

APPENDIX C1: Proforma for Sequential and Exception Tests
(required for all sites, regardless of level of flood risk)

1	Site name and reference	Proposed residential development, involving conversion of existing agricultural barn into a dwelling, Croft Barn, Wisbech Road, Tipps End		
	Date of completion	26/05/2021		
	Completed by	Gareth Edwards		
2	The site is affected by (Please tick all that apply)			
	Flood Zone 3a	<input type="checkbox"/>	Residual risk (Max. Depth)	<input type="checkbox"/>
	Flood Zone 3b	<input type="checkbox"/>	The Coastline (within 100m)	<input type="checkbox"/>
	Flood Zone 2	<input type="checkbox"/>	Climate Change (Fluvial)	<input type="checkbox"/>
	Fluvial/ tidal/ sea flooding/ other	<input type="checkbox"/>	Climate Change (Tidal)	<input type="checkbox"/>
	Surface Water Flooding	<input type="checkbox"/>	Climate Change (Surface Water)	<input type="checkbox"/>
	A watercourse passing through/ next to site (within 20m)	<input type="checkbox"/>	Other matters e.g. dry islands, reservoir flood risk, groundwater risk	+
3	Development type	Residential		
4	Vulnerability to flooding (see Table 1-2)	More Vulnerable		
5	<p>Sequential Test Declaration:</p> <p>If the site is at flood risk you must demonstrate how you have considered suitable and reasonable available alternative locations at lower flood risk.</p> <p>You must also demonstrate why these alternatives are not suitable given wider planning considerations.</p> <p>Ownership or land owner agreement in itself is not acceptable as a reason not to consider alternatives.</p> <p>The site is within Flood Zone 1, however, it is a dry island. The flood risk assessment addresses these issues.</p> <p>The site benefits from an earlier Part Q planning approval to residential</p> <p>(Continue on a separate sheet if required)</p>			
6	<p>Flood risk assessment/surface water drainage strategy: Please attach this to this proforma*</p> <p>Please confirm that the design of site will meet the flood risk design standard guidance and that the surface water drainage strategy conforms to the requirements of Norfolk County Council as LLFA</p> <p><u>YES/NO</u></p> <p>If not, please provide a further explanation</p>			

7	<p data-bbox="256 203 711 232">Where the Exception Test Applies</p> <p data-bbox="256 277 1453 342">Please provide evidence that the development is needed for wider sustainability reasons and where possible helps to reduce risk to the wider community.</p> <p data-bbox="256 387 443 416">Flood Zone 1.</p> <p data-bbox="930 461 1501 490">(Continue on a separate sheet if required)</p>
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* Flood Risk Assessments are required for sites over 1 hectare and all sites in Flood Zones 2 and 3. Surface Water Drainage Strategies are required for all major developments.

Where sites in Flood Zone 1 are at risk from other sources of flooding, a Flood Risk Assessment will also be required. The SFRA can be used to help identify the sources of flooding that may affect a development site to scope the need for and content of a Flood Risk Assessment.

Table 1-1 Guidance for developers for Flood Risk Assessments

Source of flooding	Data to assess in Level 2 SFRA	If alternative sites are not viable, how this should be considered in a FRA
Rivers (fluvial) and sea (tidal and coastal)	<p><u>Flood Zones</u> Functional floodplain 3b Flood Zone 3a Flood Zone 2</p> <p>Note: everywhere outside of these zones is considered to be Flood Zone 1</p>	<p>A site-specific FRA must consider the risks in more detail using site specific survey and detailed modelling, including for residual risk if appropriate related to a realistic worst-case scenario of flood defence failure for the site in question.</p> <p>It must set out any mitigation measures needed to ensure occupants are safe from flooding and how development could help to reduce risk to the wider community.</p> <p>Functional floodplain For sites shown in the indicative Flood Zone 3b, the developer should refine the Functional Floodplain using more detailed modelling.</p> <p>Sequential Test within Flood Zone 3 When considering alternatives in the application of the Sequential Test at a site level, the following should be taken into account when considering Parishes entirely within Flood Zone 3: Strategically review the need for development of</p>
	<p><u>Risk of flooding from rivers and the sea</u> High/Medium/Low/Very Low</p>	
	<p>Watercourses and coastline Passes through/next to site and/or on the coast (within 20m of a watercourse or 100m of the coastline)</p>	
	<p>Flood defences and flood warning</p> <ul style="list-style-type: none"> • Embankments, gates and walls • Areas benefiting from (Major) flood defences • Flood warning or alert areas 	
	<p>For the most likely/highest risk to that community, depth, velocity and hazard information</p>	
	<p>Historic flooding Historic flood outlines</p>	

