NOTE TO FILE

JBA Project Code	2019s0600
Contract	Halton Level 2 SFRA
Client	Halton Borough Council
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Subject	Functional Floodplain Delineation

1 Introduction

The functional floodplain (Flood Zone 3b) delineated as part of this 2019 Level 2 SFRA uses the most up-to-date data available from the EA. At the time of writing there is no current functional floodplain available from Halton Borough Council (HBC) having not been delineated through the Level 1 SFRA.

This methodology note explains the delineation process. The LPA, LLFA and EA must all agree on the extent of the functional floodplain outline and the methodology used. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. The local knowledge of HBC and the EA is therefore crucial in defining the functional floodplain as robustly and realistically as possible.

2 Functional floodplain definition

2.1 Flood Risk and Coastal Change PPG – Paragraph 015

The definition of Flood Zone 3b in Table 1 overleaf explains that local planning authorities should identify areas of functional floodplain in their Strategic Flood Risk Assessments in discussion with the Environment Agency and the lead local flood authority. The identification of functional floodplain **should take account of local circumstances and not be defined solely on rigid probability parameters**. However, land which would naturally flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood (such as a flood attenuation scheme) in an extreme (0.1% annual probability) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

A functional floodplain is a very important planning tool in making space for flood waters when flooding occurs. Generally, development should be directed away from these areas.

Areas identified as functional floodplain **should take into account the effects of defences** and other flood risk management infrastructure. Areas which would naturally flood, but which are prevented from doing so by existing defences and infrastructure or solid buildings, will not normally be identified as functional floodplain. If an area is intended to flood, e.g. an upstream flood storage area designed to protect communities further downstream, then this should be safeguarded from development and identified as functional floodplain, even though it might not flood very often.

2.2 Flood Risk and Coastal Change PPG – Table 1, Paragraph 065

The Flood Zones, referred to in the table below, show the probability of river and sea flooding, ignoring the presence of defences. Flood zones 1, 2 and 3 are included within the Environment Agency's Flood Map for Planning (Rivers and Sea). Flood Zone 3b is the functional floodplain and is not included in the Flood Map. This zone is for the use of LPAs and developers. Flood Zone 3a is Flood Zone 3 of the Flood Map that isn't functional floodplain.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	**This zone comprises land where water has to flow or be stored in times of flood**. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the Strategic Flood Risk Assessment when considering location and potential future flood risks to developments and land uses.

3 Methodology

Based on the above guidance and definitions provided in the FRCC-PPG, the following modelled flood outlines (MFO) were provided by the EA to assist in the production the functional floodplain:

Model/watercourse	Year	Return period	Defended?
*Mersey Estuary	2016	5%	Defended
*Mersey Estuary – Ditton Brook	2016	5%	Defended
*Mersey Estuary – Bowers Brook	2016	5%	Undefended
*Mersey Estuary – Stewards Brook	2016	5%	Undefended
Keckwick Brook	2014	4%	Defended

*Draft model yet to be signed off by the EA. Flood Map

Along with the above MFOs, the following datasets were also interrogated to assist with the delineation:

- EA's Flood Map for Planning Flood Zone 3 (downloaded May 2019);
- EA Flood Storage Areas (FSA) (downloaded May 2019);
- EA Areas Benefitting from Defences (ABD) (downloaded May 2019);
- Urban areas - OSOpenMapLocal_Raster (to remove currently developed areas and transport infrastructure from functional floodplain).

3.1 GIS steps

- The above EA MFOs were merged together to create the first revision of the draft functional floodplain outline;
- FSA dataset checked – no FSAs in Halton;
- The ABD dataset was interrogated for any areas within FZ3b that may be within an ABD and therefore exempt from FZ3b. No action required;
- This outline was then checked for consistency with Flood Zone 3 (downloaded May 2019), i.e. to ensure the MFOs used to delineate 3b are up to date with the Flood Map for Planning;
- OS Open Data OSOpenMapLocal Raster Dataset was used to identify currently developed areas and transport infrastructure required to be removed from the outline, as per the NPPF;
- Checks on the geometry of the draft outline were carried out to ensure geometric correctness.

The Draft FZ3b outline has been attributed with the source dataset i.e. the model it came from. When reviewing the draft outline please refer to the 'Source' field in the attributes.

4 Caveats

- The Draft FZ3b is used in Halton's sites assessment for the Draft stage of this Level 2 SFRA (Draft SFRA deliverable end July 2019). The Draft FZ3b outline has not, at the Draft stage, been reviewed nor agreed with the Council or the EA. The Draft FZ3b is therefore subject to change and subsequently the sites

assessments.

- Following the Draft Level 2 SFRA submission at the end of July 2019, the Draft FZ3b outline should be assessed by the LPA, LLFA and the EA and any comments or questions should be referred back to JBA in order to agree on a final outline. If the outline has changed then the sites assessment may have to be updated for any sites that may be affected.
- The 2016 Mersey Estuary model is still in draft form and has not yet been formally signed off by the EA. There have been assurances that the modelled flood outlines are unlikely to change upon model sign off. However, the Flood Map for Planning is yet to be updated with this model. Subsequently, the Draft FZ3b exceeds FZ3 and FZ2 in some areas of the Mersey Estuary.
- The extent of the functional floodplain outline produced from this SFRA should always be assessed in greater detail where any more detailed study such as a site-specific FRA is undertaken.