

NOTE TO FILE

JBA Project Code	2020s1002
Contract	Blackburn with Darwen Level 1 SFRA
Client	Blackburn with Darwen Borough Council
Date	09 October 2020
Author	Mike Williamson
Subject	Functional Floodplain Delineation – Revision 1



1 Introduction

The functional floodplain (Flood Zone 3b) has been delineated as part of this 2020 SFRA update using the most up-to-date data available from the Environment Agency (EA). This methodology note briefly explains the delineation process. Blackburn with Darwen Borough Council has not previously had a functional floodplain in place therefore the outline produced here is based entirely on new information.

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 the Council 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 the table below 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 using the Environment Agency's catchment flood management plans, shoreline management plans and local flood risk management strategies produced by lead local flood authorities.

The area 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 is not functional floodplain.

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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)

Source: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-1-Flood-Zones>

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.

2.3 EA SFRA guidance, 2019

The EA guidance defines functional floodplain as:

'land where water has to flow, or which stores water, in times of flooding.

You should take into account local circumstances when you define the functional floodplain. You should use the parameters set out in the Planning Practice Guidance as a starting point to identify the functional floodplain.

In any modelling used to identify the functional floodplain, include defences and other flood risk management features and structures.

If evidence shows that existing defences, features and structures, or solid buildings would prevent flooding you may not need to designate the functional floodplain in these locations.

You should discuss with the Environment Agency whether the flood storage areas shown on the flood map for planning are suitable to include in your designation of the functional floodplain.

If you do not have enough detailed information to identify the functional floodplain, make this clear on your SFRA maps to ensure the risk isn't underestimated.

Instead, use site-specific flood risk assessments to determine whether a site is affected by functional floodplain. If sites are proposed for development in such areas in your local plan, you'll need to do a Level 2 SFRA to map the location of functional floodplain'.

The EA guidance also stated that functional floodplain should 'show land that would normally

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form the river channel'. The methodology for doing this is explained below. It should however be noted that, where there are no modelled flood outlines available and the channel has been included in the functional floodplain, this does not mean that there is no flood risk, only that the channel has not been modelled.

3 Functional Floodplain Delineation

Based on the above guidance and definitions provided in the FRCC-PPG, the modelled flood outlines (MFO) listed in Table 3.1 below were provided by the EA to assist in the production the functional floodplain outline.

Model	Year	Return period	Defended?
Darwen SFRM Update	2012	25 year	Yes
Arley Brook	2009	25 year	N/A
Knuzden Brook SFRM	2009	25 year	No

Table 3.1: EA modelled flood outlines

The following models were also provided but not used:

- Buryfold Brook, 2009; Darwen Tribs, 2009; – both superseded by Darwen SFRM 2012 update
- Little Harwood, 2009 – 25-year MFO not suitable as only present on A666 road and surrounding roads and buildings
- Knuzden Brook, 2014 – MFOs not available therefore 25 year undefended MFO from 2009 SFRM model used

Along with the above MFOs, the datasets in the table below were also interrogated to assist with the delineation.

Dataset	Purpose
OSMasterMapNetworksWater	To create river channel areas within FZ3b as requested by EA SFRA guidance. Culverted and canalised sections have been excluded
Urban areas – OS OpenMapLocalRaster	To remove currently developed areas and transport infrastructure from functional floodplain
EA Flood Storage Areas (FSA)	None present in BwD according to the EA's dataset
EA Areas Benefitting from Defences (ABD)	To confirm defences are accounted for in the FZ3b outline.

Table 3.2: additional datasets

3.1 GIS methodology

- The MFOs listed in Table 3.1 were appended into one flood outline and named 'FZ3b_2020_Draft'.
- All river channels were added to the FZ3b_2020_Draft outline, as required by the EA's guidance, stated above.
- The ABD dataset was checked, and it was found that the defended MFOs were consistent with the ABDs.
- There are no EA designated FSAs within the Borough of Blackburn with Darwen, according to the EA's FSA dataset. However, the LLFA has stated in its review of the draft outline that one is present at Hollin Bank, at the junction of Aqueduct Road and Hollin Bridge Street. This has been included in the final FZ3b outline.

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- Each polygon within the FZ3b_2020_Draft outline was attributed with the source dataset, so it is possible to ascertain which dataset each polygon within the outline came from.
- OS Open Data OSOpenMapLocal Raster Dataset was used to identify existing buildings, structures and transport infrastructure which were removed from the FZ3b_2020_Draft outline.
- Checks on the geometry of the FZ3b_2020_Draft outline were carried out to ensure geometric correctness.

The draft functional floodplain outline has been reviewed by the LPA, LLFA and the EA. Comments and questions from the review have been dealt with and the functional floodplain outline subsequently finalised.

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 Level 2 SFRA or site-specific FRA are undertaken.