<table>
<tr><th rowspan="2">Requirements</th><th rowspan="2">Areas at risk of groundwater flooding[1]</th><th colspan="5">NPPF Flood Zone</th></tr>
<tr><th colspan="2">Zone 3b Functional Floodplain</th><th>Zone 3a High Probability</th><th>Zone 2 Medium Probability</th><th>Areas of Critical Drainage[2]</th><th>Zone 1 Low Probability</th></tr>
<tr><th></th><th>Existing Development[3]</th><th>New Development</th><th></th><th></th><th></th><th></th></tr>
<tr><td colspan="8">DEVELOPMENT MANAGEMENT RECOMMENDATIONS</td></tr>
<tr><td>Important Considerations
(overall approach to existing buildings and development within the zone)</td><td>Areas at risk of groundwater flooding or with high groundwater levels contribute to the risk of flooding from local sources. Local flooding must be considered as in integral part of the design process for all development.
Opportunities should be sought to reduce the overall level of flood risk in the local area through layout and form of development and appropriate application of SuDS.
(See NPPG provided by Environment Agency on Critical Drainage Areas[4] - equally applicable here - and guidance on SuDS provided by BCC)</td><td colspan="2">Opportunities should be sought: to reduce overall level of flood risk in the area through layout and form of development and appropriate application of SuDS; and to relocate existing inappropriate development to land with lower probability of flooding. Sequential Test required (unless para.162 of NPPF applies)</td><td>Opportunities should be sought: to reduce overall level of flood risk in the area through layout and form of development and appropriate application of SuDS; to relocate existing inappropriate development to land with lower probability of flooding; and to create space for flooding to occur.
All existing ‘solid buildings’ are considered to be within Zone 3a for planning purposes, together with any other land prevented from flooding in a 5% (1 in 20) annual chance event by the presence of solid buildings and existing infrastructure, unless designed to allow the passage of water (even if in Zone 3b on flood map). Sequential Test required (unless para.162 of NPPF applies)</td><td>Opportunities should be sought to reduce overall level of flood risk in the area through layout and form of development and appropriate application of SuDS.
Sequential Test required (unless para.162 of NPPF applies)</td><td>ACDs have been identified which are likely to be most at risk of flooding from local sources. Local flooding must be considered as in integral part of the design process for all development.
Opportunities should be sought to reduce overall level of flood risk in the local area through layout and form of development and appropriate application of SuDS.
(See guidance provided by Environment Agency on Critical Drainage Areas - equally applicable here - and guidance on SuDS provided by BCC)</td><td>It is important to recognise that sites within Zone 1 may be susceptible to flooding from other sources. Development may contribute to an increase in flood risk elsewhere if not carefully mitigated.
Opportunities should be sought to reduce overall level of flood risk in the area and beyond through layout and form of development and appropriate application of SuDS.</td></tr>
<tr><td></td><td></td><td>All existing ‘solid buildings’ that would otherwise be in Zone 3b, unless designed to allow the passage of water, together with any other land prevented from flooding in a 5% (1 in 20) annual chance event by the presence of solid buildings and existing infrastructure, are considered to be within Zone 3a for planning purposes.
Existing buildings and other land designed to flood will continue to be in Zone 3b.</td><td>Advice below relates to all new development on previously undeveloped land, or on surfaces that are currently permeable, or on surfaces that are currently impermeable but not designed to flood.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Appropriate Land Use
(refer to Tables 1 to 3 of the NPPG)</td><td>No restrictions upon land use.</td><td>Proactively seek a reduction in risk by reducing the vulnerability of the existing land use.</td><td>Water Compatible uses
Essential Infrastructure, if passes Exception Test.</td><td>Water Compatible or Less Vulnerable uses. More Vulnerable uses or Essential Infrastructure, if passes Exception Text.</td><td>Water Compatible, More Vulnerable or Less Vulnerable uses. Highly Vulnerable uses, if passes Exception Test.</td><td>No restrictions upon land use.</td><td>No restrictions upon land use.</td></tr>
<tr><td colspan="8">SPECIFIC DEVELOPMENT MANAGEMENT RECOMMENDATIONS</td></tr>
<tr><td>Flood Risk Assessment
(all sources of flooding)</td><td>FRA required (proportionate to level of risk and scale of development), should focus on records of past flooding and potential mitigation</td><td colspan="2">Detailed FRA required</td><td>Detailed FRA required</td><td>Detailed FRA required</td><td>FRA required (proportionate to level of risk and scale of development), should focus on records of past flooding and the incorporation of SuDS</td><td>FRA required (proportionate to level of risk) for all sites greater than 1ha in area but should focus on records of past flooding and SuDS.
