

LEVEL 1 STRATEGIC FLOOD RISK ASSESSMENT (SFRA)

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Exeter City Council

Civic Centre

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1. Introduction

1.1 Increasing flood risk is one of the most high-profile consequences of climate change. Data from the Met Office suggests that for Exeter, winter precipitation could increase by 5-19% by the 2030s, leading to an increased risk of river and surface water flooding.

1.2 To ensure that inappropriate development in areas of flood risk is avoided and development is directed away from areas at highest risk, the emerging Exeter Plan needs to be supported by a Strategic Flood Risk Assessment (SFRA).

1.3 The National Planning Policy Framework (NPPF) sets the national policy context for this work. The NPPF states:

'Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.'

'Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources.'

(NPPF, paragraphs 165 and 166)

1.4 The Planning Practice Guidance (PPG) explains who undertakes a strategic flood risk assessment and what its role is:

'A Strategic Flood Risk Assessment is a study carried out by one or more local authorities or other strategic policy-making authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the cumulative impact that land use changes and development in the area will have on flood risk.'

(PPG, paragraph 009)

1.5 The Environment Agency provides guidance on 'How to prepare a strategic flood risk assessment' which explains that there are two levels of SFRA:

'All local planning authorities need to produce a level 1 SFRA. You may also need to produce a level 2 SFRA depending on whether your local authority has plans for development in flood risk areas.'

This guidance also suggests that in addition to flood risk mapping, there should be a supporting report for the level 1 SFRA.

1.6 This document is the supporting report for the level 1 SFRA (flood risk mapping data is already available [online](#)). As Exeter City Council is proposing development in flood risk areas, a level 2 SFRA is also required. The level 2 SFRA is being prepared separately by JBA Consulting in partnership with a stakeholder engagement group, on behalf of Exeter City Council. The level 2 SFRA will be published online as part of the Exeter Plan evidence when it is complete.

2. Level 1 SFRA

- 2.1 This level 1 SFRA supporting report has been prepared in consultation with the Environment Agency, Devon Country Council as Lead Local Flood Authority (LLFA) and other stakeholders and partners.
- 2.2 The geographic area covered by this level 1 SFRA is the local planning authority administrative area of Exeter City Council.
- 2.3 This level 1 SFRA supporting report includes information on the following:
- Key sources of flood risk (including combined effects)
 - Flood management and defences
 - Functional floodplain
 - Expected effects of climate change
 - Cumulative impact of development and land-use change
 - Opportunities to reduce the causes and impacts of flooding
 - Recommendations on how to address flood risk in development
 - Sequential test and flood risk assessment.
- 2.4 There is no single body responsible for managing flood risk in the UK. Roles and responsibilities for all the Risk Management Authorities (RMAs) for flood risk are presented at Appendix A.

3. Key sources of flood risk

- 3.1 Key sources of flood risk in Exeter:
- Exeter is located immediately at the tidal limit of the River Exe. The River Exe drains a major catchment of approximately 1500km², via the natural valley from Cowley Bridge to Topsham, and on to the English Channel at Exmouth. This main river system, into which many smaller watercourses discharge upstream, has a natural floodplain which extends south westward into areas of lower Exwick, St Thomas and Marsh Barton. Other areas at risk of flooding from the River Exe include the lower part of St Davids and Exeter Quay. Many of these areas are afforded some protection by the existing Exeter flood defence system (upgrade completed in 2022).
 - The tidal influence of the River Exe has implications for low lying areas to the south of the city downstream from Trews Weir, including Countess Wear and Topsham. The predicted impact of sea level rise is anticipated to cause significant increases to extreme high water levels in tidal areas and the potential for associated flooding. Topsham is located along the tidal reaches of the River Exe and is bounded to the north east by the tidal reaches of the River Clyst immediately upstream with its confluence with the River Exe. Hence its lower lying land is at risk of tidal flooding and wave overtopping.

