

# Hampshire Catchment Prioritisation

## Test (Lower) Catchment Management Plan

Hampshire County Council

May 2023

# Notice

This document and its contents have been prepared and are intended solely as information for Hampshire County Council and use in relation to Hampshire CMP Test (Lower).

Atkins assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 39 pages including the cover.

This Catchment Plan reflects extensive scoping work and is now presented for formal consultation, to identify whether any further changes are required before it is considered for adoption. Hampshire County Council is committed to listening to the views of residents and stakeholders before deciding which actions to take and the consultation seeks to understand views on the proposed approach, the impacts that may arise as a result of this and any alternative options that should also be included.

## Document history

| Revision | Purpose description  | Originated | Checked | Reviewed | Authorised | Date       |
|----------|----------------------|------------|---------|----------|------------|------------|
| Rev 1.0  | Test Lower CMP       | RM         | CC      | LW       | LW         | 12/10/2020 |
| Rev 2.0  | Test Lower CMP       | SH         | VW      | VW       | SC         | 23/05/2022 |
| Rev 3.0  | Final Test Lower CMP | SH         | VW      | VW       | SC         | 30/05/2023 |

## Client signoff

|             |                                    |
|-------------|------------------------------------|
| Client      | HCC                                |
| Project     | Hampshire Catchment Prioritisation |
| Project No. | 5162821                            |

No part of this document may be copied or reproduced by any means without prior written permission from Hampshire County Council. Any advice, opinions, or recommendations within this document; should be read and relied upon only in the context of this document as a whole, do not in any way purport to include any manner of legal advice or opinion, are based on the information made available to Hampshire County Council at the date of this document and on current UK standards, codes, technology, and construction practises as at the date of this document.

No liability is accepted for any use of this document other than for the purpose for which it was originally prepared and provided. Hampshire County Council cannot accept responsibility for any use or reliance on the contents from this report by any third party.

Maps are reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.

Hampshire County Council Economy,  
Transport and Environment Department,  
The Castle, Winchester,  
Hampshire,  
SO23 8UD

Tel: 0845 603 5638  
Fax: 01962 847055  
[www.hants.gov.uk](http://www.hants.gov.uk)

# Contents

| Chapter                                 | Page |
|-----------------------------------------|------|
| Executive Summary                       | i    |
| The Catchment                           | ii   |
| Aims and Objectives                     | 1    |
| Key Stakeholders                        | 3    |
| Test (Lower) Catchment Description      | 5    |
| Prioritisation Assessment               | 11   |
| Mitigation Measures                     | 13   |
| Action Plans                            | 26   |
| Conclusions                             | 27   |
| Appendix 1 - Data                       | 28   |
| Appendix 2 - Prioritisation Methodology | 29   |

## Tables

|                                                                         |    |
|-------------------------------------------------------------------------|----|
| Table 1 - Key Stakeholders                                              | 3  |
| Table 2 - Test Lower Sub Catchments with Priority Groups highlighted    | 12 |
| Table 3 – Initial Actions for Priority Areas                            | 18 |
| Table 4- PRIORITY GROUP 1 – Totton North West                           | 20 |
| Table 5 - PRIORITY GROUP 2 - Totton South East                          | 21 |
| Table 6 - PRIORITY GROUP 3 – Hythe                                      | 22 |
| Table 7 - PRIORITY GROUP 4 - North Baddesley and Tadburn                | 23 |
| Table 8 - PRIORITY GROUP 5 – Cadnam                                     | 24 |
| Table 9 - PRIORITY GROUP 6 – Ower                                       | 25 |
| Table 11 – Natural Flood Risk Management Hierarchy                      | 26 |
| Table 12 - Datasets used to develop the Test Lower Catchment Plan       | 28 |
| Table 13 - Criteria used in the Hampshire Catchment Prioritisation tool | 29 |

## Figures

|                                                                                       |     |
|---------------------------------------------------------------------------------------|-----|
| Figure 1 – Local Flood and Water Management Strategy Plan                             | i   |
| Figure 2 – Catchment Area                                                             | ii  |
| Figure 3 – Natural Flood Management Hierarchy                                         | iii |
| Figure 4 – Preferred Discharge Destination Hierarchy                                  | iv  |
| Figure 5 - Framework of Principles                                                    | 1   |
| Figure 6 - Hampshire Catchment Areas                                                  | 2   |
| Figure 7 - Topography of the Test (Lower) catchment                                   | 5   |
| Figure 8 - Environment Agency Flood Map for Planning for the Test (Lower) catchment   | 6   |
| Figure 9 - Geology of the Test (Lower) Catchment                                      | 7   |
| Figure 10 - Environment Agency Flood Risk from Surface Water Map for the Test (Lower) | 8   |
| Figure 11 - Recorded historical flooding events in the Test (Lower) catchment         | 10  |
| Figure 12 - Test Lower Catchment priority groups                                      | 11  |
| Figure 13 – Natural Flood Management Hierarchy                                        | 26  |

# Foreword



From working with communities developing new flood action plans, to improving the management of our natural resources, the County Council's ambition is to be at the forefront of flood risk and water management creating a **safer, more resilient Hampshire**. Our priority is to **protect people, homes, businesses, and key infrastructure** by:

- **Reducing** risks and managing water resources through effective planning and design.
- **Reducing** future flooding by lessening or removing existing risks.
- **Adapting** to flood risk in order to minimise the impact and enable normal life to return as soon as possible.
- **Enabling** communities to be better prepared to react to flood events and recover more easily; and
- **Adopting** effective practices that are sustainable and affordable now and in the future and adaptable to future climate change and prediction.

Under the [Flood and Water Management Act of 2010](#), each Lead Local Flood Authority (LLFA) across the country is required to produce a Local Flood Risk Management Strategy (LFRMS). Hampshire County Council is LLFA for Hampshire and our first LFRMS was adopted in 2013, since then our knowledge of the broad nature and extent of flood risk and the implications of poor water management across Hampshire has been improved. In light of this, Hampshire County Council has updated its LFRMS and released a [Local Flood and Water Management Strategy \(LFWMS\)](#) in November 2020.

The LFWMS has changed the way we look at flood risk and water management in the county, by taking a more holistic view of the **overall management of water both in terms of its quality and quantity**.

**The strategy also takes into account the growing effects of any risks associated with Climate Change and future development on regional water management.**

In order to represent flood and water management risk in a more realistic and accurate way, the County Council has adopted a **catchment-based approach**, this allows the natural movement of water to be modelled according to geographic river catchment boundaries regardless of the administrative area it lies within or the Risk Management Authority (RMA) responsible for its management

The County Council has undertaken analysis of each of the eighteen river basin catchments which fall within the Hampshire boundary and produced a **Catchment Management Plan (CMP)** for each one.

This document sets out the Catchment Management Plan for the **Test (Lower) catchment area**. It highlights the areas within the catchment area that are at an increased risk of flooding, when compared to the rest of the catchment, as well as the various sources of flooding applicable to each area.

This plan should be read alongside the County Council's LFRMS, which sets out our strategy and policy for flood risk and water management in its widest sense.

Councillor Nick Adams-King  
Executive Member for Universal Services

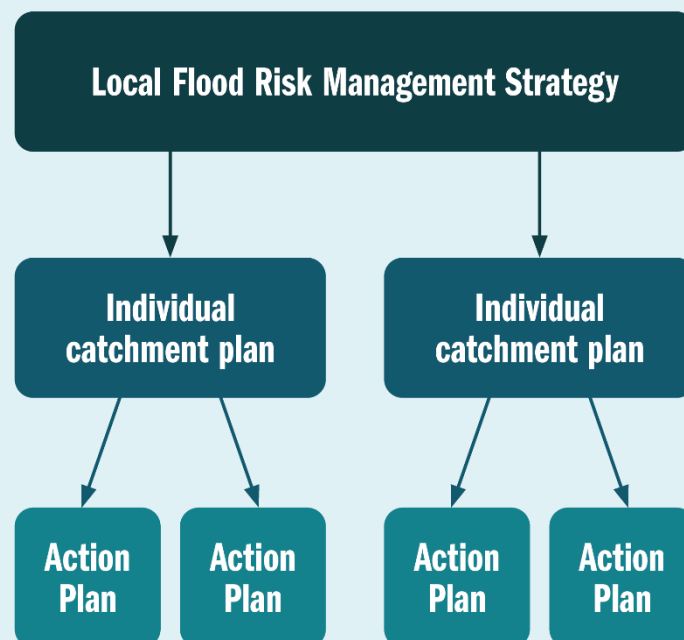
# Executive Summary

This Catchment Management Plan (CMP) follows the approach set out in [Hampshire County Council's Local Flood and Water Management Strategy \(LFWMS\)](#). This CMP seeks to **identify and prioritise areas** within the Test (Lower) river basin catchment that are at an **increased risk of flooding** due to **geographical, geological, or developmental features**, this may include areas which have experienced flooding in **past events**. The plan also uses other factors to determine a catchment's vulnerability to flooding and associated water management issues. These factors include **density of housing, presence of critical infrastructure and vulnerability of residents**.

The CMP seeks to understand **how and why the Test (Lower) catchment floods**, in order to support the introduction of a stepped approach to **interventions and preventative measures** that will reduce flood risk and improve overall water management, including drought, both now and in the future. The plan seeks to incorporate the associated future risks presented by challenges such as **climate change and increased development needs**.

Lastly, the plan is designed to **encourage greater collaboration** between partners, whether they be local residents, Risk Management Authorities (RMAs) or other organisations, to **share data and understand responsibilities** in order to develop appropriate Action Plans that will improve the catchment's resilience to current and future risks of flooding.