Recommend that all sites carry out assessment of localised flood risks</td></tr>
<tr><td>Extensions, Outbuildings, Permitted Development & Property Subdivision
(see Environment Agency guidance on PD online[5])</td><td>Building extensions and outbuildings may obstruct overland and underground flow paths due to the extension itself and its associated foundations. Extensions and outbuildings should be designed carefully to avoid raising the potential risk of flooding to adjoining properties. Restriction of PD rights should be considered.</td><td colspan="2">There should be a presumption against all building extensions (including out-buildings) to avoid raising flood levels elsewhere. Property sub-division may increase the population at risk, and should not be permitted. Restriction of PD rights should be considered.</td><td colspan="2">Building extensions (inc. out-buildings) should be discouraged to avoid raising flood levels elsewhere. Property sub-division may increase intensity of development, and population at risk, and should be discouraged. Restriction of PD rights should be considered.</td><td>Building extensions and outbuildings may obstruct overland flow paths and should be designed carefully to avoid raising the potential risk of flooding to adjoining properties. Restriction of PD rights should be considered.</td><td>No restrictions.</td></tr>
<tr><td>Flood Resilience & Resistance, including Floor Levels and Below Ground Services</td><td colspan="5">FRAs must include details of flood resilience and resistance measures included in designs (see Environment Agency & BCC guidance). Generally, floor levels must be a minimum of 300mm above the 1% (1 in 100) annual chance event river flood level, including climate change, but varies according to Flood Zone and nature of development – see Environment Agency (fluvial flood risk from Main Rivers) & BCC guidance (flood risk from local sources). Maximum groundwater levels should also be considered when determining the finished floor levels of a development.
The design of below ground services should consider maximum groundwater levels within the site to minimise risk of groundwater infiltration into the sewer network and/or pollution of groundwater.</td><td colspan="2">FRAs must include details of any flood resilience and resistance measures included in designs (see Environment Agency & BCC guidance). No minimum floor levels.</td></tr>
<tr><td>Site Access & Escape, including Flood Evacuation</td><td>FRA should consider the vulnerability of the proposed development, and a safe route of escape should be provided if deemed necessary[6]. Once emerged, it can be assumed groundwater will follow existing topographical flow paths indicated by surface water flood risk mapping.</td><td colspan="4">For residential property, dry access is to be provided in the 1% (1 in 100) annual chance event. For commercial property, access must be ‘safe’ in accordance with Defra “Flood Risk to People” (FD2320 & FD2321). A Flood Evacuation Plan must be in place, suitable to the type of development, where there is no safe dry access to/from the site (i.e. access through Zone 1) – officers should consult the CDC and SBDC Emergency Planning team as appropriate.</td><td>FRA should consider the vulnerability of the proposed development, and a safe route of escape should be provided if deemed necessary[7].</td><td>No minimum level.</td></tr>
<tr><td>Basements</td><td>Not permitted unless it can be demonstrated that basement would be properly protected and safe egress would be maintained during times of high groundwater levels.</td><td>Seeking to reduce vulnerability of use</td><td>Not permitted</td><td>Basement dwellings not permitted (see NPPF). For other development, no sleeping accommodation permitted at basement level. All basements must have an access point that is above the 1% (1 in 100) annual chance event river flood level, including climate change</td><td>Exception test required for basement dwellings (see NPPG).
Generally, basements to have unimpeded access internally to upper levels – see Environment Agency guidance.</td><td>No sleeping accommodation permitted at basement level. All basements must have an access point that is above the anticipated localised flood level.</td><td>No restrictions.</td></tr>
<tr><td>SuDS & Permeable Paving</td><td colspan="7">Liaise with LPA and LLFA to ensure effective SuDS are implemented unless it can be clearly demonstrated they would be inappropriate (para. 163 of NPPF); guidance on design and maintenance can be found in the Ciria C753 SuDS Manual[8]. Implement SuDS to restrict runoff from the site (post development), so that does not exceed allowable discharge rates as specified by relevant risk management authorities. SuDS design should adhere to the SuDS Manual drainage hierarchy for sustainable discharge where possible.