- Many of the watercourses that eventually discharge into the River Exe have their own localised flood risk issues: Alphinbrook; Matford Brook; Northbrook; Pinbrook; Taddiforde Brook, Larkbeare Culvert, and Longbrook Culvert.
- Surface water flooding is a risk across much of the urban area. The general geology of the Exeter area is predominantly of various forms of clay that are generally impervious, and combined with areas of hardstanding in the urban area these can respond rapidly to runoff especially in sudden downpours.
- There is a potential risk of flooding from groundwater although the natural groundwater table generally remains fairly constant with some seasonal and tidal fluctuations.
- Sewer flooding is a risk in some areas of the city, typically in the older parts of the city which are still served by Combined Sewers with limit capacity, or where historic watercourse catchments have been covered over and drained by sewers with are exceeded in extreme rainfall.

- 3.2 The Town and Country Planning (General Development Procedure Amendment No.2, England) Order 2006 introduced the concept of Critical Drainage Areas as ‘an area within flood zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency’. Within these catchments, the drainage of surface water requires extra consideration and surface water run-off rates from development should be restricted to reduce flood risk. Whilst there are currently no critical drainage areas in Exeter, this is under review by the Environment Agency. It will be important for the SFRA level 2 work to consider this issue further.

Combined effects of different forms of flooding

- 3.3 It is recognised that some types of flooding are more likely to occur simultaneously, or at least within a similar timescale:
- Fluvial and tidal flooding: Extreme tidal conditions caused by severe weather, can often occur at the same time as excessive rainfall over an extended period of time that causes a river to exceed its capacity.
 - Pluvial and fluvial flooding: Intense rainfall in urban areas often generates both pluvial flooding due to the limited capacity of drainage systems, as well as fluvial flooding caused by deluges from river channels. The concurrence of pluvial and fluvial flooding can aggravate their (individual) potential damages.
- 3.4 Where these types of flooding do occur in combination there are often complex interactions which need to be understood in order to minimise flood risk. The SFRA level 2 work will need to consider the potential for such interactions.

4. Flood management and defences

Exeter River Exe flood defence scheme

- 4.1 The Exeter flood defence scheme was completed by the Environment Agency in 2022 and has reduced flood risk to more than 3,000 homes and businesses in Exeter. The work was split into two main phases.

- 4.2 Phase 1 involved work in and around the Trews flood relief channel and construction began in 2014. The Trews flood relief channel and the side spill weir at the top of the channel have been lowered. This has increased the flow capacity of the flood relief channel, which will help reduce flood risk to the quay area during high river flows. The channel was also changed into a more natural form with a stream running through it. This work was completed in 2016.
- 4.3 The Phase 2 work was much more significant and stretched across the whole of Exeter, from Cowley Bridge down to Bridge Road, Countess Wear. Material 'won' from the Phase 1 work was reused in new embankments. Phase 2 also saw the construction of new flood walls, flood gates, control structures and bespoke demountable defences at Exeter Quay.
- 4.4 Due to the impact the flood defence work had on the environment, habitat mitigation works were completed in various parts of Exeter, which included new wetland areas, the planting of thousands of trees including community orchard areas, and the introduction of a variety of new grass/wildflower seed mixes used on the new flood embankments to improve biodiversity alongside the River Exe as it flows through the city.

Flood risk asset register

- 4.5 Under Section 21 of the Flood and Water Management Act, Lead Local Flood Authorities are required to maintain a register and record of all structures and features that are anticipated to have an effect on flood risk in the area.
- 4.6 This record is kept and maintained by Devon County Council (DCC) and includes information such as location, type of structure, ownership, and state of repair. It relies on information provided by other agencies and is updated quarterly. It is available to view online via [DCC's Environment Viewer](#).

Land needed for new flood risk features/structures

- 4.7 No land has currently been identified by the Risk Management Authorities as being needed for future flood risk management features and structures within Exeter City Council. It is likely that parts of Exeter's valley parks and landscape setting areas may be suitable for flood risk alleviation schemes in the future (see sections 8.6 – 8.9 of this report for more information on natural flood management).

