August 2017), and
  - SFRA Flood Zone 2 (Based on Flood Zone 2 – August 2017)

Figure 4. Flood Risk from Rivers and Sea



Level 2 SFRAs – Goole and Hedon

1.15 In Goole and Hedon, the Level 2 SFRAs further sub-divide the flood zone 3 into sub-zones to indicate potential flood hazard, depth and speed of onset flood warning times in the event of defence failures and overtopping along the Humber Estuary, River Ouse, River Don and Burstwick Drain (i.e. 'worst case' scenarios).

1.16 The Hedon L2 sub-delineates flood zone 3 further to create a future flood zone 3b.

1.17 Both Level 2 SFRAs also included a methodology for a Rapid Inundation Zone which would result in flood to depths greater than 900mm, within 0.5 hours of a breach of the defences in the future. This area is shown in Appendix E of the Goole L2 SFRA, however no land met the criteria in Hedon.

1.18 Appendix E of the L2 SFRAs shows a summary of the risk. It shows the source of risk that is most serious for a location. However, it does not identify multiple sources of risk or the details of the risk such as depth etc. Applicants should use the other appendices to gain a greater understanding of the risks.

1.19 In Goole, the following information should be used to identify the risk of flooding:

- L2 SFRA;

- Appendix B – Overtopping depth and hazard maps,
- Appendix C – Overtopping plus climate change depth and hazard maps,
- Appendix D – Defence breach depth, hazard, velocity and extent maps,
- Appendix E – Development Management Map, or

- On the Flood Data Map using layers:

  - (Layers will be added to the flood data map in due course, before the final version is published. Relevant layers will be listed here).

1.20 In Hedon, the following information should be used to identify the risk of flooding:

- Level 2 SFRA

  - Appendix B – Flood zones,
  - Appendix C – Overtopping depth and hazard maps,
  - Appendix D – Breach depth and hazard maps,
  - Appendix E – Development Management Map, or

- On the Flood Data Map using layers:

  - (Layers will be added to the flood data map in due course, before the final version is published. Relevant layers will be listed here).

'Other' sources of flooding

1.21 The Level 1 SFRA considered other sources of flooding. Where the L2 SFRAs include other sources of flooding, this replicates the information in the Level 1 SFRA.

Surface water flood risk

1.22 The Flood and Water Management Act 2010 defines surface runoff as 'rainwater (including snow and other precipitation) which:

a) is on the surface of the ground (whether or not it is moving); and

b) has not entered a watercourse, drainage system or public sewer.

1.23 Surface water flooding usually results from heavy rainfall falling either onto soil with high antecedent moisture or onto impermeable surfaces.

1.24 East Riding contains a large proportion of low-lying land which is below Mean High Water Spring (MHWS) level, and therefore relies upon artificial drainage. It is therefore prone to surface water flooding following intense rainfall.

1.25 The SFRAs use the Environment Agency Risk of Flooding from Surface Water mapping to identify the present day risk of surface water flooding. Previously known as the updated Flood Map for Surface Water (uFMfSW), the RoFfSW, published by the Environment Agency, is derived from identifying topographical flow paths of existing watercourses and dry valleys that contain some isolated ponding in low lying areas. The SFRA took a snap shot of the map in August 2017. The EA continue to update the map as appropriate.

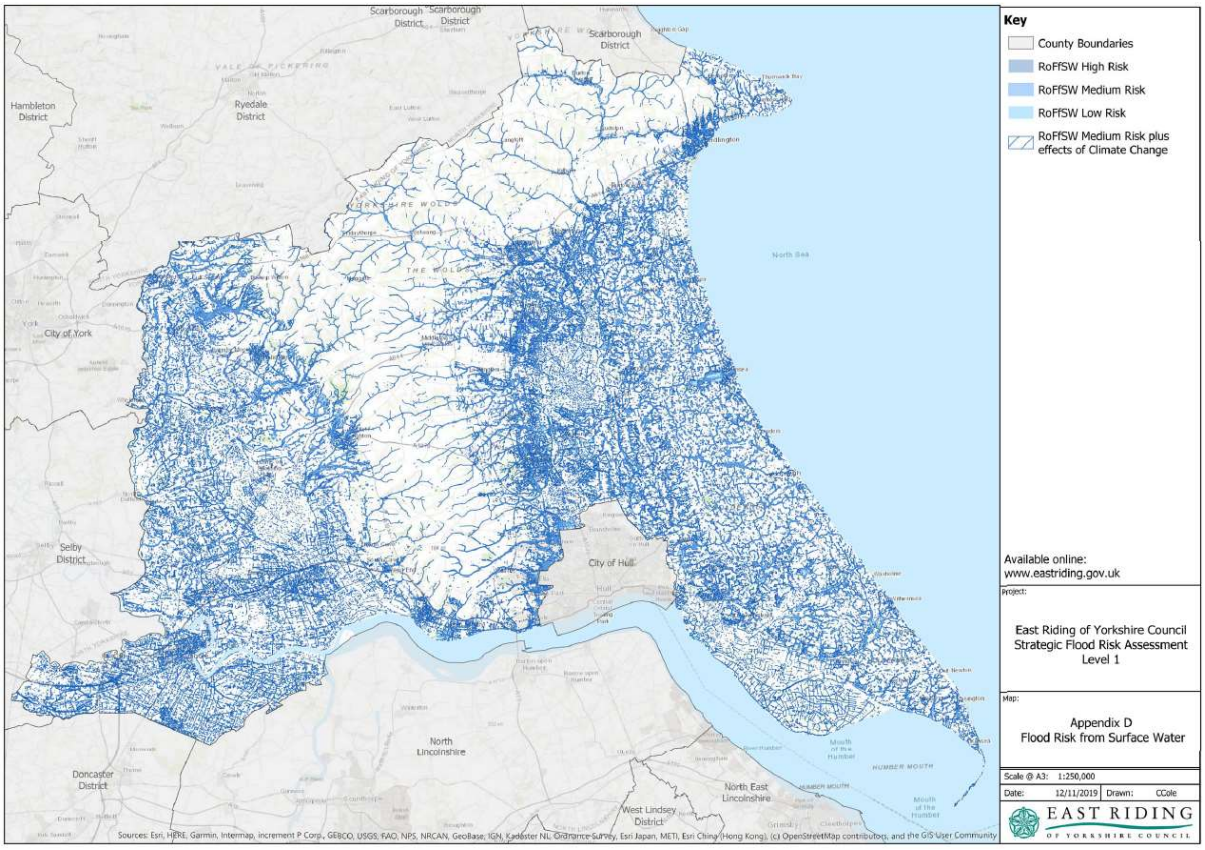
1.26 Figure 5 describes the four categories for surface water risk in the RoFfSW maps. The map is provided in /on:

- L1 SFRA - Appendix F (using EA's data as of August 2017), or
- Flood Data Map – Layers:
  - EA High Risk of Surface Water Flooding (LIVE WMS)
  - EA Medium Risk of Surface Water Flooding (LIVE WMS)
  - EA Low Risk of Surface Water Flooding (WMS)
  - Risk of surface Water Flooding Medium Risk plus effect of plus effects of Climate Change (EA LIVE WSM), or
- Replicated below, as Figure 6.

Figure 5. Categories of Surface Water Flood Risk

Category	Definition
High	Each year, the area has a chance of flooding of greater than 1 in 30 (3.3%)
Medium	Each year, the area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%)
Low	Each year, the area has a chance of flooding of between 1 in 1,000 (0.1%) and 1 in 100 (1%)
Very Low	Each year, the area has a chance of flooding of less than 1 in 1,000 (0.1%)

Figure 6. Flood Risk from Surface Water



1.27 The Environment Agency's Long Term Flood Risk Information online map provides further detail on the depth and velocity of surface water flooding.

1.28 The Lead Local Flood Authority (LLFA) is a statutory consultee for all major planning applications. Their role is to assess planning applications in respect of surface water drainage and sustainable drainage systems, offering advice to the Development Management section of the Local Planning Authority (LPA) on the likely risks and whether the applicant's plans adequately mitigate the risk. They may be able to provide more up to date information than that contained in the SFRA. Detailed Standing Advice on how surface water drainage is considered through the planning application process is available on the Council's website at:

http://www2.eastriding.gov.uk/environment/planning-and-building-control/design-of-surface-water-drainage-systems/

Please note that East Riding of Yorkshire Council carries out the duties of the LLFA and the LPA.

Sewer Flood Risk

1.29 Sewer flooding is a flood from any part of a sewerage system if wholly or partly caused by an increase in the volume of rainwater (including snow and other

precipitation) entering or otherwise affecting the system[1].

1.30 New sewer systems are typically designed to accommodate the 3.3% AEP storm without flooding at the ground surface. However, many of the existing sewers were not built to this specification. These sewers can become overloaded as new development adds to the load on the network. Even sewers built to the current specification, can become overwhelmed by events with a higher magnitude. Sewer flooding can also be caused due to blockages, collapses or equipment (e.g. pumping station) failure.

1.31 The limitations of the sewer system in East Riding was highlighted in 2007, when the existing drainage structure and public sewers were overwhelmed by the prolonged and heavy rainfall. However, since then, Yorkshire Water have undertaken work to update and improve the sewer system in East Riding.

1.32 Haltemprice settlements and Goole are particularly reliant on the capacity of the sewerage system and the operation and maintenance of terminal public sewerage pumping stations. The Council, partnered with Yorkshire Water, have developed a detailed integrated model of the Goole catchment to gain a high quality representation of surface water and sewer risk.

1.33 The Hull and Haltemprice Living with Water Partnership has been established which brings together the Council with Yorkshire Water, Environment Agency and Hull City Council with a joint vision to make the Hull and Haltemprice area an international exemplar for living in harmony with water. In doing so partners plan to promote flood resilience with communities as well as develop innovative solutions to reduce flood risk in an integrated manner.

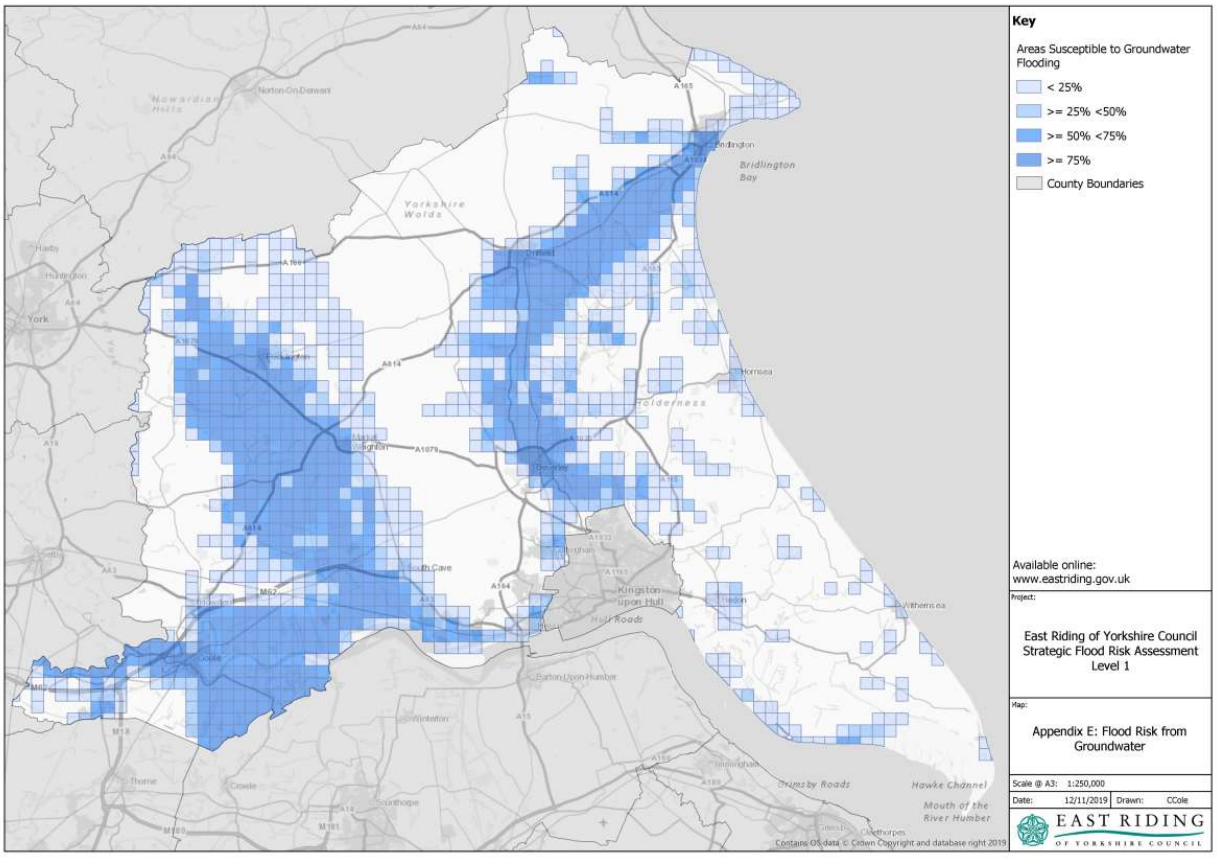
Groundwater flood risk

1.34 Areas of the East Riding are susceptible to groundwater emergence following a period of prolonged rainfall. Areas at risk are identified in/on:

- Level 1 SFRA – Appendix E, or
- Level 2 SFRAs – Goole and Hedon Appendix G
- Flood Data Map – Layer – SFRA Areas Susceptible to Groundwater Flooding (EA August 2017), or
- The information is replicated below, as Figure 7.

[1] The Flood and Water Management Act

Figure 7. Risk of Flooding from Ground Water



1.35 The information is taken from the EA's national Areas Susceptible to Ground Water Flooding Map (AStGWf). The SFRA took a snap shot of the map in August 2017. The EA continue to update the map as appropriate.

1.36 The groundwater emergence zone in the East Riding largely coincides with the underlying chalk geology.

1.37 The AStGWf map is a strategic scale (1 km square grid) map showing the proportion of each 1 km square which may be susceptible to groundwater emergence. It is formed of five classes:

- None
- Less than 25% of the 1km2
- Between 25% and 50% of the 1km2
- Between 50% and 75% of the 1km2
- Greater than 75% of the 1km2

1.38 It is likely that only isolated locations within the overall susceptible area actually suffer the consequences of groundwater flooding. The dataset does not show the likelihood of groundwater flooding occurring, and it does not take into account the chance of flooding from groundwater rebound. The AStGWf is not suitable for site

level analysis and should only be used as a starting point for further investigation into groundwater risk in a site specific flood risk assessment.