Any SuDS design must take account of groundwater levels and underlying geological conditions to ensure groundwater is protected from pollution. BCC requires a minimum of 1m freeboard above maximum groundwater level. Considerations should be made to account for any potential loss of storage capacity during times of high-groundwater level.
Hardstanding which exceeds 5sqm in front garden of residential properties must be permeable (result of amendment to General Permitted Development Order (GPDO) in 2008)</td></tr>
<tr><td>Buffer Zones and Environment Agency Consent</td><td colspan="7">Minimum 8m buffer zone must be provided to ‘top of bank’ within sites immediately adjoining a Main River corridor (both open waterways and culverted waterway corridors). Any structures within 8m of ‘top of bank’ require Environment Agency consent. Reference should be made to Environment Agency’s “Living on the Edge” guide (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/454562/LIT_7114.pdf) that discusses development situated in, over, under or adjacent to rivers and/or streams and the responsibilities of the riparian landowner.</td></tr>
<tr><td rowspan="4">Other</td><td colspan="7">Demonstrate that the proposed development does not result in increase in flood levels elsewhere – e.g. by providing appropriate mitigation to flood risk exacerbation should there be an increase in impermeable area due to development, ensuring overland flow routes are not truncated by buildings and/or infrastructure, or hydraulic links to compensatory flood storage are provided within the site (or upstream) – measures should be appropriate to potential impact.</td></tr>
<tr><td colspan="7">As an integral part of the government’s “Making Space for Water” agenda, the Environment Agency is actively seeking the denaturalisation of culverted watercourses as part of any future development, and this is acknowledged by CDC and SBDC. Realistic opportunities to reinstate the natural open waterway within existing culverted reaches of the river(s) should be promoted.</td></tr>
<tr><td colspan="7">Ensure all sources of flooding are covered by the FRA and that surface water is adequately managed in line with Environment Agency and BCC guidance, especially in known ACD.</td></tr>
<tr><td colspan="7">In addition to a Flood Risk Assessment, applications within all fluvial Flood Zones (including within ACDs) for developments of greater than 1ha must be accompanied by proposals for the management of surface water, as per Environment Agency standing advice (footnote 50 of the NPPF). Similar surface water management proposals should also be prepared for developments of less than 1ha within any Flood Zone even if an FRA is not required. BCC should be consulted through the planning process, as a statutory consultee, and as they have requested surface water drainage strategies be completed for major development.</td></tr>
<tr><td colspan="8">This table is designed as a summary of issued covered elsewhere in the SFRA, NPPF and other guidance documents – it should not be relied upon in isolation when writing or evaluating a FRA.</td></tr>
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[1] Areas deemed at risk of groundwater flooding where Areas Susceptible to Groundwater Flooding data indicates a moderate risk or greater or where JBA groundwater depth mapping indicates groundwater levels are <5m beneath the ground level of the site or the site is within an area designated as at risk of groundwater emergence

[2] Areas of Critical Drainage are delineated as within fluvial Flood Zone 1 and at risk from local sources. The Risk of Flooding from Surface Water 1% (1 in 100) Annual Exceedance Probability event is used to define Areas of Critical Drainage

[3] Existing development specifically designed to allow the passage of flood water, such as buildings on stilts or car parks designed to flood

[4] Flood risk assessment in flood zone 1 and critical drainage areas guidance. Available from: https://www.gov.uk/guidance/flood-risk-assessment-in-flood-zone-1-and-critical-drainage-areas

[5] Environment Agency guidance on permitted development. Available from: https://www.gov.uk/government/publications/permitted-development-rights-for-householders-technical-guidance

[6] A safe route of escape could be deemed necessary if anecdotal evidence suggests that flooding in the area can have a rapid onset (from surface water), last a long time (e.g. groundwater flooding) or be of depths that could pose a risk to life

[7] A safe route of escape could be deemed necessary if anecdotal evidence suggests that flooding in the area can have a rapid onset (from surface water), last a long time (e.g. groundwater flooding) or be of depths that could pose a risk to life

[8] Ciria C753 (SuDS Manual). Available from: https://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx