

Garforth Neighbourhood Forum Development Plan

FLOODING – DRAFT 1

Objective

- To mitigate and improve the capability of Garforth to deal with surface water flooding

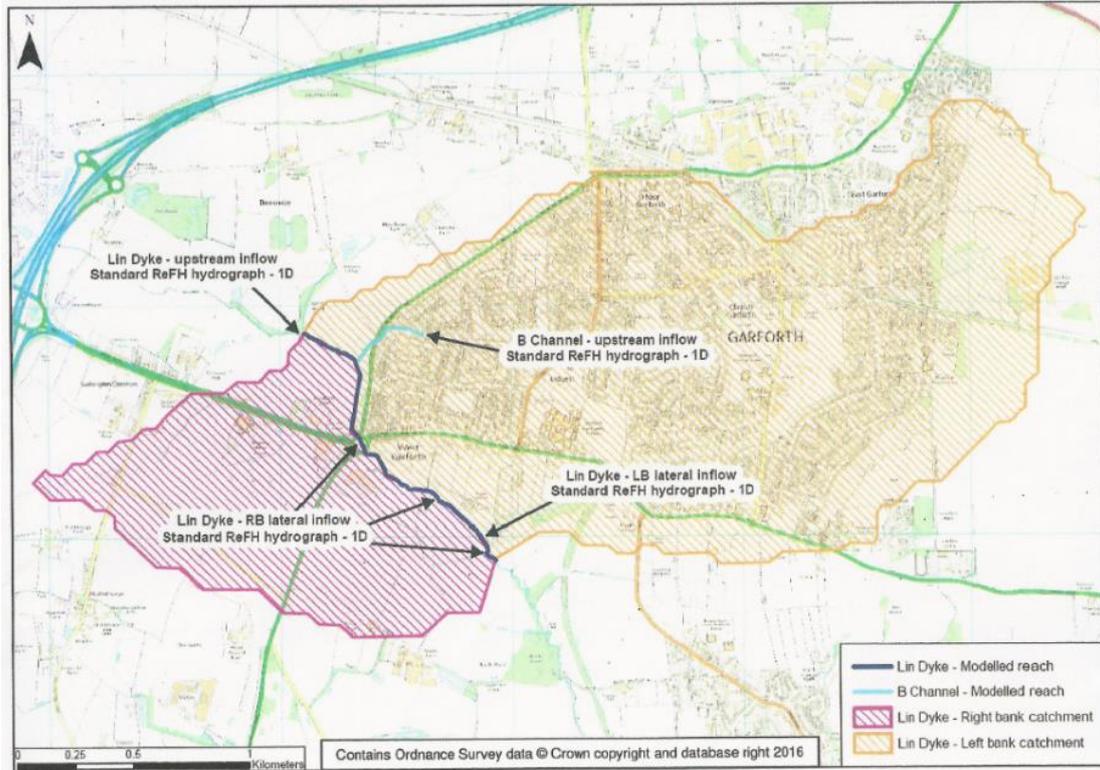
Issues

- Flooding and flood protection remain great concerns within the Garforth community and there is an active flood support group:

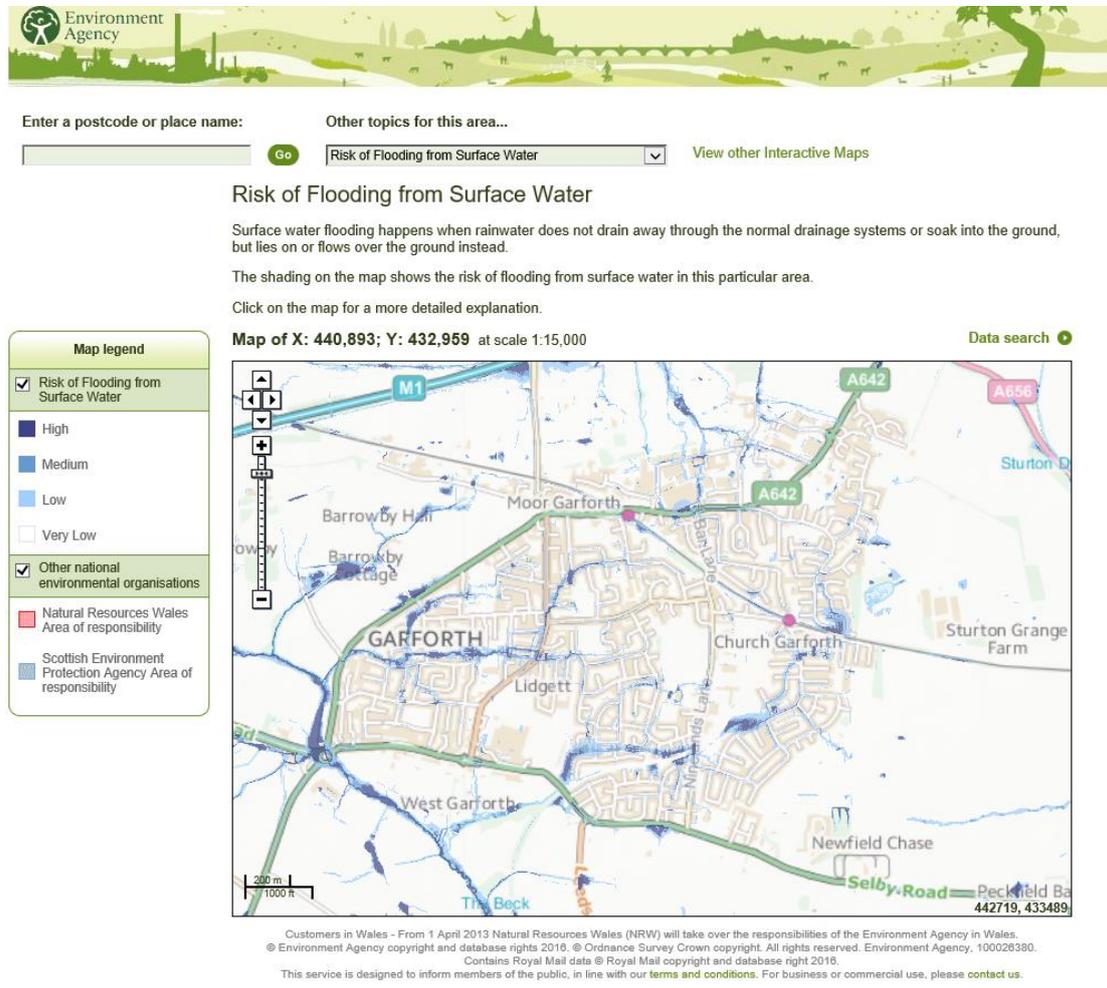
<https://garforthfloodsupportgroup.wordpress.com/>

- Garforth has grown substantially since the 1950s and has a long history of flooding problems. The open channel watercourses have been covered over or culverted in a piecemeal fashion and new drainage infrastructure has been connected, seemingly without regard to capacity limitations. This situation is a failing of historical planning regimes.
- Many properties were flooded internally in June 2007 and again in August 2014. A report under Section 19 of the Flood and Water Management Act 2010 into the 2014 floods provides further details, and extracts can be found in *Section C* below.

- The surface water drainage system in Garforth, particularly that part located within the Lin Dyke catchment (*see map below*) has proved to be inadequate on the occasion of extreme weather events, resulting in many residents being subjected to frequent flooding within their homes, gardens or streets.



- Below is a flood risk map from the environment agency showing the risk of flooding in the low lying areas of the Lin Dyke catchment in Garforth due to surface water runoff from the intensely developed areas not being adequately dealt with by the drainage system.



- A Strategic Flood Risk Management Assessment was prepared by Leeds City Council in 2007 and its status reviewed in 2014(see A below).
- An integrated drainage study was carried out by DEFRA between November 2006 and April 2008 (see B below)

Policies

- The following policies for the designated area have been designed in order to recognise the fragility of the land drainage system in Garforth and to avoid further development making a bad situation worse.