Artificial sources of Flood Risk (reservoirs, canals and navigations)

1.39 Reservoirs in England and Wales are regulated under the Reservoirs Act 1975, as amended by the Flood and Water Management Act 2010. The Act defines a large raised reservoir as having an impounded volume greater than 25,000 m3. These reservoirs are listed on a register held by the Environment Agency. The Act prescribes tight regulations on periodic inspections and maintenance of the reservoir, and on water level monitoring.

1.40 The nature of reservoir failure means there is little or no warning in the event of a flood. Although potentially large uncontrolled releases of water from the reservoirs could result in deep and fast moving floodwaters and place people's lives in danger, the tight regulations mean the probability of occurrence is very low, and therefore flood risk is considered as low.

1.41 There are two main risks of flooding from impounded reservoirs, the first being failure of the reservoir structure. The second risk relates to precautionary or emergency drawdown of a reservoir.

1.42 Canals and navigations are artificial channels built for the purpose of transportation or water supply. A canal is a channel that cuts across a catchment whereas a navigation is a series of channels that run roughly parallel to a natural watercourse. Many artificial waterways are a combination of both.

1.43 Canals do not pose a direct flood risk because they are regulated water bodies with controlled water levels. Flooding can still occur, however, through:

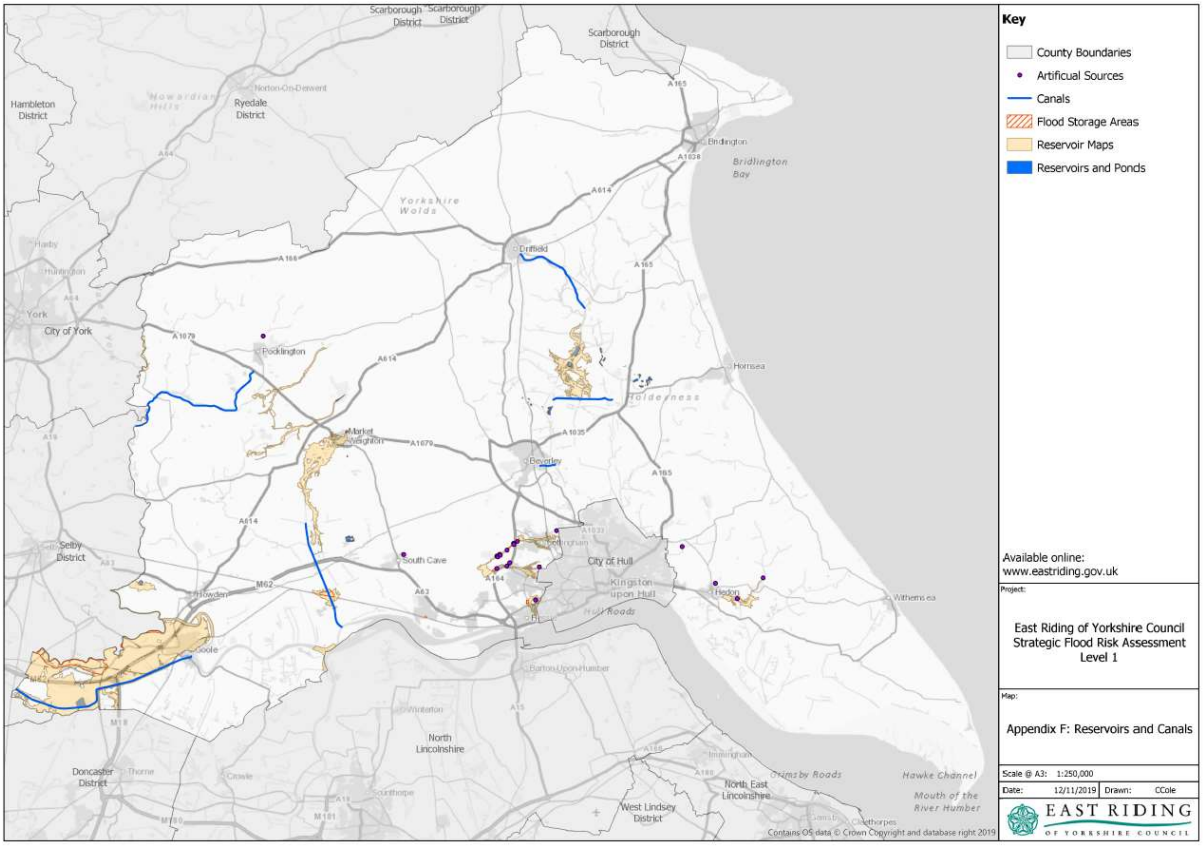
- Overtopping
- A breach
- Indirect flooding.

1.44 Areas of the East Riding susceptible to flood risk from reservoirs are identified in/on:

- Level 1 SFRA – Appendix F, or
- Level 2 SFRAs – Goole and Hedon Appendix H
- Flood Data Map – Layers:
    - SFRA Reservoir Flood Map (EA, August 2017),
    - SFRA Flood Storage Areas (August 2017),
    - Reservoirs and Ponds (August 2017),
    - Canals, and
    - Artificial Sources (august 2017), or

- The information is replicated below, as Figure 8.

Figure 8. Risk from Reservoirs and Canals



1.45 Reservoir risk maps have not yet been completed for some completed and programmed reservoirs. These reservoirs and the areas potentially at risk are set out below in Figure 9. In the areas potentially at risk consideration should be given to the potential risk.

Figure 9.Recently Completed and Programmed Reservoirs where risk mapping is not yet available

Recently completed / programmed reservoirs		Areas potentially at risk
Willerby and Derringham Flood Alleviation Scheme (WADFAS)	Rawdales Lagoon	Properties in Hull and Haltemprice
	Robsons Cottages Lagoon	
	Filling Station Lagoon	
	Carr Lane Lagoon	
Cottingham and Orchard Park Flood Alleviation Scheme (COPFAS)	Railway North	Properties in Hull and Haltemprice
	Railway South	
	Stackyard North	
	Stackyard South	
	Green Lane	
	A164 North	
	A164 South	
	Castle Hill West	
	Castle Hill East	
	Orchard Park	
Anlaby and East Ella Flood Alleviation Scheme (AEEFAS)	Tranby Lagoon	Properties in Hull and Haltemprice
Pocklington Flood Alleviation Scheme (POCFAS)	Pocklington Lagoon	Properties in Pocklington

Source: L1 SFRA

How Other Sources Should be Considered

1.46 Because the methods used to assess these 'other' sources of flooding in the SFRA are relatively 'broad brush', it is not intended that the areas identified should be interpreted as a definitive representation of surface water, groundwater, etc risk zones. Rather, the SFRA recommends that these should be investigated further through a site-specific Flood Risk Assessment (Step 6). The Council may consider there to be a surface water/groundwater risk if it is found that the site meets any of the following criteria:

- The site's average gradient is greater than 1% (1 in 100), as this is likely to generate overland flow;
- There is a ditch(es) adjacent to the site;

- The groundwater level is high (e.g. likely to impede the natural soakage of rainwater);[2]
- There is a large impervious area next to the site (e.g. more than 50% of an adjacent site is impervious, using a 50m band width from all boundaries of the site); or
- There is a history of surface water and/or groundwater flooding on the site (e.g. in June 2007).[3]

Summary of Flood Risk to Key Settlements

1.47 The L1 SFRA (table 5-6) includes a summary of the risk of flooding in each of the settlements in the East Riding Local Plan (2016) Settlement Network.

1.48 Applicants should specify in their Flood Risk Assessment whether any of these considerations apply to their site and provide justification if they do not believe that there is a risk. It is highlighted that these considerations are not intended to be exhaustive – other factors may also be relevant.

Environment Agency Flood Map

1.49 There may be slight inconsistencies between the EA's Flood Map and the Council's SFRA maps, although this should only be in a minority of cases. This may result from an update to the EA's Flood Map which has been published since the completion of the SFRA. In these instances the EA Flood Map should be used alongside the SFRA as the basis for determining the relevant flood risk.

1.50 The areas of Medium Probability (Flood Zone 2) and High Probability (Flood Zone 3) combine to represent the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. The Flood Map also shows areas that benefit from flood defences. The underlying Flood Zone is the important factor as planning policy is based on an assumption that defences could fail. The remaining area (with no colour on the Flood Map) is classified as Low Probability (Flood Zone 1). Note that the Flood Map does not split the High Probability area into Zones 3a and 3b – this is done by the Council's SFRA.

1.51 The EA's Flood Map can be accessed:

- Online at https://flood-map-for-planning.service.gov.uk/ or

[2] Examples in the East Riding where this may be the case include Cottingham and Dunswell, where groundwater is encountered at or above ground level.

[3] Appendix D of the Level 1 SFRA shows "Indicative Areas of Flooding" in the East Riding during June 2007. The Council's Land Drainage Department may be able to provide further information in relation to particular sites. It is emphasised however that the accuracy and completeness of this data cannot be guaranteed, and that the Council accepts no liability for any loss, damage or inconvenience caused as a result of reliance upon or use of this data.

- On the Council's Flood Data Map using the layers:
    - EA Areas Benefitting from Defences (LIVE WMS)
    - EA Flood Zone 3 (LIVE WMS), and
    - EA Flood Zone 2 (Live WMS).

If using the EA's website, applicants can identify which flood risk classification applies to their site by entering the site's post code. The EA produce Flood Maps for a range of purposes. Applicants need to ensure that the Map they use is the Flood Map for Planning.

Outcome of Step 1

If the proposal is in Flood Zone 1 and not at risk from other sources of flooding, then no further action may be required, unless the site is greater than 1 ha in size. Proposals on sites greater than 1ha will require a site specific flood risk assessment. Proceed to Step 6.

If the proposal is in Flood Zones 2, future flood zone 3 or 3a/b and/or at risk from other sources, proceed to Step 2.

2 Step 2 – Identify if the proposal is compatible with the flood zone

2.1 Applicants will then need to check that their proposal is compatible with the Flood Zone in accordance with the Vulnerability Classifications listed in the PPG (these are listed at Appendix 1 of this document). The PPG specifies certain vulnerability classifications that should not be permitted in certain 'Flood Zones' (see Table 2).

2.2 Figure 10 shows that in flood zones 3a and 3b development within certain vulnerability classification should not be permitted. This applies to highly vulnerable development in flood zone 3a, and to any development in flood zone 3b – functional floodplain – except for essential infrastructure and water compatible development.

Figure 10. Flood risk vulnerability and flood zone 'compatibility'

	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 1	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 2	Development is appropriate	Exception test required	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 3a	Exception test required[4]	Development should not be permitted	Exception test required	Development is appropriate	Development is appropriate
Flood Zone 3b	Exception test required[5]	Development should not be permitted	Development should not be permitted	Development should not be permitted	Development is appropriate

Notes to table 3:

- This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;

Source: PPG Table 3, Paragraph: 067 Reference ID: 7-067-20140306, https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-3-Flood-risk-vulnerability

2.3 The L1 SFRA identifies future flood zone 3. For vulnerability purposes sites with this classification should be considered as flood zone 3a as it is likely they will become

[4] In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

[5] In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

flood zone 3 within the lifetime of a development.

2.4 When considering vulnerability, locations identified as rapid inundation zone, overtopping region or breach region in a L2 SFRA should be considered as flood zone 3a.

Outcome of Step 2

If Table 2 identifies that development should not be permitted because of its vulnerability classification (as listed in Appendix 1), then it is contrary to national policy.

In all other cases, proceed to Step 3.

3 Step 3 – The Sequential Test

3.1 The Sequential Test is a planning tool that local planning authorities apply to ensure that developments in areas at risk of flooding are only approved if the applicant can successfully demonstrate that there are no reasonably available alternative sites at a lower risk of flooding, and that the proposed uses are suitable in terms of their vulnerability (Step 2). PPG provides the following description of the Sequential Test:

Box 1: Description of the aim of the Sequential Test

SEQUENTIAL TEST

"The aim is to steer new development to Flood Zone 1 (areas with a low probability of river or sea flooding). Where there are no reasonably available sites in Flood Zone 1, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 (areas with a medium probability of river or sea flooding), applying the Exception Test if required. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in flood zone 3 (areas with high probability of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

Within each flood zone, surface water and other sources of flooding also need to be taken into account in applying the sequential approach to the location of development"

Source: PPG, Paragraph: 019 Reference ID: 7-019-20140306

3.2 The PPG states that the SFRA, considering all sources of flooding, will provide the basis of the Sequential Test. For some proposals, a further Exception Test is required (see Step 2 to confirm whether this is required and see Step 4 to confirm how to do undertake the Test).

Proposals where the Sequential Test is not required

3.3 Paragraph 162 of the NPPF states that for proposals on sites allocated in development plans through the Sequential Test, applicants need not apply the Sequential Test. However, the L2 SFRA for Goole is a material consideration that has been published since the Local Plan was adopted and therefore, in Goole, it is necessary to apply the sequential test to allocated and unallocated sites[6].

3.4 Paragraph 164 of the NPPF states that applications for some minor development and changes of use[7] should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments. It is required for all other proposals. Box 2 provides more details.

[6] The Hedon L2 SFRA is also a material consideration. However, there are no Local Plan Housing Allocations in Hedon.

[7] This includes householder development, small non-residential extensions (with a footprint of less than 250m2) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate

Box 2: Proposals where the Sequential Test is not required

Sites in low risk areas[8]

Sites in Flood Zone 1, and not at risk from other sources of flooding, are not required to undertake the Sequential Test unless it is indicated that there may be flooding issues in the future, for example through the impact of climate change. However, if the site is 1 hectare or greater, applicants are required to produce a site-specific Flood Risk Assessment to accompany the planning application (see Step 6).

Sites allocated in the Local Plan[9] (except in Goole)

The NPPF confirms that where a site has been allocated in a Local Plan following the application of the Sequential Test, as is the case for sites allocated in the East Riding Local Plan, the Sequential Test need not apply when considering an application for the same use. In such circumstances, proposals will still be required to include a site-specific flood risk assessment. The Sequential Test will be required if the proposal is for an alternative use to that which the site is allocated for.