5. Functional floodplain

- 5.1 It has been agreed with the Environment Agency that for this level 1 SFRA a precautionary approach will be taken whereby it is initially assumed that the functional flood plain should consist of all undefended areas of flood zone 3 (i.e. all those areas within flood zone 3 where there are no flood defences together with all those areas within flood zone 3 on the river side of the Exe flood defences).
- 5.2 Flood zone 3 and the Exe flood defences are shown on the Government's [Flood map for planning](#).

6. Expected effects of climate change

- 6.1 Climate change is expected to increase the frequency and magnitude of severe flooding across the UK. Making an allowance for climate change helps minimise vulnerability and provide resilience to flooding and coastal change in the future.
- 6.2 The Environment Agency [climate change allowances](#) are predictions of anticipated change for:
- Peak river flow by river basin district
 - Peak rainfall intensity
 - Sea level rise
 - Offshore wind speed and extreme wave height.
- 6.3 They are based on climate change projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere. There are different allowances for different periods of time.
- 6.4 The SFRA level 2 work will be undertaken utilising up-to-date climate change allowances.

7. Cumulative impacts of development and land use change

- 7.1 New development and changes to land use can affect the risk of flooding in an area. The desired outcome is that development proposals and decisions address the cumulative impact on the risk of flooding by including measures that avoid future increases to flood risk and ideally reduce flood risk.
- 7.2 Impacts on the risk of flooding should be expected from:
- Strategically planned development.
 - Windfall development.
 - Permitted development.
 - Significant changes in land use, such as paving over domestic gardens or large areas of woodland planting or felling.
- 7.3 Exeter City Council, as Local Planning Authority, does not have control over all of these developments and changes to land use, and therefore actions to address flood risk need to focus on achieving betterment wherever possible and on supporting upstream natural solutions. Strong policies on SuDS (Sustainable Drainage Systems) and green infrastructure also help. Furthermore, as the flood catchment is larger than the administrative area of Exeter City Council, RMA's needs to work collectively and in partnership to address these risks.

8. Opportunities to reduce cases and impact of flooding

- 8.1 Some of the key approaches to reduce cases and impact of flooding within Exeter are listed below.

Sustainable Drainage Systems (SuDS)

- 8.2 Approaches to managing surface water which take account of water quantity, water quality, public amenity and biodiversity issues are collectively referred to as Sustainable Drainage Systems (SuDS).
- 8.3 Conventional drainage systems employ underground pipe networks which prevent localised flooding by conveying water away as quickly as possible; they are only effective at managing water quantity (flows and volumes). SuDS are able to manage surface water flows and volumes in open features on the ground surface, whilst also providing benefits to water quality, public amenity and biodiversity. SuDS are typically easier to maintain and less prone to blockages and exceedance than conventional drainage systems, and are usually cheaper to install and maintain. These systems are also more sustainable than conventional drainage methods because they:
- Manage runoff volumes and flow rates, reducing the impact of urbanisation on flooding.
 - Protect or enhance water quality.
 - Are sympathetic to the environmental setting and the needs of the local community.
 - Provide a habitat for wildlife in urban watercourses.
- 8.4 The layout and function of drainage systems need to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. More information regarding SuDS (including local SuDS guidance and associated checklist) can be found on Devon County Council's flood risk management web pages .
- 8.5 In January 2023 the Government recommended making sustainable drainage systems mandatory to new developments in England. Regulations and processes will now be devised through the implementation of Schedule 3 to the Flood and Water Management Act 2010. Implementation of the new approach is expected during 2024.

Natural flood management

- 8.6 Natural flood management aims to protect, restore and emulate the natural functions of catchments, floodplains and rivers. A wide range of techniques can be used to reduce flood risk by slowing or storing water within the landscape, whilst achieving other benefits such as biodiversity, habitat creation, water quality and retaining productivity of agricultural land. Examples of natural flood management measures used include peatland mire creation, woody debris dam creation, targeted woodland planting and improving floodplain connectivity.

