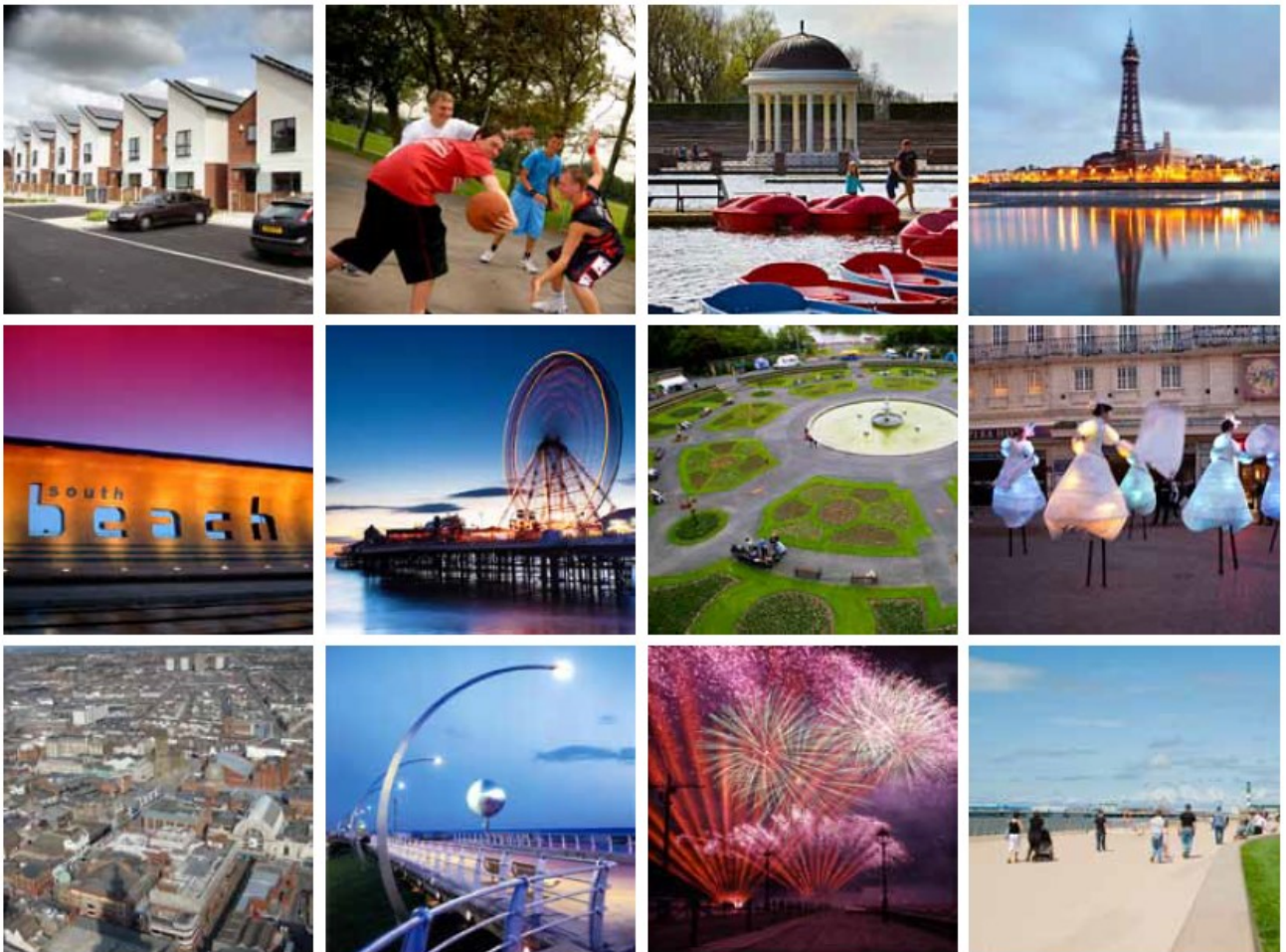


# Blackpool Council

## Level 1 Strategic Flood Risk Assessment

Updated December 2020  
Amended May 2021



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## Executive Summary

Flooding from overland flows, rivers and coastal waters is a natural process that plays an important role in shaping the natural environment. However, flooding threatens lives and can cause substantial damage to property and infrastructure. The effects of weather events can increase in severity due to previous decisions about the location, design and nature of development and land use, and as a potential consequence of future climate change. The causes and impacts of flooding can be reduced through good planning and management.

Climate change over the next few decades will result in milder wetter winters and hotter drier summers in the UK, more frequent and more severe storm events and sea levels will continue to rise. These factors will lead to increased and new risks of flooding within the lifetime of planned developments.

It is important that all types of flood risk are considered at all stages in the planning process in order to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is exceptionally necessary in such areas, planning policies aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

The National Planning Policy Framework (NPPF) states that Strategic policies should be informed by a Strategic Flood Risk Assessment (SFRA) and should manage flood risk from all sources, considering cumulative impacts and advice from consultees. The National Planning Practise Guidance (NPPG) advocates a tiered approach to risk assessment and identifies the following two levels of SFRA:

- Level 1 – which is carried out in a local authority area where flooding is not a major issue and where development pressures are low.
- Level 2 – which is carried out where a Level 1 Assessment shows that land outside of flood risk areas cannot appropriately accommodate all the necessary development.

Blackpool Council has prepared this borough-wide updated Level 1 SFRA in accordance with the NPPF and NPPG. The SFRA for Blackpool was first published in June 2008 and was updated in 2009 and 2014. This 2020 update takes into consideration changes to national planning policy and guidance and alterations to the Environment Agency (EA) flood risk maps and work undertaken by the Lead Local Flood Authority (LLFA) to understand flood risks. It has been updated to inform the preparation of the Council's Blackpool Local Plan Part 2 – Site Allocations and Development Management Policies document, having regard to catchment-wide flooding issues that affect the area. The SFRA provides the information needed to apply the sequential approach. Blackpool Council has liaised with emergency planning, emergency services, united utilities, adjoining local authorities and the Environment Agency in its preparation.

## **The Sequential Approach**

A sequential risk-based approach to determining the suitability of land for development in flood risk areas is central to the approach put forward in the NPPF and it should be applied at all levels of the planning process. Local Planning Authorities should apply the sequential approach as part of the identification of land for development in areas at risk of flooding and in the determination of planning applications.

## **The Sequential Test**

In areas at risk of river or sea flooding, local planning authorities consult the Environment Agency Flood maps and check which areas fall within the different flood zones (Zone 1 is the area least likely to experience flooding and Zone 3, the most likely). Preference is given to locating new development in Flood Zone 1. If there is no reasonably available site in Flood Zone 1, the flood vulnerability of the proposed development can be considered in locating development in Flood Zone 2 and then Flood Zone 3. Within each Flood Zone, new development should be directed to sites at the lowest probability of flooding from all sources as indicated by the SFRA.

## **The Exception Test**

If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the development to be located in zones of lower probability of flooding, the Exception Test can be applied. The Test provides a method of managing flood risk while still allowing necessary development to occur.

The Sequential and Exception Tests are detailed in the [National Planning Policy Framework \(NPPF\)](#) [opens a new window] and [National Planning Practise Guidance \(NPPG\)](#) [opens a new window].

With the exception of an allotment allocation (flood compatible development) no proposed site allocations without planning permission in the publication version of Blackpool Local Plan; Part 2 – Site Allocations and Development Management Policies document are in flood zones 2 or 3, so a Level 2 SFRA is not required. However, this SFRA does include flood considerations for new site allocations.

## Strategic Flood Risk Assessment (SFRA) User Guide

| Section  | Contents   |
|--|--|
| <a href="#"><u>1. Background</u></a>   | Provides a background to the study and gives an overview of the main stages of the SFRA  |
| <a href="#"><u>2. Introduction</u></a>   | Confirms that Blackpool Council shares the Government’s objectives for the planning system in which planning promotes sustainable patterns of development, reducing flood risk and accommodating the impacts of climate change |
| <a href="#"><u>3. Aims and Objectives</u></a>                                  | Defines the aims and objectives of the SFRA  |
| <a href="#"><u>4. Overview of Key Roles and Responsibilities</u></a>           | Outlines the roles and responsibilities of Risk Management Authorities (RMAs) and other parties in Blackpool   |
| <a href="#"><u>5. Policies and Legislation on Flood Risk Management</u></a>    | Provides an overview of the planning framework, environmental and flood risk policy and flood risk responsibilities  |
| <a href="#"><u>6. How the SFRA fits in to the Spatial Planning Process</u></a> | Explains the strategic planning links and key documents for flood risk and how the SFRA fits in  |
| <a href="#"><u>7. Studies and Plans</u></a>                                    | Outlines what information and studies has been used in the preparation of the SFRA   |
| <a href="#"><u>8. Sources of Flooding</u></a>                                  | Describes the different sources of flooding including residual risks   |
| <a href="#"><u>9. Flood Maps</u></a>   | Provides an overview of available flood maps and provides definitions of the flood zones   |
| <a href="#"><u>10. Sequential and Exception Tests</u></a>                      | Describes the Sequential and Exceptions tests, when they are required and how they should be applied and assessed  |
| <a href="#"><u>11. Site Specific Flood Risk Assessments</u></a>                | Identifies the scope of the assessments that must be submitted in FRAs supporting applications for new development and points developers towards the most up to date guidance.   |



| Section  | Contents  |
|--|---|
| <a href="#"><u>12. Study Area</u></a>                            | Describes Blackpool and the surrounding areas from a flood risk perspective and breaks the town down into four areas, north, central, south and Marton Moss. Flooding issues for each area are discussed. |
| <a href="#"><u>13. Source-pathway-receptor-model</u></a>         | Describes the sources of flooding, the pathway flood water may take and the impacts on receptors such as people or the environment.   |
| <a href="#"><u>14. River and Tidal Flood Risk</u></a>            | Identifies river and tidal flood risks in Blackpool and identifies the existing flood defence infrastructure.   |
| <a href="#"><u>15. Surface Water Flood Risk in Blackpool</u></a> | Identifies areas in Blackpool which are more susceptible to surface water flooding and provides guidance for developers and the local planning authority  |
| <a href="#"><u>16. Groundwater Flood Risk in Blackpool</u></a>   | Identifies that no areas in Blackpool are at risk from groundwater flooding.  |
| <a href="#"><u>17. Reservoir Flood Risk in Blackpool</u></a>     | Identifies the 2 reservoirs in Blackpool.   |
| <a href="#"><u>18. Historical Flooding</u></a>                   | Describes the more significant historic flood events across Blackpool, as a result of surcharged sewers and over topping during storm events.   |
| <a href="#"><u>19. Climate Change</u></a>                        | Describes the impacts that climate change may have on flood risk and points developers to the most up to date data and guidance.  |
| <a href="#"><u>20. Appropriate Risk Management Measures</u></a>  | Describes risk management measures and design practices that could reduce or mitigate flood risk in certain circumstances.  |
| <a href="#"><u>21. Marton Moss Neighbourhood Plan</u></a>        | The Marton Moss Neighbourhood Forum are progressing their Neighbourhood Plan and this section details historical flooding issues in this area.  |

# 1 Background

1.1 Section 14 of the NPPF states:

“Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.”

1.2 Blackpool Council has updated this borough-wide Strategic Flood Risk Assessment (SFRA) to inform and support the emerging Blackpool Local Plan Part 2, Site Allocations and Development Management Policies (Part 2). The SFRA for Blackpool was originally published in June 2008, and updated in 2009 and 2014 to reflect changes to the Environment Agency (EA) Flood Risk Maps, changing guidance and local plan evolution.

1.3 This 2020 update takes into consideration changes to national planning policy and guidance, the current Core Strategy approach, new allocations in the emerging Part 2 and updates to the flood risk maps and information.

1.4 This SFRA has been developed with the assistance of the Environment Agency, the Lead Local Flood Authority, neighbouring authorities and consultees to provide an assessment of current and future levels of flood risk within the borough. The SFRA is a key piece of evidence for the Local Plan, ensuring that any future development takes full account of flood risk and sustainability at the outset.

1.5 Blackpool Council will consult with neighbouring authorities on the possibility of producing a joint SFRA as part of the review of Blackpool’s Core Strategy.

1.6 The aim of this SFRA is to ensure an understanding of flood risk and to influence the spatial planning processes to provide sustainable developments. It is a strategic risk based approach to inform policies in Part 2 of the Local Plan which:

- Avoid adding to **sources** of flood risk by avoiding inappropriate development.
- Manage flood **pathways** to reduce the likelihood of flooding by managing flood defence infrastructure and utilising natural storage of floodwater.
- Reduces the adverse consequences of flooding on people and property, the **receptors** by avoiding inappropriate development in flood risk areas or mitigating against such development.

1.7 The main stages in the development of the SFRA are:

- The identification of flood zones for the area;
- The identification of potential sources and pathways of flooding using appropriate techniques;

- Assessment of the effects of climate change for a variety of horizons;
- Examination of future development proposals, including sequential testing and the application of exemption testing where appropriate;
- Identification of residual flood risk and appropriate mitigation measures;
- Adoption.

## 2 Introduction

2.1 Flooding cannot be wholly prevented and is a natural process. However, good planning and management of the risk and consequence of flooding can help avoid and reduce and mitigate the threat to people and property.

2.2 Blackpool Council has prepared this Strategic Flood Risk Assessment (SFRA) in accordance with the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG). The Council shares the Government's objectives for the planning system in which planning promotes sustainable patterns of development, reducing flood risk and accommodating the impacts of climate change. The Council will continue to work in partnership with the Environment Agency, the Local Lead Flood Authority, neighbouring authorities and consultees to optimise expertise, share knowledge and information, to ensure plans are effective and planning policy, site allocations and decision taking is guided by clear and accurate information.

2.3 Although the SFRA will consider the risk of flooding from all sources, flood maps and data provided by the Environment Agency are key inputs for the study. The Environment Agency flood maps define the Flood Zones, which refer to the probability of river and sea flooding, ignoring the presence of defences. Flood Zones are shown on the Environment Agency's [Flood Map for Planning \(Rivers and Sea\)](#) [opens a new window], and are defined in [Table 2](#).

2.4 The SFRA for Blackpool Council uses the [source, pathway and receptor model](#) to highlight the potential levels of risk from flooding and to inform the sequential test for all stages of planning within the Borough. Where development is considered in Flood Zone 2 or 3 it may be necessary to apply the Exception Test in accordance with guidance given in NPPG.

## 3 Aims and Objectives of the Strategic Flood Risk Assessment

3.1 The aim of this SFRA is to influence the spatial planning process in the context of sustainable development and to provide sufficient and robust evidence to allow the Sequential Test to be applied in the site allocation process.

3.2 In the pursuit of this aim, the key objectives of the 2020 SFRA are:

- To inform the preparation of emerging local plan policies;

- To inform the application of the Sequential Test and, if necessary, the Exception Test;
- To identify the requirements for site-specific flood risk assessments;
- To assess the flood risk to and from the borough from all sources, now and in the future, as well as assess the impact that cumulative land use changes and development in the area will have on flood risk;
- To account for climate change and the effects it might have on the proposed site allocations.

3.3 The study should be compatible with wider sustainability considerations in particular the application of a Sustainability Appraisal and should allow the planning authority to prepare appropriate policies for the management of flood risk. The study should also identify the level of detail required for site specific Flood Risk Assessments in particular locations, and enable them to determine the acceptability of flood risk in relation to emergency planning capabilities.

3.4 In order to achieve this, the Council has committed that its planners and flood risk managers will work together in taking a strategic approach to the management of flood risk by:

- Ensuring flood risk is considered at the earliest stage of the planning process;
- Helping to embed consideration of longer-term issues such as climate change and coastal erosion into spatial planning;
- Providing greater clarity and certainty to developers regarding which sites are suitable for developments of different types;
- Increasing the chances of developing local authority, community and developer-led initiatives to realise opportunities to reduce flood risk, by adopting a partnership approach;
- Ensuring that both the direct and cumulative impacts of development on flood risk zones are acknowledged and appropriately mitigated;
- Increasing the potential for planning policies to reflect catchment-wide considerations enabling integrated, sustainable developments, which deliver multiple benefits and enhance the environment;
- Ensuring that developers provide evidence of natural capital value of development and its benefits. Defra have provided an [online resource](#) [opens a new window] that will assist in the decision making process, helping to embed the principles of and seek to support of environmental net gain in developments.

3.5 In particular, the Council has applied the strategic approach by:

- Playing an active role in partnership with the Environment Agency in the updating of Catchment Flood Management Plans (CMPs) for the catchments affecting the borough.