Development in the designated Area

- Development will not be permitted in the designated area, unless the conditions set out within the National Planning Policy Framework (NPPF) and the NPPF Planning Practice Guidance are met with regard to the application of the “Exception test” for sustainable drainage systems. (*see D below*).

Development in the Lin Dyke catchment

- Development which discharges surface water into the Lin Dyke catchment will not be permitted in the designated area, unless the surface water drainage reverts to greenfield rates of runoff.

Rainwater collection

- All new buildings must have a scheme to collect rainwater for use. To aid in helping reduce the carbon footprint of buildings, reduce surface water flooding and to help in times of drought, a water use scheme should be incorporated into the design of new buildings. Rainwater collection is in addition to and cannot be counted within attenuation of the development drainage proposals.

Drainage systems.

- That green pathways for exceedance flows be designed into future development and re-development proposals, in accordance with the ‘Making Space for Water’ approach.
- That Vigilance be exercised, using powers in Land Drainage Byelaws, to prevent encroachments over culverted watercourse routes.
- That separate systems be used for waste sewage and surface water, avoiding surface water runoff into existing combined sewers.

A. STRATEGIC FLOOD RISK MANAGEMENT ASSESSMENT

- A strategic flood risk assessment (“SFRA”) for Leeds was produced by the City Council in 2007 and can be seen at this link

<http://www.leeds.gov.uk/docs/SFRA%20Full%20Document.pdf>

- **A relevant extract from the assessment is copied below:**

West Garforth

Existing flood risk issues within West Garforth are the subject of a study currently being undertaken by Leeds City Council. This study is one of several nationwide pilot studies being funded by Defra under the ‘Integrated Urban Drainage Pilot Studies’ initiative. [see B below]

A series of culverts exist in the West Garforth area and these are known to have insufficient capacity, be in poor condition and pass through the gardens of a large number of residential properties.

Leeds City Council’s land drainage policy for this catchment is to reduce flows into the drainage and sewer system from those that currently enter it, particularly from new development.

- **A status report on the SFRA in 2014 is as follows:**

The Leeds SFRA was adopted in November 2007 and signed off by the Environment Agency in April 2008.

The initial brief was prepared in May 2006 in partnership with the Environment Agency (Robin Bailey). PPG25 was the operative guidance at the time. Although PPG25 did not require local planning authorities to undertake a SFRA, nor give any specific guidance on their preparation, in practice it was difficult for Leeds to take a risk-based sequential approach to development and flood risk unless it had undertaken a SFRA first (and thereby knew the relative degrees of risk associated with different areas).

The Government was revising guidance in PPG25 and preparing a new PPS25 which firmed up the requirement for authorities to carry out SFRA. Therefore the draft PPS25 was used as the guidance for the preparation of the SFRA along with the additional guidance on the preparation of SFRAs issued jointly by the Environment Agency and the Yorkshire and Humber Assembly (‘Planning for Flood Risk in Yorkshire and Humber’, Spring 2004).

Annex E6 of the former PPS25 explains that where proposed development is likely to require the application of the Exception Test, then the scope of the SFRA should be extended to cover ‘flood outlines for different probabilities, impact, speed of onset, depth and velocity variation of flooding taking account of the presence and likely performance of flood risk management infrastructure’.

The term ‘Level 2’ is not used and the Council did not see it necessary therefore to specifically describe their SFRA as a Level 2 Assessment although it does address the factors described in PPS25 as an SFRA with extended scope. The term Level 2 was not used in Planning Guidance until the PPS25 Practice Guide on Development and Flood Risk came out in June 2008 (after the Leeds SFRA was adopted).

The Leeds SFRA is a Level 2 Assessment because it includes:

- 1. A further refinement of zone 3a into zone 3ai and 3aii, thereby enabling a sequential approach to site allocation to be taken within Flood Zone 3.*
- 2. The identification of areas of risk to people behind flood defences as Zones of Rapid Inundation. These are based on areas within which the product of depth and velocity exceeds $0.4\text{m}^2/\text{s}$.*
- 3. Definition and mapping of the functional floodplain.*
- 4. Information about areas at risk of sewer flooding.*
- 5. An account of potential surface water flooding in relation to future development across the district.*
- 6. Mapping of local flood incidents across the district.*
- 7. Development control recommendations for each of the different flood zones and advice on the preparation of site specific flood risk assessments.*

Leeds City Council intends to update the SFRA when the Leeds Flood Alleviation Scheme has been implemented. In the meantime, the SFRA is used in conjunction with the Environment Agency flood risk maps to ensure that the latest information is used.

B. DEFRA INTEGRATED URBAN DRAINAGE PILOT STUDY

- The full report from the study which was carried out by a partnership involving Leeds City Council, Bradford Metropolitan District Council, Yorkshire Water, the Environment Agency and the Pennine Water Group (Bradford and Sheffield Universities) between November 2006 and April 2008 can be seen at this link.

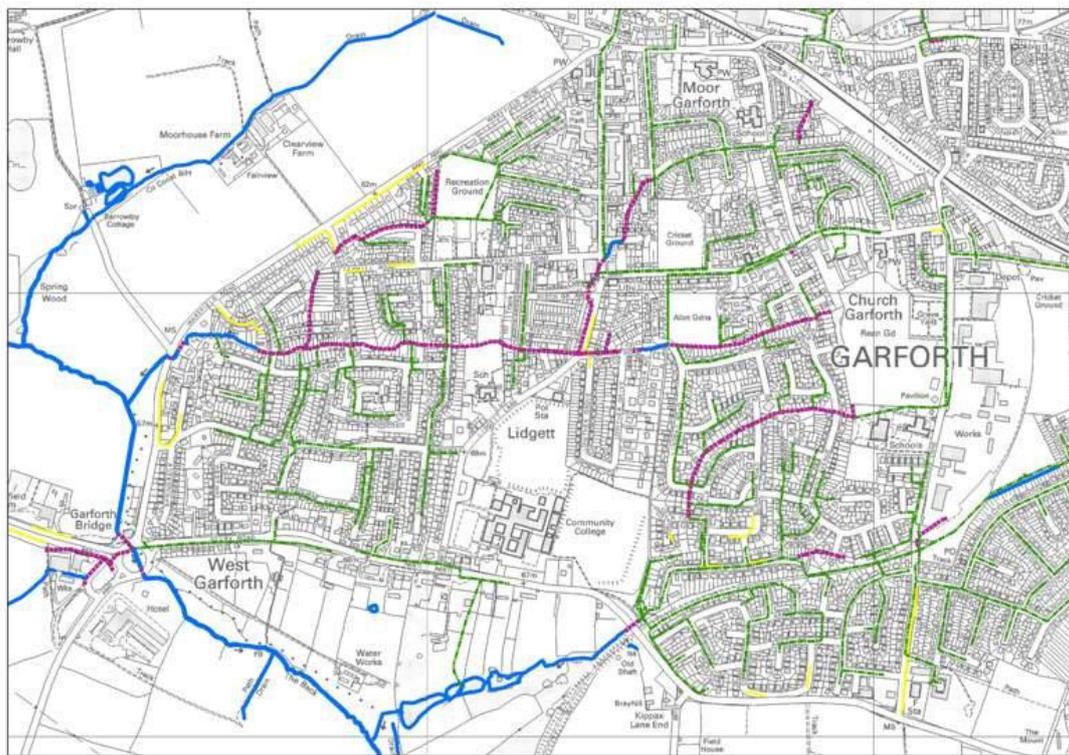
<http://democracy.leeds.gov.uk/documents/s20933/West%20Garforth%20DEFRA%20ON%20REQUEST.pdf>

- The following extracts have been taken from that report:

The West Garforth Drainage Area has a long history of flooding problems, going back to the 1980s and earlier. Many properties were flooded internally in June 2007, during the project period.