Figure 1 – Local Flood and Water Management Strategy Plan

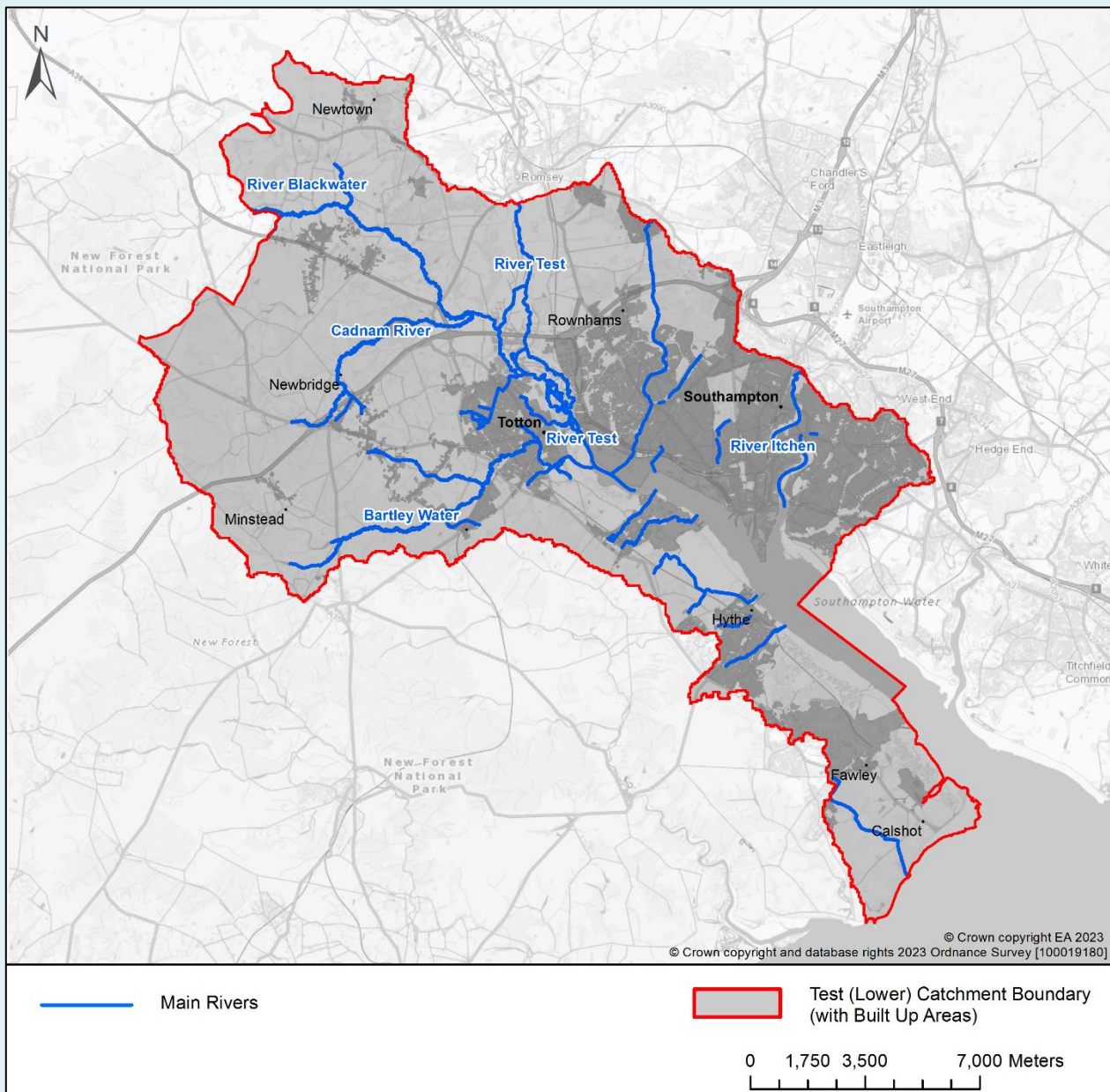


The above diagram demonstrates how the Local Flood and Water Management Strategy acts as an overarching document, drawing together Hampshire County Council's overall aspirations and policy direction for flood and water management in the county. Below this will sit a suite of **18 catchment plans**, of which this is one, based on the individual river basin catchments which fall either fully or partially within the county's borders. Individual action plans will then be developed, based on risk, for prioritised areas or communities of each catchment.

# The Catchment

The **Test (Lower) catchment** is **263km<sup>2</sup>** in size and consists of mainly rural communities but with significant areas of urban development, mostly located along the River Test, River Itchen (Southampton), River Blackwater, Cadnam River, Bartley Water, and their associated tributaries.

**Figure 2 – Catchment Area**



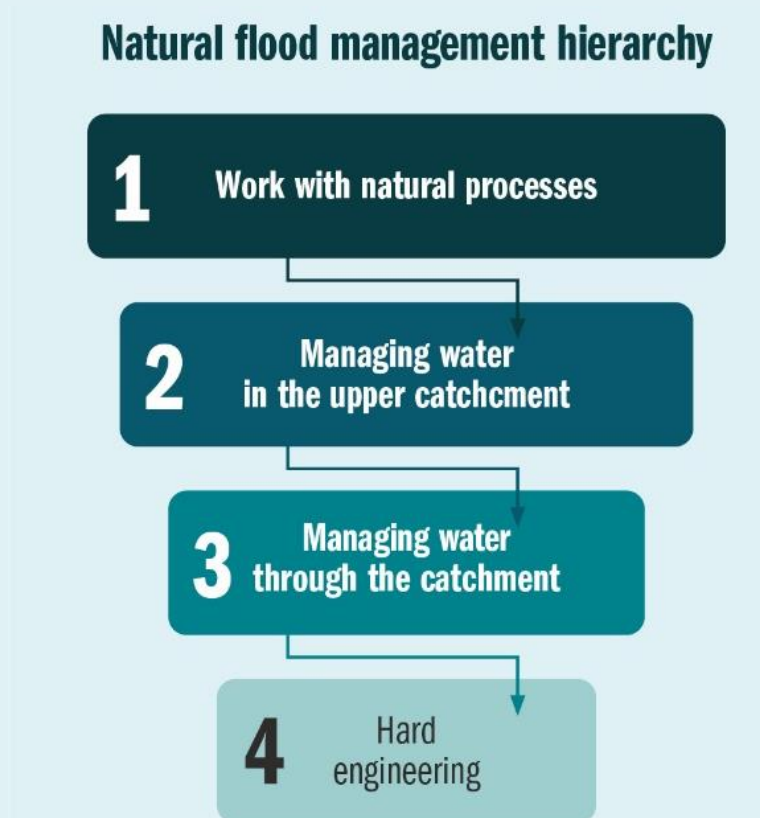
The **sources of flooding** for the Test (Lower) catchment include **surface water, coastal, fluvial, sewers and groundwater**, depending on the area within the catchment. Details and description of the major sources of flooding are included in the Catchment Description Section of this report. This CMP has adapted the Hampshire Catchment Prioritisation tool, developed in 2017, to assess the risk and impact of flooding in the Test (Lower) catchment area from different sources at a strategic level.

Communities vulnerable to similar sources of flooding have been grouped together and ranked in descending order of risk, impact, and damage. Groups that met the minimum criteria (see appendix 2) were classified as Priority Areas that are at the most significant risk of flooding. This has identified **6 Priority Areas** that are at the most significant risk of flooding: **Totton North West, Totton South East, Hythe, North Baddesley and Tadburn, Cadnam and Ower.**

Tangible **Action Plans** will be developed for each of these Priority Areas to mitigate flood risk using a collaborative approach with stakeholders for both development and delivery. As part of the Action Plan process, the upstream sub-catchment that drains towards the Priority Areas will be identified and designated as the Critical Contributing Area. The Action Plans will include a range of possible interventions and measures such as:

- **Natural flood management** measures.
- Management of water in **upper catchments**.
- Management of water through the catchment, for example, **sustainable drainage systems (SuDS)**.
- **Hard engineering measures** such as flood defence walls/embankments and structures.
- Directed policy development and guidance.
- Property Level Resilience; and
- Emergency response.

Figure 3 – Natural Flood Management Hierarchy



Hampshire County Council will implement its statutory duties to ensure that **new developments will not increase flood risk**, with a move towards seeking betterment in the more vulnerable areas highlighted in this CMP. Only new developments that demonstrate an understanding of **sustainable water management and environmental sensitivity**, and which provide appropriate mitigation and adaptation, based on the **Preferred**

**Discharge Destination Hierarchy** (figure 4) will be supported. This will ensure that the Test (Lower) catchment becomes more resilient to flood risk both now and in the future.

**Figure 4 – Preferred Discharge Destination Hierarchy**

### Preferred discharge destination hierarchy



# Aims and Objectives

In order to represent flood and water management risk in a realistic and accurate way, the County Council has adopted a catchment approach based on geographic river catchment boundaries. As stated in [Policy 2A of the Hampshire LFWMS](#), the County Council has developed 18 prioritised river catchment-based flood management plans.

Catchment Management Plans, known as CMPs, identify those areas within each catchment that are at an increased risk of flooding or that have experienced flooding in recent events. They also seek to understand how, why, and where the catchment floods, so that communities and Risk Management Authorities can co-ordinate flood risk reduction and overall water management activities both now and in future. Each CMP will support the application of the County Council's Framework of Principles:

**Figure 5 - Framework of Principles**

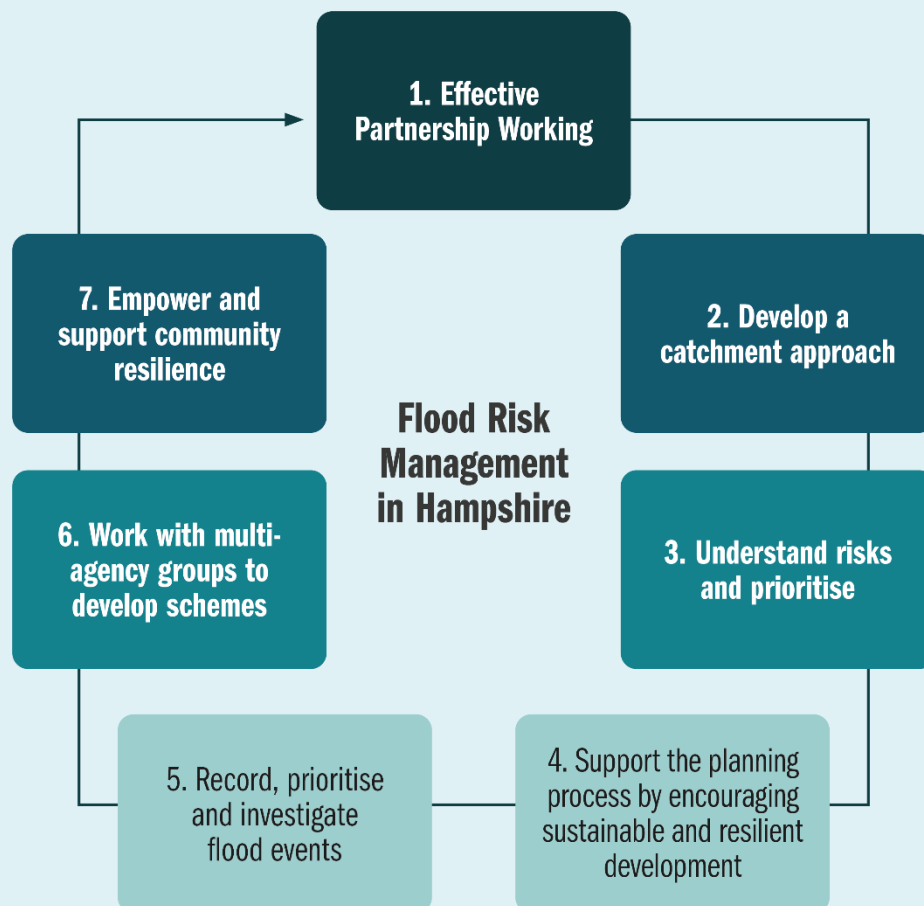


Figure 6 - Hampshire Catchment Areas

### Catchment areas



In 2017, a Geographical Information System (GIS) based **Catchment Prioritisation Tool** (CPT) was developed for Hampshire County Council to help identify those catchments most at risk from flooding within the county. By combining risk adjusted scores based on up to nine different criteria, the CPT provides a robust, **evidence-based approach** to support the strategic prioritisation of investment, inform discussions with key stakeholders, and underpin the Lead Local Flood Authority's LFWMS. The criteria used includes considering both risk to assets from different sources of flooding, recorded evidence of past flooding, and the future challenges of climate change.