- Playing an active role within the coastal groups and proactive working with neighbouring coastal authorities to update sustainable coastal policies through the Shoreline Management Plan process.
- Feeding into these processes the cumulative impacts of developments and working with developers on an informed basis to provide sustainable solutions to flood risk problems.
- Proactively involving the community through open forums, consultation and the provision of clear and concise information on flood risk and the community's role in reducing the potential for flood risk and reducing the effects when flooding occurs.

3.6 The Fylde Peninsula Water Management Group was set up in 2011 as a partnership between the Environment Agency, United Utilities, Blackpool, Fylde and Wyre Councils, Lancashire County Council and Keep Britain Tidy. The aim of the partnership is to tackle these issues and the partnership provides the opportunity to use collective expertise and resources in the most efficient way.

3.7 The partnership looks at three aspects of water management:

1. Improve coastal defence;
2. Improve the quality of beaches and bathing waters; and
3. Reduce the risk of surface water flooding.

3.8 The Making Space for Water Group comprises officers from Blackpool, Fylde and Wyre Councils, United Utilities, the Environment Agency and Lancashire County Council and focusses on identifying and tackling local flooding issues through collaborative partnership working and funding.

3.9 Reducing the risk of flooding has been identified as a key sustainability objective and sustainability issue.

## 4 Overview of Key Roles and Responsibilities

4.1 Responsibility for the management of flood risk falls within the remit of a number of bodies. The roles of the key parties are briefly outlined below.

### Riparian Owners

4.2 The term "Riparian Owner" describes anyone who owns property alongside a watercourse. These land owners are key in managing local flood risk and have rights and responsibilities appertaining to any watercourses which follows the boundaries or falls within the boundary of their property.

4.3 A riparian owner is responsible for accepting water from the section of watercourse owned by their upstream neighbour and transferring this, together with drainage from their

own property, to their neighbour immediately downstream. Riparian owners have a duty of care towards their neighbours upstream and downstream and must avoid any action likely to cause flooding of their neighbour's land or property.

4.4 The fact that a watercourse has been culverted does not alter its legal status or the responsibilities of riparian owners.

4.5 Riparian owners are entitled to protect their property from flooding and their banks from erosion but plans for any works other than general cleaning and routine maintenance must be approved by the Lead Local Flood Authority (LLFA) and consents secured before going ahead with any such work.

4.6 The owners of assets such as canals and reservoirs are similarly responsible for managing the flood risk issues associated with them.

4.7 Further Environment Agency guidance on riparian responsibilities, rules for watercourses and the necessary permissions required for works around watercourses is available on the Government's webpage [Owning a Watercourse](#) [opens a new window].

4.8 See [Section 8](#) for guidance on development in the immediate vicinity of any watercourses.

## Blackpool Council

4.9 As a local planning authority, Blackpool Council assesses and determines planning applications, in consultation with statutory and non-statutory consultees, ensuring that amongst other issues, flood risks are effectively managed.

4.10 The local planning authority's responsibilities in relation to flood risk management include:

- A duty to act in a manner that is consistent with the National Flood Risk Management Strategy and have regard to Local Flood Risk Management Strategies;
- Liaising with the Lead Local Flood Authority on local flood related strategies, if affected by the strategy;
- A duty to cooperate and share information with the Lead Local Flood Authority and other Risk Management Authorities.

4.11 The local planning authority is also required to produce spatial plans in the form of Local Development Documents (LDDs). These documents form the statutory development plan against which planning applications must be determined, unless material considerations indicate otherwise. Statutory development plans should amplify the Government's policies for sustainable development as described by the National Planning

Policy Framework (NPPF). Chapter 14 of the NPPF aims to avoid placing new development, which is incompatible with flooding, in areas at risk of flooding. The Environment Agency have also produced [Flood Risk Standing Advice](#) [opens a new window] which advises developers on what should be included in a site specific Flood Risk Assessment (FRA) and further details can be found in [Section 11](#). This is a useful tool for the Local Planning Authority in determining if an FRA contains the correct information and that the applicant has followed the standing advice. The Environment Agency also provide [Standing Advice for Local Planning Authorities](#) [opens a new window] which provides standing advice on site-specific flood risk assessments and outlines when the Local Planning Authority should consult the Environment Agency.

## Lead Local Flood Authority

4.12 As a unitary authority, Blackpool Council is also the Lead Local Flood Authority (LLFA) and the Risk Management Authority regarding coastal erosion risk. The LLFA is responsible for developing, maintaining and applying a strategy for local flood risk management in Blackpool and for maintaining a register of flood risk assets. The Council also has responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses and where necessary, will identify Critical Drainage Areas.

4.13 The LLFA is a statutory consultee on all major planning applications (applications for 10 or more dwellings, dwellings on half a hectare or more or non-residential development with 1000sqm<sup>2</sup> or more of floor space, or on sites larger than a hectare). The LLFA is also consulted on minor applications in flood zones 2 or 3 or where there are known surface water flooding issues or development is likely to increase run-off rates.

## Local Highway Authority

4.14 Blackpool Council is also the Local Highway Authority and is responsible for providing and managing highway drainage and roadside ditches which are not privately owned, and for ensuring that road projects do not increase flood risk, making appropriate allowances for climate change.

## The Environment Agency

4.15 The Environment Agency (EA) has a strategic overview of all sources of flooding in England and Wales and is responsible for managing risks of flooding from multiple sources, including main rivers, reservoirs and the sea.

4.16 The EA hold important sources of information for spatial planners considering new site allocations in accordance with the planning policies set out in the National Planning Policy Framework, including Catchment Flood Management Plans (CFMPs) and Shoreline Management Plans (SMPs) and Surface Water Management Plans (SWMPs).

4.17 The EA is a statutory consultee for both plan making and in the planning application process. When consulted on planning applications, the EA will review the accuracy of the Flood Risk Assessment and check information on the characteristics of the predicted flooding, such as the flood hazard, speed of onset, duration, depth, flood alert/warning availability and residual risks and advise the local authority.

## United Utilities

4.18 United Utilities (UU) is the relevant sewage undertaker for Blackpool and the wider Fylde Coast. They are responsible for water supply and for any public sewers adopted under the requirements of the Water Industry Act 1991. United Utilities are required to investigate flooding from sewers and carry out improvements and/ or maintenance where appropriate, in accordance with guidance from Ofwat (The Water Services Regulation Authority). This is undertaken through the preparation of Asset Management Plans (AMPs), approved by Ofwat, which include investment programmes to manage the flood risk from sewers.

4.19 UU is a statutory consultee on all major planning applications (applications for 10 or more dwellings, dwellings on half a hectare or more or non-residential development with 1000sqm<sup>2</sup> or more of floor space or on sites larger than a hectare). UU is also consulted on minor applications in flood zones 2 or 3 or where there are known surface water flooding issues or development is likely to increase run-off rates.

4.20 On 1 April 2020, new sewerage sector [Design and Construction Guidance](#) (DCG) (PDF 5.81MB) for the adoption of sewers by Water and Sewerage Companies was introduced. It sets out standards and provides guidance for developers on the design and construction of sewers and related features that will be adopted by water and wastewater companies in England and Wales in accordance with Section 104 of the Water Industry Act (WIA) 1991. For the first time, some SuDS (Sustainable Urban Drainage Systems) components are included under the definition of a 'sewer' and guidance on the types of SuDS that will be adoptable is provided. This will therefore allow a route for the adoption of SuDS that allows water quality, amenity and biodiversity as well as water quantity and flows to be properly considered during the design stage, allowing it to be fully integrated into the surface water management and urban design process. However, it is worth noting that sewer adoption, including SuDS, will remain voluntary within England and therefore some SuDS will be kept in private ownership if not offered for adoption.

## Lancashire Resilience Forum

4.21 Under the provisions of the Civil Contingencies Act 2004, a county-wide multi-agency forum has been established named the Lancashire Resilience Forum (LRF). The LRF membership is made up of all Category 1 & 2 Responders in Lancashire (see the [Emergency Planning section](#) for Category 1 & 2 Responders in Blackpool).



4.22 The LRF has a Community Risk Register which describes the risks that are present in the community; assesses how likely they are to lead to an emergency and the potential impact they would have. This information is used by the LRF to plan and prepare for emergencies that may occur. Flooding is one of the main risks in Lancashire, along with pandemics, terrorist attacks and industrial incidents, loss of essential services, cold weather, heatwaves and storms. There are also a number of LRF sub-groups that will cover specific subjects such as severe weather and flooding.

4.23 The LRF has produced a Part 1 [Multi-Agency Flood Plan \(MAFP\)](#) [opens a new window] which outlines the agreed coordinated multi agency response should a flooding event occur in the Lancashire area. Part 1 of the Multi-Agency Flood Plan is a generic document covering the response to major flooding events across Lancashire. Districts and unitary authorities are responsible for producing their own Part 2 of the MAFP and Blackpool Council has produced a Part 2 to the MAFP. Part 2 details the notification process, actions that would be taken and the arrangements that would be implemented to respond to flooding.

4.24 Both parts of the MAFP feed into [Blackpool's Major Emergency Plan](#) [opens a new window].

## Emergency Planning

4.25 Emergency planning is an important part of flood risk management and involves a number of organisations.

4.26 In terms of emergencies, under the Civil Contingencies Act 2004, Blackpool Council is classified as a Category 1 Responder with a number of key duties relating to an emergency including assessment, planning, responding, business continuity management and recovery.

4.27 The local authority can provide a variety of support to the community and the emergency services, including:

- Traffic management such as road closures and diversions;
- Transport;
- Building safety;
- Opening emergency centres to provide humanitarian assistance and temporary accommodation;
- Opening reception centres for friends and family of those affected by major incidents;
- Crisis support and advice;
- Interpreters;
- Environmental Health advice;
- Clearance of the highway.

4.28 During emergencies Blackpool Council will use its [website](#) [opens a new window], [Twitter feed](#) [opens a new window] and [Facebook page](#) [opens a new window] to post updates and notices.

4.29 Other Category 1 Responders in Blackpool include:

Emergency Services:

- Lancashire Constabulary
- British Transport Police
- Lancashire Fire & Rescue Service
- North West Ambulance Service
- Maritime & Coastguard Agency (MCA)

National Health Service (NHS)

- Hospitals – (Accident & Emergency A&E)
- Hospitals – (Community Health Services)
- Public Health England (PHE)
- NHS England

Environment Agency (EA)

4.30 Category 2 Responders include:

- Railway Operators
- Airport Operators
- Ports
- Highways England
- Health and Safety Executive (HSE)
- Clinical Commissioning Groups (CCGs)

Utility Companies

- Electricity Distributors & Transmitters
- Gas Distributors (currently National Grid)
- The Pipeline Safety Regulations (PSR)
- Water and Sewerage Undertakers (currently United Utilities)
- Telephone Service Providers (Fixed & Mobile)

4.31 Other responders include various government departments and agencies, such as (but not restricted to) the Department of the Environment, Food & Rural Affairs (DEFRA), the Department of Work & Pensions (DWP), the Food Standards Agency (FSA), H M Coroner or the military, depending on the type and scale of the emergency.

4.32 Blackpool's Major Emergency Plan is produced by the Emergency Planning Team which is a shared service across Blackpool Council and Blackpool Teaching Hospitals NHS Foundation Trust.

4.33 The Major Emergency Plan is the core plan for mobilising staff and resources in response to any emergency or business disruption, including flooding. It gives an overview of the Council's arrangements for dealing with major incident situations and sets out the Council's role and responsibilities from the initial notification, through the various stages of response and recovery until the emergency has come to a close.

## 5 Policies and Legislation on Flood Risk Management

5.1 The [25 Year Environment Plan](#) [opens a new window] sets out government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first. The Plan also sets out how government will tackle the effects of climate change, considered to perhaps be the most serious long-term risk to the environment given higher land and sea temperatures, rising sea levels, extreme weather patterns and ocean acidification. The Plan aims to show that government will work with nature to protect communities from flooding, slowing rivers and creating and sustaining more wetlands to reduce flood risk and offer valuable habitats.

5.2 The emerging [Environment Bill 2020](#) [opens a new window] follows on from the 25 Year Environment Plan and sets out how the Government intends to combat the environmental and climate crisis that we are facing. It embeds environmental principles in future policy making and takes the essential steps needed to strengthen environmental oversight and improve on the way things have been done in the past. The Environment Bill introduces a mandatory requirement for biodiversity net gain in the planning system, to ensure that new developments enhance biodiversity and create new green spaces for local communities to enjoy. Integrating biodiversity net gain into the planning system will provide a step change in how planning and development is delivered. In terms of flood mitigation, the government will focus on using more natural flood management solutions, increasing the uptake of SuDS and improving the resilience of existing properties at risk of flooding.

5.3 Focusing on flood risk, on the 14<sup>th</sup> July 2020, the Environment Agency (EA) published the [National Flood and Coastal Erosion Risk Management \(FCERM\) Strategy](#) [opens a new window] for England following a public consultation in 2019. The Strategy confirms that as a statutory planning consultee, the EA has a key role to play in advising planners and developers on how to avoid inappropriate development in flood risk areas and to enable climate resilient development. It has 3 long-term ambitions, underpinned by evidence about future risk and investment needs. They are:

- Climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change;
- Today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change;
- A nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action

5.4 The revised [National Planning Policy Framework](#) (NPPF) [opens a new window] was published in February 2019. The Framework is based on core principles of sustainability and forms the national policy framework in England, and is accompanied by a number of Planning Practice Guidance (PPG) notes. The NPPF must be taken into account in the preparation of local plans and is a material consideration in assessing planning applications. Section 14 Paragraph 156 of the revised NPPF states that... "...Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards."

5.5 Paragraphs 163 and 165 of the NPPF also state that SuDS (Sustainable Urban Drainage Systems) should be provided on all developments to manage surface water flows generated from additional impermeable areas created through development, unless demonstrated through clear evidence that SuDS would be inappropriate.

5.6 The [North West Regional Flood & Coastal Committee Business Plan](#) [opens a new window] was adopted in 2019 and sets out the long term goals in which the Committee, with the support of its Flood and Coastal Erosion Risk Management (FCERM) Strategic Partnerships, will deliver to better protect homes and deliver more resilient communities in the North West from 2019 – 2022. The Plan has identified priorities and objectives for the period to 2022 and will be monitored through the Committee's quarterly meetings to adapt to changes if necessary.

5.7 The strategic planning policies for Blackpool are set out in the Blackpool Local Plan Part 1 – Core Strategy and this document guide's development to meet Blackpool's needs to 2027. Policy CS9 'Water Management' states that all new development must manage the impacts of flooding and mitigate the effects of climate change in order to reduce flood risk. Policy CS9 is set out in full at Appendix 11.