The backbone of the drainage infrastructure is a system of inadequate culverted watercourses, passing through hundreds of private properties. The bulk of the flow entering the culverts is from public surface water sewers and highway drains. (see map below)

The West Garforth drainage infrastructure



Key

Public Surface Water Sewer	Highway Drain	Open channel ordinary watercourse	Culverted ordinary watercourse
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In the early 1990s – as the sewerage agent of Yorkshire Water Services (YWS) – Leeds City Council designed a trunk surface water sewer scheme to replace the inadequate culvert. This

was later shelved by YWS on the basis of a re-appraisal of responsibilities of the sewerage undertaker.

Modelling identified six areas in West Garforth with significant flood risk. The use of a design rainfall event with a return period of 2 years indicated that significant flooding would be likely to occur at two of these locations with minor flooding at two others. If a rainfall event with a return interval of 30 years was used significant flooding would be expected at all six areas.

Modelling was also used to predict changes in future flood risk. Future rainfall predictions indicated that flood volumes, from a rainfall event with a 30 year return period, would have increased in this catchment by around 50%, by 2085. Flooding would also become more widespread, especially in the south eastern part of the study area.

The expected annual damage (EAD) was calculated taking into account predicted flood volumes from the surface water drainage system and the resultant flood depths. This indicated that current EAD for the study area is £1812K. Predictions of future flood volume, indicated that this would rise to a value of £2216K by 2080.

Within West Garforth there are currently residents whose lives are severely impacted because their homes or streets are subject to inundation.

Flooding in this community is a cause for wider concern also, insofar as many residents currently unaffected consider that the problem is increasing. They anticipate that flooding could become worse as a consequence of climate change and new building development in the area.

Incidents of flooding will become more widespread and are likely to impact on larger numbers of people and property, many of whom are currently unaware of the likely changes in future risk. In addition, as these results deal only with the parts of the system that were included in the models, there will be a number of other localised areas that will also be flooded in the future.

West Garforth has grown substantially since the 1950s. The open channel watercourses have been covered over or culverted in a piecemeal fashion and new drainage infrastructure has been connected, seemingly without regard to capacity limitations. This situation is a failing of historical planning regimes.

Current Planning Policy now places a duty on planning authorities to take flood risk into account in the preparation of development plans and the determination of new planning applications.

It should be recognised that planners are not flood risk engineers and water management is but one of a long list of planning requirements. This highlights the need for appointing experienced staff to advise planning authorities on flood risk and mitigation methods. Planning authorities need to acquire a corporate memory of flood risk issues for specific locations. This is especially necessary to facilitate an adaptive approach to coping with climate change.

Recommendation: (1 of 9) - [That green pathways for exceedance flows be designed into future development and re-development proposals, in accordance with the 'Making Space for Water' approach. Greater vigilance needs to be exercised, using powers in Land Drainage Byelaws, to prevent encroachments over culverted watercourse routes.](#)

C. SECTION 19 FLOOD INVESTIGATION REPORT

- The section 19 report into flooding in South East Leeds can be found at this link:

http://www.leeds.gov.uk/docs/2014%20August%20-%20S19%20Food%20Investigation%20Report%20Final_reduced.pdf

- The report includes the following brief description of the flooding event in Garforth:

3.3.1 *Extensive surface water (pluvial) flooding covering the major part of Garforth.*

3.3.2 *Streets known to have been worst affected at this time were:*

Alandale Crescent, Alandale Drive, Ashlea Close, Bar Lane, Barleyhill Crescent, Barleyhill Road, Beech Grove Terrace, Bluebell Avenue, Church Lane, Conisborough Lane, Derwent Avenue, Fairburn Drive, Farfield Court, Fidler Close, Fidler Lane, Fidler Terrace, Firtree Avenue, Grange Avenue, Greensway, Highfield Drive, Hillside, Kingsway, Knightsway, Lidgett Lane, Lindsay Road, Long Meadows, Lowther Road, Ludlow Avenue, Lyndon Avenue, Main Street, Montague Crescent, Moorland Terrace, New Sturton Lane, Ninelands Lane, Oak Crescent, Oak Road, Poplar Avenue, Queensway, Ringway, Rydal Avenue, Selby Road, Severn Drive, Spring Mead Drive, Strawberry Avenue, Summerhill Road, Wakefield Road, White Rose Avenue and Windsor Green.