The Hampshire catchment prioritisation tool has been used to support the principal objectives of this CMP:

- Establish the **causes and sources of flood risk** within the Test (Lower) catchment area and identify the geographic areas and communities that are at the highest risk of flooding.
- Assess the **potential impact** of flooding to the properties and strategic infrastructure assets located within those areas; and
- **Inform** the development of effective Action Plans that can be used by the County Council, Risk Management Authorities and other partners, and local communities to improve water management and resilience to flooding in the catchment area both now and in the future.

# Key Stakeholders

There are a **number of key stakeholders** that play an important role in improving water management and flood resilience across the Test (Lower) catchment. These key stakeholders are also involved in the preparation of **Flood Action Plans** and **maintenance of existing infrastructure** and have provided information in the development of this CMP. Hampshire County Council has formed the **Hampshire Strategic Flood and Water Management Board**, which involves the relevant Risk Management Authorities, to share ideas and steer the strategic direction of flood management in the Hampshire area. These and other key stakeholders, and their responsibilities, are listed in the table below.

**Table 1 - Key Stakeholders**

| Organisation                                                             | Risk Management Authority (as per the Flood and Water Management Act) and member of the Strategic Flood Risk Partnership Board | Role within the Test (Lower) Catchment Plan                                                     | Specific Role                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environment Agency</b>                                                | Yes                                                                                                                            | Main River and sea flooding overview                                                            | Responsible for managing flood risk from main rivers and the sea and has a strategic overview of all sources of flooding and coastal erosion.<br>Statutory Consultee                                                                                                                                                                |
| <b>Lead Local Flood Authority (Hampshire County Council)</b>             | Yes                                                                                                                            | Managing local flood risk sources (i.e., surface water, ground water and ordinary watercourses) | Consenting authority for ordinary watercourses<br>Developing a plan/strategy for local sources of flooding<br>Emergency Planning function<br>Preparing and submitting bids to mitigate local sources of flooding.<br>Working with local communities on flood resilience plans<br>Statutory Consultee on major planning applications |
| <b>Highway Authority (Hampshire County Council and Highways England)</b> | Yes                                                                                                                            | Highway drainage infrastructure                                                                 | Drainage of the highway                                                                                                                                                                                                                                                                                                             |
| <b>New Forest National Park</b>                                          | No                                                                                                                             | Planning                                                                                        | Local Plans & Planning Policy, Determining/Enforcing planning applications                                                                                                                                                                                                                                                          |
| <b>Test Valley Borough Council, and New Forest District Council.</b>     | Yes                                                                                                                            | Planning and emergency planning role within the Council's jurisdictions                         | Local Plans & Planning Policy, Determining/Enforcing planning applications.<br>Preparing and submitting bids to mitigating local sources of flooding<br>Working with local communities on flood resilience plans,<br>Environmental Health- Powers on                                                                                |

| Organisation                                                                                                                   | Risk Management Authority (as per the Flood and Water Management Act) and member of the Strategic Flood Risk Partnership Board | Role within the Test (Lower) Catchment Plan                                                                                                  | Specific Role                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                |                                                                                                                                |                                                                                                                                              | private sewer systems, Riparian Landowner                                                                                                |
| <b>Coastal Team<br/>New Forest<br/>District Council</b>                                                                        | Yes                                                                                                                            | Delivering/ Maintaining coastal infrastructure                                                                                               | Delivering comprehensive coastal management services                                                                                     |
| <b>Water and sewerage companies – Southern Water</b>                                                                           | Yes                                                                                                                            | Responsible for the risk of flooding to water supply and sewerage facilities and the risk to others from the failure of their infrastructure | Preparation of Infiltration Reduction plans and Drainage Action Plans (DAPs), Drainage and Wastewater Management Plans                   |
| <b>Network Rail</b>                                                                                                            | No                                                                                                                             | Railway drainage infrastructure                                                                                                              | Drainage of the railway                                                                                                                  |
| <b>Hampshire and Isle of Wight Wildlife Trust</b>                                                                              | No                                                                                                                             | Provides advice biodiversity issues                                                                                                          | Provide input on natural solutions to help prevent flooding; land management; water quality issues etc.                                  |
| <b>Test and Itchen Catchment Partnership and New Forest Catchment Partnership</b>                                              | No                                                                                                                             | Partnership of organisations interested in improving the water environment                                                                   | Coordinating local projects and resources, providing advice, guidance, networking, awareness raising                                     |
| <b>Parish and Town Councils: Totton and Eling, Copythorne, North Baddesley and Tadburn, North Baddesley, Hythe and Dibden*</b> | No                                                                                                                             | Flood Action Groups and other community groups                                                                                               | Responsible for managing the flood risk on their property including any <a href="#">watercourse</a> and <a href="#">private sewers</a> . |
| <b>Riparian landowners</b>                                                                                                     | No                                                                                                                             |                                                                                                                                              | Responsible for managing the flood risk on their property including any <a href="#">watercourse</a> and <a href="#">private sewers</a> . |

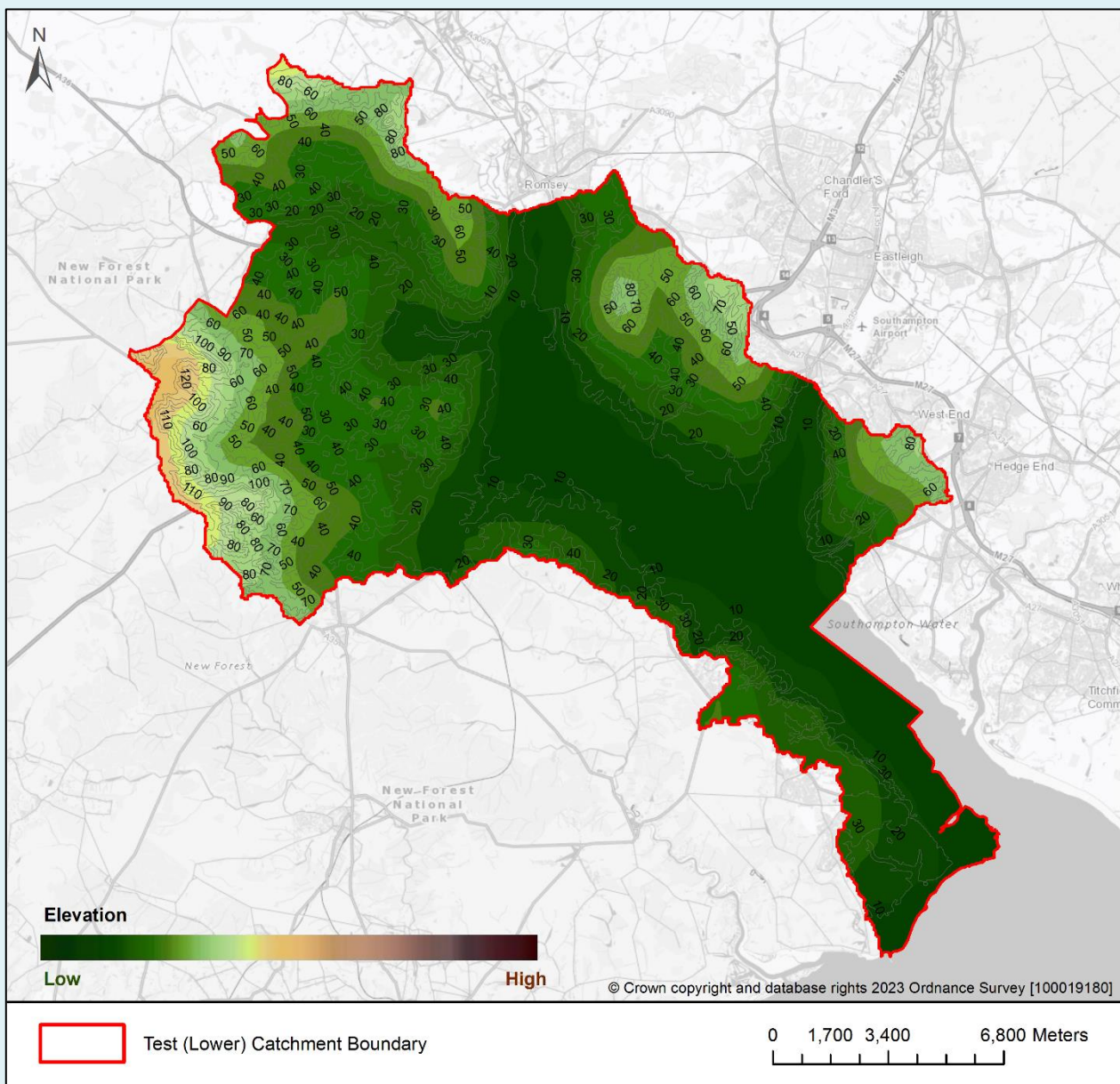
\*Hampshire County Council will work with all parishes where relevant. The parishes listed are those covering the Catchment Priority Areas in this plan. Where other County Council or Risk Management Authority projects are being undertaken in a priority area, we would always encourage these projects to include opportunities to include flood risk improvements.

Hampshire County Council will encourage effective partnership working and ensure that all roles and responsibilities are clearly defined for risk management authorities and other key stakeholders across the Test (Lower) catchment.

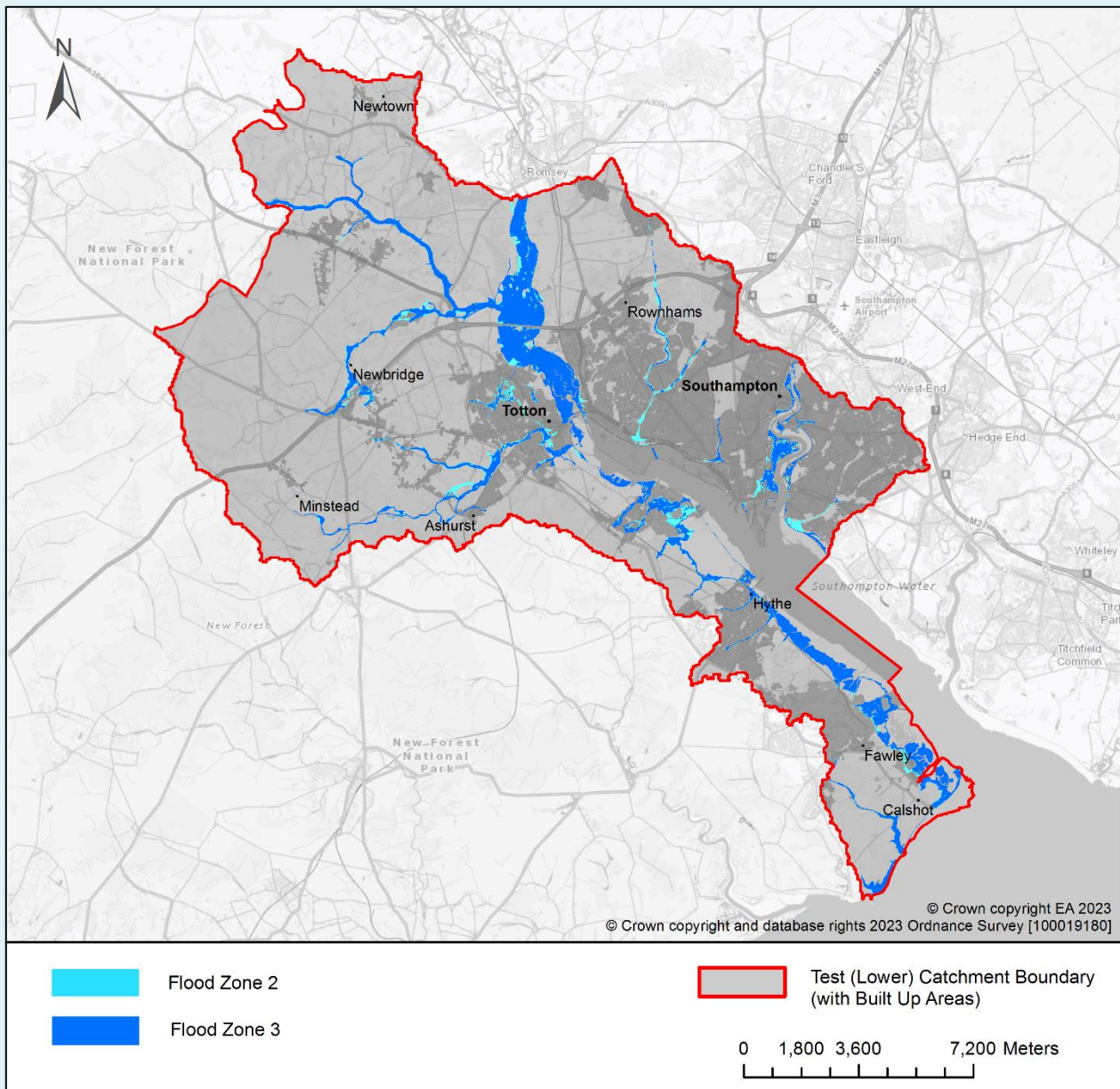
# Test (Lower) Catchment Description

The Lower Test catchment area in Hampshire is 263km<sup>2</sup>. The catchment falls southeast from a local high point of 126mAOD near Fritham to a local low point of 0mAOD, 27km southeast at Calshot. The catchment comprises the **River Test**, and various associated tributaries, including the **River Itchen**, **River Blackwater**, **Cadnam River** and **Bartley Water**. The River Test flows south from the Middle Test catchment at Romsey, then southeast into Southampton Water from Totton. The River Test appears to be fed by springs which have their source in the permeable chalk aquifer located in the Middle and Upper Test catchments.

**Figure 7 - Topography of the Test (Lower) catchment**



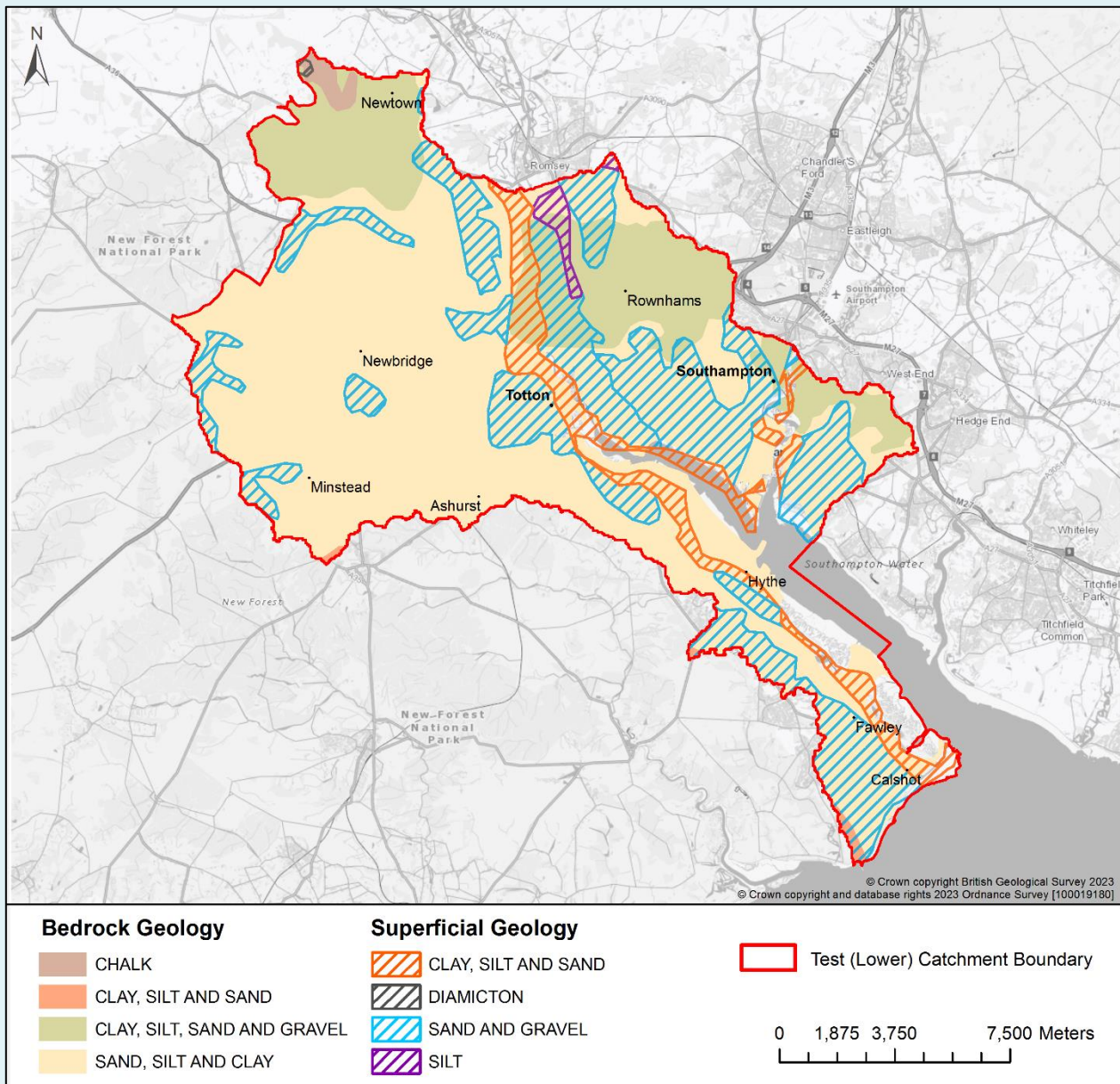
**Figure 8 - Environment Agency Flood Map for Planning (Rivers and Sea) for the Test (Lower) catchment**



Much of the catchment comprises underlying formations of Thames Group formations of clay, silt, sand and gravel and Bracklesham Group and Barton Group (undifferentiated) sand, silt, and clay. A small area of White Chalk Subgroup chalk is present in the northwest of the catchment, and an area of Solent Group clay, silt and sand lies to the southeast. Superficial deposits include areas of Diamictom clay with flints formation, and areas of River Terrace Deposits (undifferentiated) sand and gravel and Alluvium clay, silt and sand are present associated with the river channel.

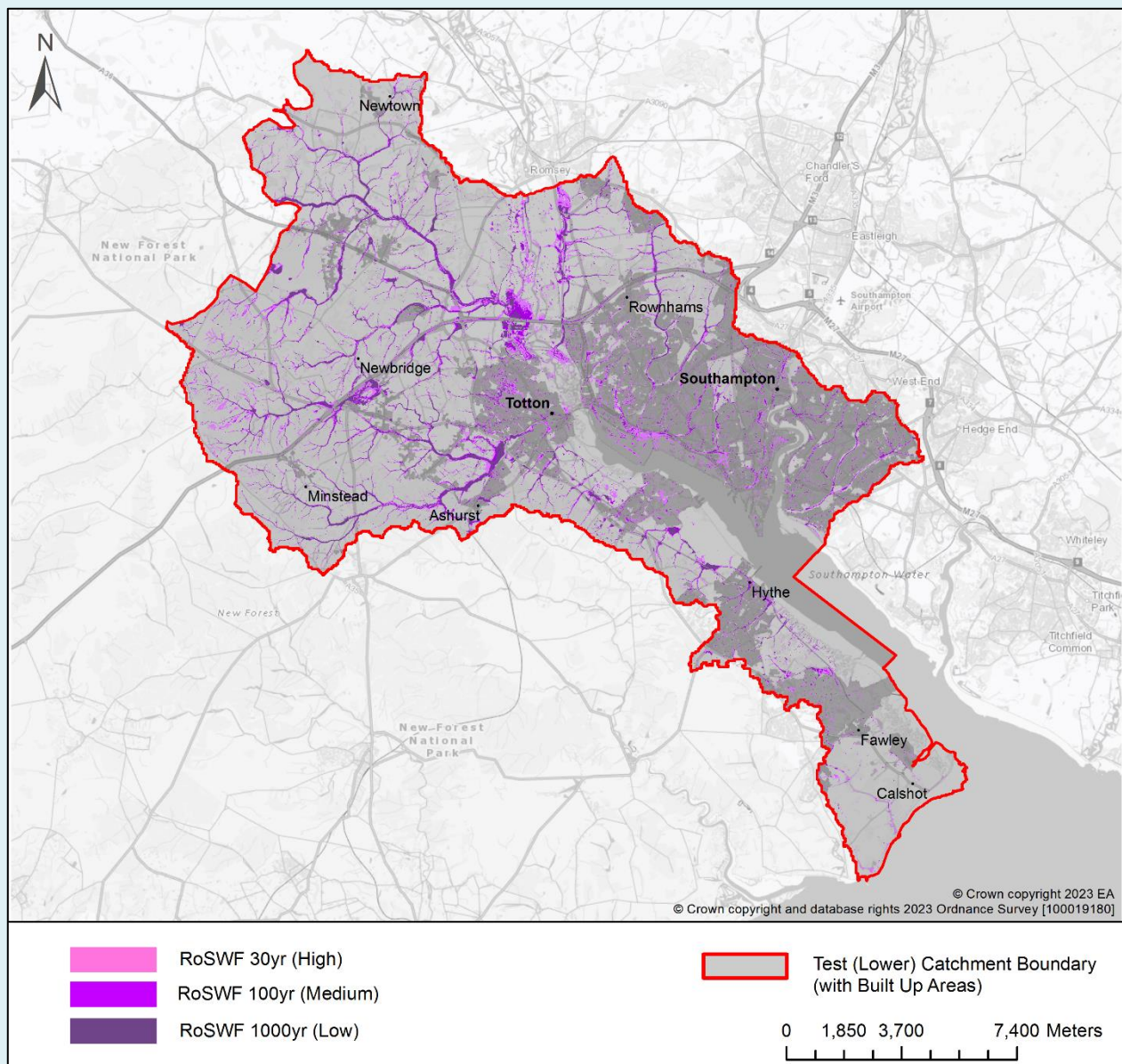
The response of the watercourse levels to rainfall across the catchment is high relative to the Middle and Upper Test catchments due to increased urbanisation and density of impermeable surfaces, and the reduced permeability of the underlying bedrock formation. This is reflected in the Environment Agency's (EA) Flood Map for Planning (Figure 8), and in the Risk of Flooding from Surface Water (RoFSW) map (Figure 10), where the extent of fluvial and pluvial flooding is significantly higher compared with the rest of the catchment. Superficial deposits across the catchment include areas of River Terrace Deposits (undifferentiated) sand and gravel and Alluvium clay, silt and sand associated with the river channel.