5.8 The emerging Blackpool Local Plan Part 2 – Site Allocations and Development Management Policies document includes policies relating to surface water management and flood defence improvements. Policy DM31 'Surface Water Management' states that surface

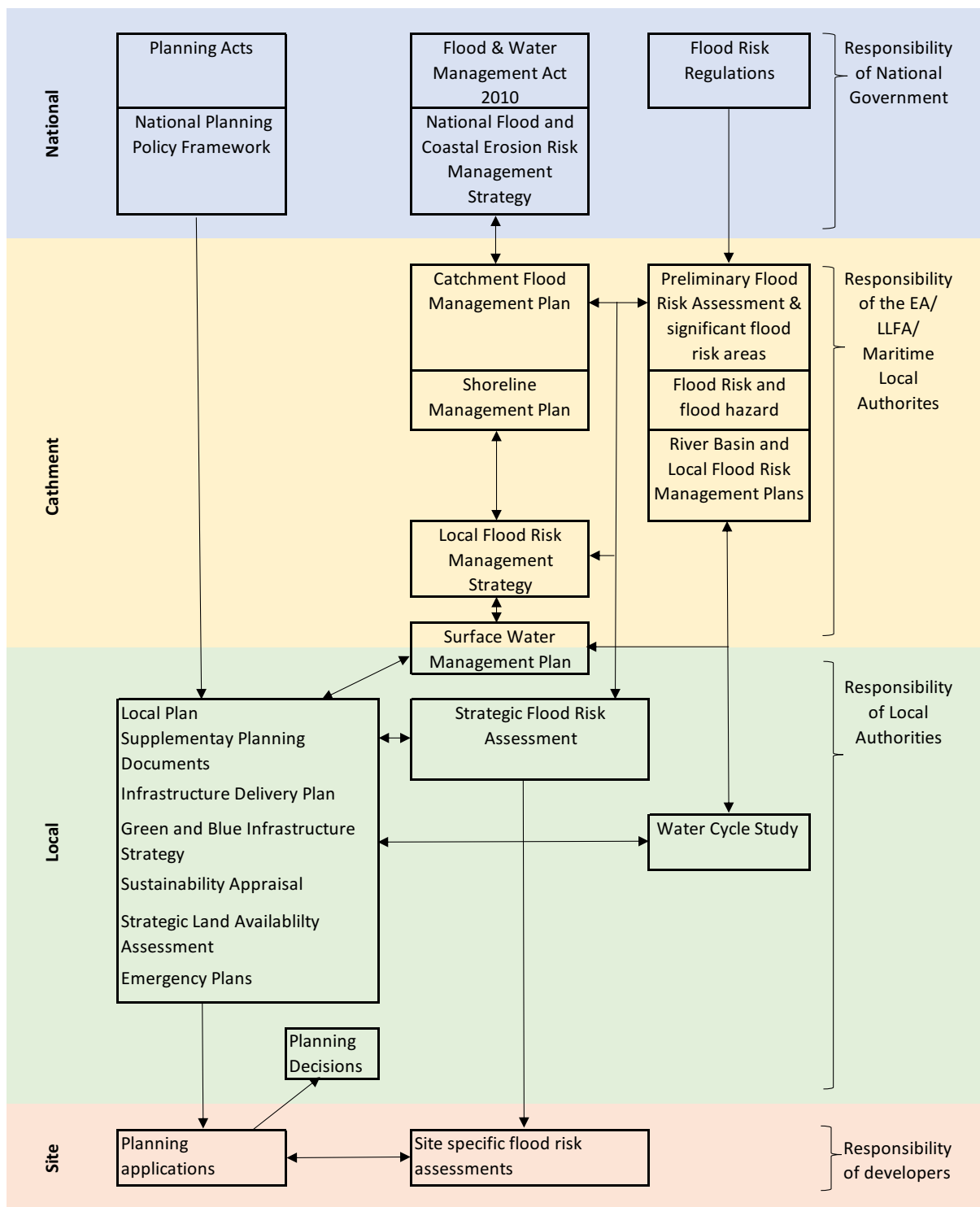
water from development sites will be discharged via the most sustainable drainage option available. Policy DM33 'Coast and Foreshore' supports development that would improve flood protection. Policies DM31 and DM33 are set out in full in Appendix 11.

## 6 How the Strategic Flood Risk Assessment (SFRA) fits in to the Spatial Planning Process

6.1 All forms of flooding and their impact on the natural and built environment are material planning considerations in the planning process. National Planning Policy Framework (NPPF) requires that planning authorities take flood risk into account in both plan making and decision making, to avoid inappropriate development in areas at risk of flooding. Where new development is exceptionally necessary in such areas, appropriate action and mitigation should be taken to make it safe without increasing the risk elsewhere and where possible, reducing overall risk.

6.2 This SFRA fits within the overall planning process as a foundation to sustainable and appropriate planning policy. Figure 1 below identifies the core role of the SFRA within the overall planning process.

Figure 1: Strategic planning links and key documents for flood risk



## 7 Studies and Plans

7.1 A number of key studies have been prepared for the area covered by this Strategic Flood Risk Assessment (SFRA). The hierarchy of studies and their conclusions with relevance to this assessment are in Table 1 below.

Table 1: Flood risk and management studies

| Study/Plan  | Brief Description of Contents   | Key Conclusions   |
|---|---|---|
| <a href="#">North West England and North Wales Shoreline Management Plan SMP 2, Sub-cell 11b: Southport Pier to Rossall Point</a> (2011) [opens a new window] | <p>A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with the erosion and flooding at the coast. It also presents policies to help manage these risks to people and to the developed, historic and natural environment in a sustainable manner.</p>   | <p>The SMP adopts a “hold the line” approach meaning a continuation in providing protection through maintenance of formal defences.</p>   |
| <a href="#">Ribble Catchment Flood Management Plan (CFMP)</a> (PDF: 7.72MB) and <a href="#">Wyre CFMP</a> (2009) (PDF: 4.15MB)                                | <p>There are a number of Catchment Flood Management Plans (CFMPs) that the EA have produced throughout England and Wales. Blackpool straddles both the Wyre and Ribble CFMP areas.</p> <p>A CFMP is a high level strategic planning tool through which decision makers can explore and define long term sustainability policies for flood risk management in a catchment.</p> <p>The CFMP identified the size and location of various influences that can make a contribution and affect the consequence of flooding. Increased understanding will allow an estimate of potential changes in the catchment.</p> | <p>Currently there is a low level of risk from fluvial sources due to the existing defences in place.</p> <p>The Wyre CFMP provides a framework for Blackpool to develop sustainable policies for flood risk management.</p> <p>The Integrated Catchment Management Plan for the Ribble (June 2007) provides the strategic overview of how the Ribble catchment will be managed. For Blackpool the key point of the flood risk management strategy is to maintain flood defences to the current standard of protection.</p> |
| <a href="#">Central Lancashire and Blackpool Outline Water Cycle Study (2011)</a> (PDF: 6.86MB)   | <p>The water cycle strategy provides the evidence base which supports the preparation of Core Strategies in Central Lancashire and Blackpool. The strategy seeks to ensure that development does not have a</p>   | <p>Most of Blackpool lies above the 1 in 1000yr (0.1%) flood extent. It is protected in the west from coastal erosion and tidal inundation from the Irish Sea by concrete</p>   |

| Study/Plan   | Brief Description of Contents  | Key Conclusions   |
|--|--|---|
|  | <p>detrimental impact on the environment, and that water services infrastructure is provided in a timely manner. The strategy was</p>  | <p>defences. A number of smaller defences maintained by the EA and Blackpool council exist further inland. Fluvial and tidal flood risk across the borough is low; however certain areas such as Anchorsholme do have a large proportion of development area at risk from fluvial and tidal flooding.</p> <p>There are no areas within Blackpool within Flood Zone 3b, Functional Floodplain.</p> <p>Any new development must properly account for surface water runoff to ensure that surface water runoff from new developments (especially on greenfield land) does not enter the sewer system and does not increase the risk of surface water flooding in these areas.</p> <p>The nature of the underlying geology indicates that attenuation SUDS are likely to be most suitable in Blackpool Borough.</p> |
| <p><a href="#">Blackburn, Blackpool and Lancashire Flood Risk Management Strategy 2020 (Draft)</a> (PDF: 3.31MB)</p> | <p>Jointly produced by Lancashire County Council, Blackburn and Blackpool Council, this Flood Risk Management Strategy demonstrates how the relevant authorities intend to manage the risk from local sources of flooding. The strategy also includes a section that describes the understanding of local risk and risk areas to Blackpool Council</p> | <p>It is important to understand that flooding does not happen in isolation. When a flood occurs it often happens from multiple sources at the same time. It is therefore essential that flood risk is managed in a joined-up way and wider flood risks are taken into account when</p>   |



| Study/Plan  | Brief Description of Contents  | Key Conclusions  |
|---|--|--|
|   | <p>The strategy sets out a business plan including actions to meet the objectives of this strategy.</p>  | <p>considering potential actions.</p>  |
| <p>Blackpool Surface Water Management Plan</p>  | <p>This comprises:</p> <p>A SWMP Risk Assessment Report, which used surface water modelling techniques to identify high risk areas within Blackpool potentially subject to severe flooding from large storm events.</p> <p>A Review of Strategic Options in the context of these high risk areas which the Council could implement that would reduce the flow of surface water to the HRAs.</p> <p>This report looks at these potential options, highlighting those which have the potential to produce the highest benefit for the most people at the lowest cost for the Council based on a qualitative approach.</p> <p>An Economic Appraisal of Site Options to reduce flood risk.</p> | <p>The report identifies and compares the potential combined solutions that could be used to protect the community in high risk areas against flooding following a 1 in 100 year storm event. It allows the council to understand which locations it would be best to focus the next stage of the design process. The potential solutions at each HRA have been ranked in terms of overall costs and also benefit cost ratio. All assessment of cost and benefit are based on a 1 in 100 storm event over a 100 year appraisal period.</p> |
| <p><a href="#">Blackpool Council Major Emergency Plan (2017)</a> [opens new window]</p>                             | <p>The Major Emergency Plan outlines Blackpool Council's systems and procedures for dealing with major emergencies.</p>  | <p>Comprehensive emergency arrangements in place and practiced.</p>  |
| <p><a href="#">North West Regional Flood &amp; Coastal Committee Business Plan 2019-2022</a> [opens new window]</p> | <p>The Business Plan sets out the goals in which the North West RFCC will support the protection of homes and deliver more resilient communities in the North West from 2019 – 2022. The Plan has identified priorities and objectives for the period to 2022 and will be monitored through the North West RFCC quarterly meetings to adapt to change if necessary.</p>  | <p>The Business Plan sets out a series of actions to meet the objectives of the Business Plan.</p>   |

| Study/Plan   | Brief Description of Contents  | Key Conclusions   |
|--|--|---|
| <a href="#">North West river basin district Flood Risk Management Plan 2015 to 2021</a> (PDF 5.96MB) | <p>The Flood Risk Management Plan sets out measures to manage flood risk across the North West river basin district at both local and district wide level.</p>   | <p>Details river basin wide measures to prevent risk, prepare for risk, protect from risk and recovery and review of risk (50 measures). The Management Plan also confirms that strengthened partnership working will complement the flood risk measures within the Flood Risk Management Plan to further reduce flood risk from all sources and increase resilience.</p> |
| <a href="#">Draft North West Marine Plan</a> [opens a new window]                                    | <p>The Marine Management Organisation (MMO) was established following the Marine and Coastal Access Act 2009. As the marine planning authority for England the MMO is responsible for preparing marine plans for English in-shore and off-shore waters.</p> <p>At its landward extent, a marine plan will apply up to the mean high water mark. Marine plans are being developed on a rolling programme.</p> | <p>The North West Marine Plan, which includes Blackpool, is currently being prepared and will be delivered by 2021, with a 20 year view of activities. Each plan will be monitored with three yearly reviews. Planning applications within the Coast and Foreshore designation will also need to be considered against the North West Inshore Marine Plan.</p>            |
| <a href="#">Blackpool's Green and Blue Infrastructure (GBI) Strategy</a> [opens new window]          | <p>The GBI Strategy provides a 10 year strategy and action plan setting out how Blackpool will protect, enhance, create, restore, connect, link and promote green and blue infrastructure including climate change adaption and mitigation.</p>  | <p>The Strategy sets out actions to meet the objectives of the Strategy. Further information is set out in the <a href="#">GBI Action Plan</a> [opens a new window].</p>  |

## 8 Sources of Flooding

### River Flooding

8.1 River (fluvial) flooding happens during times of heavy rainfall when a main river or ordinary watercourses' capacity is exceeded, resulting in flooding to land, infrastructure and homes.

8.2 In the natural environment rainwater is transported through a number of processes before it reaches the watercourse, including percolation through the soil or interception by vegetation. These processes slow the flow of water reaching the watercourses and reduces the volume and speed of run-off. The flow rates in natural watercourses are typically slower than those in engineered systems. This again results in further attenuation of water.

8.3 In the urban environment rainwater falls on hard surfaces causing increased volumes of rapid run-off. The water enters the watercourse soon after a rainfall event and this causes increased peak flows which may exceed the capacity of the channel and lead to flooding.

8.4 The process of flooding from watercourses depends on a number of characteristics associated with the catchment including geographical location and variation in rainfall; steepness of the channel and surrounding floodplain; and infiltration and rate of runoff associated with urban and rural catchments.

8.5 Development in the immediate vicinity of any watercourses could be susceptible to flooding and therefore development would not normally be allowed within 8m of a watercourse (further details in the [Development near Water section](#)) and in any case, permission would need to be sought from the Environment Agency. The Council acting as Lead Local Flood Authority may require access to watercourses for maintenance purposes so an 8m buffer would be required. The level of flooding is only significant locally and should not preclude wider development.

8.6 The Environment Agency is generally opposed to the culverting of watercourses because of the adverse ecological, flood defence and other effects that are likely to arise. It will therefore only approve an application to culvert a watercourse if:

- there is no reasonably practicable alternative;
- the detrimental effects of culverting would be so minor that they would not justify a more costly alternative.

8.7 In all cases where it is appropriate to do so, adequate mitigation must be provided for damage caused. Wherever practical the Environment Agency will seek to have culverted watercourses restored to open channels<sup>1</sup>.

## Tidal Flooding

8.8 Tidal flooding is caused by storm surge and wave action in times of high astronomical tides. Overtopping occurs when a wave or the average sea level is higher than the sea defences, which can cause flooding.

## Surface Water Flooding

8.9 Surface water flood risk (pluvial) should be afforded equal standing in importance and consideration as river and tidal flood risk, given the increase in rainfall intensities due to climate change and the increase in impermeable land use due to development.

8.10 Within urban areas, intense and sustained rainfall can be too great for the urban drainage network resulting in excess water flowing along roads, through properties and ponding in natural depressions. Areas at risk of surface water flooding can, therefore, lie outside of the fluvial and tidal flood zones.

8.11 There are certain locations, generally within urban areas, where the probability and consequence of surface water and sewer flooding are more prominent due to the complex hydraulic interactions that exist in the urban environment. Urban watercourse connectivity, sewer capacity, topography and the location and condition of highway gullies all have a major role to play in surface water flood risk. There is a residual risk associated with these networks due to possible network failures, blockages or collapses.

## Sewer Flooding

8.12 Combined sewers spread extensively across urban areas serving residential homes, business and highways, conveying waste and surface water to treatment works. Combined Sewer Overflows (CSOs) provide an Environment Agency (EA) consented overflow release from the drainage system into local watercourses or large surface water systems during times of high flows.

8.13 Some areas may also be served by separate waste and surface water sewers which convey waste water to treatment works and surface water into local watercourses. Flooding from the sewer network mainly occurs when intense rainfall overloads the sewer system capacity (surface water, foul or combined), and/or when sewers cannot discharge properly

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<sup>1</sup> Source: the Local Government Association [Flood and coastal erosion risk management webpages](#) [opens a new window]

to watercourses due to high water levels. Pinch points and failures within the drainage network may also restrict flows. Water then begins to back up through the sewers and surcharge through manholes, potentially flooding highways and properties. It must be noted that sewer flooding in 'dry weather' resulting from blockage, collapse or pumping station mechanical failure (for example), is the sole concern of the drainage undertaker, which in Blackpool, is United Utilities.

## Groundwater Flooding

8.14 Groundwater flooding is caused by the emergence of water from beneath the ground, either at point or diffuse locations. The occurrence of groundwater flooding is usually local and unlike flooding from rivers and the sea, does not generally pose a significant risk to life due to the slow rate at which the water level rises. However, groundwater flooding can cause significant damage to property, especially in urban areas, and can pose further risks to the environment and ground stability.

8.15 There are several mechanisms that increase the risk of groundwater flooding including prolonged rainfall, high in-bank river levels, artificial structures, groundwater rebound and mine water rebound. Properties with basements or cellars or properties that are located within areas deemed to be susceptible to groundwater flooding are at particular risk. Development within areas that are susceptible to groundwater flooding will generally not be suited to SuDS (Sustainable Urban Drainage Systems). However, this is dependent on detailed site investigation and risk assessment at the Flood Risk Assessment (FRA) stage. Groundwater details are available on [Defra's Magic Map](#) [opens a new window].

## Reservoir Flooding

8.16 A reservoir can usually be described as an artificial lake where water is stored for use. Some reservoirs supply water for household and industrial use, others serve other purposes, for example, as fishing lakes or leisure facilities.

8.17 Reservoirs with an impounded volume greater than 25,000 cubic metres in England are governed by the Reservoir Act 1975 and are registered with the Environment Agency. The risk of flooding associated with reservoirs is residual and is associated with failure of reservoir outfalls or breaching. However, the level and standard of inspection and maintenance required under the Reservoir Act means that the risk of flooding from reservoirs is relatively low. Recent changes to legislation under the Flood and Water Management Act require the Environment Agency to designate the risk of flooding from these reservoirs. The Environment Agency is currently progressing a 'Risk Designation' process so that the risk is formally determined.

8.18 Reservoir flooding is very different from other forms of flooding as it may happen with little or no warning.

8.19 The Environment Agency reservoir flood maps (Appendix 3) represent a credible worst-case scenario. In these circumstances, it is the time to inundation, the depth of inundation, the duration of flooding and the velocity of flood flows that will be most influential.