In addition, should the evidence suggest that the level of flood risk (from all sources) has increased since the site was put forward at the Local Plan examination, then the Sequential Test may be required. Examples include, in Goole where the L2 SFRA (2020) provides a greater understanding of the risk of flooding, and locations where the EA flood maps show an increased understanding of the risk.

Minor Development[10]:

PPG states minor development means:

- minor non-residential extensions: industrial/commercial/leisure etc. extensions with a footprint less than 250 square metres;
- alterations: development that does not increase the size of buildings e.g. alterations to external appearance;
- householder development: For example; sheds, garages, games rooms etc. within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

Proposals for minor developments need not undertake the Sequential Test nor Exception Test.

Changes of use[11]:

Changes of use, except to a caravan, camping or chalet site or to a mobile home or park home site, will not be required to apply the Sequential Test, nor the Exception Test.

Where a change of use includes an extension, consideration should be given to whether that extension would be classed as minor development (see above) when determining whether the Sequential Test is required (see also paragraph 3.35).

[8] From PPG (paragraph: 033 Reference ID: 7-033-20140306)
[9] From paragraph 162 of NPPF
[10] From paragraph 164 of NPPF and PPG (Paragraph: 033 Reference ID: 7-033-20140306)
[11] ibid

Sites partially within Flood Zone 2 or 3:

When development is proposed on a site where only a small part of the site lies within Flood Zone 2 or 3 (and no other sources of flooding), the Sequential Test will not be required provided:

- The area of Flood Zone 2 and/or 3 will be used only for soft landscaping/open space; AND
- Safe access and egress during flooding can be achieved without having to use the area of Flood Zone 2 and/or 3.

Replacement dwellings

Where the proposal is for the replacement of an existing dwelling, with no increase in the number of dwellings, or footprint of the building, then the Sequential Test need not be applied.

Undertaking the Sequential Test

3.5 If a Sequential Test is applicable to the development proposal, applicants are required to assemble the relevant information with their planning application to enable the Council to assess whether the Sequential Test has been satisfactorily undertaken. The Council will need evidence of:

1) the area of search that has been used to assess alternative sites;

2) the alternative sites identified within the area of search; and

3) assessment and explanation of whether alternative sites are at lower flood risk and are 'reasonably available'

3.6 If the information demonstrates that there are reasonably available sites at a lower risk of flooding, it is unlikely that the Council will approve the planning application, unless material considerations indicate otherwise.

The area of search

3.7 The PPG[12] advises that the geographical area over which to conduct a search of alternative sites will be defined by local circumstances relating to the catchment area for the type of development proposed. PPG also states that when applying the Sequential Test, a pragmatic approach on the availability of alternatives should be taken.

3.8 The East Riding authority area is very large (approximately 930 square miles), hence it is not expected that development proposals should be assessed against alternative sites throughout the entire Authority area. Rather, **the area of search should be related to the type, scale, size, nature and character of the proposed**

[12] PPG 033 Reference ID: 7-033-20140306

development, and should be agreed with the Council (case officer) on a case-by-case basis. Examples of what the Council considers may be acceptable areas of search for the most common development types are detailed below.

Developments with a catchment

3.9 The PPG suggests that some developments will have a specific, clearly-defined catchment which would justify a reduction in the search area for the Sequential Test.[13] These development types may include the following:

- schools;
- hospitals and doctors' surgeries; and
- fire/ambulance stations

3.10 In such circumstances, evidence must be assembled by the developer, drawing from bodies such as the Local Education Authority, National Health Service/Clinical Commissioning Group or Emergency Services, to justify what the catchment area should be.

Housing

3.11 The adopted Strategy Document identifies a housing requirement of at least 1,400 dwellings per year as set out in Policy S5. This housing figure is distributed across the settlement network set out in Policy S3. A network of Villages, where limited development will be acceptable, are also identified in Appendix B of the Strategy Document.

3.12 The 2019 Strategic Housing Market Assessment identifies six housing market sub areas that reflect relatively high levels of self-containment in terms of migration, economic characteristics and commuting flows.[14] At a broad level, these sub areas should be the starting point for considering the area of search for housing proposals (Figure 11).

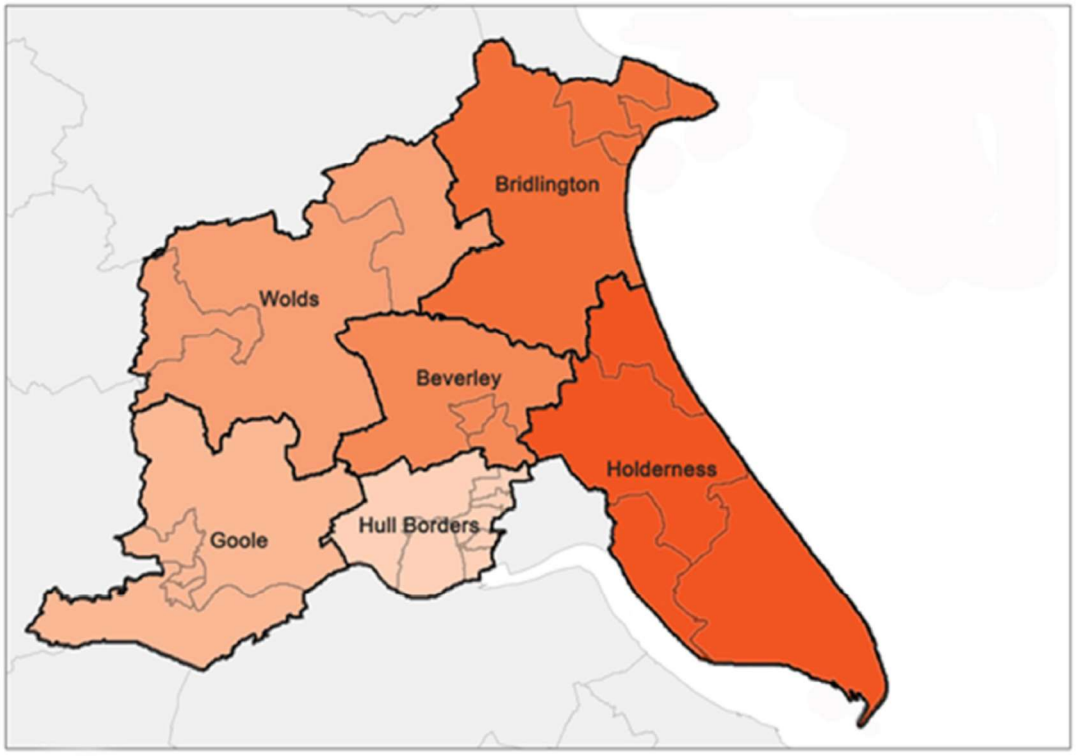
3.13 All allocated sites in the Local Plan have been subject to the Sequential Test and, where necessary, the Exception Test. As a result, proposals on residential allocated sites will only need to provide a site specific FRA (in effect, the second part of the Exception Test – see Step 4) as long as the proposed use is in line with the Local Plan allocation and there is no evidence to suggest the understanding of flood risk has changed, e.g. changes to the flood zone, greater understanding of future risk or a new L2 SFRA.

3.14 The Local Plan identifies sufficient land to meet the housing needs of the East Riding to 2029. Each of these sites has been assessed and examined, and represent

[13] PPG (Paragraph: 033 Reference ID: 7-033-20140306)
[14] www.eastriding.gov.uk/environment/planning-and-building-control/east-riding-local-plan/evidence-base/

sustainable locations for new housing development. **It is likely therefore, that for proposals in Flood Zones 2, future Flood Zone 3 or Flood Zone 3 on non-allocated sites, there will be sequentially preferable sites within the housing market area.**

Figure 11. East Riding Housing Market Sub Areas



Goole

3.15 The area of search for residential proposals in Goole should be limited to the settlement. The PPG allows for a more pragmatic approach to the area of search where development in large areas of Flood Zones 2 and 3 is needed to sustain the existing community.[15] If a housing market sub area approach was taken, this would identify sites at a lower risk of flooding outside the town. However, the Local Plan balances the need for new development in Goole against the level of flood risk, informed by the Level 2 SFRA. The housing requirement for the town has been set at 1,950 dwellings over the Plan period, and this requires suitable windfall applications to be supported.

3.16 The 2011 L2 SFRA was used to undertake the sequential test as part of the preparation of the Local Plan. No allocations were made in the rapid inundation zone, 'significant' or 'extreme' hazard areas. Allocations were made in other, more sequentially preferable, areas. However, the 2020 L2 SFRA provides new understanding of the flood risk in Goole, based on new modelling and updated

[15] PPG Paragraph: 033 Reference ID: 7-033-20140306

climate change scenarios. It show that Goole is at more significant risk than was previously understood.

3.17 Proposals in Goole, including allocations, are expected to undertake the sequential test using the 2020 L2 SFRA. Appendix E of the L2 SFRA should be used to apply the test. Paragraphs 3.34-3.40 provide more information on considering alternative sites.

> *Note: Even where a site is sequentially preferable in Goole, there will be significant design and safety considerations to overcome to ensure development is safe.*

Hedon

3.18 The Strategy Document identifies that no specific allocations for housing in Hedon have been made in the Local Plan due to flood risk and surface water concerns. It states that residential development may be supported where the evidence identifies suitable solutions and that the development can be made safe. At the strategic level, the Council will consider whether to allow allocation in a review of the Local Plan.

3.19 For individual planning applications, the area of search should be limited to the town of Hedon rather than the housing market sub area. This is on the basis that the Local Plan considers Hedon to be a sustainable location for development, but that the full extent of flood risk was not known during the preparation of the Local Plan.

3.20 Since the Local Plan was adopted the L2 SFRA for Hedon (2020) has been produced. This document should be used, in particular Appendix E, when undertaking the sequential test in Hedon. Paragraphs 3.34-3.40 provide more information on considering alternative sites.

Affordable housing

3.21 Proposals for affordable housing should be to meet the local needs of an existing community. In line with the PPG, the Council's approach is to consider that the area of search should be limited to the settlement where the need arises as it would be inappropriate to consider alternative sites elsewhere.[16]

Housing for rural-based workers

3.22 Policy S4 of the Strategy Document supports the provision of housing in the Countryside for agricultural, forestry and other rural-based workers where there is a demonstrable need. In such circumstances, the area of search is likely to be limited to the area over which the rural worker would be responsible (e.g. a forest or an agricultural holding).

[16] ibid

Employment, Commercial, Business and Service uses

3.23 For employment, commercial, business and service proposals (developments within the B and E Use Classes) that do not have a specific locational requirement (see paragraphs 3.23 to 3.29), the search area should be the same Functional Economic Area within the East Riding, as defined in the Local Economic Assessment[17] and supported through the Employment Land Review (2020)[18].

Main town centre uses

3.24 For 'main town centre use'[19] proposals, applicants should consider a suitable catchment area for the use provided. For retail proposals, retail catchment areas are set out in the Council's Retail and Town Centre Study.[20] The search areas for non-retail town centre uses will depend on the nature of use proposed and the market it is aimed at. The outcomes of both the Sequential Test (flood risk) and sequential approach (vitality of town centres) will be considered in determining individual planning applications.

Development with a specific locational requirement

Extensions to existing businesses

3.25 In considering planning applications for extensions to existing business premises, the PPG advises that it might be impractical to suggest that there are more suitable alternative locations for that development elsewhere.[21]

3.26 Where a proposed development will be operationally linked to an existing business (including agriculture) the area of search could be that land within which the operational link can be maintained.

3.27 Such proposals may include additional buildings or extensions to provide such things as an enhanced production line, a staff canteen, additional car parking, or goods storage. However, proposals for additional, separate uses will need to undertake a Sequential Test.

Note: Applicants will still need to demonstrate that the Exception Test is passed (if applicable).

[17] Local Economic Assessment: http://www2.eastriding.gov.uk/council/plans-and-policies/other-plans-and-policies-information/economic-development/#Local-Economic-Assessment

[18] https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/evidence-base/

[19] See Annex 2 of the NPPF for the definition of main town centre uses.

[20] See Appendix 10 of the Town Centres and Retail Study (2019): https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/evidence-base/

[21] PPG Paragraph: 033 Reference ID: 7-033-20140306

Large-scale storage and/or distribution

3.28 Where a development is proposed which relies on its proximity to the strategic transport network (such as motorways and rail routes) in order to function effectively, the area of search could be those areas within the Local Authority boundary which benefit from similar access to the strategic transport network.

3.29 The East Riding Local Plan Strategy Document identifies a number of Key Employment Sites which will act as a main focus for employment development making use of their strategic location on the East-West Multi-Modal Transport Corridor. (Capitol Park at Goole, and Melton are allocated sites that are suitable for large-scale storage and/or distribution uses. In addition, a site at Junction 38 (North Cave/Newport) has been allocated for employment use along this corridor. As allocated sites, they have been subject to the Sequential Test through the Local Plan preparation process. Applications for employment uses on these sites would not need to undertake the Sequential Test.

Docks/Marinas/Wharves

3.30 Where a development is proposed which relies directly on its proximity to a deep-water estuarial channel such that it can function as, or link directly to, a dock, marina or wharf, the area of search could be defined by that area(s) within the Local Authority boundary which benefits from similar access to a deep-water channel.

Areas requiring re-development or regeneration

3.31 PPG recognises that where redevelopment is ongoing as part of an existing regeneration strategy in Flood Zones 2 or 3, it has to be accepted that the redevelopment cannot go anywhere else[22]. In such circumstances the boundary of the identified redevelopment/regeneration area can be used for the area of search. This includes formally defined areas such as housing market renewal areas and areas benefiting from public funding in order to provide wholesale re-development.

Note: Applicants will still need to demonstrate that the Exception Test is passed (if applicable)

Mixed use developments

3.32 For mixed use proposals, applicants should consider whether the different uses could be disaggregated (and apply appropriate areas of search accordingly). Alternative sites capable of accommodating an equivalent mix of uses should also be looked at.

[22] From PPG (Paragraph: 033 Reference ID: 7-033-20140306)

Other

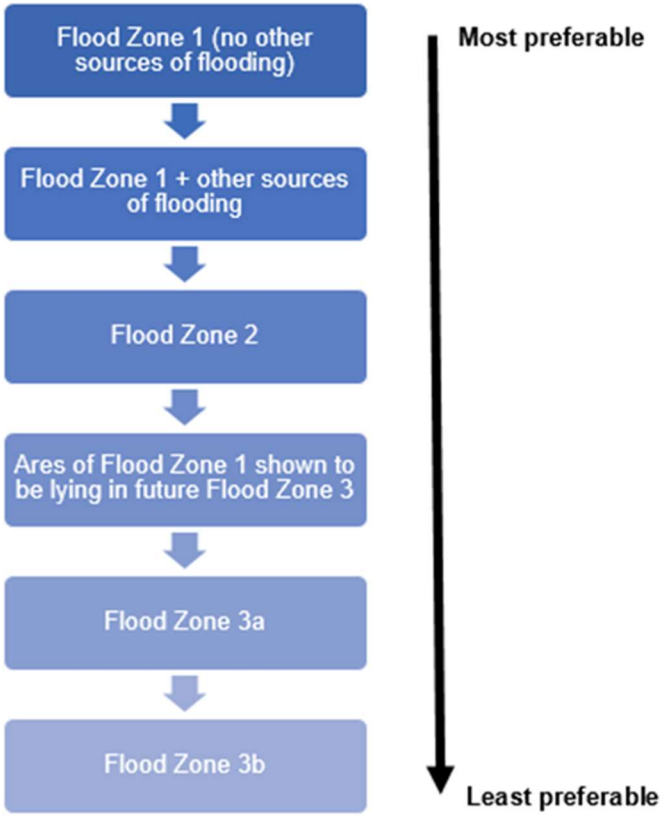
3.33 For other types of proposal, applicants are advised to contact the Council when considering the area of search over which to apply the Sequential Test (see contact information at Appendix 2).

Identifying 'reasonably available' alternative sites

3.34 The Council considers that 'reasonably available alternative sites' are those that meet the functional requirements of the proposed development, at a lower flood risk level.

3.35 For the majority of the East Riding this means following the locational preference recommendations of the L1 SFRA to apply the sequential test, as set out in Figure 12.

Figure 12: Ranked levels of flood risk in the L1 SFRA (not to be used in Goole or Hedon)



Source: L1 SFRA, 2019

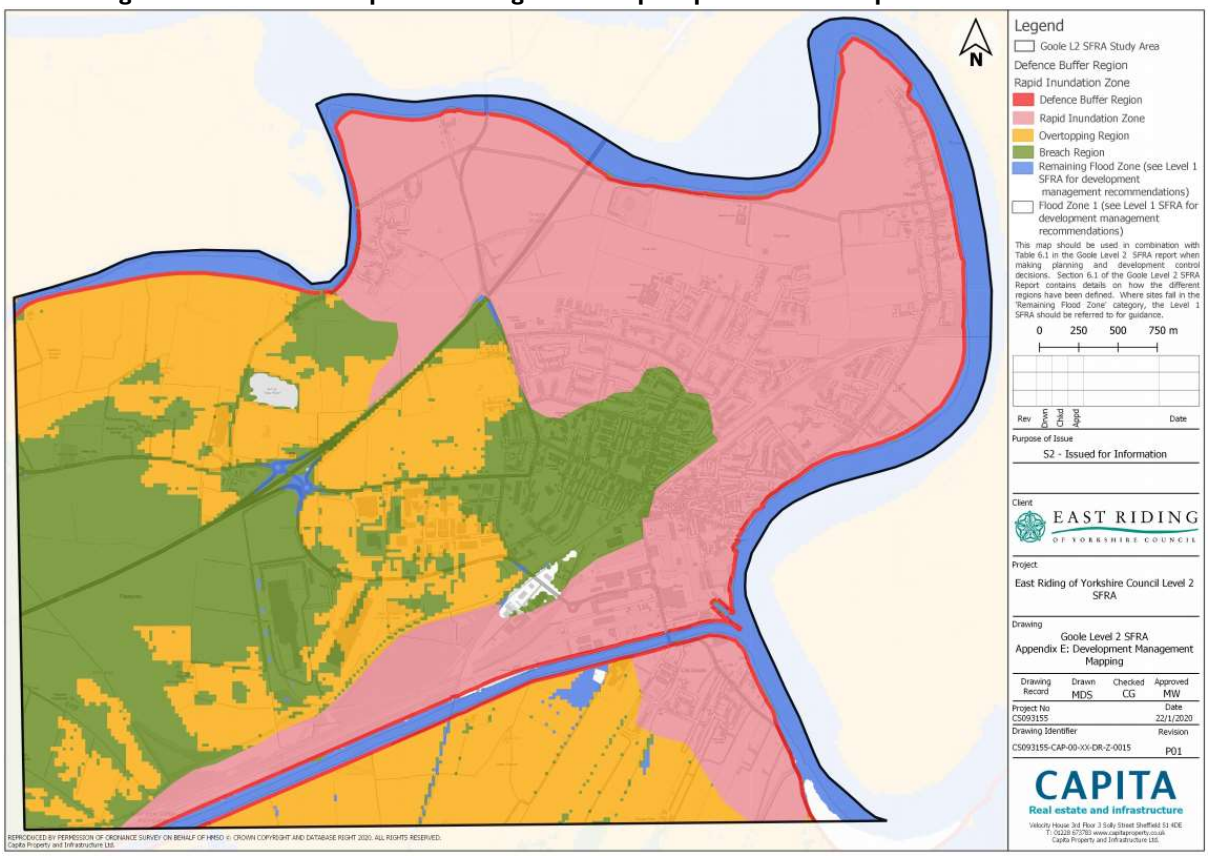
3.36 In Goole applicants are expected to follow the locational preferences set out in Figure 13, used alongside Appendix E of the L2 SFRA (Figure 14).

Figure 13. Ranked levels of Flood Risk in Goole

Flood Zone 1	Areas with no fluvial or tidal flood risk. Note: very few areas in the study area fall within this category.	Most Preferable
Remaining Flood Zone Areas	All remaining areas. These areas fall within the Environment Agency's Flood Zones 3 and / or 2. Only a small amount of the study area falls within this category. As such, it is not considered further in this report. For recommendation and guidance, for planners and developments, see the Level 1 SFRA report.	
Breach Region	Areas that flood following a breach of defences in a 0.5% AEP plus climate change event. This is the 'residual risk' scenario	
Overtopping Region	Areas that flood following overtopping of defences in a 0.5% AEP plus climate change event. This is the 'design flood risk' scenario.	
Rapid Inundation Zone	Areas that flood to depths greater than 900mm, within 0.5 hours of a breach, in a 0.5% AEP plus climate change event. Breaches could occur at any point along the defences. As only a limited number of breaches have been modelled for the SFRA, the combined breach outline has been contoured to account for those areas in between the modelled breaches. A threshold of 900mm has been used as standard mitigation measures would not exceed 900mm.	Least Preferable
Defence Buffer Region	20 metre buffer region around flood defences, as required for access e.g. for maintenance and / or future flood management options.	Not Permitted

Source: Goole L2 SFRA (2020)

Figure 14. Goole Development Management Map/Sequential Test Map



Source: Goole L2 SFRA (2020)

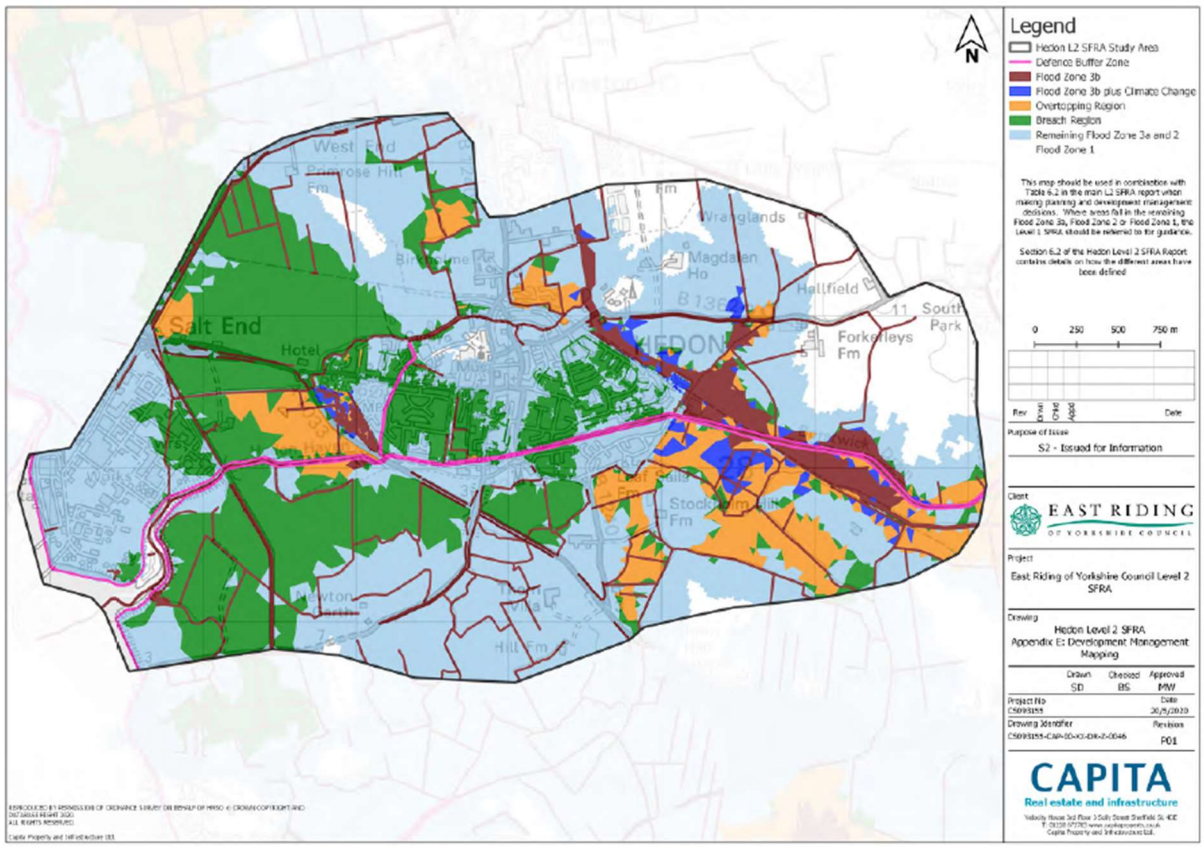
3.37 In Hedon, this means following the locational preferences set out in Figure 15 alongside Appendix E of the L2 SFRA (Figure 16).

Figure 15. Ranked Levels of Flood Risk in Hedon

Flood Zone 1 (no other sources of flooding)	Areas with no fluvial or tidal flood risk.	Most Preferable
Flood Zone 1 + other sources of flooding	Areas with risk of flooding from sources other than fluvial or tidal (i.e. surface water.	Refer to NPPF Table 3 for development compatibility and Exception Test requirements
Flood Zone 2 Remaining Flood Zone 3a Areas	All remaining areas. These areas fall within the Environment Agency's Flood Zones 3 and / or 2. Note: few areas fall within Flood Zone 2. This area is not considered further in the report. For recommendations and guidance, for planners and development, see the Level 1 SFRA report.	
Breach Region (within Flood Zone 3a)	Areas that flood following a breach of the tidal gate, defences at Paull or fluvial defences on the Burstwick Drain at Hedon. The region has also been contoured in between fluvial breaches to account for potential risk from breach of defences in between those modelled. This is the 'residual risk' scenario	
Overtopping Region (within Flood Zone 3a)	Areas that flood following overtopping of fluvial defences in a 1% AEP plus climate change event. This is the 'design flood risk' scenario. Note: there is no overtopping of tidal defences, as discussed elsewhere in this report.	
Flood Zone 3b plus climate change	Based on the Burstwick Flood Risk Management Plan (FRMP) integrated model 3.3% AEP results, with surface water results removed.	Water Compatible development Essential Infrastructure (if Exception Test is passed)
Flood Zone 3b	Based on the 5% AEP overtopping modelling results as well as GIS watercourse centrelines to represent river channels that also form part of the functional floodplain.	
Defence Buffer Region	20 metre buffer region around flood defences, as required for access e.g. for maintenance and / or future flood management options.	Not Permitted

Source: Hedon L2 SFRA (2020)

Figure 16. Hedon Development Management / Sequential Test Map



Source: Hedon L2 SFRA (2020)

3.38 The Council would expect applicants to consider sites that are capable of accommodating the proposed use or equivalent mix of uses, unless they would result in abnormal development costs (e.g. provision of additional infrastructure to mitigate significant impacts) that would render the development unviable, and provided they are not contrary to other planning policies.

3.39 Alternative sites should not be dismissed simply on the basis that they are larger than the proposed site, or that they are smaller (as a series of smaller sites accommodating an equivalent quantum may also be considered). Nor should sites be dismissed because they would not generate the same sustainability benefits as the proposed site, and/or because they already have planning permission (but where development has not begun or is only partially complete). In regard to ownership, the Council does not consider the fact that an applicant personally has no alternative site within their ownership (at a lower flood risk level) to have a bearing on the application of the Sequential and Exception Tests.

3.40 To identify alternative sites, it is recommended that applicants refer to the Local Plan Allocations Document in the first instance. Applicants should also look at relevant assessments/monitoring reports prepared by the Council to identify additional sites that may, for example, benefit from an unimplemented planning permission. A list of such documents / sources of information for the East Riding of Yorkshire is provided

in Box 3. Applicants are also advised to undertake a market search, particularly if no or few reasonably available alternative sites are identified from these documents.

Box 3: Sources of information for identifying alternative sites

Allocated sites in the Local Plan

Sites allocated in the Local Plan should be considered in the first instance and supplemented with sites included in the following documents, where relevant:

Housing

The *Housing Land Supply Position Statement (HLSPS)* (updated annually) identifies potential housing sites with a minimum size threshold of 0.17ha (or 5 dwellings), and indicates whether they are deliverable' – i.e. currently available and capable of being delivered within 5 years. The sites include those with planning permission and undeveloped Local Plan allocations. Only sites included in the 5 year supply should be considered as being reasonably available for Sequential Test purposes.

The HLSPS can be accessed at:

http://www2.eastriding.gov.uk/environment/planning-and-building-control/current-strategic-plans/housing-monitoring/

Employment

The *Employment Land Monitoring Report (ELMR)* (updated annually) identifies all undeveloped and unoccupied sites over 0.25 ha in size, which either have an unimplemented planning permission or are a Local Plan allocation for previous use classes B1 (business), B2 (general industrial) or B8 (storage and distribution) uses. The ELMR can be accessed at:

http://www2.eastriding.gov.uk/environment/planning-and-building-control/current-strategic-plans/employment-land-monitoring-reports/

Also, the Industrial and Commercial Property Database, held by the Council's Inward Investment Team (Tel: 01482 391612), contains information on available industrial and commercial property.

Main town centre uses/other

There are no specific land use monitoring reports for retail or other types of development. However, applicants should consider land that is for sale or being marketed in the area of search that could reasonably accommodate the proposal.

Outcome of Step 3

If the site is:

- within flood zone 1, with no risk of flooding from other sources;
- on a site allocated in the Local Plan for the proposed use;
- a minor development; or
- a change of use (except to a caravan, camping or chalet site or to a mobile home or park home site).

The Sequential Test is unlikely to be required. Proceed to Step 5.

If the site is located in flood zone 2, and:

- there are no reasonable available sites at a lower risk of flooding, and
    - the proposed use is essential infrastructure, more vulnerable, less vulnerable or water compatible, proceed to Step 5;
    - the proposed use is highly vulnerable, proceed to Step 4.

If the site is located in flood zone 3a, future flood zone 3a, or located in Goole (other than flood zone 1) and:

- there are no reasonable available sites at a lower risk of flooding, and
    - the proposed use is less vulnerable or water compatible, proceed to Step 5;
    - the proposed use is essential infrastructure or more vulnerable, proceed to Step 4;
    - the proposed use is highly vulnerable, the PPG states that development should not be permitted.

If the site is located in flood zone 3b, or future flood zone b (Hedon only) and:

- there are no reasonable available sites at a lower risk of flooding, and
    - the proposed use is water compatible, proceed to Step 5;
    - the proposed use is essential infrastructure, proceed to Step 4;
    - The proposed use is highly vulnerable or more vulnerable, the PPG states that development should not be permitted.

If the site is located in Flood Zone 2, 3a or 3b and there are alternative sites available at a lower risk of flooding, then the proposal will be contrary to planning policy on flood risk and could not be support by the Council unless there are material considerations that outweigh the risk of flooding.

If the site is located within the defence buffer region or the proposal is for new development in the rapid inundation zone, in Goole, then the proposal will be contrary to planning policy on flood risk and could not be support by the Council unless there are material considerations that outweigh the risk of flooding.

Other Material Considerations

3.41 If the Sequential Test has demonstrated that there are reasonably available sites at a lower risk of flooding, the proposal would be contrary to national and local planning policy, and the application is likely to be refused. In these instances the exceptions test (Step 4) would not be applied. Where an applicant considers that the risk of flooding, which can put life and property at risk, is outweighed by other significant material considerations on a specific site (notwithstanding the fact that there may be other alternative sites available at a lower risk of flooding), they will need to specify this in a planning application and provide a site-specific flood risk assessment (see Step 6).

3.42 Certain proposals for changes of use are exempt from applying the Sequential Test (see Box 2), but those that include non-minor extensions and/or alterations are not. There may be specific situations where the planning benefits of changing the use of an existing property, with non-minor alterations and/or extensions, outweighs the risk of flooding. For example, a derelict building within the town centre may benefit from investment in an alternative use.

3.43 For the redevelopment of existing properties, such as replacement dwelling proposals, any reduction to the risk of flooding or improved flood resilience in comparison to the existing dwelling could be considered as a material consideration. However it should be ensured that new dwellings will not be placed at an unacceptable level of flood risk (as set out in Figure 10) irrespective of the risk posed to the existing dwelling and do not increase the number of dwellings in an area of flood risk (e.g. replacing a single dwelling with an apartment block).

3.44 If a site has an existing unimplemented permission (i.e. it is still valid) and an application to renew the planning permission or an application for development of the same use and scale (or reduced) , the Council will consider how far the revised application addresses flood risk issues. Where the new application has benefits above that of the preceding application, such as the proposal and/or surrounding area would be put at a lower residual risk of flooding, this may be supported. Previous decisions on planning applications which have lapsed are unlikely to be given much weight as a material consideration.

3.45 Some identified settlements in the East Riding Local Plan are wholly within flood zones 2 and/or 3. In addition to Goole and Hedon, such settlements include Bilton, Dunswell, Easington, Gilberdyke/Newport, Rawclifffe and Thorngumbald; as well a number of smaller villages. The application of the Sequential Test in these locations will find that there are sequentially preferable sites within the search area. However, in some instances there may be material considerations that achieve a significant planning gain and require consideration as part of the planning balance. For example, a proposal could lead to significant environmental improvements on previously

developed land on a particularly important site in the settlement. Similarly, a proposal could result in the removal of a use which is no longer suitable in its current location.

3.46 Other material considerations may exist and should be discussed with the Council on a case-by-case basis.

3.47 The fact that a material consideration exists does not automatically mean that it will outweigh the risk of flooding. It will need to be carefully considered in the planning balance. When balancing material considerations against the risk of flooding, decision takers must consider whether the planning gain of the proposal outweighs the risk of flooding. They should also consider whether the proposal will be safe for its lifetime taking account the vulnerability of its users, without increasing flood risk elsewhere, and where possible, reducing flood risk overall.

4 Step 4 – The Exception Test

4.1 If, following application of the Sequential Test, it is not possible for the development to be located in zones with a lower probability of flooding, the Exception Test must be applied where required. The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing the development to go ahead in situations where suitable sites at lower risk of flooding are not available.

4.2 The Exception Test is applied where the proposal is[23]:

- located in zone 2 and is considered a highly vulnerable use;
- located in zone 3a[24] and is considered either a more vulnerable use or essential infrastructure; or
- located in zone 3b and is considered essential infrastructure.

4.3 For the Exception Test to be passed it should be demonstrated that[25]:

a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and

b) 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.

Both elements of the test will have to be passed for development to be permitted.

4.4 The Environment Agency has advised that the logical order for applicants to work through the Exception Test is to start with part 'b', followed by part 'a'. If applicants are not able to demonstrate that part 'b' can be met, there is no point in addressing the other part of the Test, as it would be difficult to undertake part 'a' of the test without the level of information on flood risk provided by part 'b'. The Exception Test must be addressed satisfactorily for the proposal to be considered acceptable, subject to consideration of other relevant policies in the Local Plan.

4.5 Part 'b' requires applicants to demonstrate through their site-specific Flood Risk Assessment (Step 6) that their proposed development can be made safe without increasing flood risk elsewhere, and where possible, will reduce flood risk overall.

[23] PPG 067 Reference ID: 7-067-20140306

[24] To ensure that development is safe for its lifetime, future flood zone 3, as identified in the L1 SFRA, will be treated as flood zone 3a

[25] NPPF paragraph 160

The Level 1 SFRA, and Level 2 SFRAs for Goole and Hedon, include recommendations that specify a number of design measures to ensure that this part of the Test can be met, they also identify areas where development will not be acceptable due to safety concerns. **The recommendations of the SFRAs are set out in Appendix 3**.

4.6 Appendix 4 provides a list of other useful documents that applicants may wish to refer to, on designing buildings in flood risk areas and preparing flood evacuation plans.

4.7 Part 'a' requires applicants to demonstrate evidence that will enable the Council to decide whether their proposal delivers wider sustainability benefits that outweigh the flood risk implications of developing the site. To do this, it is recommended that applicants refer to the Council's Sustainability Appraisal for the East Riding Local Plan Review Interim Stage B Report (2018)[26]. The document contains a list of objectives against which the sustainability of the Local Plan Review is being assessed against. These are listed at Appendix 5. Applicants can use these to inform their explanation of how their proposal will deliver wider sustainability benefits. The information contained in the Flood Risk Assessment should form an integral part of this process.

Outcome of Step 4

If the Exception Test has been passed, proceed to Step 5.

If the Exception Test has been failed, the proposal is unlikely to gain planning permission.

[26] https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan-review/

5 Step 5 – Applying a Sequential Approach to site layout and design

5.1 If the Sequential Test and/or Exception Test determines that the proposed development is to be located in a flood risk area, applicants should also apply a sequential approach *within* the site, steering the most vulnerable uses towards the lowest risk parts of the site, and the least vulnerable uses, such as amenity spaces, towards the highest risk parts of the site. This approach should take into account flood risk from all sources. The sequential approach should also be applied vertically, e.g. designed so that the most vulnerable elements of the development (e.g. housing) are placed on upper floors, wherever possible. Site design should also ensure that there are safe routes of access and egress.

Outcome of Step 5

Having satisfactorily dealt with site design in relation to managing the risk of flooding, proceed to Stage 6.

6 Step 6 – Preparing a site specific flood risk assessment

6.1 The NPPF[27] states that site-specific Flood Risk Assessment (FRA) should be provided for:

- All development in Flood Zones 2 and 3.
- In Flood Zone 1, an assessment should accompany all proposals involving:
  - Sites of 1 hectare or more;
  - Land which has been identified by the Environment Agency as having critical drainage problems;
  - Land identified in a strategic flood risk assessment as being at increased flood risk in future; or
  - Land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

6.2 The locations where an FRA will be required irrespective of the size of the site are identified on a map in Appendix K of the L1 SFRA. Appendix K can be viewed on the Council's Flood Data Map. The layer becomes active when viewed at a large scale/zoomed in.

6.3 Detailed guidance on how to undertake FRAs for the different Flood Zones is provided in PPG (Paragraphs: 030 - 032 Reference ID: 7-032-20150415) and in the L1 SFRA (at section 8.3). Appendix L of the L1 SFRA is a template FRA that can be used by applicants as a guide.

6.4 In particular, applicants are encouraged to demonstrate that their proposal will deliver a positive reduction in flood risk overall, whether that be by reducing the frequency or severity of flooding (for example, through the introduction of SuDS), or by reducing the impact that flooding may have on the community (for example, through a reduction in the number of people within the site that may be at risk). Before drainage measures are considered however, applicants should normally carry out a percolation test to inform how surface water runoff can most appropriately be managed.

6.5 The FRA should also specify whether the site meets any of the criteria that have been identified in this SPD as potentially constituting risk from other sources e.g. a surface water/groundwater risk, and if so, provide justification if it is not considered that these present a 'significant' risk (see also Paragraph 1.48).

6.6 Also, the FRA should refer to the development control measures specified in the relevant SFRA. In the case of Goole and Hedon, reference should be made to either Table 6.2 of the Level 2 SFRA or Table 8.3 of the L1 SFRA, depending on the level of

[27] Footnote 50 of the NPPF

risk. For the rest of the East Riding refer to Table 8.3 of the Level 1 SFRA. Showing how the requirements in the tables have been met will help demonstrate that the requirements of the NPPF and PPG can be met. All three tables are reproduced at Appendix 3.

6.7 If it is impossible/difficult on-site to provide an overall reduction in flood risk, consideration needs to be given to whether a contribution to flood risk management infrastructure may be appropriate, supporting the area in which the development takes place (to be determined on a case-by-case basis).

Consultation

6.8 The Lead Local Flood Authority (LLFA) will be consulted on **all major planning applications**. Their role is to assess planning applications in respect of surface water drainage and sustainable drainage systems, offering advice to Development Management on the likely risks and whether the applicant's plans adequately mitigate the risk. Detailed Standing Advice on how surface water drainage is considered through planning application process is available on the Council's website at:

6.9 http://www2.eastriding.gov.uk/environment/planning-and-building-control/design-of-surface-water-drainage-systems/ Details of when to consult the Environment Agency are available to view on their website. To assist Local Planning Authorities, the Environment Agency has produced standing advice to inform on their requirements regarding the consultation process for planning applications on flood risk matters. Full details of their **Flood Risk Standing Advice** can be found at.

https://www.gov.uk/guidance/flood-risk-assessment-standing-advice

6.10 The Environment Agency and LLFA advise the Council on FRAs, although they do not normally comment on the Sequential Test as the PPG clarifies that this is a matter for the local planning authority to determine. It is strongly recommended that a draft of the detailed FRA is provided to the EA and LLFA for review and comment before being submitted with a planning application, thereby reducing potentially costly delays to the planning process.

6.11 Applicants are also advised to liaise early with other relevant organisations including Yorkshire Water and Internal Drainage Boards to ensure that any potential adverse impacts on the existing drainage infrastructure can be mitigated through appropriate design solutions.

6.12 The Environment Agency can provide valuable evidence to inform the development of detailed FRAs. Their External Relations team should be contacted as early as possible to source information relating to (for example) historical flooding, hydraulic modelling and topography (LiDAR). It is emphasised that the information provided within the SFRA is the best available at the time of writing. More up to date

information may be available, and contact should always be made with the Environment Agency at an early stage to ensure that the detailed site-specific FRA is using the most current datasets, avoiding unnecessary re-work.

Appendices

Appendix 1: PPG Table 2 – Flood risk vulnerability classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly Vulnerable	• Police and ambulance stations; fire stations and Command Centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs, and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill[28] and sites used for waste management facilities for hazardous waste • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	• Police, ambulance and fire stations which are **not** required to be operational during flooding. • Buildings used for: shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non–residential institutions not included in 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working).

[28] Landfill is defined in Schedule 10 to the Environmental Permitting (England and Wales) Regulations 2010

	• Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).
Water Compatible	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, **subject to a specific warning and evacuation plan**.

Notes:

1) Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.

2) The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

Appendix 2: Useful Contacts

East Riding of Yorkshire Council
County Hall
Beverley
HU17 9BA

Development Management Switchboard: 01482 393647
Email: beverley.dc@eastriding.gov.uk
For information on submitting a planning application, the application of the Sequential and Exception Tests

Lead Local Flood Authority
Tel: 01482 395656
Email: LLFA@eastridng.gov.uk
For information about surface water flood risk, land drainage and SuDS

Forward Planning
Tel: 01482 391751
Email: forward.planning@eastriding.gov.uk
For information about the Local Plan, planning policy, the SFRA and land availability

Emergency Planning
Tel: 01482 393095
Email: heps@eastriding.gov.uk

Environment Agency
Coverdale House
Aviator Court
York
North Yorkshire
YO30 4GZ

Tel: 03708 506 506

Email General: enquiries@environment-agency.gov.uk
Email External Relations: neyorkshire@environment-agency.gov.uk
Email Planning Liaison: planningliaison_yorkshire@environment-agency.gov.uk
Floodline: 0845 9881188

Internal Drainage Boards

An interactive map showing the contact details of internal drainage boards is available on the Association of Drainage Authorities website at https://www.ada.org.uk/idb-map/

Yorkshire Water

Developer Services
PO Box 52
Bradford
BD3 7AY

Tel: 01274 692643
Email: zaffer.fayyaz@yorkshirewater.co.uk
Website: http://www.yorkshirewater.com/developers

Appendix 3: Spatial Planning and Development Management Recommendations

Level 1 SFRA recommendations

Recommendation	FLOOD ZONE			
	Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.			
	Zone 3b (Functional Floodplain)	Zone 3a (High Probability)	Zone 2 (Medium Probability)	Zone 1 Low Probability
SPATIAL PLANNING RECOMMENDATIONS				
Sequential Test	Required.	Required (unless the site falls under one of the circumstances below).	Required (unless the site falls under one of the circumstances below).	Not required unless information shows there may be flooding issues now or in the future (see Sequential Test map). If information shows the site may be at risk in the future, the Sequential Test should be undertaken to determine if there are more appropriate sites for the development.
	Minor developments (as defined by the Planning Practice Guidance) need not undertake the Sequential Test. Sequential Test does not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site. Replacement dwellings with no increase in the number of dwellings or footprint of dwellings need not undertake the Sequential Test.			
Exception Test	Must be passed for Essential Infrastructure	Must be passed for More Vulnerable development and Essential Infrastructure	Must be passed for Highly Vulnerable development	Not required
Land Use	Should be restricted to Water Compatible development. Essential Infrastructure only permitted if Exception Test is passed.	Should be restricted to Water Compatible, Essential Infrastructure or Less Vulnerable development. More Vulnerable development and Essential Infrastructure only permitted if Exception Test can be passed.	Should be restricted to Water Compatible, Less Vulnerable, and Essential Infrastructure or More Vulnerable development. Highly Vulnerable only permitted if Exception test can be passed.	All allowed.
Buffer Zone	Development free buffer zones around watercourses should be provided according to the following risk management authority by-laws. Buffer zones should be free of buildings and structures, trees, shrubs, willow or similar growth. • Environment Agency: Works in, over, under or within a 'Main River.' (as shown on maps in Appendix D), and within 8metres of 'Main Rivers' (or flood defence where present), will require an Environmental Permit from the Environment Agency. This buffer zone increases to 16metres on tidal 'Main Rivers' and from sea defences. There must be no new development in these areas. • IDBs: with the exception of Thorntree IDB, IDBs in East Riding require a minimum 9 metre wide buffer zone around IDB and ordinary watercourses. • Thorntree IDB: 6 metre wide buffer zone around IDB watercourses.			
Important Considerations	Where developments contain different elements of vulnerability, the highest vulnerability category should be used, unless the development is considered in its component parts.			
	Essential Infrastructure that has to be in Zone 3b and has passed the Exception Test, and Water Compatible development should • be designed and constructed to remain operation and safe for users in times of flood. • Result in no net loss of floodplain. • Not impede water flows and not increase flood risk elsewhere.	Essential Infrastructure should be designed and constructed to remain operation and safe in times of flood.	As flows increase in the future there is a chance that areas that are currently in Flood Zone 2 could become Flood Zone 3 as a result of climate change. Plan makers should take climate change into account when applying the sequential approach to site selection.	Sites in Zone 1 may be at risk from other sources of flooding e.g. surface water, groundwater, and artificial sources. The Local Planning Authority should assess this risk as provide an explanation of how the risk will be addressed/managed. Flood Zones do not normally include risk from watercourses with a catchment area less than 3km^2. Risk from these watercourses will need to be considered as part of a detailed FRA. These are areas on the flood zones maps where a watercourse is shown on Ordnance Survey mapping but no flood zones exist.

Recommendation	FLOOD ZONE			
	Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.			
	Zone 3b (Functional Floodplain)	Zone 3a (High Probability)	Zone 2 (Medium Probability)	Zone 1 Low Probability
DEVELOPMENT MANAGEMENT RECOMMENDATIONS				
Sequential Test	Required.	Required (unless the site falls under one of the circumstances below).	Required (unless the site falls under one of the circumstances below).	Not required unless information shows there may be flooding issues now or in the future from any source. The Level 1 SFRA climate change maps should be used as a starting point to identify areas that may be at risk from fluvial or tidal flooding in the future. If information shows the site may be at risk in the future, the Sequential Test should be undertaken to determine if there are more appropriate sites for the development.
	Need not apply if the site is allocated in the Local Plan unless the proposal is for a use for which the site was not allocated for or if evidence suggests the level of flood risk has increased since the site was allocated. Minor developments (as defined by the Planning Practice Guidance) need not undertake the Sequential Test. Sequential Test does not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site. Replacement dwellings with no increase in the number of dwellings or footprint of dwellings need not undertake the Sequential Test.			
Detailed FRA	Required, including minor development and change of use.	Required – including minor development and change of use.	Required – including minor development and change of use	Required for sites greater than 1 ha in area. Required for sites where they could be affected by other sources of flooding other than rivers and sea.
		Consider it Environment Agency National Flood Risk Standing Advice applies.		
	An assessment of the residual risk of flooding will be required for FRAs where sites are protected by flood defences Applicants are encouraged to demonstrate their proposal will deliver a positive reduction in flood risk overall. If this is not possible then consideration needs to be given to whether a contribution to flood risk management infrastructure may be appropriate. The FRA should specify whether the site is in an area of surface water or groundwater risk and, if so, provide an explanation of how the risk will be addressed.			
Finished Floor Level	To be agreed on a site by site basis.	Finished floor levels to be set at 600mm above average site level or adjacent road frontage level, 'design flood' level or maximum historic flood level (if available), whichever is higher. An additional 300mm flood proofing should also be provided. (Road frontage level defined as the average between the gutter and the crown of the road).	Finished floor levels to be set at 300mm above average site level or adjacent road frontage level, 'design flood' level or maximum historic flood level (if available), whichever is higher. An additional 300mm flood proofing should also be provided. (Road frontage level defined as the average between the gutter and the crown of the road).	No minimum level stipulated however this should be informed by the site specific Flood Risk Assessment, considering the predicted impacts of climate change and other sources of flooding. Where not specified, Finished Floor Levels should be raised 150mm above average ground levels or adjacent road frontage (whichever is highest), providing a nominal level of protection.

<table>
<tr><th rowspan="3">Recommendation</th><th colspan="4">FLOOD ZONE</th></tr>
<tr><th colspan="4">Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.</th></tr>
<tr><th>Zone 3b (Functional Floodplain)</th><th>Zone 3a (High Probability)</th><th>Zone 2 (Medium Probability)</th><th>Zone 1 Low Probability</th></tr>
<tr><td>Access and Egress</td><td>This zone is restricted to Water Compatible development Essential Infrastructure.
Essential Infrastructure will only be permitted if the Exception Test is passed.

In the event either of the above are permitted, then the availability of safe access and egress will need to be demonstrated.</td><td colspan="2">Flood access and egress routes should allow occupants to safely access and exit their property in design flood conditions over the lifetime of the development. Vehicular access for emergency services to safely reach the development will also normally be required.
Wherever possible, safe access routes should be provided that are located above design flood levels and avoid flow paths. Where this is not possible, limited depths of flooding may be acceptable, providing the proposed access is designed with appropriate signage etc to make it safe. The acceptable flood depth for safe access will vary depending on flood velocities and the risk of debris within the flood water[29].
In areas protected by defences, a safe refuge should be available on an upper floor to provide an immediate route of escape in the event of a defence breach.
Evacuation routes should not direct evacuees to ‘dry islands’ i.e. dry areas completely surrounded by flood water.</td><td>No restrictions stipulated by PPG. However, other sources of flooding should also be considered when looking at access and egress.</td></tr>
<tr><td rowspan="2">Basements</td><td rowspan="2">Basements not permitted.</td><td>Separate dwellings at basement level are not permitted.</td><td rowspan="2" colspan="2">Where a basement would form part of a dwelling split over 2 storeys, basements may be acceptable providing the access point is above the 1% AEP fluvial or 0.5% AEP tidal events plus climate change (whichever is greater).
The basements must be appropriately flood resistant to prevent ingress of water through floors and walls.</td></tr>
<tr><td>Where a basement would form part of a dwelling split over 2 storeys, basements may be acceptable providing
• the access point is above the 1% AEP fluvial or 0.5% AEP tidal events plus climate change (whichever is greater).
• there must be no sleeping accommodation in the basement.
• the basement must be appropriately flood resistant to prevent ingress of water through floors and walls.
This also applies to Changes of Use.</td></tr>
<tr><td rowspan="2">Surface Water and Site Drainage</td><td>Surface water drainage assessment needed.</td><td>Surface water drainage assessment needed.</td><td>Surface water drainage assessment needed.</td><td>Surface water drainage assessment .</td></tr>
<tr><td colspan="4">Surface water drainage assessments need to report into how surface water affects a site and the surrounding area. They should also include information on what effect the development will have on surface water flood risk and outline measures the developer will need to take so that runoff rates will meet local and national guidance. For Greenfield developments, the peak runoff rate to any highway, drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1% AEP rainfall event should never exceed the peak greenfield runoff rate for the same development. From previously developed sites a minimum of 30% reduction in the existing discharge rate will be required along with sufficient proof that flood risk will not be increased by the proposed discharge. If the LLFA consider that an unacceptable flood risk may result from the calculated brownfield runoff rate then a reduced discharge rate will be imposed on, or agreed with, the developer.
Detailed Standing Advice on surface water drainage is available on the Council’s website – East Riding of Yorkshire Council Sustainable Drainage Systems & Surface Water Drainage Requirements For New Development: Combined Planning Note and Standing Advice (September 2016).
SuDS should be implemented on all sites unless it is demonstrated that they are not practicable.
Any SuDS design should take due account of groundwater and geological conditions.</td></tr>
<tr><td>Cumulative Impact of Development</td><td colspan="4">Development, including minor development, proposed in areas of past and planned future development, should consider the cumulative impact of the development as part of site-specific FRAs and drainage strategies.
The cumulative impact assessment should also consider the effect of the development on sewerage capacity.</td></tr>
</table>

[29] Flood Risk and Coastal Change: paragraph 039. Reference ID: 7-039-20140306

Recommendation	FLOOD ZONE			
	Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.			
	Zone 3b (Functional Floodplain)	**Zone 3a (High Probability)**	**Zone 2 (Medium Probability)**	**Zone 1 Low Probability**
Buffer Zone	Development free buffer zones around watercourses should be provided according to the following risk management authority by-laws. Buffer zones should be free of buildings and structures, trees, shrubs, willow or similar growth. • Environment Agency: Works in, over, under or within a 'Main River.' (as shown on maps in Appendix D), and within 8metres of 'Main Rivers' (or flood defence where present), will require an Environmental Permit from the Environment Agency. This buffer zone increases to 16metres on tidal 'Main Rivers' and from sea defences. There must be no new development in these areas. • IDBs: with the exception of Thorntree IDB, IDBs in East Riding require a minimum 9 metre wide buffer zone around IDB and ordinary watercourses. • Thorntree IDB: 6 metre wide buffer zone around IDB watercourses.			
Compensatory storage	Where proposed development will result in a reduction in the total volume of flood storage, developers should provide compensatory storage. The compensatory flood storage should be provided within areas currently outside of Flood Zones 3b, 3a and 2, flood water must be able to flow in and out unaided, and must be provided on a level for level, volume for volume basis within the site boundary. The compensation should be considered in the context of the 1% AEP flood level and include an allowance for climate change. If the land is not inside the site boundary, the compensatory storage should be in the immediate vicinity of the site and under the developer's ownership/control. All proposed compensatory storage should be supported by a site specific FRA which needs to demonstrate there is no loss of flood storage capacity, no subsequent effect on flood risk elsewhere, and must include details of an appropriate maintenance regime to ensure it continues to function throughout the lifetime of the development. Guidance on how to address storage is provided in Appendix A3 of the CIRIA publication C624. Compensatory storage areas should be included within the Functional Floodplain layer to protect the land against any development in the future.			An assessment of 'Other sources of flooding' risk should consider the implications of flood risk on others, and the need for floodplain compensation. A starting point for this assessment should be the 'design flood event.' Appropriate allowances should be incorporated for assessing climate change. Developments would not normally be required to compensate for groundwater, or artificial source of flooding, however this should be confirmed with the relevant risk management authority.
	In areas where floodplain compensation is necessary but cannot be provided in line with the guidance (e.g. because the site is entirely within Flood Zone 3, or other restrictions), a pragmatic approach to providing compensatory storage will be considered if appropriate. In these circumstances, the relevant risk management authorities should be contacted early (e.g. pre-application stage). Where there are multiple sources of flood risk, each individual source should be considered; and ensuring that the overall scheme does not increase the risk of flooding onsite or to others.			
Raising of ground levels	Raising of ground levels should not be permitted in this Zone.	If modifying ground levels to raise the land above the required flood level is proposed care must be taken to ensure there is no subsequent effect on flood risk elsewhere and compensatory storage should be provided within areas that currently lie outside of Flood Zones 2 and 3 to ensure. compensation is provided on a 'level for level' and 'volume for volume' basis, without affecting flood flow routes. All proposals should be supported by a detailed site specific flood risk assessment. The FRA should also show that raising of ground levels will not cause increased ponding or build-up of surface water on third party land or property, including those in Flood Zone 1. The raising of ground levels may also affect the residual flood risks to others (e.g. by redirecting flow). In these cases, the FRA must demonstrate that residual flood risks to others is not significantly increased (e.g. by increasing the predicted flood hazard or speed of onset).	Any alteration of ground levels should not cause increased ponding or build-up of surface water on third party land or property.
Flood Resistance	Flood resistance involves measures designed to keep flood water out of properties and businesses where the predicted flood depths are expected to be less than 0.6 metres (or 600mm). These should ideally be passive. Active resistance measures must be accompanied by a demonstration that equivalent passive resistance measures cannot be achieved and where a plan exists that ensures these measures are effective and can be implemented prior to the onset of flooding. In cases where flood risk remains to a development, for example residual risk, additional measures can be implemented to reduce damage. These measures should not be relied upon as an appropriate mitigation measure and their effectiveness is often reliant on a reliable forecasting and warning system to ensure measures are deployed in time.			-

Recommendation	FLOOD ZONE			
	Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.			
	Zone 3b (Functional Floodplain)	**Zone 3a (High Probability)**	**Zone 2 (Medium Probability)**	**Zone 1 Low Probability**
Flood Resilience	Flood resilience involves measures designed to reduce the impact of water once it enters property. Buildings can be designed and constructed to accept that water will enter the building itself, by aiming to reduce the impact of water entering to avoid permanent damage, maintain structural integrity and allow easy drying and cleaning. This allows faster re-occupancy of the building after the flood event. Examples of resilience measures include: • Use of water-resistant materials • Installation of electrical circuitry at higher levels • Use of non-return valves to prevent waste water pushing up through plugs or lavatories Further information can be found in the publication Improving the Flood Performance of New Buildings: Flood Resilient Construction (2007)[30]			
Other	The proposed development must not result in an increase in flood risk to neighbouring properties and communities downstream.			
	Sites may be at risk from multiple sources of flooding. These risks should be considered both independently and cumulatively to ensure that this will not increase flood risk elsewhere. 'Other sources' of flood risk include those listed in the Flood Risk Guidance Note (dated October 2017) Sections 1.7 to 1.13 and those shown in Appendix D (Surface Water maps), Appendix E (Flood Risk from Groundwater) and Appendix F (Canals & Reservoirs).			

[30] Environment Agency and Department for Communities and Local Government, May 2007. Improving the flood performance of new buildings: flood resilient construction

Goole – Level 2 SFRA requirements

Recommendation *(applies to all development types unless stated otherwise)*		This table should be used in combination with the map provided in Appendix E. It should be noted that development in this area is likely to present significant implications in the event of flooding, including risk to life and property, including to trained and equipped emergency services. The recommendations in this table aim to mitigate this risk in order to make development acceptable.		
		Defence Buffer Region	**Rapid Inundation Zone$_1$**	**Overtopping Region$_2$**	**Breach Region**
Sequential Test			Sequential Test must be applied (unless the site falls under one of the circumstances below): • Minor developments[3] (as defined by the Planning Practice Guidance (https://www.gov.uk/guidance/flood-risk-and-coastal-change#minor-development-to-flood-risk) need not undertake the Sequential Test. • Changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site. • Replacement dwellings with no increase in the number of dwellings or footprint of dwellings need not undertake the Sequential Test	
Exception Test			Must be passed for More Vulnerable development and Essential Infrastructure (subject to land use restrictions below)	
Land Use	**All vulnerabilities**		Caravans, mobile homes and park homes are not permitted. Basements are not permitted.	
	Water Compatible Development		Water compatible development is acceptable. Where ancillary sleeping or residential uses are required, they will be considered as a more vulnerable use.	
	Essential Infrastructure		In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood. Exception Test is required. Where ancillary sleeping or residential uses are required, they will be considered as a more vulnerable use. Flood sensitive uses, and equipment should be set above the greatest flood depths in Appendix B, C, D.	
	Highly Vulnerable		Development not permitted in Flood Zone 3, in line with Table 3 of the PPG to the NPPF, unless there are exceptional circumstances. Where such development is being considered in Goole, the proposal should be discussed early with the Local Planning Authority and in consultation with the Environment Agency. Development will need to be supported by a site-specific Flood Risk Assessment with full justification why such development cannot be located elsewhere.	
	More Vulnerable	No development is permitted in this region.	Development not permitted, except minor development[3]. Change of use is considered in a separate row.	**Sleeping uses:** Sleeping areas should be set above the greatest flood depths in Appendix B, C, D, plus an additional 300mm freeboard. **Habitable spaces:** Finished floor levels to be set no lower than 600mm below the greatest flood depths in Appendix B, C, D; where a minimum of 600mm passive flood resistance measures are incorporated above finished floor levels **Non-habitable spaces:** Should be designed to be dry above flood depths in Appendix C.1 and C.3; or 600mm above average ground level or adjacent road frontage (whichever is highest). Spaces should also incorporate 600mm of passive flood resistance measures above that highest level. **Single storey buildings and ground floor apartments:** More vulnerable development should not be permitted in single storey buildings, self-contained ground-floor apartments, or bungalows. Where flood resilience is incorporated, finished floor levels should be set no lower than 300mm below the greatest flood depths in Appendix B, C, D; where a minimum of 300mm flood resilience are incorporated above finished floor levels.
	Less Vulnerable		Development not permitted, minor development[3]. Change of use is considered in a separate row.	Finished floor levels to be set no lower than 600mm below the greatest flood depths in Appendix B, C, D; where a minimum of 600mm passive flood resistance measures are incorporated. Where other forms of flood proofing are incorporated (e.g. flood resilience), finished floor levels should be set no lower than 300mm below the greatest flood depths in Appendix B, C, D; where a minimum of 300mm flood resilience are incorporated. Where there is an operational need for parts of the development below this, the Flood Risk Assessment should provide full justification. Examples may include loading bays or general storage but would not include office spaces. In such cases, flood mitigation should be maximised to reduce the likelihood or consequences of flooding.

	Change of use with increase in vulnerability and / or additional residential units proposed	Development not permitted in Rapid Inundation Zone.	**Sleeping uses:** Sleeping areas should be set above the greatest flood depths, plus an additional 300mm freeboard. **Habitable spaces:** Finished floor levels should be set no lower than 300mm below the greatest flood depths shown in Appendix B, C, D; where a minimum of 300mm flood resilience measures are incorporated above finished floor levels. **Non-habitable spaces:** Should be designed to be dry above flood depths in Appendix C.1 and C.3; or 600mm above average ground level or adjacent road frontage (whichever is highest). **Single storey buildings and ground floor apartments:** More vulnerable development should not be permitted in single storey buildings, self-contained ground-floor apartments, or bungalows.
	Changes of Use with no increase in vulnerability	Environment Agency National Flood Risk Standing Advice should be followed. However, in addition to the standing advice, it is expected that place of safety and structural stability information will be included.	
	Important Considerations	Where developments contain different elements of vulnerability, the highest vulnerability category as defined in Table 2 of the PPG to the NPPF should be used, unless the development is considered in its component parts	
	Detailed FRA	Required – including for minor development and change of use (see above for further details on Change of Use expectations). An assessment of the design and residual risks of flooding will be required for FRAs where sites are protected by flood defences. Appendices B, C and D of this SFRA provide maps of design and residual risks. Additional modelling may be required to support development in close proximity to defences. The FRA should specify whether the site is in an area of surface water or groundwater risk and, if so, provide an explanation of how the risk will be addressed.	
	Raising of Ground Levels	Raising of ground levels is not permitted in these regions.	If modifying ground levels to reduce the risk of flooding (e.g. to elevate sites above predicted flood depths or as part of a mitigation strategy), care must be taken to ensure there is no subsequent effect on flood risk elsewhere. All proposals should be supported by a detailed site specific flood risk assessment. The FRA should also show that raising of ground levels will not cause increased ponding or build-up of surface water on third party land or property. Designs for ground raising should show how the raised ground can withstand flood forces. The raising of ground levels may also affect the residual flood risks to others (e.g. by redirecting flow). In these cases, the FRA must demonstrate that residual flood risks to others is not significantly increased (e.g. by increasing the predicted flood hazard or speed of onset).
	Flood Resistance	No development is permitted in this region.	Additional flood mitigation measures (e.g. in addition to floor levels and ground raising) should seek to provide passive resistance to floodwater. Where this is not practical, a combination of flood resistance and resilient construction should be considered which should consider the intended internal uses. Active flood resistance should not be used instead of passive resistance measures due to the unpredictability of potential flooding and the consequences should they fail. Active measures should only be proposed after careful consideration of how quickly peak depths are reached. In cases where flood risk remains to a development additional measures can be implemented to reduce damage. These measures should not be relied upon as an appropriate mitigation measure and their effectiveness is often reliant on a reliable forecasting and warning system to ensure measures are deployed in time.
	Flood Resilience		Flood resilience involves measures designed to reduce the impact of water once it enters property. Buildings can be designed and constructed to accept that water will enter the building itself, by aiming to reduce the impact of water entering to avoid permanent damage, maintain structural integrity and allow easy drying and cleaning. This allows faster re-occupancy of the building after the flood event. Examples of resilience measures include: ☐ Use of water-resistant materials ☐ Installation of electrical circuitry at higher levels ☐ Use of non-return valves to prevent waste water pushing up through plugs or lavatories Further information can be found in the publication Improving the Flood Performance of New Buildings: Flood Resilient Construction (2007)[31]

[31] Environment Agency and Department for Communities and Local Government, May 2007. Improving the flood performance of new buildings: flood resilient construction

<table>
<tr><td rowspan="4">Access, Egress and Place of Safety</td><td colspan="2">Offsite evacuation in a flood is unlikely to be possible due to the potential hazard and unpredictable nature of flooding. Where offsite evacuation is possible, this should not divert occupants to 'dry islands' and should not require crossing areas that may be subject to deep (>250mm) or hazardous (higher than 'Danger to Some') flooding.</td></tr>
<tr><td rowspan="3">A Place of Safety at or above 7m AOD must be provided.</td><td>A Place of Safety should be provided within the development, 300mm above the greatest flood depths shown in Appendix B, C and D.</td></tr>
<tr><td>Given the high risk and speed of onset of flooding, is it essential that all developments provide a Place of Safety with immediate access from within each building.
Where there is a reliance on an internal Place of Safety, consideration must be given to avoiding more vulnerable ground-floor uses, additional flood mitigation, Flood Warning Evacuation Plans, and Means of Escape, in that order. If future users or occupants cannot be shown to have reasonable protection from flooding, the development is likely to be refused due to unacceptable risk to life and/or property.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Surface Water and Site Drainage</td><td colspan="2">Surface water drainage assessments need to report into how surface water affects a site and the surrounding area. They should also include information on what effect the development will have on surface water flood risk and outline measures the developer will need to take so that runoff rates will meet local and national guidance. For Greenfield developments, the peak runoff rate to any highway, drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1% AEP rainfall event should never exceed the peak greenfield runoff rate for the same development. From previously developed sites a minimum of 30% reduction in the existing discharge rate will be required along with sufficient proof that flood risk will not be increased by the proposed discharge. If the LLFA consider that an unacceptable flood risk may result from the calculated brownfield runoff rate then a reduced discharge rate will be imposed on, or agreed with, the developer
Detailed Standing Advice on surface water drainage is available on the Council's website – East Riding of Yorkshire Council Sustainable Drainage Systems & Surface Water Drainage Requirements For New Development: Combined Planning Note and Standing Advice (September 2016)
SuDS should be implemented on all sites unless it is demonstrated that they are not practicable.
Any SuDS design should take due account of groundwater and geological conditions</td></tr>
<tr><td>Watercourse Buffer Zone</td><td colspan="2">Development free buffer zones around watercourses should be provided according to the following risk management authority by-laws. Buffer zones should be free of buildings and structures, trees, shrubs, willow or similar growth.
☐ IDBs: with the exception of Thorntree IDB, IDBs in East Riding require a minimum 9 metre wide buffer zone around IDB and ordinary watercourses
☐ Thorntree IDB requires a 6 metre wide buffer zone around IDB and ordinary watercourses.
Where existing development comes forward, opportunities should be taken to relocate structures outside these buffer zones, providing betterment over the current situation.</td></tr>
<tr><td>Structural Stability</td><td colspan="2">Differential water levels (internal vs external) of >600mm may present additional structural concerns and will need to be supported by suitable reports demonstrating that the measures would remain effective in a flood event.</td></tr>
</table>

Notes on Table 6-2

1. Development within the Rapid Inundation Zone shown in Appendix E may be at risk from overtopping and a breach of the flood defences. Where development is permitted in this zone, a site-specific Flood Risk Assessment should take account of the flood risk shown in Appendix B and C for overtopping, and Appendix D for breach risks.

2. Development within the overtopping region shown in Appendix E will also be at risk of a breach of the flood defences. Developments should take account of the minimum requirements for the overtopping and breach columns.

3. In this instance, minor development is classified as:

   - minor non-residential extensions: industrial/commercial/leisure etc extensions with a footprint less than 250 square metres.
   - alterations: development that does not increase the size of buildings eg alterations to external appearance.
   - householder development: For example; sheds, garages, games rooms etc within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling eg subdivision of houses into flats.

   (source https://www.gov.uk/guidance/flood-risk-and-coastal-change#minor-development-to-flood-risk)

4. Habitable uses are defined within the SFRA main report as: "As defined in Part M of the Building Regulations - A room used, or intended to be used, for dwelling purposes, including a kitchen but not a bathroom or utility room."

Hedon – L2 SFRA Recommendations

<table>
<tr><th colspan="2" rowspan="2">Recommendation</th><th colspan="5">This table should be used in combination with the map provided in Appendix Error! Reference source not found..
Development in Hedon is likely to present significant implications in the event of flooding, including risk to life and property, and to trained and equipped emergency services. The minimum requirements set out in this table should be followed in order for development to be considered acceptable in terms of flood risk.</th></tr>
<tr><th>Defence Buffer Region</th><th>Flood Zone 3b (Functional Floodplain)</th><th>Flood Zone 3b plus Climate change</th><th>Overtopping Region[2]</th><th>Breach Region</th></tr>
<tr><td colspan="2">Sequential Test</td><td rowspan="11">No development is permitted in this region.</td><td colspan="4">Sequential Test must be applied (unless the site falls under one of the circumstances below):
• Minor developments[1] (as defined by the Planning Practice Guidance (https://www.gov.uk/guidance/flood-risk-and-coastal-change#minor-development-to-flood-risk) need not undertake the Sequential Test.
• Changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site.
• Replacement dwellings with no increase in the number of dwellings or footprint of dwellings need not undertake the Sequential Test.</td></tr>
<tr><td colspan="2">Exception Test</td><td colspan="4">Must be passed for More Vulnerable development and Essential Infrastructure (subject to land use restrictions below)</td></tr>
<tr><td rowspan="5">Land Use</td><td>All vulnerabilities</td><td colspan="2">Caravans, mobile homes and park homes are not permitted.
Basements are not permitted.</td><td colspan="2">Caravans, mobile homes and park homes are permitted for holiday or short term letting only, and subject to a flood warning and evacuation plan.
Basements are not permitted.</td></tr>
<tr><td>Water Compatible Development</td><td colspan="4">Water compatible development is acceptable. Where ancillary sleeping or residential uses are required, they will be considered as a more vulnerable use.</td></tr>
<tr><td>Essential Infrastructure</td><td colspan="4">Essential Infrastructure only permitted if Exception Test is passed and should be designed and constructed to remain operational and safe in times of flood.

Where ancillary sleeping or residential uses are required, they will be considered as a more vulnerable use. Flood sensitive uses, and equipment should be set above the greatest flood depths in Appendix C and D.</td></tr>
<tr><td>Highly Vulnerable</td><td colspan="4">Development not permitted in Flood Zone 3, in line with Table 3 of the PPG to the NPPF, unless there are exceptional circumstances. Where such development is being considered in Hedon, the proposal should be discussed early with the Local Planning Authority and in consultation with the Environment Agency. Development will need to be supported by a site-specific Flood Risk Assessment with full justification why such development cannot be located elsewhere.</td></tr>
<tr><td rowspan="2">More Vulnerable</td><td colspan="2" rowspan="2">Development not permitted in Flood Zone 3b, in line with Table 3 of the PPG to the NPPF, except minor development[1]. Change of use is considered in a separate row.</td><td colspan="2">Sleeping uses:
Sleeping areas should be set above the greatest flood depths in Appendix C and D, plus an additional 300mm freeboard.

All other uses:
Finished floor levels should be set above the greatest depths shown in the figures in Appendix C and D.
<u>OR</u>
Finished floor levels to be set at least 600mm above average ground levels or adjacent road frontage. (whichever is greatest)

An additional 300mm flood proofing should also be provided.</td></tr>
<tr><td colspan="2"></td><td>If it is not possible to set finished floor levels above greatest flood depths, finished floor level should be set no lower than 300mm below the greatest flood depths in Appendix D; where a minimum of 300mm flood resilience is incorporated.</td></tr>
</table>

<table>
<tr><th colspan="2" rowspan="2">Recommendation</th><th colspan="4">This table should be used in combination with the map provided in Appendix Error! Reference source not found..
Development in Hedon is likely to present significant implications in the event of flooding, including risk to life and property, and to trained and equipped emergency services. The minimum requirements set out in this table should be followed in order for development to be considered acceptable in terms of flood risk.</th></tr>
<tr><th>Defence Buffer Region</th><th>Flood Zone 3b (Functional Floodplain)</th><th>Flood Zone 3b plus Climate change</th><th>Overtopping Region[2]</th><th>Breach Region</th></tr>
<tr><td rowspan="3"></td><td>Less Vulnerable</td><td rowspan="5"></td><td colspan="2">Development not permitted in Flood Zone 3b, in line with Table 3 of the PPG to the NPPF, except minor development[1]. Change of use is considered in a separate row.</td><td colspan="2">Finished floor levels should be set above the greatest depths shown in the figures in Appendices C and D.
OR
Finished floor levels to be set at least 600mm above average ground levels or adjacent road frontage. (whichever is greatest)

An additional 300mm flood proofing should also be provided.

Where there is an operational need for parts of the development below this, the Flood Risk Assessment should provide full justification. Examples may include loading bays or general storage but would not include office spaces. In such cases, flood mitigation should be maximised to reduce the likelihood or consequences of flooding.</td></tr>
<tr><td>Change of Use – increase in vulnerability and / or additional residential units proposed</td><td colspan="2">Development not permitted in Flood Zone 3b in line with Table 3 of the PPG to the NPPF.</td><td colspan="2">Requirements as per new development</td></tr>
<tr><td>Change of Use – no increase in vulnerability</td><td colspan="2">Developers and planners should seek to relocate development from these Zones, where possible.</td><td colspan="2">Environment Agency National Flood Risk Standing Advice should be followed. However, in addition to the standing advice, it is expected that place of safety and structural stability information will be included.</td></tr>
<tr><td colspan="2">Important Considerations</td><td colspan="4">Where developments contain different elements of vulnerability, the highest vulnerability category as defined in Table 2 of the PPG to the NPPF should be used, unless the development is considered in its component parts.</td></tr>
<tr><td colspan="2">Detailed FRA</td><td colspan="4">Required – including for minor development and change of use (see below for further details on Change of Use expectations).
An assessment of the residual risk of flooding will be required for FRAs where sites are protected by flood defences. Appendices C and D of this SFRA provide maps of residual risk.
The FRA should specify whether the site is in an area of surface water or groundwater risk and, if so, provide an explanation of how the risk will be addressed.</td></tr>
<tr><td colspan="2">Raising of Ground Levels</td><td colspan="3">Raising of ground levels is not permitted in these regions.</td><td>If modifying ground levels to reduce the risk of flooding (e.g. to elevate sites above predicted flood depths or as part of a mitigation strategy), care must be taken to ensure there is no subsequent effect on flood risk elsewhere. All proposals should be supported by a detailed site specific flood risk assessment. The FRA should also show that raising of ground levels will not cause increased ponding or build-up of surface water on third party land or property. Designs for ground raising should show how the raised ground can withstand flood forces.
The raising of ground levels may also affect the residual flood risks to others (e.g. by redirecting flow). In these cases, the FRA must demonstrate that residual flood risks to others do not increase (e.g. by increasing the predicted flood hazard or speed of onset).</td></tr>
<tr><td colspan="2">Flood Resistance</td><td>No development is permitted in this region.</td><td colspan="3">Additional flood mitigation measures (e.g. in addition to floor levels and ground raising) should seek to provide passive resistance to floodwater. Where this is not practical, a combination of flood resistance and resilient construction should be considered which should consider the intended internal uses. Active flood resistance should not be used instead of passive resistance measures due to the unpredictability of potential flooding and the consequences should they fail. Active measures should only be proposed after careful consideration of how quickly peak depths are reached.
In cases where flood risk remains to a development additional measures can be implemented to reduce damage. These measures should not be relied upon as an appropriate mitigation measure and their effectiveness is often reliant on a reliable forecasting and warning system to ensure measures are deployed in time.</td></tr>
</table>

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<tr><th rowspan="2">Recommendation</th><th colspan="5">This table should be used in combination with the map provided in Appendix Error! Reference source not found..
Development in Hedon is likely to present significant implications in the event of flooding, including risk to life and property, and to trained and equipped emergency services. The minimum requirements set out in this table should be followed in order for development to be considered acceptable in terms of flood risk.</th></tr>
<tr><th>Defence Buffer Region</th><th>Flood Zone 3b (Functional Floodplain)</th><th>Flood Zone 3b plus Climate change</th><th>Overtopping Region[2]</th><th>Breach Region</th></tr>
<tr><td>Flood Resilience</td><td></td><td colspan="4">Flood resilience involves measures designed to reduce the impact of water once it enters property. Buildings can be designed and constructed to accept that water will enter the building itself, by aiming to reduce the impact of water entering to avoid permanent damage, maintain structural integrity and allow easy drying and cleaning. This allows faster re-occupancy of the building after the flood event. Examples of resilience measures include:
Use of water-resistant materials
Installation of electrical circuitry at higher levels
Use of non-return valves to prevent waste water pushing up through plugs or lavatories
Further information can be found in the publication Improving the Flood Performance of New Buildings: Flood Resilient Construction (2007)[32]</td></tr>
<tr><td rowspan="2">Access, Egress and Place of Safety</td><td rowspan="2"></td><td colspan="2" rowspan="2">This zone is restricted to Water Compatible development Essential Infrastructure.
Essential Infrastructure will only be permitted if the Exception Test is passed.

In the event either of the above are permitted, then the availability of safe access and egress will need to be demonstrated.</td><td colspan="2">Offsite evacuation in a flood is unlikely to be possible due to the potential hazard and unpredictable nature of flooding. Where offsite evacuation is possible, this should not divert occupants to 'dry islands' and should not require crossing areas that may be subject to deep (>250mm) or hazardous (higher than 'Danger to Some') flooding.</td></tr>
<tr><td>A Place of Safety must be provided within the development, 300mm above the maximum on-site flood depths. Flood depths can be found in Appendix C.</td><td>A Place of Safety should be provided within the development, 300mm above the maximum on-site flood depths.
Where the site is at risk from both tidal and fluvial breach, whichever scenario gives the greatest depths should be used. Maximum flood depths from both fluvial and tidal breach can be found in Appendix D..</td></tr>
<tr><td>Surface Water and Site Drainage</td><td></td><td colspan="4">Surface water drainage assessments need to report into how surface water affects a site and the surrounding area. They should also include information on what effect the development will have on surface water flood risk and outline measures the developer will need to take so that runoff rates will meet local and national guidance. For Greenfield developments, the peak runoff rate to any highway, drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1% AEP rainfall event should never exceed the peak greenfield runoff rate for the same development. From previously developed sites a minimum of 30% reduction in the existing discharge rate will be required along with sufficient proof that flood risk will not be increased by the proposed discharge. If the LLFA consider that an unacceptable flood risk may result from the calculated brownfield runoff rate then a reduced discharge rate will be imposed on, or agreed with, the developer.
Detailed Standing Advice on surface water drainage is available on the Council's website – East Riding of Yorkshire Council Sustainable Drainage Systems & Surface Water Drainage Requirements For New Development: Combined Planning Note and Standing Advice (September 2016)
SuDS should be implemented on all sites unless it is demonstrated that they are not practicable.
Any SuDS design should take due account of groundwater and geological conditions.</td></tr>
</table>

[32] Environment Agency and Department for Communities and Local Government, May 2007. Improving the flood performance of new buildings: flood resilient construction

Recommendation	This table should be used in combination with the map provided in Appendix Error! Reference source not found.. Development in Hedon is likely to present significant implications in the event of flooding, including risk to life and property, and to trained and equipped emergency services. The minimum requirements set out in this table should be followed in order for development to be considered acceptable in terms of flood risk.				
	Defence Buffer Region	**Flood Zone 3b (Functional Floodplain)**	**Flood Zone 3b plus Climate change**	**Overtopping Region[2]**	**Breach Region**
Watercourse Buffer Zone		Development free buffer zones around watercourses should be provided according to the following risk management authority by-laws. Buffer zones should be free of buildings and structures, trees, shrubs, willow or similar growth. • IDBs require a minimum 9 metre wide buffer zone around IDB and ordinary watercourses • Environment Agency: Works in, over, under or within a 'Main River.' (as shown on maps in Level 1 SFRA Appendix D), and within 8 metres of 'Main Rivers' (or flood defence where present), will require an Environmental Permit from the Environment Agency. This buffer zone increases to 16 metres on tidal 'Main Rivers' and from sea defences. There must be no new development in these areas. Where existing development comes forward, opportunities should be taken to relocate structures outside these buffer zones, providing betterment over the current situation.			
Structural Stability		Differential water levels (internal vs external) of >600mm may present additional structural concerns and will need to be supported by suitable reports demonstrating that the measures would remain effective in a flood event.			
Integrated flood risk		Due to the complexity of the integrated catchment modelling and the ongoing nature of the developing flood alleviation study this information is not included in the SFRA. However, additional, most up to date, data on integrated flooding is available on request from East Riding of Yorkshire Council and should be considered where appropriate.			

Notes on Table 6-2

1. In this instance, minor development is classified as:
   - minor non-residential extensions: industrial/commercial/leisure etc extensions with a footprint less than 250 square metres.
   - alterations: development that does not increase the size of buildings eg alterations to external appearance.
   - householder development: For example; sheds, garages, games rooms etc within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling eg subdivision of houses into flats.

   (source https://www.gov.uk/guidance/flood-risk-and-coastal-change#minor-development-to-flood-risk)

2. Development within the overtopping region shown in Appendix E may also be at risk of a breach of the flood defences. Developments should take account of the minimum requirements for the overtopping and breach columns if it is at risk of overtopping and breach.

3. Habitable uses are defined within the SFRA main report as: "As defined in Part M of the Building Regulations - A room used, or intended to be used, for dwelling purposes, including a kitchen but not a bathroom or utility room."

Appendix 4: Useful documents

Design and Construction of Buildings in a Flood Zone

Improving the flood performance of new buildings: flood resilient construction. [Communities and Local Government]
http://www.communities.gov.uk/publications/planningandbuilding/improvingflood

Improve your property's flood protection
https://www.gov.uk/prepare-for-a-flood/improve-your-propertys-flood-protection

Property Protection Advisor [National Flood Forum]
https://nationalfloodforum.org.uk/about-flooding/reducing-your-risk/property-protection-advisor/

Blue Pages – Directory of property flood products
http://bluepages.org.uk

Flood Evacuation Plans

Developer's Self Assessment Checklist [Humber Emergency Planning Service]
www.letsgetready.org.uk

Get ready for the unexpected [Humber Emergency Planning Service]
http://www.letsgetready.org.uk/lets-get-ready/

Preparing for a Flood [Environment Agency]
https://www.gov.uk/prepare-for-flooding

Make an Emergency Flood Plan [Environment Agency]
https://www.gov.uk/government/publications/personal-flood-plan

Your Risk of Flooding [Environment Agency]
https://www.gov.uk/check-flood-risk

Appendix 5: Sustainability Objectives

The Council's Sustainability objectives for the Local Plan review are:

1) To improve levels of health, reduce health inequalities and encourage active lifestyles

2) To create an environment where people are and feel safe

3) To reduce social exclusion and improve equality of opportunity amongst social groups

4) To improve access to key centres, services, facilities and employment

5) To improve housing affordability and provide quality housing that meets the needs of everyone

6) To encourage more efficient use of land

7) To maintain or improve the quality of local water resources

8) To limit greenhouse gas emissions

9) To reduce the impacts of climate change

10) To protect and enhance biodiversity and important wildlife habitats, and to conserve geology

11) To protect and enhance the countryside and landscape quality

12) To conserve and enhance heritage assets and their settings

13) To protect and enhance the built character of existing settlements

14) To minimise the impact of new development on the amenity of the existing community and on existing land uses

15) To support growth of key economic sectors

16) To maintain and strengthen local employment opportunities

17) To support the renaissance of rural areas, towns and the city of Hull

18) To maintain and enhance the vitality and viability of town and district centres

19) To ensure new development is adequately served by infrastructure

Please note that these objectives have been updated for the Local Plan Review and are taken from the Local Plan Review Sustainability Appraisal – Stage B Interim Report (November 2018)

EAST RIDING
OF YORKSHIRE COUNCIL

East Riding of Yorkshire Council will, on request provide this document in braille or **large print.**

If English is not your first language and you would like a translation of this document, please telephone **01482 393939.**