**Figure 9 - Geology of the Test (Lower) Catchment**



The description of the flooding mechanism within this document is a high level, catchment scale description. Flood risk at a local level can be altered from this catchment baseline due to localised factors such as undersized structures, obstructions, impermeable surfacing, and alteration of historic drainage features. The impact of local factors on flood risk in Priority Areas will be considered in Action Plans.

**Figure 10 - Environment Agency Flood Risk from Surface Water Map for the Test (lower) catchment**



*It should be noted that the flood extent shown in the figures does not account for existing drainage features that are likely to be prevalent in the urban areas of the catchment, therefore the risks shown are precautionary. The impact that drainage has on the risk of surface water and fluvial flooding may be investigated further for high priority groups where projects relating to mitigating flood risk may be undertaken.*

## Climate and Flood Risk

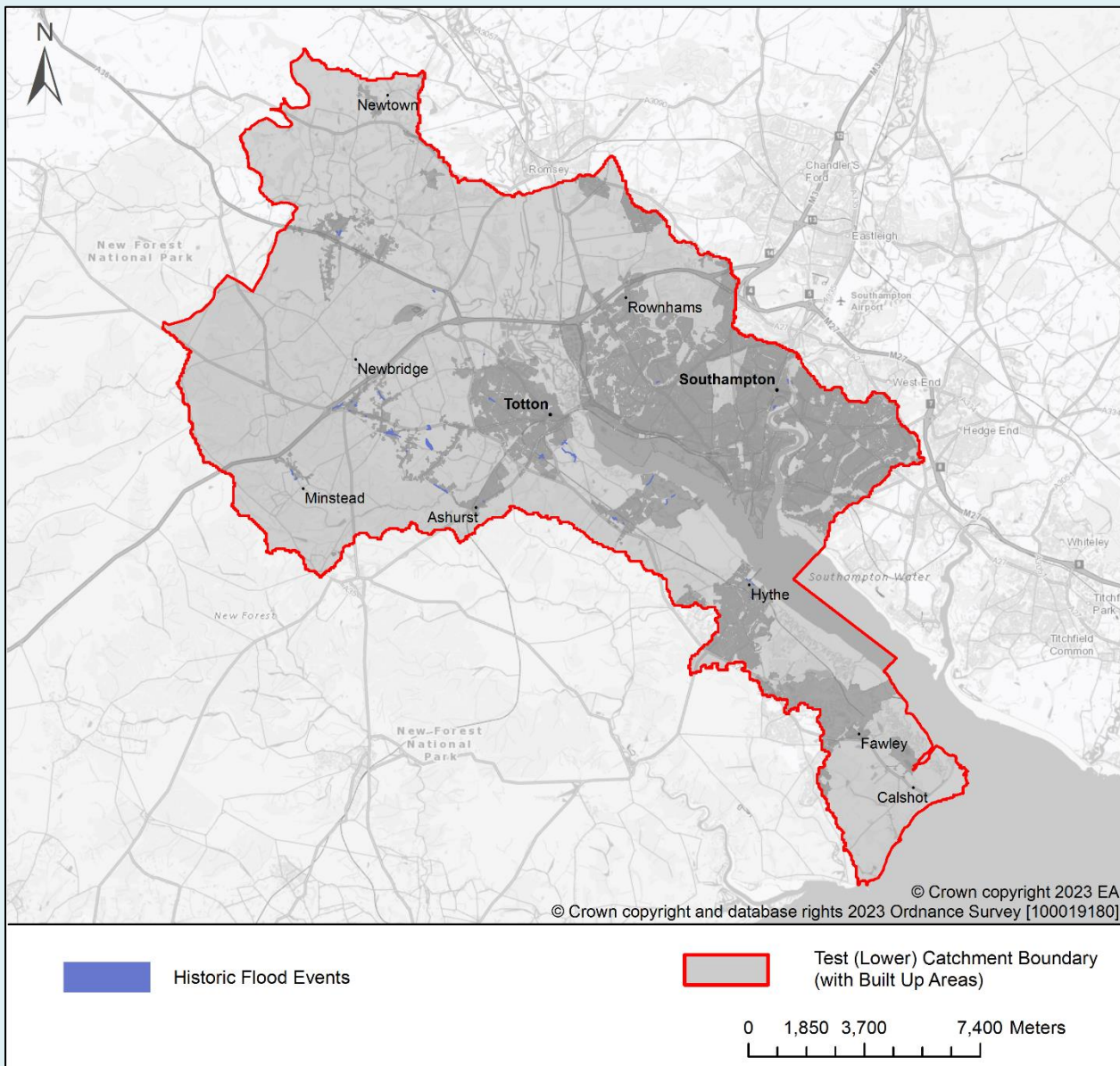
The proximity of Hampshire to Europe means that the area is affected by continental weather influences and is out of the path of most Atlantic depressions, with their associated cloud, wind, and rain. This provides some shelter from rain bearing south-westerly winds, particularly in the north of the county. The South Downs, being the most exposed to these depressions, is the wettest.

Rainfall is generally well distributed through the year but with pronounced maximums in autumn and early winter. In the north of the county, there are significant amounts of rain in the summer associated with high intensity, convective rainfall that can result in short duration flooding. In winter, prolonged rainfall can lead to wide-spread flooding especially where soils are saturated. Hampshire is also vulnerable to drought if a drier than average winter and consecutive summer occur, as reservoirs and chalk aquifers will not have fully recharged.

Flooding within the Test (Lower) catchment occurs from **rivers, surface water, groundwater, sewers, the coast, and other artificial sources**. Indicative model outputs from these sources of flooding, as well as historical records of flooding within the catchment, are available in the Test Valley District Council, New Forest District Council, and the City of Southampton's **Strategic Flood Risk Assessments (SFRA)**. It is important to recognise that during a flood event, flooding can and does occur from a **combination of sources**. This is particularly relevant when considering the historical records and reports of flooding which show that incidents have been distributed throughout the Test (Lower) catchment, along the paths of the watercourses and existing overland flow routes, as shown in the figure below.

In the Lower Test catchment, rainfall on what is predominantly Thames Group, Bracklesham Group and Barton Group produces relatively rapid runoff. This shortening of the response time in this part of the catchment leads to higher risks of both surface water and fluvial flooding in several areas.

**Figure 11 - Recorded historical flooding events in the Test (Lower) catchment**



Please note the historic flood map only shows the recorded flood extents within this catchment. It does not show individually reported flood incidents. A lack of recorded flood extents does not necessarily mean that flooding has not occurred in the area.

# Prioritisation Assessment

This Catchment Prioritisation Assessment seeks to **identify and prioritise areas** within the Test (Lower) river basin sub-catchments that are at an **increased risk of flooding** due to **geographical, geological, or developmental features**; this may include areas which have experienced flooding in **past events**.

The priority groups identified by the prioritisation assessment within the Test Lower catchment are presented in Figure 12 below. **Table 2** below summarise the priority groups' features, the principal sources of flooding and the impact these sources have on properties (both commercial and residential) and key infrastructure. The outcome of this assessment is to allow greater understanding as to how and why the Test Lower catchment floods, in order to support the introduction of a stepped approach to **interventions and preventative measures** that will reduce flood risk and improve overall water management, including drought, both now and in the future.