8.20 Reservoirs in the UK have an extremely good safety record with no incidents resulting in the loss of life since 1925. There are no records of flooding as a result of a reservoir breach in Blackpool.

8.21 Local authorities are responsible for coordinating emergency plans for reservoir flooding and ensuring communities are well prepared. The [Lancashire Resilience Forum Preparing for Emergencies Plan](#) [opens a new window] and the [Blackpool Council Major Emergency Plan](#) [opens a new window] contain more details.

## Residual Flood Risk

8.22 Whilst it is necessary to minimise the risk of flooding over the lifetime of the development in all instances, it is also important to recognise that flood risk may never be fully mitigated and there will always be a residual risk of flooding.

8.23 Residual flood risk in development sites can be managed in a number of ways. It is recommended that all new developments be considered alongside existing developments in the area. This is necessary both in terms of preventing increased risk to existing properties and also by taking opportunities to reduce flood risk for all. It is therefore proposed that the following hierarchy of measures is taken to reduce flood risk in the area:

- New development sites are constructed in areas of least risk, taking account of acceptability from national and local planning policy.
- Ensure that infrastructure designed to safeguard against flooding is in good operable condition and is inspected regularly.
- Provide a strategy and funding to maintain and improve flood protection infrastructure taking into account future trends such as climate change.
- Provide site-specific mitigation measures. Any new development within zones 2 and 3 areas may require properties to be flood proofed against low levels of flooding.
- Focusing all development classed as “most vulnerable” in the NPPF to flood zone 1 sites.
- Provide sufficient warning and information to people at risk to allow them to take appropriate action.
- Provide sufficient planned emergency response and evacuation.

8.24 Developments near reservoirs should be carefully considered and the sequential approach should be applied in locating development within sites. Developers should also

consult with relevant authorities regarding emergency plans in case of reservoir breach. Residual risks of reservoir flooding should be considered as part of site-specific FRAs.

## Defence Breach

8.25 A breach of a defence occurs when there is a failure in the structure, resulting in flooding. Flood flows from a defence breach can be significant and fast flowing so Flood Risk Assessments should include an assessment of the hazards that might be present so that the risks can be understood and mitigated.

## Development near water

8.26 Development in the immediate vicinity of any watercourses could be susceptible to flooding and therefore development would not normally be allowed within 8m of a statutory main river (permission would need to be sought from the Environment Agency) or an ordinary watercourse (permission would need to be sought from the Lead Local Flood Authority). Main Rivers and ordinary watercourses including an 8m buffer are shown in Appendix 4. The level of flooding is only significant locally and should not preclude wider development.

8.27 The Environmental Permitting (England and Wales) Regulations 2016 also requires a permit to be obtained for any activities which will take place:

- on or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culverted main river (16 metres if tidal)
- on or within 16 metres of a sea defence
- involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert
- in a floodplain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if it's a tidal main river) and you don't already have planning permission.

8.28 Further details of land owners rights and responsibilities with regards to watercourses are available at [the government's website](#) [opens a new window].

8.29 In order to prevent watercourses and the receiving sewerage network from being inundated during exceptional rainfall, development proposals, where appropriate, will be required to include SuDS (Sustainable Urban Drainage Systems) which mimic natural flows, ensuing water quality of receiving water bodies does not decline through the use of an appropriate SuDS treatment train.

8.30 Appropriate SuDS should either be designed and agreed prior to commencement of development and should be accompanied by a construction phase management plan for

surface water, explaining how surface water flows will be managed on site during construction.

## 9 Flood Maps

9.1 The Environment Agency's flood zone map for Blackpool can be found in Appendix 1. The maps are updated quarterly and an up to date version can also be found on the [Environment Agency's website](#) [opens a new window]. The flood risk map and associated information is intended for guidance only, and cannot provide details for individual properties. The map shows current probability of the areas at risk from flooding from rivers and the sea only, ignoring defences and does not consider other sources. Flood maps do not currently take account of potential climate impact change scenarios. The Environment Agency has confirmed that new models will include updated climate change scenarios but there are no plans at present to publish climate change outlines in addition to Flood Zones 2 and 3 on Flood Map for Planning.

9.2 The flood zones are defined in the [National Planning Practice Guidance \(NPPG\)](#) [opens a new window] and in [Table 2](#).

9.3 Blackpool has numerous manmade coastal defences along the full stretch of the coast which mitigate tidal inundation as noted in [section 14, table 8](#) which gives further details on the defences. These defences comprise walls, concrete aprons and splash walls and stepped revetment with berms and wave returns.

9.4 Due to the topography of Blackpool's coastline, coastal flooding is limited. Potential flooding elsewhere in the borough is largely attributed to the sewerage network and surface water flooding. However, surface water flood risk is illustrated separately to the tidal and river flood risk map (areas in the Borough that are susceptible to surface water flooding are illustrated in Appendix 2). The flood map comprises three zones, indicating the probability of flooding:



Table 2: Flood Zone Definitions

| Flood Zone                               | Definition   |
|--|--|
| <b>Zone 1 Low Probability</b>            | 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)   |
| <b>Zone 2 Medium Probability</b>         | 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)   |
| <b>Zone 3a High Probability</b>          | 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)   |
| <b>Zone 3b The Functional Floodplain</b> | 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. |

9.5 Maps which include areas at risk from surface water flooding and flood risks from reservoirs are available on the [flood warning information service website](#) [opens a new window] and [other EA mapping which includes surface water and reservoir flood risk](#) [opens a new window]. These maps are also shown in Appendices 2 and 3.

## Framework for Development within flood zone 1 - Low Risk

9.6 This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%) and land uses are appropriate in this zone.

### Flood risk assessment requirements in flood zone 1

9.7 For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment (FRA). This need only be brief unless the factors above or other local considerations require particular attention.

9.8 In flood zone 1, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems (SuDS).

9.9 Development on sites of less than a hectare, including change of use to a more vulnerable use class (e.g. offices to residential) will need a FRA where there are surface water drainage issues or the site is at risk from reservoir flooding indicated on the surface water flood maps in Appendix 2 or as updated by the [Environment Agency flood risk website](#) [opens a new window].

9.10 A FRA is also required in flood zone 1 where the Environment Agency have identified an Area with Critical Drainage problems, although there are no areas in Blackpool that have been identified as an Area with Critical Drainage problems.

## Framework for Development within flood zone 2 - Low to Medium Risk

9.11 Flood zone 2 comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

9.12 Appropriate uses in flood zone 2 include essential infrastructure and the water-compatible, less vulnerable uses ([Table's 4 and 5 in section 10](#)). Other types of development would need to pass the sequential test, demonstrating that there are no suitable sites in flood zone 1. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed.

### Flood risk assessment requirements in flood zone 2

9.13 All development proposals in flood zone 2 should be accompanied by a FRA which demonstrates how the development can be made safe and which also considers the effects of the new development on existing properties to ensure that it does not worsen existing flooding conditions elsewhere. An FRA should be informed by and comply with the [climate change allowance guidance on the GOV.UK website](#) [opens a new window].

9.14 In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems (SuDS).

## Framework for Development within flood zone 3a - High Risk

9.15 Flood zone 3a comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. 9.12

9.16 The water-compatible and less vulnerable uses of land ([Table's 4 and 5 in section 10](#)) are appropriate in flood zone 3 and highly vulnerable uses should not be permitted in this zone.

9.17 The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

### Flood risk assessment requirements in flood zone 3a

9.18 All development proposals in flood zone 3a should be accompanied by a flood risk assessment.

9.19 In flood zone 3a, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems (SuDS);
- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

9.20 The water-compatible and less vulnerable uses of land ([Table's 4 and 5 in section 10](#)) are appropriate in this zone and highly vulnerable uses should not be permitted in this zone.

9.21 A detailed FRA for development in flood zone 3a should, in most cases, include a detailed computational model to demonstrate flood levels following a breach fail within acceptable limits. The assessment should also demonstrate the standard and condition of existing defences, including an assessment of potential overtopping in climate change scenarios over the lifetime of the development, e.g investigate potential cliff-edge effects. Developers should consider flood proofing of properties, alternative uses of lower storey levels and sustainability of existing defences in their proposals. Mitigation in all new development in Zone 3a should follow the general principles for proposed risk management measures for development areas in [section 18](#) of this document. An FRA should be informed by and comply with the [climate change allowance guidance on the GOV.UK website](#) [opens a new window].

### Framework for Development within flood zone 3b - High Risk

9.22 Flood zone 3b 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. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

9.23 Only the water-compatible uses and the essential infrastructure listed in ([Table's 4 and 5 in section 10](#)) that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

9.24 Essential infrastructure in this zone should pass the Exception Test.

#### Flood risk assessment requirements in flood zone 3b

9.25 All development proposals in this zone should be accompanied by a FRA which is informed by and complies with the [climate change allowance guidance on the GOV.UK website](#) [opens a new window].

9.26 In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems (SuDS);
- relocate existing development to land with a lower probability of flooding.

## 10 Sequential and Exception Tests

10.1 The National Planning Policy Framework (NPPF) states that, in allocating land and determining planning applications, Local Planning Authorities should avoid inappropriate development in areas at risk of flooding. Development should be directed away from areas at highest risk but where it is necessary, it should be made safe without increasing flood risk elsewhere, taking into account future flood risk and climate change.

10.2 Both the Sequential Test and the Exception Test will apply to any site allocation or proposed development where the site is wholly or partially within flood zones 2 or 3, regardless of the area or extent.

## Sequential Test

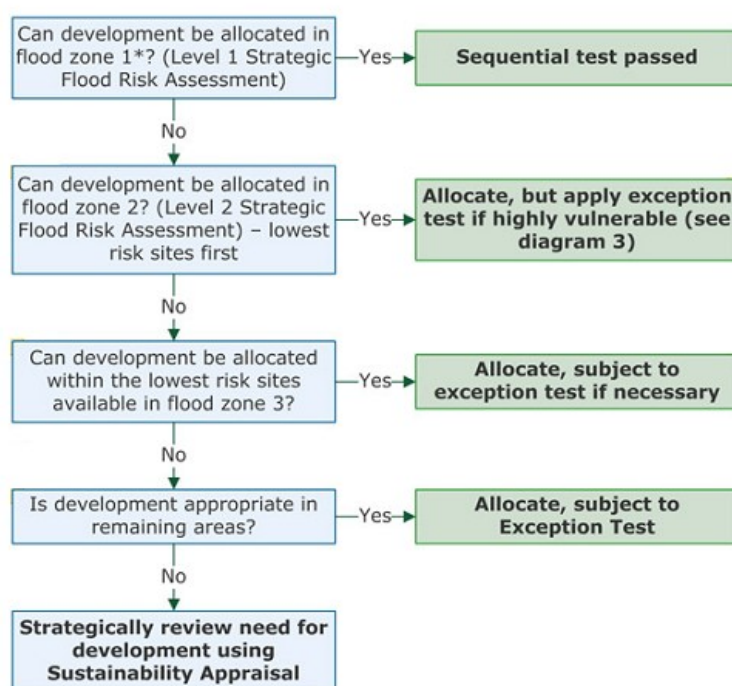
10.3 When preparing local plans, all local authorities should apply a sequential, risk-based approach to the location of new development, taking into account the current and future impacts of flood risk and climate change so as to avoid, where possible, flood risk to people and property. The application of the Sequential Test in the plan-making process will help ensure that development can be safely and sustainably delivered.

10.4 The aim of the Sequential Test is to steer new development to areas with a low probability of river or sea flooding (flood zone 1), and keeping development out of medium and high flood risk areas (flood zones 2 and 3) and other areas affected by other sources of flooding where possible. Development should not be allocated or permitted in flood zones 2 or 3 if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding.

10.5 When considering site allocations in flood zones 2 or 3, the local planning authority should ensure that the land use allocations are compatible with the relevant flood zone (see [Flood Risk Vulnerability Classifications in Table 4](#) and [Flood Zone Compatibility in Table 5](#)).

10.6 This SFRA provides a framework on which an informed sequential test and understanding of flood risk within Blackpool can be based and Figure 2 identifies the process for applying the Sequential Test in when preparing a local plan.

Figure 2: Application of the Sequential Test for Local Plan preparation (from MHCLG website)



10.7 The National Planning Practice Guidance (NPPG) sets out flood risk vulnerability classifications for various land uses. This classification acknowledges that not all land uses have the same vulnerability to flooding and that some uses, such as residential developments, are more vulnerable to the potential loss of life and damage to personal property and possessions than retail or office developments for example. [Table 3](#) shows the hierarchy of flood risk management measures and illustrates the important role that the planning process has to play in reducing flood risk. [Table 4](#) shows land use and flood risk vulnerability classifications and [Table 5](#) shows the flood risk vulnerability classifications and flood zone compatibility.

**Table 3: Hierarchy of flood risk management measures**

|                              | <b>Description</b>  | <b>Example tools and measures</b>   | <b>Key responsible parties</b>  |
|------------------------------|---|---|---|
| <b>Avoidance/ Prevention</b> | Allocate developments to areas of least flood risk and apportion development types vulnerable to the impact of flooding to areas of least risk. | Strategic Flood Risk Assessment<br><br>Flood Risk Assessment  | Planning bodies   |
| <b>Substitution</b>          | Substitute less vulnerable development types for those incompatible with the degree of flood risk.  | Flood Risk Assessment<br><br>Application of the sequential approach   | Planning bodies<br><br>Developers   |
| <b>Control</b>               | Implement measures to reduce flood frequency to existing developments. Appropriate design of new developments.                                  | River Basin Management Plans<br><br>Catchment Flood Managements Plans<br><br>Shoreline Management Plans<br><br>Flood Risk Management Strategies<br><br>Appraisal, design and implementation of flood defences | Environment Agency<br><br>Other flood and coastal defence operating authorities<br><br>Developers<br><br>Sewerage undertakers<br><br>Local Flooding Authority |

|                   | <b>Description</b>                             | <b>Example tools and measures</b>  | <b>Key responsible parties</b>   |
|-------------------|--|--|--|
| <b>Mitigation</b> | Implement measures to mitigate residual risks. | FRAs<br><br>Incorporating flood resistance and resilience measures<br><br>Emergency planning documents<br><br>Implementation of flood warning and evacuation procedures. | Planning bodies<br><br>Developers<br><br>The Environment Agency<br><br>Other flood and coastal defence operating authorities and Sewerage undertakers. |

Table 4: Flood Risk Vulnerability Classification

| <b>Classification</b>           | <b>Land Uses</b>   |
|---------------------------------|--|
| <b>Essential Infrastructure</b> | Essential transport infrastructure (including evacuation routes) which crosses the area at risk of flooding.<br><br>Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and substations and water treatment works that need to remain operational in times of flood.<br><br>Wind turbines   |
| <b>Highly Vulnerable</b>        | Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.<br><br>Emergency dispersal points.<br><br>Basement dwellings.<br><br>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'). |
| <b>More Vulnerable</b>          | Hospitals.   |

| Classification                      | Land Uses   |
|-------------------------------------|---|
|                                     | <p>Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels.</p> <p>Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.</p> <p>Non-residential uses for health services, nurseries and educational establishments.</p> <p>Landfill and sites used for waste management facilities for hazardous waste.</p> <p>Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.</p>   |
| <b>Less Vulnerable</b>              | <p>Police, ambulance and fire stations which are not required to be operational during flooding.</p> <p>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.</p> <p>Land and buildings used for agriculture and forestry.</p> <p>Waste treatment (except landfill and hazardous waste facilities).</p> <p>Minerals working and processing (except for sand and gravel working).</p> <p>Water treatment works which do not need to remain operational during times of flood.</p> <p>Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.</p> |
| <b>Water Compatible Development</b> | <p>Flood control infrastructure.</p> <p>Water transmission infrastructure and pumping stations.</p> <p>Sewage transmission infrastructure and pumping stations.</p> <p>Sand and gravel workings.</p> <p>Docks, marinas and wharves.</p> <p>Navigation facilities.</p> <p>Ministry of Defence installations.</p> <p>Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.</p>   |



| Classification | Land Uses  |
|----------------|--|
|                | <p>Water-based recreation (excluding sleeping accommodation).</p> <p>Lifeguard and coastguard stations.</p> <p>Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.</p> <p>Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.</p> |

Table 5: Flood Risk Vulnerability and Flood Zone Compatibility

| Flood risk vulnerability and flood zone compatibility | Essential infrastructure - transport and utilities | Highly vulnerable - mobile homes, basement dwellings and essential services | More vulnerable - hospitals, dwellings, educational facilities | Less vulnerable - offices, industry, agriculture, storage and distribution | Water compatible - open space and marine activities |
|---|--|---|--|--|---|
| <b>Zone 1 – Low probability</b>                       | Yes  | Yes   | Yes  | Yes  | Yes   |
| <b>Zone 2 – medium probability</b>                    | Yes  | Exception Test Required   | Yes  | Yes  | Yes   |
| <b>Zone 3a – high probability</b>                     | Exception Test Required                            | No  | Exception Test Required  | Yes  | Yes   |
| <b>Zone 3b – functional flood plain</b>               | Exception Test Required                            | No  | No   | Yes  | Yes   |

## Exception Test

10.8 If, following the 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. Where a Level 2 Strategic Flood Risk Assessment has been undertaken, this would inform an Exception Test.