- 8.7 As early as 2010 natural flood management was being promoted as a novel way of reducing flood risk. The Flood and Water Management Act (2010) and Environment Agency Catchment Flood Management Plans promote working with natural processes where possible. Environment Agency and other RMAs are commissioning work in this area both nationally and locally.
- 8.8 Devon County Council's Flood and Coastal Risk Management Team are also committed to supporting natural flood management measures either as standalone projects or within larger flood improvement schemes to future proof against the effects of climate change.
- 8.9 There is potential for natural flood management to be used as a complementary approach for addressing flood risk. Over the Exeter Plan's plan period natural flood management is likely to be utilised more widely. However, key to the success of natural flood management is the need to consider issues at the catchment level, identifying strategic scale interventions and engendering collaboration between landowners and communities at an early stage. As the flood catchment is larger than the administrative area of Exeter City Council, neighbouring authorities and RMAs will need to work collectively and in partnership to deliver suitable natural flood management.

Flood alerts and warnings

- 8.10 There are measuring stations along most main rivers and tidal areas, including the River Exe at Trews Weir and several in the Exe Estuary. The levels at these stations can help understand flood risk in the run up to, and during, a potential flood event.
- 8.11 Individuals and business can sign up to receive flood alerts and warnings from the Environment Agency and this service is free. 'Flood Alerts' are issued when flooding is possible. 'Flood Warnings' are issued when flooding is expected to occur. 'Severe Flood Warnings' are issued to similar areas when there is a danger to life or widespread disruption is expected. Being aware of the flood risk can help individuals and business take action to limit damage to property and risk to life.
- 8.12 Unfortunately there is currently no reliable warning system for surface water flood events; it is worth recognising this and taking appropriate design resilience measures when developing in areas that are at risk from this form of flooding.

Property Flood Resilience

- 8.13 Property Flood Resilience (PFR) is an important element of flood risk management. PFR includes a range of measures that can be installed on a building to reduce the risk of floodwater entering the property. PFR can also be used to make the inside of a property more resilient (also known as recoverability) minimising damage even if water does still enter the building.
- 8.14 PFR aims to help households and businesses reduce the damage caused by flooding, helping to speed up recovery and reoccupation. PFR is made up of two main elements: Resistance Measures and Resilient Adaptation.

Resistance Measures can be fitted to the outside of a property, forming a physical barrier between the floodwater and the inside of the building. These measures aim to reduce the amount of water entering the building, reducing the damage caused internally.

Resilient Adaptation (also known as recoverability) can be used alongside the external resistance measures to adapt the internal property, aiming to limit the damage caused if water does enter a building to speed up recovery and reoccupation.

- 8.15 Many properties already have PFR measures installed, either funded by themselves or through Devon's individual property flood resilience scheme. Devon's PFR scheme is available for previously flooded residential property owners to apply for grant funding. There is limited funding, with an allocation to be made available each year by Defra, Local Levy and DCC. Applications will therefore be prioritised based on the criteria set out in DCC's PFR Policy to maximize the number of properties benefitting from this opportunity and to ensure those properties with the greatest need will receive the funding.

9. Recommendations on how to address flood risk in development

- 9.1 In order to deliver the sustainable regeneration of brownfield areas within Exeter, flood risk will need to be mitigated through SuDS and other nature based solutions and managed through design and site layout to ensure the development is appropriately flood resistant and resilient.

National Policy

- 9.2 In determining planning applications the Council will adhere to the National Planning Policy Framework (paragraph 173):

When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) any residual risk can be safely managed; and*
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

Emerging Local Plan

- 9.3 Policies within the emerging Local Plan, the Exeter Plan (which this level 1 SFRA supports), will make an important contribution to addressing flood risk in development; both in terms of ensuring new development is safe throughout its

lifetime (without increasing flood risk elsewhere) and in bringing forward strategic flood risk solutions that help to mitigate climate change and adapt to a changing climate. The relevant emerging policies of the Exeter Plan are presented at Appendix B.

- 9.4 Supplementary planning guidance in the form of Supplementary Planning Documents (SPDs) can also help address flood risk. In particular, the Residential Design Guide SPD, the Householder's Guide: Design of Extensions and Alterations SPD and the emerging Liveable Water Lane SPD all make specific reference to how to address flood risk in new development.