3.3.3 *It is reported that at least 34 properties in Garforth as a whole were flooded internally during the rainfall event of the 8th and 10th August 2014. Flood depths internally were in the order of 200 mm. Some ground/basement floors are believed to have been rendered uninhabitable and substantial remedial works were necessitated, including the total removal of floorboards, joists, plasterwork, etc., with some residents having sought temporary accommodation until their houses have been dried out and repaired.*

See figure 17 showing incidents relative to culvert position and low lying ground and figure 18 showing photos of flood damage in West Garforth.

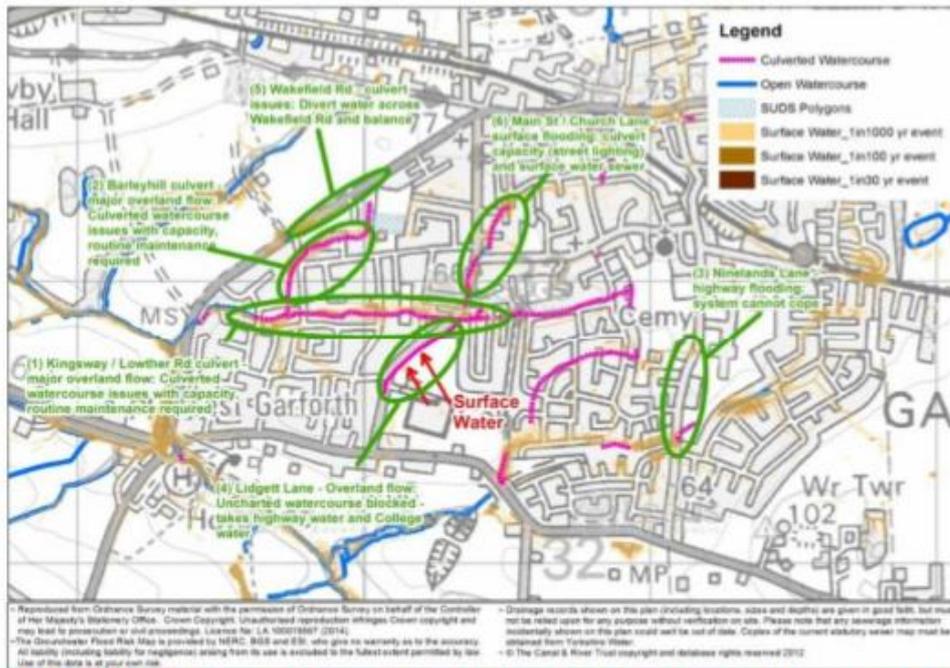


Figure 17: Plan of West Garforth showing incidents relative to culvert position (shown pink) and low lying ground (shown in browns)

[Whilst detailed information has been recorded, due to the restrictions imposed by the Data Protection Act flooding locations have been aggregated so as not to identify individual properties]



Figure 18: Flood damage to homes in West Garforth

3.3.4 Countless properties suffered flooding to gardens. See figure 19 below.



Figure 19: Flooded gardens in West Garforth
[reproduced by kind permission of the Garforth Flood Group]

D. NATIONAL PLANNING POLICY FRAMEWORK (“NPPF”)

- The full NPPF can be found at this link:

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

- Paragraphs 100 – 103 set out the NPPF stance on flooding

100. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards.

Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:

- *applying the Sequential Test;*
- *if necessary, applying the Exception Test;*
- *safeguarding land from development that is required for current and future flood management;*
- *using opportunities offered by new development to reduce the causes and impacts of flooding; and*
- *where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations.*

101. The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. The Strategic Flood Risk Assessment will provide the basis for applying this test. A sequential approach should be used in areas known to be at risk from any form of flooding.

102. If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied if appropriate. For the Exception Test to be passed:

- *it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and*

- *a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

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

103. When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that:

- *within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and*
- *development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems.*