10.9 The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

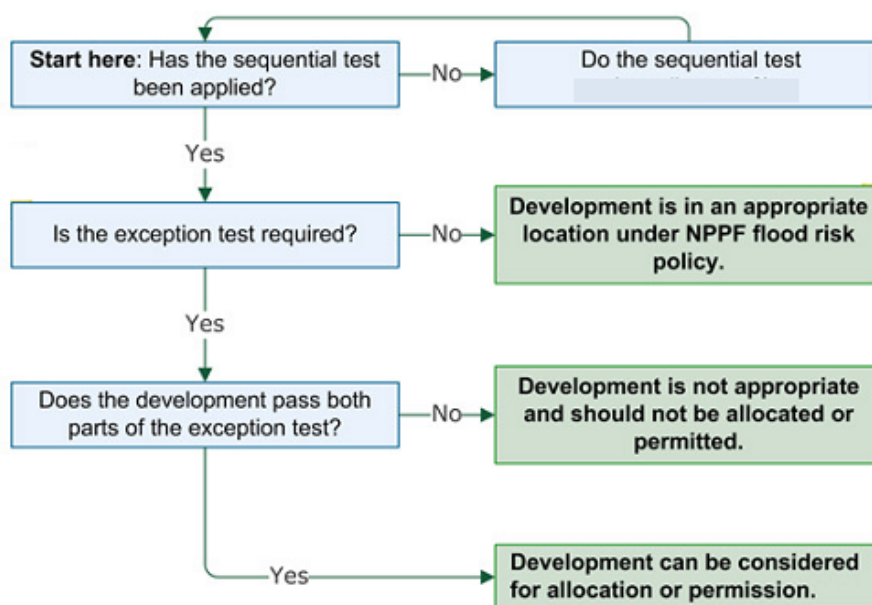
10.10 The application of the exception test for allocation of sites for development, should be informed by a strategic flood risk assessment. In order to pass the exception test, it should be demonstrated that:

(a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and

(b) 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.

10.11 Development must pass both elements of the test to be allocated or to be acceptable in terms of flood risk. [Table 3](#) shows the hierarchy of flood risk management measures and illustrates the important role that the planning process has to play in reducing flood risk.

Figure 3: Application of the Exception Test for site allocations and planning applications (from MHCLG website)



10.12 The application of the Exception Test must have regard to the vulnerability of the development proposed (see [Table 3](#), [Table 4](#) and [Table 5](#)).

10.13 All of the potential sites allocations in the Local Plan Part 2, which don't already benefit from planning permission are within Zone 1, with the exception of the proposed allotment allocation off Fleetwood Road. The allotment allocation is within Flood Zone 3 but when considering the flood risk vulnerability classification (see [Table 4](#)) and compatibility (see [Table 5](#)), it is considered that allotments are a water compatible land use. The site is at low risk of surface water flooding and isn't in an area at risk of reservoir flooding. As such, it is considered that the proposed site allocations pass the Sequential Test and a Level 2 SFRA isn't necessary. Further analysis is provided in Appendix 12: Site Allocations.

## 11 Site Specific Flood Risk Assessment Requirements

11.1 Site specific Flood Risk Assessments (FRAs) are carried out by (or on behalf of) developers to assess flood risk to and from a site.

11.2 It is the responsibility of the developer to provide a FRA with a planning application, where one is required. The FRA should demonstrate how flood risk will be managed over the development's lifetime, taking into account of all forms of flood risk, climate change and vulnerability of users.

11.3 A detailed FRA may indicate that a site is not appropriate for development of a particular vulnerability or even at all. In those circumstances, a lower vulnerability classification may be appropriate (refer to [Table 4](#)). In addition, some sites may require the application of the Exception Test following the Sequential Test, which is detailed in [Section 10](#).

11.4 [Paragraph 068 of the National Planning Practice Guidance](#) (opens in a new window) relates to Flood Risk and Coastal Change and sets out a checklist for developers who are preparing site specific flood risk assessments.

11.5 The Environment Agency has produced the national [Flood Risk Standing Advice](#) [opens a new window] which developers should also refer to when preparing a FRA.

### When are site specific FRAs required?

11.6 Site specific FRAs are required for development in the following circumstances:

- Proposals for all new development (including minor development and change of use) in Flood Zones 2 and 3;
- Proposals for new development (including minor development and change of use) in an area within Flood Zone 1 which has critical drainage problems as notified to the LPA by the Environment Agency;
- Proposals for new development (including minor development and change of uses) in an area identified by the Lead Local Flood Authority as a Critical Drainage Area (CDA);

- Proposals of 1 hectare or more in Flood Zone 1;
- Where proposed development or a change of use to a more vulnerable classification may be subject to other sources of flooding;
- Proposals of less than one hectare in Flood Zone 1 where they could be affected by sources of flooding other than rivers and the sea (e.g. surface water).

11.7 Site specific FRAs may also be required in some other circumstances:

- Where there is evidence of historical flood events or overland surface water flow routes;
- Where the development would be within the vicinity of watercourses or drainage assets that are not identified as being in a flood zone on the Environment Agency flood maps;
- If the site may be at risk from flooding, even if the site is in Flood Zone 1;
- Where development has the potential to increase the flooding risk to adjacent areas;
- If requested by the owner/manager of a water asset or catchment in the vicinity of the development.

11.8 A Surface Water Drainage Strategy is required for any major development and may be required for smaller developments depending on site circumstances.

## What should site specific FRAs demonstrate?

11.9 FRAs should follow the approach recommended by the National Planning Policy Framework, National Planning Practice Guidance and guidance provided by the Environment Agency and Blackpool Council as Lead Local Flood Authority.

11.10 A site specific FRA should demonstrate:

- that the development is protected to the 1% Annual Exceedance Probability (AEP) fluvial and 0.5% AEP tidal flood scenario and is safe for its intended life span during the 'design' flood event, including an allowance for climate change;
- whether the development is likely to be affected by flooding from any source, over the lifetime of the development. This is typically 100 years for residential development and typically less for commercial development. However, developers and prospective applicants should highlight this in the FRA, where they are expected to justify why they have adopted a given lifetime for the proposed development;
- whether the development would increase flood risk elsewhere;
- evidence of a Sequential test (if relevant);
- whether the development passes the Exception Test (if relevant);
- an assessment of any cumulative impacts of development on flood risk;
- whether proposed measures to deal with flood effects and risk are appropriate.

11.11 The FRA should:

- Identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed over the lifetime of the development, taking climate change into account;
- Identify opportunities to reduce the probability and consequences of flooding;
- Demonstrate that the development will be safe through the layout, form and floor levels of the development and any other mitigation measures;
- Include the details of surface water management systems including Sustainable Drainage Systems (SUDs);
- Address the requirement for safe access to and from the development in areas at risk of flooding.

## Reducing flood risk

11.12 Good flood risk management can enable growth and development and can reduce flood risk both on the site and elsewhere, rather than increasing it.

11.13 Flood risk should be considered at an early stage in determining the layout and design of a site in order to provide an opportunity to reduce flood risk within the development.

11.14 The NPPF states that a sequential, risk-based approach should be applied to try to locate more vulnerable land use away from flood zones, to higher ground, while more flood-compatible development (e.g. car parking, recreational space) can be located in higher risk areas. Although this needs to be balanced against the risk of the pollution of flood water from parked vehicles.

11.15 Flood risk can be reduced by incorporating green infrastructure into a development. Green infrastructure can provide additional capacity to accommodate climate change, whilst also providing valuable social and environmental benefits, contributing to multiple sustainability objectives.

11.16 Various studies, including the [Central Lancashire and Blackpool Outline Water Cycle Study \(2011\)](#) have indicated that given the nature of the underlying geology of Blackpool, attenuation Sustainable Drainage Systems (SuDS) are suitable in Blackpool.

11.17 SuDS aim to mimic the natural processes of greenfield surface water drainage by encouraging water to flow along natural flow routes and thereby reduce runoff rates and volumes during storm events, while providing some water treatment benefits.

11.18 The raising of internal floor levels within a development can limit damage occurring to the interior, furnishings and electrics in times of flood. Early consultation with the Environment Agency is recommended in order to determine if this approach would be

acceptable on a case by case basis. Care will need to be taken to ensure that such measures don't reduce the accessibility of the development. Development in areas of flood risk should avoid the inclusion of basements, bungalows or ground floor flats unless they can be made safe from flooding.

11.19 To reduce the risks of sewer flooding, developers should discuss public sewerage capacity with the water utility company (United Utilities) at the earliest possible stage. The development must improve the drainage infrastructure to reduce flood risk on site and in the wider area.

11.20 Where relevant, developers should also consult with relevant authorities regarding emergency plans in case of reservoir breach.

## Flood Resilience and Resistance

11.21 Flood resilience and resistance measures in individual properties may include:

- External walls built from materials that have low permeability such as impermeable concrete;
- Use flood resilient materials such lime plaster on internal walls;
- Include design measures which will facilitate the drainage of flood water;
- External ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Plumbing insulation of closed-cell design;
- Raised electrics;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-siphon fitted to all toilets;
- Kitchen units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level.

11.22 In the wider community, resistance measures include demountable defences that can be deployed by the local community and the local authority to reduce the risk of water ingress to a number of properties. Such defences may include inflatable (usually with water) or temporary barriers and pumps to remove water that seeps through the defences during a flood event. However, new developments should normally not require consideration of community resistance measures.

11.23 The [Lancashire Flood Partnership's Flood Hub](#) [opens a new window] contains advice of flood resilience in the community and provides additional information and resources relating to flooding in the community.

## Site Specific Emergency Plans

11.24 An emergency plan (EP) is a document developers submit with their planning applications where emergency response is an important component of the safety of the proposed development. It can be a free-standing document or form part of the FRA.

11.25 An EP should be provided as part of the FRA, or as a separate document accompanying the FRA, if relevant pedestrian and/or vehicular access and escape routes of a proposed development would be affected during:

- a design flood from any source (with an appropriate allowance for climate change) with any existing flood risk management structures or features operating as intended
- a design flood from any source (with an appropriate allowance for climate change) with a failure of any relevant flood risk management structures or features

11.26 The above would apply even if the proposed buildings would not be affected by flooding.

11.27 An EP is also essential when vulnerable land uses with transient occupants are proposed in areas at risk of flooding. Such uses include holiday accommodation, hotels, caravan and camping sites or entertainment venues. Such occupants may not be aware of the risks or the warning systems, and may not have the local knowledge to respond safely.

11.28 An EP will need to demonstrate that:

- safe access and escape routes are included ;
- voluntary and free movement of people will be available during a design flood, taking climate change into account;
- there is the potential for evacuation before a more extreme flood (a flood with an annual probability of 0.1%), taking climate change into account;
- appropriate evacuation procedures and flood response infrastructure will be in place;
- people will not be exposed to hazardous flooding from any source, now or in the future, including in an extreme flood event;
- any residual risks remaining after other location and design measures have been incorporated, can be safely managed;
- the relevant building regulations are capable of being complied with in relation to suitable on-site access for the fire service, within the constraints of any planning permission granted.

11.29 It will also need to assess whether proposals would increase the number of people living or working in areas of flood risk and whether this would increase the likely scale of any evacuation and consequently the burden on the emergency services.

11.30 ADEPT (Association of Directors of Environment, Economy, Planning and Transport) and the Environment Agency have published a [Flood Risk Emergency Plans for New Development](#) (PDF 1.8MB) document which provides guidance for Local Planning Authorities on how to consider emergency plans for flooding in the planning process.

## Flood Warning

11.31 The Environment Agency (EA) run a Flood Warning Service in areas at risk of flooding from rivers and the sea (and in some areas at risk of groundwater flooding).

11.32 The EA uses flood warning codes to refer to three warning stages; each code has a strapline to indicate the general impact of flooding for each code:

- Flood Alert – Flooding is Possible. Be Prepared.
- Flood Warning - Flooding is Expected. Immediate Action Required.
- Severe Flood Warning – Severe Flooding, Danger to Life.

11.33 A “Flood Warning No Longer in Force” message is also available.

Figure 4: Flood Warning Codes used by the Environment Agency:



11.34 Members of the public and business owners can sign up to receive flood alerts on the governments [“sign up for flood warnings”](#) web page [opens a new window].

11.35 Developers should encourage those owning or occupying developments, where flood warnings can be provided, to sign up to receive them. This applies even if the development is defended to a high standard.



## Reviewing of FRAs

11.36 Guidance for local planning authorities for reviewing flood risk assessments submitted as part of planning applications has been published by Defra in 2015 – [Flood Risk Assessment: Local Planning Authorities](#) [opens a new window]. The Council should seek flood risk reduction in every new development and redevelopment through design, changes in land use and drainage requirements.

## 12 Study Area

12.1 Blackpool Council is a unitary local authority on the North West Coast of England. The core area is bounded on the west by the Irish Sea. The Borough consists of the one main highly populated central urban area, with small peripheral areas of countryside to the south on Marton Moss and to the east of the town between Blackpool and Carleton (Wyre) and between Blackpool and Staining (Fylde).

12.2 The whole of the Borough and the wider Fylde Coast is relatively flat low-lying land, although most of the land in Blackpool lies above the 1 in 1000 year tidal level.

12.3 Blackpool shares a border with Fylde and Wyre, both of which fall under Lancashire County Council. In the low lying areas to the west of the Fylde Coast, the risk of flooding is predominately linked to the capacity of the drainage networks, including piped networks in urban areas and open drainage ditches in both urban and rural areas. In many locations there is a complex relationship between drainage systems, open watercourses and the sea. Consequently, it is not always easy to identify the exact source of flooding and flooding is frequently as a result of the interaction of a number of sources. There are several catchments that flow from Blackpool's administrative area into Lancashire and vice versa. However, Blackpool can affect water in catchments outside of Lancashire and can equally be affected by catchments elsewhere.

12.4 Blackpool is protected to the west from coastal erosion and tidal inundation from the Irish Sea by concrete coastal defences, inspections of which are undertaken on an annual basis. In Fylde to the south of Blackpool, there are natural sea defences comprising sand dunes which stretch as far as St Annes Pier. To the north in Wyre, new concrete coastal defences were completed in 2010 which stretch towards Carr Gate. The new stepped sea defences meet the natural shingle at Rossall Beach.

12.5 There has been extensive renewal of sea defences along the coast, which were engineered at the time with the most up-to-date climate change projections, reducing the risk of flooding.

12.6 There have also been substantial improvements to the public sewer network and new and increased surface water storage capacity. New pumping equipment has been installed at Anchorsholme Park and Fishers Field and various attenuation basins have been

installed in the south of Blackpool to reduce flooding and the need to discharge foul water from the combined sewer network into the sea during storm events.

12.7 Marton Mere Pumping Station is an essential flood defence and the only means by which water levels in Marton Mere can be maintained. In 2012, the pumping station at Marton Mere was unable to cope with the volume of water during a period of heavy rainfall which resulted in nearby residents being isolated due to significant highway flooding. Following a statutory 10 year inspection of the reservoir in 2013, Marton Mere pumping station was upgraded and associated spillway were replaced and capacity increased. A significant number of properties are protected by the upgraded pump system.

12.8 Where watercourses and Main Rivers are concerned, the Environment Agency (EA) decide which watercourses are designated as Main Rivers. The EA consults with other risk management authorities and the public before making these decisions. The EA describes Main Rivers as usually being larger rivers and streams with other rivers known as ordinary watercourses. The EA uses its permissive powers to carry out maintenance, improvement or construction work on Main Rivers and ordinary watercourses to manage flood risk. This is particularly true of Natural Flood Management (NFM) interventions that may take place upstream of the main river designation. The Main Rivers in Blackpool are detailed in Appendix 1.

12.9 Ordinary watercourses are any watercourse not designated as Main River. A watercourse is defined in S.72 (1) Land Drainage Act 1991 as including 'all ditches, drains, cuts, culverts, dykes, sluices, sewers (other than public sewers within the meaning of the Water Industries Act 1991) and passages through which water flows'. With the exception of sewers and passages, this definition applies even when the flow ceases. The ordinary watercourses are mapped in Appendix 4.

12.10 Land drainage in Blackpool is achieved by a variety of watercourses spread throughout the Borough. The three Main Rivers are located in Blackpool Borough are:

- Main Dyke/Skipool Creek (Marton Mere) – outfalls to Main Dyke
- Moss Sluice and Wilding Lane Watercourse (Great Marton Moss) – outfalls to Main Dyke
- Bispham Dyke - flows downstream from Chorley Road to outfall into the sewer network at Moor Park Avenue.

12.11 United Utilities are considering removing Bispham Dyke from the sewer network. If Bispham Dyke is removed from the sewer network, any changes to flood risk will be considered in an updated Strategic Flood Risk Assessment.

12.12 There are two reservoirs in Blackpool, the Warbreck Water Tower and Marton Mere and the flood risk from reservoirs map can be found in Appendix 3.

12.13 The SFRA identifies four approximate areas in Blackpool and considers flood risk generally for each of these areas (see [Table 6](#)). (These areas are different to the more detailed maps which relates to flood risk and site allocations which are shown in Appendices 13 – 22). Strategic policy for flood risk is set out in Core Strategy policy CS9 ‘Water Management’ and more detailed policies relating to surface water management and coast and the foreshore will be set out in the Local Plan Part 2.

12.14 All sources of flooding are considered in the SFRA although it is surface water flooding and a surcharged sewer network during exceptional rainfall events, rather than tidal or fluvial inundation, that is increasingly the cause of flooding in Blackpool.

12.15 Figures 5 – 8 are not to scale and are for illustrative purposes only.

**Table 6: Flood risk issues by area**

| Area  | Flood Risk Issues   |
|---|---|
| <p>North Blackpool (Anchorsholme, Norbreck, Bispham, Ingthorpe, Warbreck and Greenlands areas – see <a href="#">Figure 5</a>)</p> | <p>Much of the very north of Blackpool (Anchorsholme and Norbreck) is in flood zone 3 although most of flood zone 3 benefits from flood defences. There have been historic flooding events in Anchorsholme.</p> <p>There is a continued residual risk from a breach of the defences, surface water flooding and infrastructure failure in north Blackpool and this should be considered in development proposals in this area. It may be necessary to include flood proofing measures in new development proposals and it will be necessary to provide a FRA, showing that a breach scenario has been considered using climate change allowance of the time.</p> <p>The main risk of flooding in this area is from the sewage network as the area is entirely reliant on sewers for foul and surface water removal. Operational failure during exceptional rainfall events may result in surcharged sewers and surface water flooding. Incidental problems are generally caused by inadequate or blocked watercourses or highway maintenance limitations.</p> <p>Warbreck and Greenlands wards are the most vulnerable to reservoir flooding (although flooding from reservoirs is extremely unlikely).</p> <p>Developments of all types could be permitted in flood zone 1 in North Blackpool.</p> <p>All development of 1 hectare or more in flood zone 1 should be supported by a site specific FRA.</p> |

| Area   | Flood Risk Issues  |
|--|--|
| <p>Central Blackpool<br/>(Claremont, Layton, Park, Talbot, Brunswick, Bloomfield, Tyldesley and Marton areas – see <a href="#">Figure 6</a>)</p> | <p>The majority of central Blackpool is in flood zone 1, with localised areas of flood zone 2 and 3 at Revoe Park and the Rigby Road area and Promenade.</p> <p>More significant areas of flood zone 2 and 3 are around the east side of Stanley Park, Lawson’s Field and the Marton Mere SSSI.</p> <p>Historically the main risk of flooding in this area was from tidal inundation. <a href="#">Coastal defences are discussed in Section 14.</a></p> <p>The main risk of flooding in this area is from the sewage network as the area is entirely reliant on sewers for foul and surface water removal. Operational failure during exceptional rainfall events may result in surcharged sewers and surface water flooding. On the 8<sup>th</sup> February 2020, Revoe Park, Rigby Road and Queen Victoria Road flooded during Storm Ciara as a result of sustained heavy rainfall. Incidental problems are generally caused by inadequate or blocked watercourses or highway maintenance limitations.</p> <p>Developments of all types could be permitted in flood zone 1 in central Blackpool.</p> <p>All development of 1 hectare or more in flood zone 1 should be supported by a site specific FRA.</p> |
| <p>South Blackpool<br/>(Victoria, Hawes Side, Clifton, Waterloo, Highfield and Squires Gate areas – see <a href="#">Figure 7</a>)</p>            | <p>Other than areas just off the Promenade, the majority of south Blackpool is in flood zone 1.</p> <p>The main risk of flooding in this area is from tidal inundation but the coastline is protected by substantial coastal defences.</p> <p>The main risk of flooding in this area is from the sewage network as the area is entirely reliant on sewers for foul and surface water removal. Operational failure during exceptional rainfall events may result in surcharged sewers and surface water flooding. Incidental problems are generally caused by inadequate or blocked watercourses or highway maintenance limitations.</p> <p>Developments of all types could be permitted in flood zone 1 in south Blackpool.</p> <p>All development of 1 hectare or more in flood zone 1 should be supported by a site specific FRA.</p>  |

| Area  | Flood Risk Issues  |
|---|--|
| Marton Moss<br>(Stanley ward – see <a href="#">Figure 8</a> ) | <p>The majority of Marton Moss is in flood zone 1. However, much of the area bounded by Progress Way, School Road and Midgeland Road to the east have recently been included in flood zones 2 and 3 and flood zone 2 extends around the St Nicholas Road and Laundry Road area.</p> <p>The main risk of flooding in this area is not directly from tidal or fluvial sources but from the drainage of surface water during exceptional rainfall events. The area relies almost entirely on a series of pumping stations to remove water, including Red Bridge pumping station at Cropper Road and School Road. Operational failure during exceptional rainfall events may result in surcharged sewers and surface water flooding. Incidental problems are generally caused by inadequate or unmaintained watercourses and blockages. It is anticipated that, the risk of surface water flooding will also be reduced following the surface water separation scheme undertaken by United Utilities since 2016, which involved new pumping stations, for example, at Magnolia Point, underground detention tanks such as the recently installed facility at Fishers Field and various attenuation basins on or near Marton Moss.</p> <p>Developments of all types could be permitted in flood zone 1 in Marton Moss but consideration should be given in all cases to SuDS, due to extra surface water runoff caused by increased impermeability factors.</p> <p>All development of 1 hectare or more in flood zone 1 should be supported by a site specific FRA which should demonstrate that appropriate mitigation measures are provided and that a breach scenario has been considered using climate change allowances of the time.</p> <p>To address the risk from Public Sewerage Network Operational Failure non-return devices to incidental connections should be considered. There are nominated items of Main River in the area which have been incorporated in the existing infrastructure.</p> <p>Development in the immediate vicinity of any watercourses could be susceptible to flooding and therefore building development would not normally be allowed within 8m of a watercourse and in any case, permission would need to be sought from the Environment Agency or the Lead Local Flood Authority. Care should be taken to create SuDS in development to prevent watercourses and the receiving</p> |

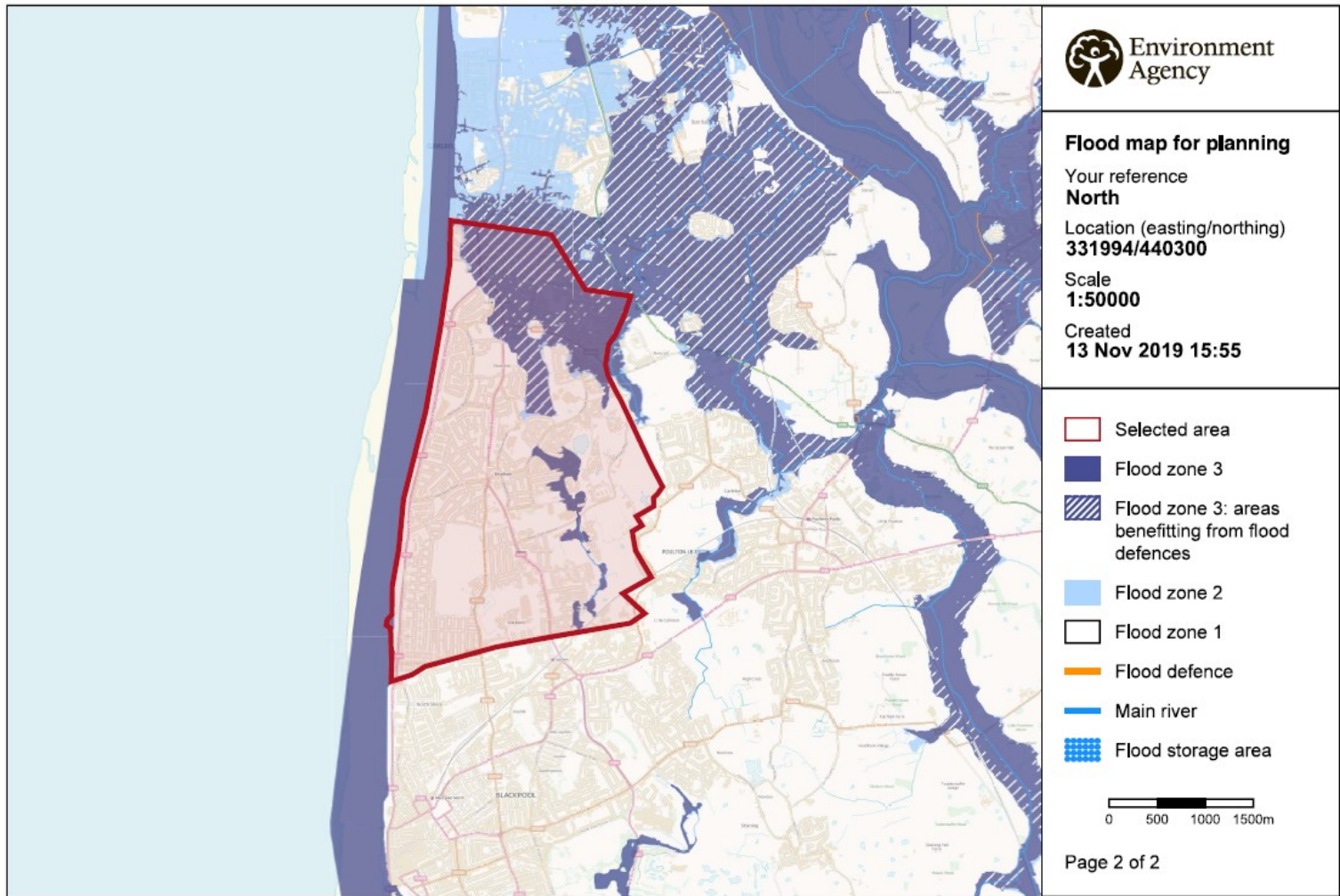
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**Area****Flood Risk Issues**

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sewerage network from being inundated during exceptional rainfall and to support the creation of a management train to ensure water quality of the receiving watercourse or water body is not negatively impacted by the development

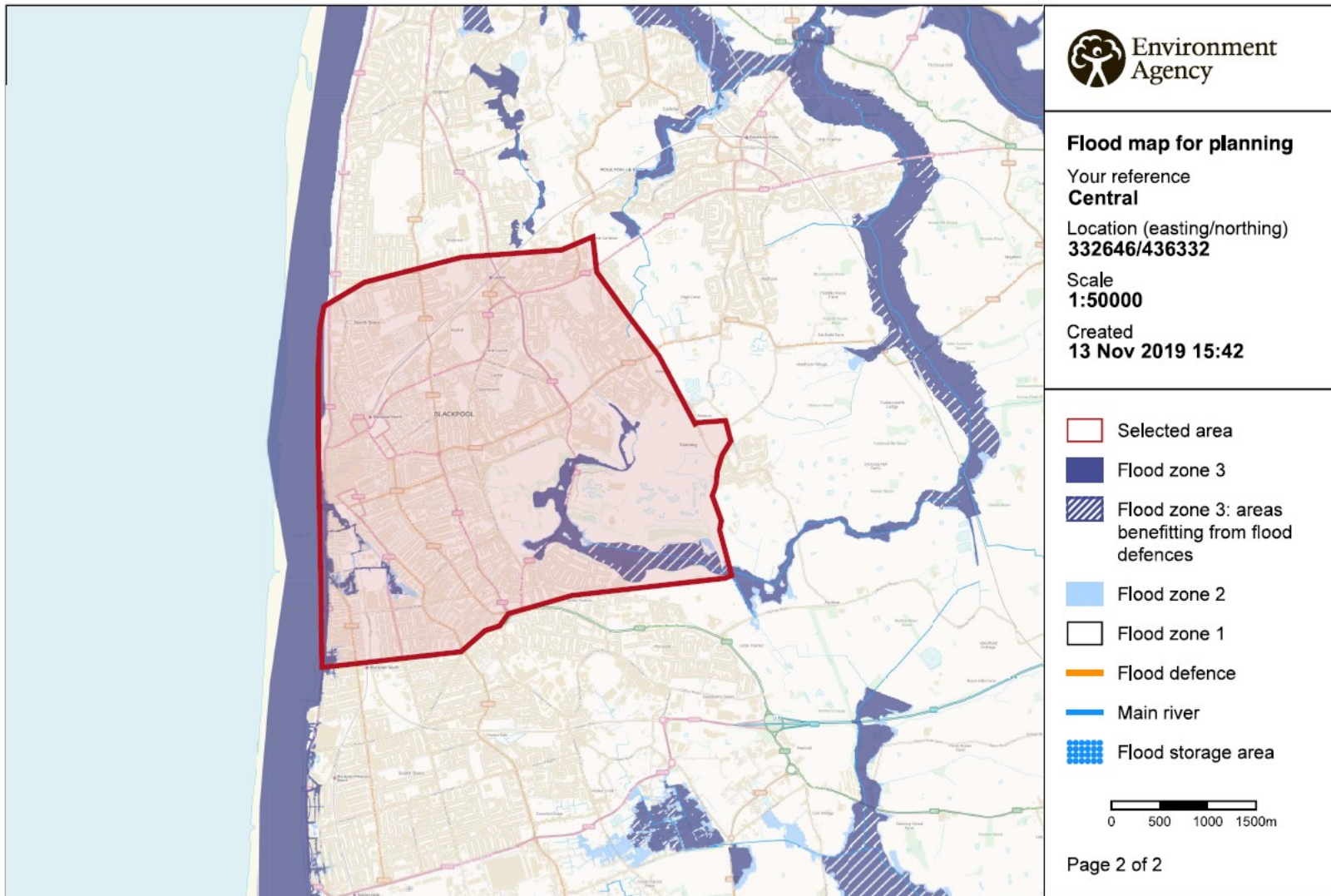
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Figure 5: North Blackpool Area

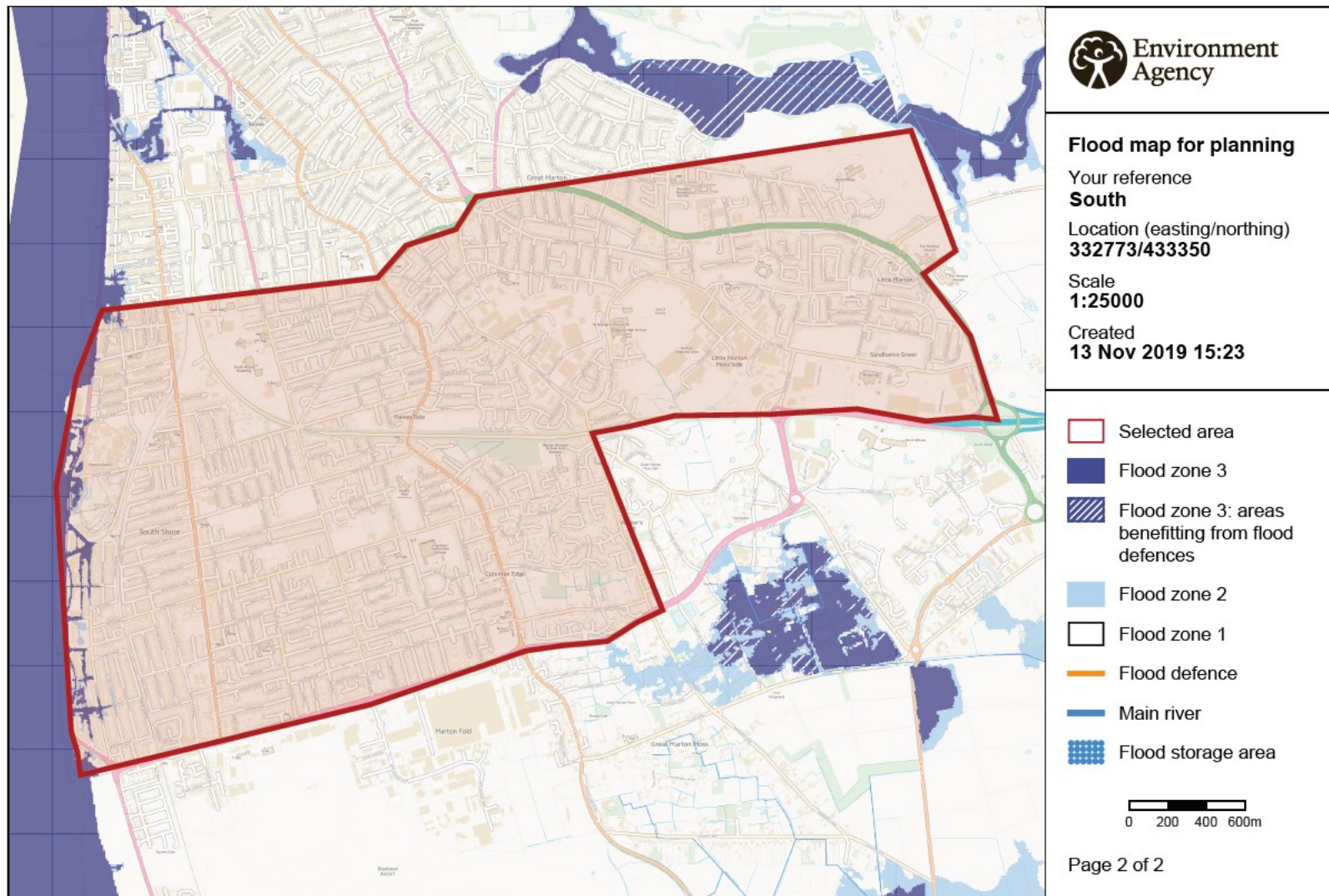
Figure 6: Central Blackpool Area



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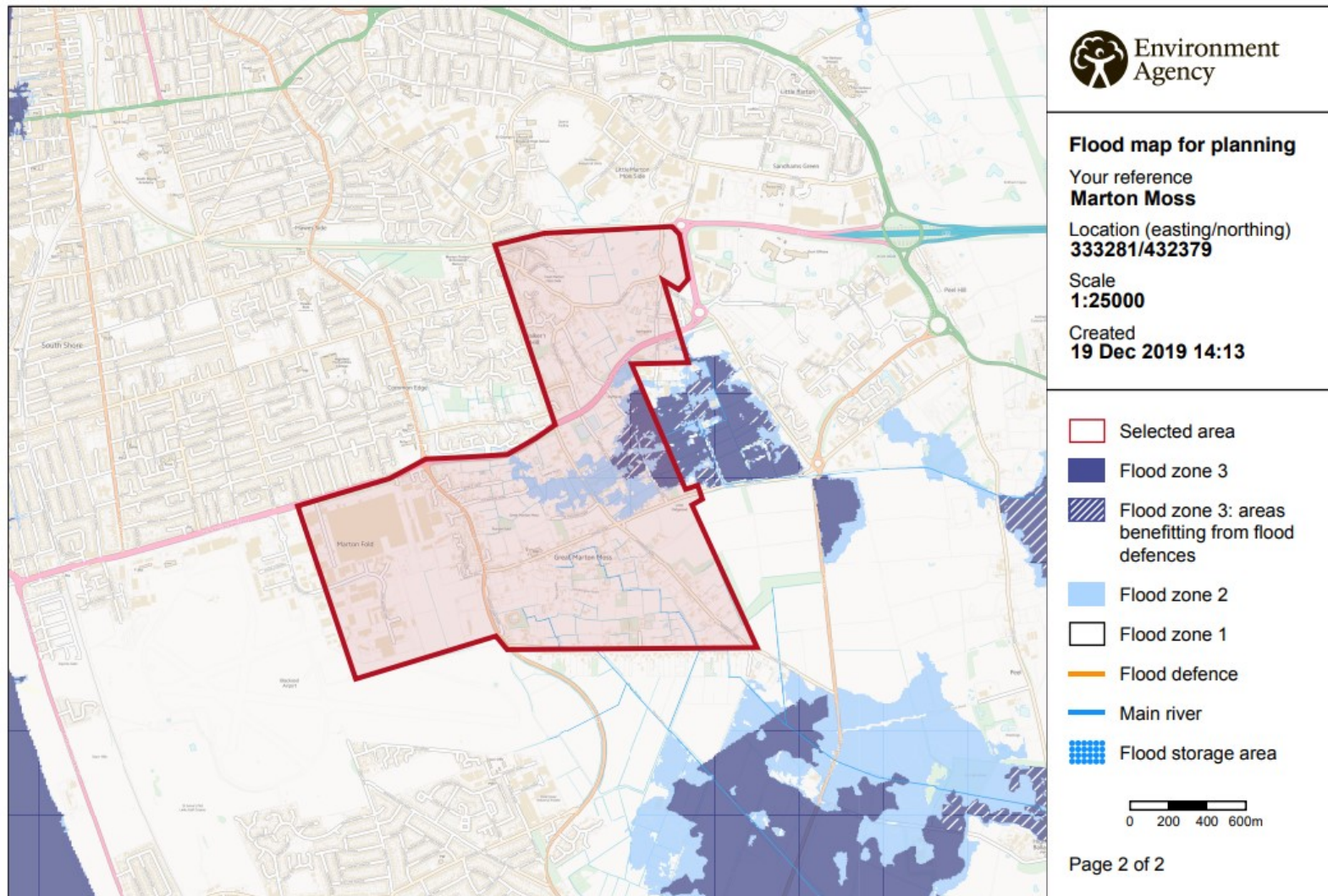


Figure 7: South Blackpool Area



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Figure 8: Marton Moss Area and Enterprise Zone



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## 13 Source-pathway-receptor-model

13.1 The SFRA is a strategic a risk-based approach informing policies in Local Development Documents which:

- Avoid adding to the causes or 'sources' of flood risk by avoiding inappropriate development.
- Manages the flood 'pathways' to reduce the likelihood of flooding by ensuring that the design and location of the development takes account of flood defence infrastructure and utilises natural storage areas without influencing flood risk downstream.
- Reduces the adverse consequences of flooding on the 'receptors' by avoiding inappropriate development in areas at risk of flooding.

Source:

- Fluvial
- Tidal
- Sewage Networks
- Ground water
- Surface water/rainwater
- Reservoir

Pathway:

- Coastal defence overtopping/failure
- Overland flow paths
- River/floodplain systems

Receptor:

- People
- Property
- Infrastructure
- Habitats and natural environment

13.2 An initial broad scoping study has been undertaken for the Borough, using the flood risk maps and known flooding from other sources. As a broad outline the key sources and pathways are shown below.

Table 7: Key Sources and Pathways

| Main Source   | Main Pathway  | Historical Flooding   | Notes   |
|---|---|---|---|
| <b>Coastal erosion to frontage, surface runoff and sewer flooding to remainder of area.</b> | <p>Coastal storms causing erosion of defences. High volume of surface water into road gullies and combined sewage networks. A majority of the area is urban and hard surfaced.</p> <p>Other pathways due to limited hydraulic gradient and/or sewerage network failure.</p> | <p>Coastal erosion up to early 20<sup>th</sup> century. Number of reports of sewer and road flooding particularly around the Anchorsholme area.</p> <p>There has also been historic flooding in the Central, South Shore, Marton and Promenade areas.</p> | <p>Significant investment has been made in coastal defences on the Blackpool frontage and to additional storm storage facilities on the adjacent improved sewer networks. Constant monitoring during exceptional rainfall events remains essential.</p> |

13.3 Blackpool doesn't have reduced groundwater abstraction or changing land management of pumped catchments (e.g. Environment Agency pumps).

## 14 River and Tidal Flood Risk in Blackpool

14.1 The Strategic Flood Risk Assessment (SFRA) Maps in Appendix 1 present the EA's Flood Map for Planning which shows both the fluvial and tidal coverage of flood zones 2 and 3 across Blackpool's authority area. Areas along the seafront which suffer from overtopping during storm events are in Flood Zone 3. The flood zones are defined in [Table 2](#).

### Existing Flood Defence Infrastructure

14.2 Tidal flood risk is the dominant factor within north Blackpool but there are still a number of properties at risk from fluvial flooding due to urban watercourses being tide locked, fairly inaccessible and culverted in places.

14.3 High tides and storm surges can increase water levels in channels and cause drainage systems to stop discharging to the sea. In order to reduce the level of risk, there are a number of pumping stations throughout across the borough, where pumping is needed to ensure that water will discharge when sea levels are high.

14.4 The total length of coastline within the Borough is defended from coastal erosion and tidal inundation through the use of hard defences, which have been upgraded over

recent years (see [Table 8](#) for further details). The improvement works have followed guidelines at the time of their design to allow for climate change and sea level rise with the current works allowing for a 4mm rise in sea level per year and 10% increase in wave height for the design life of 100 years. The current climate change sea level rise allowance for this epoch stands at 4.5mm for the North West as set out in the latest [climate change allowance guidance](#) [opens a new window]. Any future upgrades to the defences will take account of any updated Environment Agency guidance on the [Flood and coastal risk projects, schemes and strategies: climate change allowances](#) [opens a new window] (or as amended) web pages and the current precautionary sensitivity ranges at the time of design.

14.5 The Community and Environmental Services Directorate of the Council maintain the coastal defences in Blackpool. A brief description for each of the defence lengths is summarised below:

**Table 8: Blackpool's Coastal Defences**

| <b>Management Unit</b> | <b>Zone</b>                                | <b>Life Expectancy</b> | <b>Description</b>  |
|------------------------|--|------------------------|---|
| B2.2                   | Starr Gate                                 | >20                    | Flood Gates   |
| B2.2                   | Starr Gate to Sandcastle                   | >30                    | Seabee revetment with wave return wall  |
| B2.2                   | Sandcastle to Houndshell                   | >50                    | Stepped revetment with berm and wave return wall completed in the last decade |
| B2.3                   | Houndshell to Metropole                    | >50                    | Stepped revetment with berm and wave return wall completed in the last decade |
| B2.3                   | Metropole to Gynn Square                   | >10                    | Concrete apron with vertical wall and splash wall                             |
| B2.3                   | Gynn Square to Boating Pool                | >10                    | Concrete apron with partially recurved wall and splash wall                   |
| B2.3                   | Boating Pool                               | >10                    | Concrete apron with partially recurved wall and parapet wall                  |
| B2.3                   | Boating Pool to Duchess Drive              | >10                    | Concrete apron with partially recurved wall and parapet wall                  |
| B2.3                   | Duchess Drive to Miners Convalescence home | >10                    | Concrete apron with partially recurved wall and parapet wall                  |
| B2.3                   | Miners Convalescence home to Red Bank Road | >20                    | Concrete apron with partially recurved wall and parapet wall                  |

| Management Unit | Zone  | Life Expectancy | Description  |
|-----------------|---|-----------------|--|
| B2.3            | Red Bank Road   | >20             | Concrete apron with partially recurved wall and parapet wall |
| B2.3            | Red Bank Road to Sandhurst Avenue                         | >20             | Concrete apron with partially recurved wall and parapet wall |
| B2.3            | Sandhurst Avenue to Tram Station                          | >10             | Concrete apron with partially recurved wall and parapet wall |
| B2.4            | Tram Station to Slade in Anchorsholme Park                | >50             | Sloped revetment with a berm and wave return wall            |
| B2.4            | Slade Anchorsholme Park to Slade south of Anchorsholme PS | >50             | Sloped revetment with a berm and wave return wall            |
| B2.5            | Slade south of Anchorsholme PS to Buckden Close           | >50             | Sloped revetment with a berm and wave return wall            |
| B2.5            | Buckden Close to Authority Boundary                       | >50             | Sloped revetment with a berm and wave return wall            |

14.6 The flood defences are mapped in Appendix 5.

## Overtopping of Existing Defences

14.7 Overtopping of the existing defences has been considered and it is concluded that it is not as significant as a breach failure. However, increased incidences of wave overtopping as a result of climate change may result in more ‘ponding’ behind defences and to a greater depth. In addition, the extent and flow pathways may route over current known high points and flow into new areas, not previously indicated as at flood risk. Overtopping during Storm Ciara in February 2020 resulted in flooding in areas that hadn’t flooded before, resulting in the closure of roads and flood water entering property. A climate change flood scenario for tidal and fluvial events are shown in Appendix 9.

## 15 Surface Water and Sewer Flood Risk in Blackpool

15.1 There are certain areas of the borough, which, although they are largely protected from tidal or fluvial influences, are still at risk of surface water flooding from and during exceptional rainfall events. Surface water flood risk maps are detailed in Appendix 2.

15.2 The principal areas are:-

- Anchorsholme – due to reliance on and inundation of the Public Sewerage Network.

- Marton Mere Catchment – due to reliance on and inundation of a Council operated Pumping Station.
- Staining North Catchment – due to reliance on and inundation of a Council owned culverted watercourse outfall.
- Marton Moss – due to reliance on and inundation of the Public Sewerage Network and incidences of inadequate watercourse maintenance.
- Any area of the borough which is susceptible to inundation from a failure of the Public Sewerage Network/Highway Drainage System, or domestic or watercourse systems due to a lack of adequate maintenance or surcharge from a reliant outfall.

15.3 This does not affect potential for future development outside the urban area, providing the attenuation systems for providing extra storage for surface water in the event of any severe weather events are of sufficient capacity, or that effective event monitoring and warning systems are installed and that the development passes the sequential and exception tests as necessary.

15.4 The Environment Agency (EA) provides local authorities with data regarding areas that are susceptible to surface water flooding, to illustrate where potential further investigation may be required. Further information is provided on the online [surface water flood map](#) (opens new window) (also shown in Appendix 2). In addition, Blackpool Council are preparing a Surface Water Management Plan, hosts a Flood Risk Asset Register and also keep a record of flooding incidents, all of which inform the Council's understanding of local flood risks.

15.5 Core Strategy policy CS9 requires development proposals to include appropriate mitigation and resilience measures to minimise the risk and impact of flooding from all sources; to incorporate appropriate SuDS where additional surface water run-off is generated and to ensure that there is no increase in the rate of surface water run-off from the site as a result of the development. Additional surface water runoff flows generated from development will need to be managed in a way that mimics the natural drainage for the site (as well as no increase in greenfield runoff rate).

15.6 Emerging policy in Part 2 of the Local Plan; Site Allocations and Development Management Policies, requires that surface water should be discharged in line with the following order of priority, in accordance with National Planning Practice Guidance:

- a. into the ground (infiltration);
- b. to a surface water body;
- c. to a surface water sewer, highway drain, or another drainage system;
- d. to a combined sewer.

## Land Drainage Assets

15.7 Land Drainage Assets in the Borough consist of both culverted and open watercourses. There are seven main pumping stations within the Borough that deal with surface water. The principle ones are situated at Marton Mere, which is owned and operated by the Council, and on Progress Way at Newhall Avenue which is operated by the Council on behalf of Lancashire County Council. They are subject to Routine and Reactive Maintenance Contracts and are monitored by 24 hour telemetry systems. Two smaller stations are located at Mossom Lane and Carleton Cemetery, both owned and operated by Blackpool Council. Two further surface water pumping stations are on Highfield Road and Cornford Road and are owned and operated by United Utilities and have a separate incorporated foul pumping facility.

15.8 The Council's Land Drainage (open watercourse) assets will discharge to one or the other of the above installations and are mapped in Appendix 4. Incidental watercourses attached to many building assets are not included i.e. Schools, Offices etc.

15.9 There are a further 22 other pumping stations owned and operated by United Utilities, varying in size and criticality, which handle combined sewage which includes a considerable percentage of the Borough's surface water to be passed on via the Coastal Transfer Main to a Treatment Works at Jameson Road, Fleetwood.

## 16 Groundwater Flood Risk in Blackpool

16.1 The [Groundwater Vulnerability Map](#) [opens a new page] on Defra's Magic Map classifies most of Blackpool as having a medium, medium to low or low vulnerability to ground water. There are no identified flood risks relating to ground water flooding and no historical evidence of ground water flooding has been identified in Blackpool as confirmed by the Environment Agencies Groundwater flooding scoping study.