	<p>Residual risk</p> <ul style="list-style-type: none"> • If site is at risk from breach • Maximum depth from breach 	<p>this vulnerability and in this community.</p> <p>Sites within the Functional Floodplain should be excluded</p> <p>Compare the depth of flooding between the sites</p> <p>For sites shown on the SFRA mapping as being within indicative Flood Zone 3b (the Functional Floodplain), the onus will be on the developer to prove the site is not in 3b.</p>
	<p>Dry islands</p> <p>Islands of dry land in the extent of Flood Zone 2</p>	<p>The data for the most likely and highest risk sources of flooding should be used. The site at lowest overall flood risk is sequentially preferred. In determining the overall flood risk and when comparing the risk from different sources between alternative sites:</p> <p>If more than 30% of the site is at risk of surface water or fluvial flooding in a 1 in 30 year event, the site should be considered be at the highest overall risk of flooding</p> <p>If this does not apply, the sites with the greatest depth of flooding from a 1 in 1000 year event from the flood source considered to pose the highest risk to the community should be considered to be at highest overall risk.</p> <p>Flood Risk Design Guidance</p> <p>The developer should also refer to the Flood Risk Design Guidance on the Borough Council website. Previous guidance refers to the "Environment Agency's Tidal River</p>

		<p>Hazard and Fluvial Breach Mapping". Users familiar with this must now use the SFRA residual risk layer instead to identify the need to request the latest flood depth information for a development site. A continuous layer of the tidal and fluvial breach extents for the entire Borough is also available in the Level 1 SFRA that should be referred to if the development site is outside one of the communities that has been considered in more detail in the Level 2 SFRA.</p> <p>Depending on the size and vulnerability of the site, the Environment Agency may also require the developer to undertake further breach analysis to determine a realistic worst case scenario that the design of the site should take into account.</p> <p>Dry Islands</p> <p>If a site is located entirely within a Dry Island, a FRA may still be required. The FRA would need to consider access and egress to a site and the flood risk from IDB drains and other sources in more detail. The long term risk of coastal change may also be an applicable consideration in developments close to the coast.</p>
Surface water flood risk	<p>Surface water flood map 30, 100 and 1,000-year extents</p>	<p>A site-specific FRA must consider the risks in more detail using site specific survey and detailed modelling. It must set out</p>

	<p>For the most likely/highest risk to that community, depth, velocity and hazard information</p>	<p>any mitigation measures needed to ensure occupants are safe from flooding and how development could help to reduce risk to the wider community.</p>
	<p><u>King's Lynn SWMP</u> Critical Drainage Catchments and/ or modelling (available on Borough Council website for King's Lynn, Downham Market, Wimbotsham, Snettisham and Heacham)</p>	<p>If the site is in an area identified as being at risk of flooding in the SWMP then consideration of appropriate flood risk mitigation measures should be included within the FRA. The SWMP has identified a series of actions needed to mitigate the risk of flooding. The FRA should identify whether the development can contribute to these actions.</p> <p>Developers should refer to the Level 1 SFRA and Norfolk LLFA guidance to inform surface water drainage strategies.</p>
<p>Groundwater flood risk</p>	<p>Areas susceptible to groundwater flooding Shown as %</p>	<p>A site-specific FRA should use more detailed geological mapping and ground investigations to investigate the risk further. Mitigation measures may be needed e.g. in the River Burn Catchment to account for dry valleys</p>
<p>Reservoir flood risk</p>	<p>Reservoir mapping in the SFRA</p>	<p>Should be considered further in a site level assessment. This is unlikely to affect the outcome of the Sequential or Exception Test. The design of the site should account for the risk.</p>

<p>Climate change</p>	<p>Increased area affected in</p> <ul style="list-style-type: none"> • 100-year fluvial event • 200-year tidal event • 100-year surface water event 	<p>A site-specific FRA must consider the risks in more detail using site specific survey and detailed modelling, including for residual risk if appropriate related to a realistic worst-case scenario of flood defence failure for the site in question.</p> <p>It must set out any mitigation measures needed to ensure occupants are safe from flooding and how development could help to reduce risk to the wider community.</p> <p>If there is a significant increase in the risk of flooding likely during the lifetime of the development, it may not be possible for the development to pass the Exception Test.</p>
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Table 1-2 Vulnerability of developments to flood risk as per the NPPF

<p>Essential infrastructure</p> <ul style="list-style-type: none"> • 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.
<p>Highly vulnerable</p> <ul style="list-style-type: none"> • 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').
<p>More vulnerable</p> <ul style="list-style-type: none"> • 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* 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.
<p>Less vulnerable</p> <ul style="list-style-type: none"> • 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 the '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). • 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.
<p>Water-compatible development</p>

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence 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.