**Figure 12 - Test Lower Catchment priority groups**

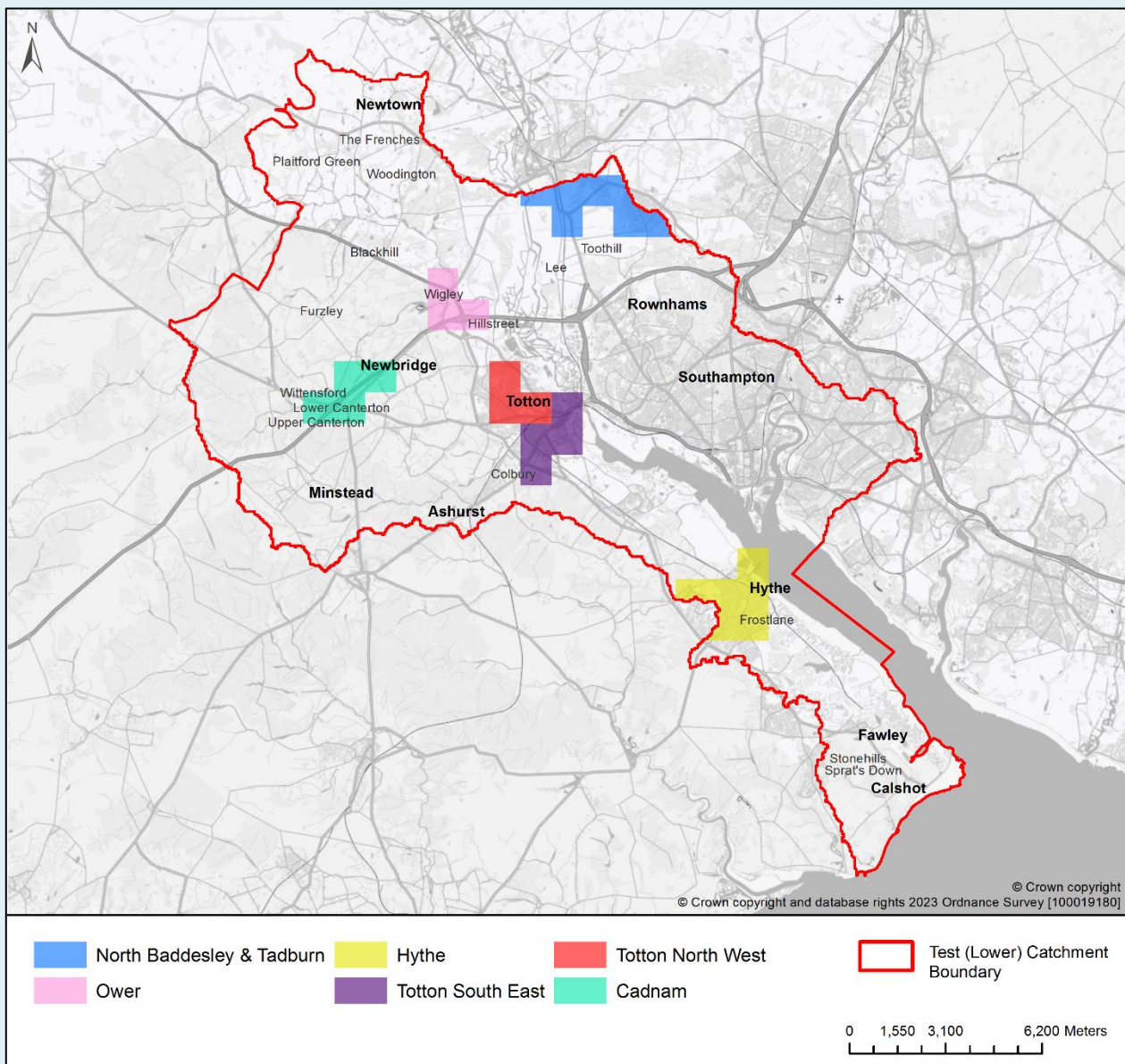


Table 2 - Test Lower Sub Catchments with Priority Groups highlighted\*

| Group ref. | Group name                  | Properties at risk of fluvial flooding | Properties at risk of fluvial flooding - Rank | Properties at risk of surface water flooding | Properties at risk of surface water flooding - Rank | Properties at risk of coastal flooding | Properties at risk of groundwater flooding | Properties at risk of groundwater flooding - Rank | Properties at Risk Based on Historical Flooding Events | Deprived residential properties at risk of flooding | Length (m) of strategic roads at risk of flooding | Repair costs (£) of all roads at risk of flooding | Indicative Present Value Damages (£) | Present Value Damages – Rank | Total score | Total score Rank |
|------------|-----------------------------|----------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------|----------------------------------------|--------------------------------------------|---------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|---------------------------------------------------|--------------------------------------|------------------------------|-------------|------------------|
| TL.02      | Totton North West           | 28                                     | 5                                             | 5140                                         | 1                                                   | 1                                      | 8190                                       | 1                                                 | 9                                                      | 165                                                 | 709                                               | £3,500,000                                        | £31,300,000                          | 7                            | 4.7         | 1                |
| TL.08      | Totton South East           | 121                                    | 3                                             | 1271                                         | 5                                                   | 22                                     | 2175                                       | 4                                                 | 13                                                     | 525                                                 | 1336                                              | £2,700,000                                        | £20,400,000                          | 10                           | 3.3         | 2                |
| TL.14      | Hythe                       | 200                                    | 2                                             | 2980                                         | 3                                                   | 77                                     | 3127                                       | 2                                                 | 12                                                     | 0                                                   | 2                                                 | £2,200,000                                        | £26,300,000                          | 8                            | 2.9         | 4                |
| TL.11      | North Baddesley and Tadburn | 65                                     | 4                                             | 3378                                         | 2                                                   | 0                                      | 2623                                       | 3                                                 | 5                                                      | 0                                                   | 1098                                              | £1,900,000                                        | £25,600,000                          | 9                            | 3.1         | 3                |
| TL.13      | Cadnam                      | 16                                     | 6                                             | 1016                                         | 6                                                   | 0                                      | 471                                        | 9                                                 | 3                                                      | 0                                                   | 1220                                              | £2,500,000                                        | £8,300,000                           | 14                           | 2.4         | 5                |
| TL.04      | Ower                        | 15                                     | 7                                             | 121                                          | 10                                                  | 0                                      | 196                                        | 10                                                | 0                                                      | 0                                                   | 747                                               | £3,400,000                                        | £4,500,000                           | 16                           | 2.3         | 6                |
| TL.09      | West Totton                 | 0                                      | 10                                            | 1330                                         | 4                                                   | 0                                      | 1928                                       | 6                                                 | 2                                                      | 0                                                   | 817                                               | £1,400,000                                        | £12,200,000                          | 12                           | 1.9         | 7                |
| TL.10      | Nursling                    | 13                                     | 8                                             | 947                                          | 7                                                   | 0                                      | 1395                                       | 8                                                 | 1                                                      | 101                                                 | 271                                               | £3,200,000                                        | £39,000,000                          | 6                            | 1.7         | 8                |
| TL.06      | Marchwood                   | 372                                    | 1                                             | 784                                          | 9                                                   | 1                                      | 1939                                       | 5                                                 | 25                                                     | 0                                                   | 0                                                 | £1,100,000                                        | £10,500,000                          | 13                           | 1.6         | 9                |
| TL.07      | Ashurst                     | 6                                      | 9                                             | 837                                          | 8                                                   | 0                                      | 1730                                       | 7                                                 | 8                                                      | 0                                                   | 381                                               | £800,000                                          | £5,600,000                           | 15                           | 1.1         | 10               |

\*Groups require a minimum 'Total Score' of 2.0 to be classified as a Priority Group.

# Mitigation Measures

## Test (Lower) Catchment Policies

Further to the analysis that has been undertaken as part of this CMP, Hampshire County Council will, in addition with the policies laid out in the [LFWMS](#), adopt the following policies to increase flood risk mitigation and improve water management across the Test (Lower) catchment both now and in the future. Hampshire County Council will:

- Maintain and improve **effective partnership working** that will improve flood resilience within the 6 most vulnerable areas across the Test (Lower) catchment. The County Council works closely with Flood Re, an initiative between government and insurers to make flood insurance cover affordable to households in flood risk areas.
- Consider **Totton North West, Totton South East, Hythe, North Baddesley and Tadburn, Cadnam, and Ower** as Priority Areas in respect of the strategic direction and investment decisions for flood alleviation measures.
- Support, where practicable, only those **new developments planned for areas at low risk of surface water and fluvial flooding** (as defined by the Environment Agency's Risk of Flooding from Surface Water (RoFSW) and Flood Zone maps).
- Support only those developments which offer surface water management systems that ensure all runoff is restricted to **greenfield runoff rates** if the development area is in a greenfield site; or restricted to **pre-existing runoff rates**, with preference to greenfield runoff rates if reasonably practicable, if the development area is in a brownfield site; all in accordance with **best practice and industry standards** (i.e., the SuDS Manual C753) for water quality and quantity. The Priority Areas have different compositions of greenfield and brownfield sites, as seen in **Table 4 to 9**.
- Support only those developments that ensure **flood risk is not increased to surrounding areas** of the Test (Lower) catchment, with preference made to betterment on the current position where practicable.
- As Lead Local Flood Authority and Highway Authority, the County Council recognises the importance of monitoring at risk locations in line with relevant Highway policies. Potential actions could include monitoring the frequency of maintenance operations, continuing to support the use of lengthsman where possible, and monitoring of road camber and kerb lines to manage surface water flows.

## Test (Lower) Priority Area Policies

In addition to the statements outlined above, Hampshire County Council will adopt the following policies to each of the specific Priority Areas highlighted in **Table 2** and their supporting Critical Contributing Areas (as will be identified in the Priority Area's Action Plan), according to the risk and need identified in each. Hampshire County Council will:

### 1. Prioritised Area: Section 19 Policy

In prioritised areas of the Test (Lower) catchment where reports of past flooding incidents are a cause of particular concern, Hampshire County Council will:

**Lower the minimum threshold for triggering a formal flood investigation, under Section 19 of the Flood and Water Management Act 2010, from 20 internally flooded properties to 10.**

*Section 19 Flood Investigations Reports are statutory and will be produced in accordance with the requirements of Section 19 of the Flood and Water Management Act 2010 and Hampshire County Council's Flood Investigation Guidance. Flooding in any part of Hampshire which causes internal property flooding but does not meet the criteria of a Section 19 investigation will be investigated via the County Council's non-statutory standard [flood investigation process](#).*

### 2. Prioritised Area: Ordinary Watercourse Policy

In prioritised areas of the Test (Lower) catchment where land drainage incidents and excessive culverting are a cause for significant concern, Hampshire County Council will:

**Implement a more stringent approval process for all Ordinary Watercourse Consent applications.**

*Each application will be considered on a site-by-site basis where further information and additional requirements may be requested by Hampshire County Council to ensure there will be no increase in flood risk. Where relevant, during the Ordinary Watercourse Consenting process, other organisations and internal teams will be consulted e.g., Natural England, the Environment Agency, the County Council's Biodiversity teams and Structures teams etc.*

### 3. Prioritised Area: Pre-Application Assessment Policy

In prioritised areas of the Test (Lower) catchment where major development is due to take place, Hampshire County Council will:

**Make it best practice that a pre-application assessment is sought by the developer for the surface water management features of any proposed development.**

*This will allow Hampshire County Council to review and provide further recommendations to the developer, during the early stages of the pre-planning process, which will ensure that the development will not increase flood risk in the prioritised area.*

#### 4. Prioritised Area: Groundwater Policy

In prioritised areas of the Test (Lower) catchment where groundwater flooding is a cause of significant concern, Hampshire County Council will:

**Ensure that the most up to date and site-specific data pertaining to the risk of groundwater flooding\* is used.**

Hampshire County Council will ensure that those areas at risk of groundwater flooding are identified, and appropriate levels of assessment and mitigation are proposed and undertaken by developers during the planning and approval process for all proposed developments.

\*As detailed in the Groundwater Management Plan for Hampshire

#### 5. Prioritised Area: Maintenance Regime Policy

In prioritised areas of the Test (Lower) catchment where major development is due to take place, Hampshire County Council will:

**Ensure that the Local Planning Authority only approve new developments that sufficiently demonstrate that a rigorous maintenance regime will be implemented for their surface water management systems.**

Developers will be expected to provide maintenance plans setting out maintenance schedules and maintenance responsibilities in line with the latest technical guidance. If adoption is proposed an agreement in principle should also be provided.

#### 6. Prioritised Area: Verification Reports Policy

In prioritised areas of the Test (Lower) catchment where major development is due to take place, Hampshire County Council will:

**Ensure that the Local Planning Authority requests verification reports from developers when construction is completed.**

*These reports should contain as built plans and photographs of surface water drainage assets in situ to demonstrate correct construction has taken place. LPAs should also periodically review the construction of surface water management systems on new development to ensure it continues to adhere to best practice and industry standards.*

## 7. Prioritised Area: Brownfield Sites Policy

In prioritised areas and critical contributing areas of the Test (Lower) catchment where major brownfield development is due to take place, Hampshire County Council will:

**Make it best practice that a 50% betterment of surface water run-off rates is demonstrated for the surface water management features of any proposed development.**

This will ensure that developers take on the responsibility to ensure that their new developments do not flood on areas of previously developed land. Also, large areas of impermeable surfaces within new developments will be broken up improving infiltration, increasing biodiversity, and adding to provision of blue/green infrastructure, along with all the multiple benefits this offers.

## 8. Prioritised Area: Greenfield Exceedance Flows Policy

In prioritised areas of the Test (Lower) catchment where major greenfield development is due to take place, where surface water management is a cause of significant concern, Hampshire County Council will:

**Make it best practice for LPAs to request hydraulic modelling of surface water exceedance flows movement and management on the new development.**

This will ensure that developers take on the responsibility to ensure that their new developments do not flood on areas of previously undeveloped land. Also, modelling of exceedance flows will help prevent pooling and flooding of vulnerable areas when a 1 in 100-year plus climate change event is exceeded or in the event of a surface water management system failing.

## 9. Prioritised Area: Minimum Flow Policy

In prioritised areas of the Test (Lower) catchment where development which requires attenuation on site with restricted outfalls is due to take place, Hampshire County Council will:

**Make it best practice for LPAs to request a minimum flow rate of 2l per second from the outfall. \***

*Outfalls control the rate of flow leaving a development. To prevent flood risk from increasing, the flow rate post development should not be greater than the pre-development flow rate. However, very small outfalls with very low flow rates are prone to block with floating debris such as leaves and silt. If the drainage outfall is blocked, then the development's drainage system won't work leading to on and offsite flooding. This policy will ensure that very small diameter pipes are not being used for outfalls which will in turn reduce risk of blockage. This is a general principle, and the acceptability of a specific outfall design is dependent on the flow control mechanism, orifice size and sediment loading. As this policy relates to technical viability, it is likely that this policy will be applied across all of Hampshire, not just within Priority Areas.*

*\* A 50mm diameter orifice may be an acceptable alternative where other supporting criteria are met.*

## 10. Prioritised Area: Outfall Policy

In prioritised areas of the Test (Lower) catchment where development is due to take place on sites with lower than acceptable infiltration rates, Hampshire County Council will:

**Advise LPAs to refuse any development on sites with no demonstrable outfall. \***

*This will ensure that sites which cannot drain to groundwater, due to impermeable surfaces, and which have no demonstrable outfall to an attenuation area or ordinary watercourse, will remain undeveloped to reduce risk of surface water flooding to surrounding areas.*

*\*Except where it can be adequately demonstrated that all water can be used on site and all associated and arising flood risks can be managed.*

## 11. Prioritised Area: Limiting Urban Creep

In residential areas of the Test (Lower) catchment HCC will:

**Liaise with the Local Planning Authorities to limit permitted development rights regarding the paving or covering of permeable surfaces with impermeable surfacing.**

*The use of alternative permeable measures such as gravel, grasscrete, permeable paving, etc to form driveways will be encouraged as these measures will fall under permitted development rights. However, those proposing impermeable driveways in Priority Areas will require planning permission. This will help limit the effect of urban creep.*

All policies apply to the Priority Areas and the critical contributing areas, where identified within a Priority Area's Action Plan. Where the above policies relate to the planning process, discussions will be held with the Local Planning Authorities to determine the best methods for implementing these policies. All planning application responses referred to in the above policies relate to [major](#) planning applications for which the County Council is a statutory consultee. Possible outcomes could include template planning conditions to be used in the Lead Local Flood Authority responses on drainage consultations and further guidance documents where relevant.

We recognise that there may be exceptional circumstances, which may not work with the policies above. Where this is the case, deviations from the policy both in outcome and location may be allowed where sufficient evidence of need and associated benefits can be clearly demonstrated. Any deviation from the policy must be undertaken with the express approval of the County Council. Where National or Local guidance is more stringent than that of the policies, then the worst-case principle will take precedence.

Details on how to apply these policies to specific catchments are shown in **Table 3** below. **Table 4 to 9** summarise the features found in the Priority Areas, the principal sources of flooding and the impact these sources have on properties and key infrastructure.

The following actions will be undertaken in each of the 6 priority areas within the Test (Lower) catchment area to create baseline data and inform future more detailed action plans to be produced in collaboration with partners:

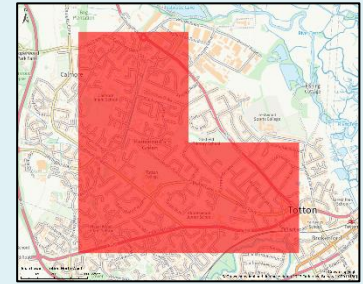
**Table 3 – Potential Initial Tasks for development of Priority Areas Action Plans**

| No. | Initial Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Key Stakeholders                                                                                                                                                                                                                                                                                                  |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Collection and review</b> of all existing site-specific <b>fluvial and surface water flood risk</b> data pertaining to the river(s) flowing through each priority group, as well as <b>groundwater flood risk and historical flood data</b> . The main rivers flowing through the priority groups in the Test (Lower) catchment are River Test which flows through Romsey, the Cadnam's River, flowing through the Cadnam and Ower; the Bartley Water and tributaries, which flows through the Totton North West and Totton South East; and the Tanner's Brook, which flows through the North Baddesley area in the North Baddesley and Tadburn Priority Area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Hampshire County Council<br>Borough/District Councils associated with each priority group (see Tables 4 to 9)<br>Environment Agency                                                                                                                                                                               |
| 2   | Establish a <b>high-level Flood Action Plan</b> in response to the high fluvial and surface water flood risk for each priority group, this could include a Strategic Drainage Asset Management plan and a Strategic Drainage Plan where appropriate/practicable. These will include in <b>order of preference</b> : <ol style="list-style-type: none"> <li>1. Natural Flood Management measures</li> <li>2. Managing surface water within the upper catchment areas</li> <li>3. Managing surface water through the catchment by retrofitting sustainable drainage systems</li> <li>4. Provision of hard engineering measures</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Local communities in the Test (Lower) catchment<br>Thames Water<br>Environment Agency<br>Borough/District Councils associated with each priority group.<br>Hampshire County Council<br>Other relevant stakeholders associated with each priority group (see Tables 4 to 9)                                        |
| 3   | <b>Strategic Drainage Asset Management Plan</b> (managing existing assets) <ul style="list-style-type: none"> <li>• <b>Natural flood risk management measures</b>, this includes identifying and then developing a strategic inspection and community-led maintenance procedure of all existing natural drainage assets (drainage ditches, swales etc.) that likely convey surface water runoff into the river(s) flowing through each priority group.</li> <li>• <b>Managing surface water within the upper catchment areas</b>. Management measures may include inspection and maintenance of all existing drainage assets (ditches, drainage ponds, attenuation tanks etc.), minor landscaping works to attenuate flow, provision of woody dams, or sustainable drainage systems.</li> <li>• <b>Regular inspection</b> (CCTV surveys or other methods as identified by the Highway Authority) of <b>drainage/pipework and</b> maintenance of the strategic road routes at risk of flooding for each priority group. Repairs applied where necessary.</li> <li>• <b>Regular inspection</b> (CCTV surveys or other methods as identified by associated water companies) of existing <b>surface and foul sewerage</b> located in areas at high risk of surface water flooding for each priority group. Repairs applied where necessary.</li> </ul> | Local communities in the Test (Lower) catchment<br>Thames Water<br>Environment Agency<br>Borough/District Councils associated with each priority group.<br>Hampshire County Council<br>Other relevant stakeholders associated with each priority group (see Tables 4 to 9)<br>Highway Authority<br>Southern Water |
| 4   | <b>Strategic drainage plan</b> (creation of new assets) <ul style="list-style-type: none"> <li>• <b>Managing surface water within the upper catchment areas</b>-minor landscaping works to attenuate flow, provision of woody dams, or sustainable drainage systems.</li> <li>• Managing surface water through the catchment by <b>retrofitting sustainable drainage systems</b> into the built environment, such as ponds, swales, or permeable paving systems; and</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Local communities in the Test (Lower) catchment<br>Thames Water<br>Environment Agency<br>Borough/District Councils associated with each priority group.                                                                                                                                                           |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|   | <ul style="list-style-type: none"> <li>• <b>Provision of hard engineering measures</b> such as flood defence walls, embankments and structures if considered necessary.</li> </ul>                                                                                                                                                                                                                                                                                   | Hampshire County Council<br>Other relevant stakeholders associated with each priority group (see Tables 4 to 9) |
| 5 | Detailed review and selection of the <b>mitigation measures</b> to be implemented as part of the Flood Action Plan for each priority group, with <b>preference to lower cost simpler measures</b> that can be undertaken by local groups before other measures. Further surveys, such as drainage, topographic and/or LiDAR surveys, followed by flood risk modelling work if considered appropriate, may be undertaken to support the review and selection process. | Hampshire County Council<br>Borough/District Councils associated with each priority group (see Tables 4 to 9)   |

**TABLE 4- PRIORITY GROUP 1 – Totton North West**

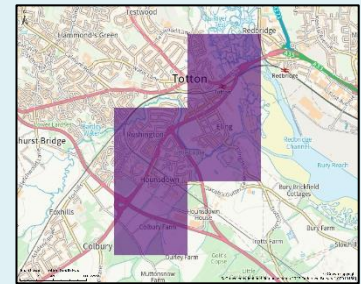
Below is a summary table of the characteristics and flood risk of priority group 1 – Totton North West



| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | Totton North West                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Location</b>                                                         | Easting: 434500, Northing: 113500<br>Located in the centre section of the Test Lower Catchment, to the northwest of Southampton City centre on the opposite side of the River Test.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Area</b>                                                             | 3km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Numbers of residential properties within RoFSW</b>                   | 5140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Numbers of residential properties within Flood Zones</b>             | 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Number of residential properties at risk of groundwater flooding</b> | 8190                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Infrastructure at risk</b>                                           | 709 metres of strategic road routes at risk of flooding. The main strategic roads at risk of flooding are the A36 and A336.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Principal Flood Risk Source</b>                                      | <p>Principal flood risk sources are groundwater, surface water and fluvial, associated with temporary overland flow routes formed following heavy rainfall events.</p> <p>Hammond Green is an area highly susceptible to groundwater flooding, with Totton, West Totton and Calmore moderately susceptible to groundwater flooding. The Bartley Water River flows through the south of the sub-catchment and leads to high risk of localised fluvial flood risk (over 3.3% AEP) adjacent to the river, primarily impacting the area of Totton. Receptors at risk of fluvial flooding in the sub-catchment include residential properties, the railway line and small road networks.</p> <p>Risk of surface water flooding is primarily high (over 3.3% AEP) throughout Totton North West, impacting residential areas and businesses off Calmore Drive, Calmore Road, as well as the roundabout where the A336 meets the A326. Surface water pooling in these areas is extensive, exceeding 900mm.</p> |
| <b>Borough Council</b>                                                  | New Forest District Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Relevant Stakeholders</b>                                            | Totton and Eling Parish Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**TABLE 5 - PRIORITY GROUP 2 – TOTTON SOUTH EAST**

Below is a summary table of the characteristics and flood risk of priority group 2 – Totton South East

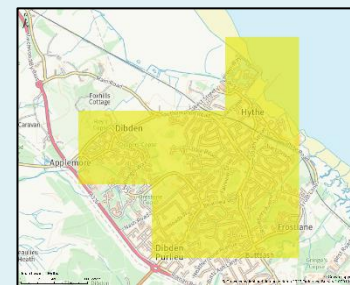


| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | Totton South East                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Location</b>                                                         | Easting: 435975, Northing: 112470<br>Located in the centre of the Test Lower catchment, encompassing the south-eastern extent of Totton, and approximately 2km west of Southampton Port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Area</b>                                                             | 4km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Numbers of residential properties within RoFSW</b>                   | 1271                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Numbers of residential properties within Flood Zones</b>             | 121                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Number of residential properties at risk of groundwater flooding</b> | 2175                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Infrastructure at risk</b>                                           | 1336m of strategic road routes at risk of flooding. The main strategic roads at risk of flooding are the A35 and A326.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Principal Flood Risk Source</b>                                      | <p>Principle sources of flood risk are surface water, groundwater, and fluvial flooding.</p> <p>Groundwater flood risk is assessed as low to moderate in the Totton South East area. Groundwater flooding poses no risk in the south of Totton South East; however, the central and northern extents of the priority group are at a medium risk of groundwater flooding. There is a risk of flooding from surface water across the priority group ranging from low to high (0.1% to over 3.3% AEP) with depths of below 300mm to over 900mm. This risk generally impacts greenspaces in the east and south of the priority group, however residential areas are impacted in the north and central areas.</p> <p>There is a risk of fluvial flooding to central and north areas of Totton South East, which are in Flood Zones 2 and 3. The principal source of fluvial flooding is Bartley water which flows west through the centre of the priority group into the Eling Channel, east of Hounslow. Receptors at risk include greenspaces, parks, residential areas and two schools.</p> |
| <b>Borough Council</b>                                                  | New Forest District Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Relevant Stakeholders</b>                                            | Totton and Eling Town Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

This may include but not limited to prior approvals or changes in use but will be determined on a site-by-site basis.