Safe emergency access and egress

- 9.5 For vulnerable development (including residential development) within certain flood risk areas, demonstrating a safe route of access and escape which is set above the estimated flood level and connects the site to an area away from flood risk will be vital. For largescale brownfield allocations this is a strategic issue that should be addressed collectively and therefore the Council has commissioned an Emergency Access and Egress Study (EAES).
- 9.6 The EAES will be undertaken by JBA Consulting working in partnership with key stakeholders including the Environment Agency and Devon County Council. The EAES will be published online with the Exeter Plan evidence when it is complete.

Avoiding inappropriate development in flood zones

- 9.7 The following forms of 'highly vulnerable' development will not be permitted in areas of high flood risk (flood zone 3):
- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
 - Emergency dispersal points.
 - Basement dwellings.
 - Caravans, mobile homes and park homes intended for permanent residential use.
 - Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').
- 9.8 Furthermore, within flood zone 3b (functional flood plain) only essential infrastructure that has passed the exception test and water compatible uses will be permitted, and only when they are 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.

10. The sequential test and flood risk assessment

Need for a sequential test

10.1 You need to undertake a sequential test if both of the following apply:

- Your development is in flood zone 2 or 3,
- A sequential test hasn't already been done for a development of the type you plan to carry out on your proposed site.

You don't need to do a sequential test for a development in flood zone 1 unless there are flooding issues in the area of your development.

10.2 Large parts of Exeter are within flood zones 2 and 3, or are subject to surface water flooding and therefore application of the sequential test will be required. Applicants are advised to refer to the government guidance: [Flood risk assessment: the sequential test for applicants - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/guidance/flood-risk-assessment-the-sequential-test-for-applicants)

Application of the sequential test in Exeter

10.3 The sequential test seeks to ensure that development is steered to the lowest risk areas, where it is compatible with wider sustainable development objectives to do so. A key strand of Exeter's new spatial strategy seeks to steer the majority of development to urban brownfield sites in order to protect the city's landscape and retain Exeter's environmental quality. Development in the urban area on brownfield sites has significant and widespread benefits, including the potential to help mitigate climate change by limiting the need to travel and supporting local energy networks.

10.4 Therefore, the Council takes the view that with reference to paragraph 023 of the Planning Practice Guidance, development on brownfield or previously developed land within the urban area will generally meet the sequential test as it is compatible with wider sustainability objectives.

10.5 It may also be possible to argue that the redevelopment of a brownfield site outside the urban area, or of a greenfield site within the urban area, meets the sequential test on the grounds of the wider sustainability benefits, although such a case will need to be made on a site by site basis.

10.6 Development of greenfield sites in areas of flood risk outside the urban area will not generally be considered to meet the sequential test.

Need for the exception test

10.7 Even if the sequential test is met you will need to do another test called the exception test if your development is:

- Highly vulnerable and in flood zone 2
- Essential infrastructure in flood zone 3a or 3b
- More vulnerable in flood zone 3a

10.8 The exception test shows how you'll manage flood risk on your proposed site. In your exception text you need to show that the sustainability benefits of the development to the community outweigh the flood risk. You also need to show that the development will be safe for its lifetime taking into account the vulnerability of its users and that it

won't increase flood risk elsewhere. You can present the exception test in any format, but you need to refer to your flood risk assessment and the level 1 and level 2 SFRA.

Need for a flood risk assessment (FRA)

10.9 You need to do a flood risk assessment for most developments within one of the flood zones. This includes developments:

- In flood zone 2 or 3 including minor development and change of use.
- More than 1 hectare (ha) in flood zone 1.
- Less than 1 hectare (ha) in flood zone 1, including a change of use in development type to a more vulnerable class (for example, from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example, surface water drains, reservoirs).
- In an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency.

Much of Exeter is affected by surface water flooding. This means that there are many areas outside flood zone 2 and 3 where even small-scale development and changes of use will require a flood risk assessment (FRA).

10.10 If you need a FRA to accompany your planning application, you will normally need a flood risk specialist to carry it out. Flood risk assessments should be carried out following the guidance on Government's website: [Flood risk assessments if you're applying for planning permission - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/flood-risk-assessments-if-youre-applying-for-planning-permission)

Exeter specific requirements

10.11 Applicants are advised to note that emerging policy in the Exeter Plan (see policy CC8: Flood Risk found at Appendix B) states that residential development in flood zone 3 will only be permitted where, in addition to satisfying the sequential test and exception test, the development also contributes to reducing overall flood risk.

11. Conclusions and further work

11.1 Exeter is at risk from fluvial, pluvial and tidal flooding. However, development of brownfield sites within the urban area meets sustainability objectives and will help deliver net zero. Therefore, the emerging Exeter Plan is proposing development in areas at flood risk where the benefit of this development will exceed the risk and where flood risk can be appropriately mitigated. This level 1 SFRA supporting report sets the scene for the more detailed level 2 SFRA to be completed by JBA Consulting. It also provides information on the various ways through which flood risk can be managed together with guidance on the broad requirements for flood risk assessments to support development proposals.

APPENDIX A – Managing flood risk: Roles and responsibilities

There is no single body responsible for managing flood risk in the UK. Responsibility is joint among a number of bodies.

Government

The Department for Environment, Food and Rural Affairs (Defra) is the policy lead for flood and coastal erosion risk management in England. New or revised policies are prepared with other parts of government such as the Treasury, the Cabinet Office (for emergency response planning) and the Department for Levelling-up Housing and Communities (for land-use and planning policy). These national policies are then delivered by Risk Management Authorities (RMAs) which are:

- Environment Agency
- Lead Local Flood Authorities
- District and Borough Councils
- Coast protection authorities
- Water and sewerage companies
- Internal Drainage Boards (IDB)
- Highways authorities

The Flood and Water Management Act 2010 requires these Risk Management Authorities to:

- Co-operate with each other,
- Act in a manner that is consistent with the National Flood and Coastal Erosion Risk Management Strategy for England and the local flood risk management strategies developed by Lead Local Flood Authorities,
- Exchange information.

They have flexibility to form partnerships and to act on behalf of one another.

Environment Agency

The Environment Agency has a strategic overview of all sources of flooding and coastal erosion (as defined in the Flood and Water Management Act 2010). It is also responsible for flood and coastal erosion risk management activities on main rivers and the coast, regulating reservoir safety, and working in partnership with the Met Office to provide flood forecasts and warnings. It must also look for opportunities to maintain and improve the environment for people and wildlife while carrying out all of its duties.

The Environment Agency's work includes:

- Developing long-term approaches to Flood and Coastal Erosion Risk Management (FCERM). This includes developing and applying the national flood and coastal erosion risk management strategy.
- Allocation of national Government funding to projects to manage flood and coastal erosion risks from all sources.
- Delivering projects to manage flood risks from main rivers and the sea.

- Working with others to prepare and deliver Flood Risk Management Plans (FRMPs). FRMPs explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs, and set out how the Environment Agency, Lead Local Flood Authorities (LLFAs) and other Risk Management Authorities work with communities to manage those risks. The Environment Agency and Defra provide guidance to LLFAs on their role in developing FRMPs.
- Providing evidence and advice to support others. This includes national flood and coastal erosion risk information, data and tools to help other Risk Management Authorities and inform Government policy, and advice on planning and development issues.
- Working with others to share knowledge and the best ways of working. This includes work to develop FCERM skills and resources.

Monitoring and reporting on flood and coastal erosion risk management. This includes reporting on how the national FCERM strategy is having an impact across the country.

Lead Local Flood Authorities (LLFAs)

Devon County Council is the LLFA for the Exeter area. LLFAs lead in managing local flood risks (i.e. risks of flooding from surface water, ground water and ordinary (smaller) watercourses). This includes ensuring co-operation between the Risk Management Authorities in their area. Under the Flood and Water Management Act 2010, LLFAs are required to:

- Prepare and maintain a strategy for local flood risk management in their areas, coordinating views and activity with other local bodies and communities through public consultation and scrutiny, and delivery planning. They must consult Risk Management Authorities and the public about their strategy.
 - The LGA produced a framework in 2011 to assist with the development of these strategies.
- Carry out works to manage local flood risks in their areas (the power for works in relation to minor watercourses sits with either the district council or unitary authorities outside of Internal Drainage Boards (IDB) areas).
- Maintain a register of assets – these are physical features that have a significant effect on flooding in their area.
- Investigate significant local flooding incidents and publish the results of such investigations.
- Have powers under the Land Drainage Act 1991 to regulate ordinary watercourses (outside of internal drainage districts) to maintain a proper flow by:
 - Issuing consents for altering, removing or replacing certain structures or features on ordinary watercourses; and
 - Enforcing obligations to maintain flow in a watercourse and repair watercourses, bridges and other structures in a watercourse.
- Undertake a statutory consultee role providing technical advice on surface water drainage to local planning authorities major developments (10 dwellings or more).
- Co-operate with other Risk Management Authorities.

- Play a lead role in emergency planning and recovery after a flood event.

LLFAs and the Environment Agency and all other Risk Management Authorities need to work closely together and ensure that the plans they are making both locally and nationally link up. An essential part of managing local flood risk is taking account of new development in land use plans and strategies.

By working in partnership with communities, LLFAs can raise awareness of flood and coastal erosion risks. Local flood action groups (and other organisations that represent those living and working in areas at risk of flooding) will be useful and trusted channels for sharing information, guidance and support direct with the community. The National Flood Forum may be able to provide information on flood action groups in your area.

LLFAs should encourage local communities to participate in local flood risk management. Depending on local circumstances, this could include developing and sharing good practice in risk management, training community volunteers so that they can raise awareness of flood risk in their community, and helping the community to prepare flood action plans. LLFAs must also consult local communities about their local flood risk management strategy.

District Councils

District Councils, such as Exeter City Council, are Risk Management Authorities and key partners in planning local flood risk management. They:

- Can carry out flood risk management works on minor watercourses (outside of IDB areas),
- Work in partnership with LLFAs and other Risk Management Authorities to ensure risks are managed effectively, including in relation to taking decisions on development in their area.

Water and sewerage companies

Water companies, such as South West Water, are Risk Management Authorities (RMAs) and play a major role in managing flood and coastal erosion risks. They manage the risk of flooding to water supply and sewerage facilities and flood risks from the failure of their infrastructure.

The main roles of water and sewerage companies in managing flood and coastal erosion risks are to:

- Make sure their systems have the appropriate level of resilience to flooding, and maintain essential services during emergencies.
- Maintain and manage their water supply and sewerage systems to manage the impact and reduce the risk of flooding and pollution to the environment. They have a duty under section 37 and 94 of the Water Industry Act 1991 to ensure that the area they serve is “efficiently and economically” supplied with water and “effectually drained”. This includes drainage of surface water from domestic and commercial premises, but does not extend to land or highway drainage, as well as provision of foul sewers.
- Provide advice to LLFAs on how water and sewerage company assets impact on local flood risk.

- Work with developers, landowners and LLFAs to understand and manage risks – for example, by working to manage the amount of rainfall that enters sewerage systems.
- Work with the Environment Agency, LLFAs and district councils to highlight relevant water consumption and drainage considerations and coordinate the management of water supply and sewerage systems with other flood risk management work.

Where there is frequent and severe sewer flooding, sewerage undertakers are required to address this through their capital investment plans, which are approved and regulated by Ofwat. This happens every 5 years through the Price Review process. Water companies have outcome delivery incentives (ODIs) that they agree with customers and partners. All water and sewerage companies have sewer flooding ODIs. Some companies have ODIs on partnership working, sustainable drainage and resilience of services.

Regulating the industry – Ofwat

Ofwat, as regulator of the water sector in England and Wales, has duties which are laid down in sections 2 and 3 of the Water Industry Act 1991 (WIA91). Ofwat must carry out its work in the way it considers will best:

- Further the consumer objective to protect the interests of consumers, wherever appropriate by promoting effective competition.
- Secure that water companies (meaning water and sewerage undertakers) properly carry out their statutory functions.
- Secure that water companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their statutory functions.
- Secure that water supply licensees and sewerage licensees properly carry out their licensed activities and statutory functions.
- Further the resilience objective to secure the long-term resilience of water companies' water supply and wastewater systems; and to secure that they take steps to enable them, in the long term, to meet the need for water supplies and wastewater services.

Subject to these main duties Ofwat must also:

- Promote economy and efficiency by water companies in their work.
- Secure that no undue preference or discrimination is shown by water companies in fixing charges.
- Secure that no undue preference or discrimination is shown by water companies in relation to the provision of services by themselves or by water supply licensees or sewerage licensees.
- Secure that consumers' interests are protected where water companies sell land.
- Ensure that consumers' interests are protected in relation to any unregulated activities of water companies.
- Contribute to the achievement of sustainable development.

Ofwat must also have regard to the principles of best regulatory practice. These include that regulatory activities should be transparent, accountable, proportionate, consistent and targeted.

Ofwat must also act in accordance with the statutory strategic policy statements published by Defra and the Welsh Government and comply with general environmental and recreational duties in section 3 of WIA91.

Ofwat have similar duties to those that apply in relation to water companies when regulating licensed infrastructure providers, such as Tideway. This is set out in the Water Industry (Specified Infrastructure Providers) (English Undertakers) Regulations 2013.

Water UK

Water UK represents all UK water and wastewater service suppliers at national and European level. It provides a framework for the water industry to engage with government, regulators, stakeholder organisations and the public. They share information on water companies' performance on the Discover Water website.

Highways authorities

Highways authorities (Devon County Council and National Highways) have the lead responsibility for providing and managing highway drainage and roadside ditches under the Highways Act 1980. The owners of land adjoining a highway also have a common-law duty to maintain ditches to prevent them causing a nuisance to road users.

They co-operate with the other Risk Management Authorities to ensure their flood management activities are well coordinated.

APPENDIX B - Emerging Exeter Plan policies: Full Draft Plan

CC8: Flood Risk

In all areas at risk of flooding, development will only be permitted where it is demonstrated that the proposal satisfies the sequential test and, where necessary, the exception test. In Flood Zone 3 residential development will only be permitted where, in addition to satisfying these tests, it also contributes to reducing overall flood risk. A site-specific flood risk assessment will be required for all development proposals at risk of flooding. All development proposals must mitigate against flood risk by utilising SuDS unless there is clear evidence that this would be inappropriate.

CC9: Water quality and quantity

All new residential development must achieve as a minimum water efficiency that requires an estimated water use of no more than 110 litres per person per day. Development proposals that support the return of Exeter's water bodies to 'good' ecological status, and thereafter maintains that status, will be supported. Development proposals that harm the ecological status of any of Exeter's water bodies will not be supported. The City Council will work closely with South West Water and all other partners to help deliver the Drainage and Wastewater Management Plan and, where necessary, contributions will be sought towards water infrastructure.

NE4: Green infrastructure

All development proposals will be required to protect existing and take opportunities to deliver new, green infrastructure in accordance with the updated Green Infrastructure Strategy.

All large scale residential development proposals will be required to submit a Green Infrastructure Plan setting out how the development will link to existing green infrastructure (including PROW, Valley Parks and the Exeter Green Circle) and demonstrating how the development will contribute to the delivery of the Green Infrastructure Strategy. Where necessary, contributions to enhance green infrastructure, sustainable transport links and gateway access points will be sought.

NE6: Urban greening policy

Major development proposals must include the latest version of Natural England's Urban Greening Factor (UGF) calculator demonstrating how the development will achieve UGF scores of at least:

- a. 0.3 for predominately commercial development; and
- b. 0.4 for predominately residential development (or 0.5 for predominantly greenfield residential development).

An operation and maintenance plan must also be included which satisfactorily demonstrates that the green features will be successfully retained throughout the life of the building.

NE7: Urban tree canopy cover

To contribute towards the City Council achieving its target to increase tree canopy cover to 30%, all new streets must be tree-lined and major development proposals must increase tree canopy cover on-site by at least 5.5% when compared to the pre-development baseline.