## 17 Reservoir Flood Risk in Blackpool

17.1 There are two reservoirs in Blackpool. There is a covered reservoir adjacent the water tower on Leys Road in Bispham. This reservoir has a capacity of 114,000m<sup>3</sup> of water and is owned and managed by United Utilities. Marton Mere is an open reservoir with a capacity of 205,5774m<sup>3</sup> of water and is managed by Blackpool Council.

17.2 Although not classified as a reservoir, Stanley Park Lake was created by impounding the Layton Brook and covers 22 acres (8.9 hectares) and holds approximately 127,300m<sup>3</sup> of water. The Lake is connected to Whinney Heys Dyke and Marton Mere and forms part of the Main Dyke system that discharges into the River Wyre at Poulton Le Fylde. The Environment Agency Risk of Flood from Reservoir Map for Blackpool is shown in Appendix 3.



## 18 Historical Flooding

18.1 Historical overtopping of the existing sea defences has occurred during storm events. The most recent occurrence was on 8/9 February and 12 March 2020 which resulted in the closure of some roads and flooded some property. Under the Coastal Protection Act the Council must ensure the stability of the sea walls and ensure their continuing maintenance, for which a detailed Coast Protection Strategy was adopted by the council in 1995. Extra inspections are carried out following storm events so that relevant repairs can be carried out, with flooding mainly confined to the Anchorsholme area, Marton area and sections of the Promenade.

18.2 The most serious sea incursion in Blackpool in the last 50 years resulted from the storms of 11/12<sup>th</sup> November 1977. A combination of high tides, high winds, overtopping and heavy rainfall, estimated as a 1 in 100 year event, caused major inundation in the Anchorsholme area of north Blackpool, with flooding up to one kilometre inland effecting hundreds of properties. This was in conjunction with serious flooding in the adjacent borough of Wyre in Cleveleys and Fleetwood. Major improvements to the sea defences have recently taken place to protect this area with Blackpool Council nearing completion of a twenty year coastal defence strategy, which involved rebuilding those sections of sea defence most in need, including a new 3.2km seawall.

18.3 Other sea incursions in Blackpool have resulted from a similar combination of high tides, high winds and high rainfall but have only affected more localised areas of the immediate adjoining catchments, particularly the South and Central seafront areas. The most recent event occurred on 5<sup>th</sup> December 2013 when sea flooding occurred along the Promenade and further inland during high tide combined with stormy weather and high winds. Flooding was observed along the Promenade and on various streets off the Promenade close to the Waterloo Headland.

18.4 Other historic flooding events in this area have been caused by substantial storm water flooding following severe rainfall events overloading the surface water sewers and aggravated by the surcharge of coastal surface water connections through the sea wall by seawater during exceptionally high tides. Under the Coastal Waters Improvement Schemes, undertaken jointly by United Utilities and the Council during 1994 to 2003, all storm and surface water connections to the sea, via the sea wall, were removed and turned into the sewerage network effectively negating tidal influence.

18.5 The Harrowside Outfall is an exception and can still be utilised as an emergency overflow from the Lennox Gate Pumping Station and is allowed to surcharge without penalty. An Outfall is also located at Manchester Square, and is currently still utilised by United Utilities.

18.6 In 2000 and 2002 severe rainfall events resulted in widespread surface water

flooding to over 200 properties in the Anchorsholme area of Blackpool caused by the overloading of the sewerage network, which, together with a “capacity shut down” at the Treatments Works at Jameson Road and operational problems at Anchorsholme Pumping Station, caused combined sewage to surcharge from the network through highway drains, (onto the roads) and domestic drains (into private properties). Other separate flooding incidents in the same events were caused by inadequacy of localised sewers and were treated separately. The prior installation of a storage tank parallel with the Warren Drive Culvert had provided some relief but was eventually overwhelmed.

18.7 In 2012, the pumping station at Marton Mere was unable to cope with the volume of water during a period of heavy rainfall which resulted in nearby residents being isolated due to significant highway flooding. Following a statutory 10 year inspection of the reservoir in 2013, Marton Mere pumping station was upgraded and associated spillway were replaced and capacity increased. A significant number of properties are protected by the upgraded pump system.

18.8 In November 2017, areas of Anchorsholme and Bispham were flooded due to inundation of water in the combined sewers and watercourses during a period of unexpected, heavy and sustained rainfall. Approximately 300 properties were affected. United Utilities have recently completed works at Anchorsholme Park including a new pumping station, replacing old infrastructure and increasing capacity to hold and pump water. Whilst this work was done to improve bathing water quality the installation of new pumps and long sea outfall should also create some flood risk management.

18.9 There have been a number of flooding incidents in Marton Moss (Southern Drainage Area). These have been due to incidental blockages in watercourses and operational failures at Lennox Gate Pumping Station during intense rainfall events. Included are a number of domestic or localised incidents of flooding as a result of temporary watercourse or culvert blockages due to inadequate maintenance or deliberate interference with drainage outlets. Generally, the watercourse incidents do not relate to strategic flood risk caused by inadequate capacity, but are specifically related to incidental instances on existing systems which, once dealt with, eliminates the problem.

18.10 Constant monitoring of the operational status of the pumping stations at Worthington Road, Midgeland Road, Docky Pool Lane, Moss House Road, the storm water storage facility in Highfield Road and in particular the main disposal station at Lennox Gate, by United Utilities, is essential during exceptional rainfall events to ensure systems operate efficiently and to prevent flooding incidents.

18.11 A low lying area of Carleton Crematorium was inundated with surface water following exceptionally heavy rainfall, in September 2019. This water did drain away quite quickly as a result of earlier works to improve drainage but since the flooding, additional

land drains have been installed along with a new sewer connection, enabling surface water to drain more quickly.

18.12 Historic flood maps and Lead Local Flood Authority flood reports and investigations are shown in Appendix 7.

## 19 Climate Change

19.1 The NPPF states that Local Plans should take account of the effects of climate change. [Accompanying guidance](#) [opens a new window] to the NPPF details the allowances that should be made for climate change when assessing flood risk.

19.2 The [UK Climate Projections 2018 \(UKCP18\)](#) [opens in a new window] was published in November 2018 and confirms that general climate change trends projected over UK land for the 21st century in UKCP18 are broadly consistent with earlier projections (UKCP09) showing an increased chance of warmer, wetter winters and hotter, drier summers along with an increase in the frequency and intensity of extreme rainfall, leading to increasing chances of flooding. Sea levels will continue to rise and the effect of rising sea levels will be exacerbated by storm surges, which are difficult to predict. UKCP18 shows that sea levels around the UK will continue to rise under all emission pathways and this will have a significant future impact on the flood risk to low lying areas. Therefore areas of low lying land should have further investigation at the time of development, taking into account the most recent climate change data in relation to sea level rise breach modelling. Climate change sea level rise overtopping would also need to be considered.

19.3 The Environment Agency has published guidance on [Flood Risk Assessments and climate change allowances](#) [opens a new window]. The guidance was first published on 19 February 2016 (last updated 16 March 2020). The 17 December 2019 update included an updated Table 3: sea level allowance for each epoch in millimetres (mm) per year, with total sea level rise for each epoch in brackets (use 1981 to 2000 baseline) by river basin district. This update derives from the UKCP18 datasets. Making an allowance for these climate change predictions will help reduce the vulnerability of development and provide resilience to flooding in the future. Prospective developers and applicants should check the UKCP guidance to ensure the latest information is used as part of any FRAs.

19.4 In Blackpool, the section of the central seawall was designed using hydraulic modelling. As the projects were started over ten years ago, the guidance over climate change was slightly different. The seawall was designed for a 100 year life and to withstand a 1 in 200 year storm event taking climate change into consideration. The guidance at the time gave an increase in sea level of 4mm per year and an increase in wave heights of 10%. There was no guidance concerning increased rainfall at that time. The current projection for the North West is a 4.5mm increase in sea level per year to 2035.

19.5 The Climate Change Scenario Map (Appendix 9) shows the tidal climate change extents based on the Wyre Tidal (0.5% AEP) 2014 and 2020 update flood extents including climate change for 2069 and 2119 provided by the Environment Agency. This modelled data shows how flood risk incrementally increases over time. However, there is little difference between the scenarios or overtime and areas that are shown to be at risk in the 2069 scenario are also at risk beyond this in the 2119 scenario.

19.6 We have mapped the tidal defended extents over the undefended extents in order to show indicative spatial impacts of tidal flooding if the existing flood defences are not improved over time.

19.7 To show the modelled climate change impacts on fluvial flood risk extents and following advice from the Environment Agency, the fluvial extent of flood zone 2 has been shown as a proxy for flood zone 3 plus a 35% increase for climate change. This has been prepared as the 35% climate change extents for the fluvial models have not been modelled by the Environment Agency.

19.8 Shoreline Management Plans (SMPs) are high-level documents that state the policies of how the coast will be managed for the next 100 years. The current Shoreline Management Plan - [North West England and North Wales Shoreline Management Plan](#) [opens in a new window] SMP22 (2016) and management policies within it explain how the coast will be managed for the next 100 years. That document confirms that the coast of Blackpool will continue to be defended against flooding and coastal erosion (Hold the Line). The Plan outlines the requirement to develop a long term beach management strategy to deal with the long term trend in beach erosion as sea levels rise. However, it is acknowledged that climate change will reduce the future standard of protection afforded by the tidal defences and there is no absolute guarantee that this will be improved by the defences being raised in height. The SMP map can be viewed in Appendix 10.

19.9 As the climate continues to change, flood risk can increase from all sources, not just tidal and fluvial. The importance of the inclusion of high quality SuDS in new development and retrofitting SuDS into existing development, cannot be overstated. Not only do SuDS store surface water, decrease flow rates and increase water quality, they also act as green and blue infrastructure, helping to achieve biodiversity net gains from development and perform essential ecosystem services. Opportunities to reduce impermeable hard surfacing around existing development should also be identified and encouraged.

## Safeguarded land for flood storage

19.10 Where possible, the Local Planning Authorities should look to identify, designate and safeguard open space for flood storage functions (flood zone 3b). The National Planning Practice Guidance refers to flood zone 3b as land which would naturally flood with an annual probability of 1 in 20 (5%) or greater in any year.

19.11 Such land can be explored through the site allocation process and an assessment made over what benefit could be gained by leaving the site undeveloped. In some instances, the storage of flood water can help to alleviate flooding elsewhere, such as downstream developments. Where a large area of a site is at flood risk and it is considered large enough to hinder development, it may be appropriate to safeguard this land for the storage of flood water. An assessment of the potential development sites which could be used for flood storage (greenfield sites over a hectare with large areas at high or medium surface water flood risk or in flood zones 2 or 3, which could receive flood water from nearby development sites) has revealed that no development sites are suitable for flood storage.

19.12 Brownfield sites could also be considered though this would entail site clearance of existing buildings and conversion to greenspace.

19.13 Another option for local authorities is to identify open space in flood zones 2 or 3 which could be allocated and safeguarded for flood storage.

19.14 Working with the Environment Agency and the Lead Local Flood Authority, two areas have been identified as suitable for allocation as flood zone 3b;

- Land at Bispham Pond Trail
- Land at Marton Mere

19.15 These sites are shown in Flood Zone Map Appendix 1.

19.16 Both of these sites are undefended greenfield sites in flood zone 3 and have a 1 in 25 year undefended fluvial extent, with an area of over a hectare and are water compatible. 1 in 25 year fluvial extents have been used in the absence of 1 in 20 year data.

## 20 Appropriate Risk Management Measures

### Mitigation Measures for Specific Sites

20.1 There are a number of design features that can be incorporated into new development to reduce the risk of flooding on site and elsewhere. Development proposals must include details demonstrating how measures have been taken to deal with any potential flooding whilst having a minimum impact on the environment. As most of the watercourses in the Borough have limited spare capacity it must be shown that any new development is drained in accordance with the hierarchy of drainage options in the [National Planning Practice Guidance](#) (opens a new page).

20.2 Consultation with the Sewerage Undertaker (United Utilities) for adjustments to the Drainage Area Plan and forecasted budgetary requirements is essential to provide necessary improvements to the adjacent sewerage networks and ensure sufficient capacity of the receiving sewers.

20.3 New buildings, car parking areas and highways radically increase the impermeable factor of undeveloped land and reduce its capacity to absorb surface water. New developments should seek to use permeable surfaces and minimise the concentration of surface water run-off through the incorporation of SuDS (Sustainable Urban Drainage Systems). All SuDS should be designed to an adoptable standard so early consultation with United Utilities is advised.

20.4 Some run-off can be controlled and treated at source and involves a variety of methods such as green roofs, the provision of open vegetated sections (gardens, planted areas) where surface water percolates into the ground thereby reducing and slowing down run-off or, where ground conditions permit, infiltration areas / soakaways may be introduced to mimic natural drainage. Before these are considered a percolation test is required to assess the suitability of the ground and sub-strata for such installations. More information on source control SuDS components can be found on the [Susdrain website](#) (opens new window).

20.5 By following Government guidance and consulting with flood risk management authorities on development in flood risk areas, the local planning authority is obliged to ensure that such risks are minimised, both to and from development proposals. This includes measures for ensuring suitable surface water controls are incorporated to contain and control excess surface water run-off. Use of standard practice contained in CIRIA's The SuDS Manual (C753) should be referred to and used where required.

20.6 Any new development where there are identified flood risks, including residual flood risks, should include a flood warning and evacuation plan within an emergency plan (see [Part 11](#)), which identifies safe access and escape routes for all parts of the development which is below the estimated flood level. Emergency plans should be formulated following advice from Blackpool's Emergency Planners. Putting an emergency plan in place can help reduce, control and mitigate the impact and consequences of a flood and assist in the recovery from a flood.

## 21 Marton Moss Neighbourhood Plan Area

21.1 Marton Moss is identified in the Core Strategy (Policy CS26) as a strategic site for retention and enhancement. It proposes a 'neighbourhood planning approach' providing the community with the opportunity to directly determine the future for their area. The Neighbourhood Area and the Marton Moss Forum were designated in March 2019 and work is ongoing to produce the Marton Moss Neighbourhood Plan. The Core Strategy does not allocate any housing on Marton Moss although there may be site allocations which emerge through the Neighbourhood Plan process.

21.2 The previous Strategic Flood Risk Assessment update in 2014 identified that the whole of Marton Moss was in Flood Zone 1. However, recent updates to the flood maps indicate that parts of Marton Moss are now in flood zones 2 and 3 (see Appendix 1).

21.3 The main difficulty that needs to be resolved for any potential new development will be the drainage of surface water without causing flooding or pollution of the underlying aquifer or surface water.

21.4 Historically, the position is:

- The southern area of Marton Moss was largely un-sewered before 1930.
- In 1936 the Lennox Gate pumping station was built which subsequently reached its full capacity and was upgraded in 1995/6 in conjunction with the Coastal Waters clean up.
- In 1950/51 a land drainage system was implemented for the discharge of water for the whole of the Moss to the Eastern Interceptor at Highfield Road.
- In 1956 and 1963 first-time drainage schemes were constructed for existing and any new properties to be used in connection with viable agricultural/ horticultural holdings, with a series of Lift Pumping Stations providing discharge.
- In the 1970-1980s a scheme for the development of 32 hectares of land off Highfield Road was implemented. As the existing drainage system had insufficient capacity to accommodate the extra surface water run-off, a large storm retention tank, incorporating a separate foul pumping facility, was built to store these flows with a pumped discharge into the Eastern Interceptor in Highfield Road
- This development, together with the discharges from existing and limited permitted new properties, has resulted in the culverts and pumping stations being close to capacity and overloaded during exceptional rainfall events. This situation has been improved following the surface water separation scheme undertaken by United Utilities since 2016, which involved new pumping stations at Magnolia Point, underground detention tanks such as the recently installed facility at Fishers Field and various attenuation basins on or near Marton Moss. Whilst this work was done to improve bathing water quality these measures should also create some flood risk management benefits.
- Notwithstanding Core Strategy Policy CS26 which restricts development in advance of the adoption of a Neighbourhood Plan for Marton Moss, the Council has consistently refused applications and allocated no further lands for development, with a key consideration being the absence of adequate drainage capacity for development. This is an issue both on site with regard to any proposed development land, and off-site with respect to the capacity of the existing sewerage network and Lennox Gate pumping station. The only recent extra demands placed on the system have been small or single house developments.