**TABLE 6 - PRIORITY GROUP 3 – Hythe**

Below is a summary table of the characteristics and flood risk of priority group 3 – Hythe



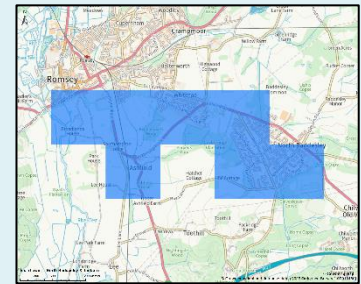
| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | Hythe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Location</b>                                                         | Easting: 442074, Northing: 107916<br>Located in the southern extent of the Test Lower catchment and encompassing Hythe Port and marina.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Area</b>                                                             | 6km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Numbers of residential properties within RoFSW</b>                   | 2980                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Numbers of residential properties within Flood Zones</b>             | 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Number of residential properties at risk of groundwater flooding</b> | 3127                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Infrastructure at risk</b>                                           | 2m of strategic road routes at risk of flooding. The main strategic road at risk of flooding is Southampton Road.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Principal Flood Risk Source</b>                                      | Principle sources of flood risk are surface water, groundwater and coastal. There is a low to medium risk of groundwater flooding, predominately in the north-east of the Hythe priority group. There is a risk of flooding from surface water across the Hythe area, ranging from low to high (0.1% to over 3.3% AEP) with depths of below 300mm to over 900mm. This generally impacts residential areas.<br>Eastern parts of the priority group, predominantly along the coastline, are in Flood Zones 2 and 3. The primary source of this flood risk is The Solent to the east. Receptors at risk include Hythe Marina and Port, businesses along the coastline, schools, and residential areas. |
| <b>Borough Council</b>                                                  | New Forest District Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Relevant Stakeholders</b>                                            | Hythe and Dibden Parish Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

This may include but not limited to prior approvals or changes in use but will be determined on a site-by-site basis.

Please note, the Priority Areas shown are the raw extents. Priority Areas will not be considered beyond the Hampshire boundary. Where Priority Areas extend across catchment boundaries this will be looked at in more detail at the Action Plan stage.

**TABLE 7 - PRIORITY GROUP 4 – North Baddesley & Tadburn**

Below is a summary table of the characteristics and flood risk of priority group 4 – North Baddesley and Tadburn



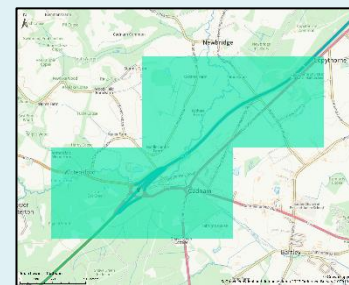
| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | North Baddesley and Tadburn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Location</b>                                                         | Easting: 435189, Northing: 121187<br>Located in the north of the Test Lower catchment, 8km north of Southampton Port. The priority group covers large areas of parkland, including the Ashfield Estate and extends into North Baddesley. This Priority Area is immediately adjacent to the Romsey Priority Area within the Test (Middle) catchment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Area</b>                                                             | 7km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Numbers of residential properties within RoFSW</b>                   | 3378                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Numbers of residential properties within Flood Zones</b>             | 65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Number of residential properties at risk of groundwater flooding</b> | 2623                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Infrastructure at risk</b>                                           | 1098m of strategic road routes at risk of flooding. The main strategic roads at risk of flooding are the A27 and the A3057.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Principal Flood Risk Source</b>                                      | Principle sources of flood risk are surface water, groundwater, and fluvial flooding.<br>Groundwater flood risk ranges from low to high throughout the area, whereby the high risk is in the west of the priority group. There is a risk of flooding from surface water across the catchment ranging from low to high (0.1% to over 3.3% AEP) with depths of below 300mm to over 900mm. The predominant flow path travels south through the west of the priority group, associated with the 'Tadburn Lake' river to the north. This generally impacts greenspaces and parkland but poses some risk to residential areas.<br>Fluvial flood risk is in the west (associated with the River Test) and east (associated with the Tadburn Lake and to a lesser extent Tanner's Brook) areas of the priority group. This results in localised fluvial flood risk (Flood Zone 2). Receptors at risk include parkland, railway line, residential areas, and local road networks. |
| <b>Borough Council</b>                                                  | Test Valley Borough Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Relevant Stakeholders</b>                                            | Romsey Parish Council, North Baddesley Parish Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

This may include but not limited to prior approvals or changes in use but will be determined on a site-by-site basis.

Please note, the Priority Areas shown are the raw extents. Priority Areas will not be considered beyond the Hampshire boundary. Where Priority Areas extend across catchment boundaries this will be looked at in more detail at the Action Plan stage.

**TABLE 8 - PRIORITY GROUP 5 – Cadnam**

Below is a summary table of the characteristics and flood risk of priority group 5 – Cadnam

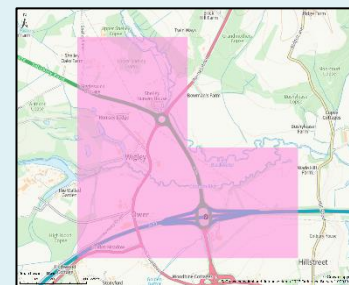


| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | Cadnam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Location</b>                                                         | Easting: 429709, Northing: 113655<br>Located in the west of the Test Lower catchment, encompassing the village of Cadnam and the M27, which runs centrally through the priority group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Area</b>                                                             | 4km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Numbers of residential properties within RoFSW</b>                   | 1016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Numbers of residential properties within Flood Zones</b>             | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Number of residential properties at risk of groundwater flooding</b> | 471                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Infrastructure at risk</b>                                           | 1220m of strategic road routes at risk of flooding. The main strategic roads at risk of flooding are M27 and A31.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Principal Flood Risk Source</b>                                      | <p>Principle sources of flood risk are surface water, groundwater and fluvial flooding associated with Cadnam River and its tributaries.</p> <p>Susceptibility to groundwater flooding ranges from low to high risk throughout the priority group; with the north of the priority group at highest risk. There is a high risk of surface water flooding across large areas of Cadnam, predominately in the north and east of the priority group, with depths ranging from below 300mm to over 900mm. This poses a risk to residential areas throughout Cadnam as well as road infrastructure such as the A31.</p> <p>The River Cadnam, which flows southwest through the priority group, is the principal source of fluvial flood risk. The river and adjacent areas are in Flood Zones 2 and 3. Receptors at risk include farmland, residential areas, and large sections of the M3.</p> |
| <b>Borough Council</b>                                                  | New Forest District Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Relevant Stakeholders</b>                                            | Copythorne Parish Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

This may include but not limited to prior approvals or changes in use but will be determined on a site-by-site basis.

**TABLE 9 - PRIORITY GROUP 6 – OWER**

Below is a summary table of the characteristics and flood risk of priority group 6 – Ower



| Feature                                                                 | Description / Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group Name</b>                                                       | Ower                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Location</b>                                                         | Easting: 432570, Northing: 116417<br>Located in the central north area of the Test Lower catchment. Hammond's Green is 2.5km south of Ower. Ower is predominately rural, covering park and farmland.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Area</b>                                                             | 3km <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Numbers of residential properties within RoFSW</b>                   | 121                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Numbers of residential properties within Flood Zones</b>             | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Number of residential properties at risk of groundwater flooding</b> | 196                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Infrastructure at risk</b>                                           | 747m of strategic road routes at risk of flooding. The main strategic roads at risk of flooding are the M27 and A36.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Principal Flood Risk Source</b>                                      | Principle sources of flood risk are surface water, groundwater and fluvial. Groundwater flood risk is prominent and assessed as high risk throughout the Ower area. Surface water flood risk is prominent across Ower with depths ranging from below 300mm to over 900mm. Surface water flooding poses a risk across infrastructure including the M27 and A36.<br>The River Blackwater and Cadnam River are the main fluvial sources in the Ower area. Areas adjacent to the rivers flowing through Ower are in Flood Zones 2 and 3, resulting in significant fluvial flood risk. This predominantly impacts park and farmland. Other receptors at risk include the A36, West Wellow Services and parkland. |
| <b>Borough Council</b>                                                  | New Forest District Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Relevant Stakeholders</b>                                            | Totton and Eling Parish Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

# Action Plans

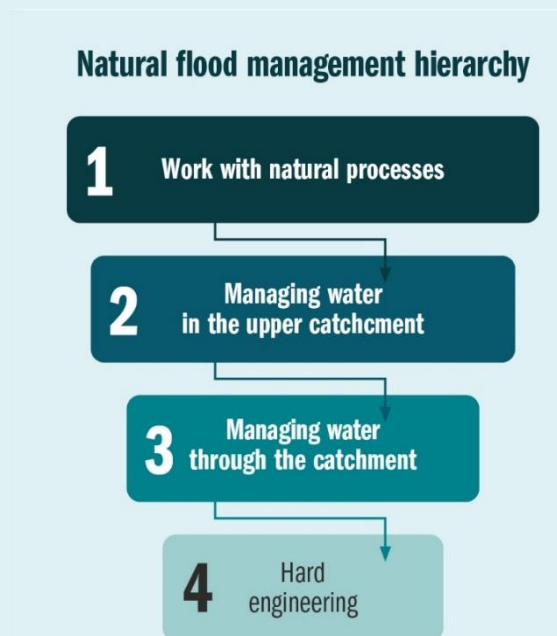
A **stepped approach to interventions and measures** to reduce flood risk within the catchment, following the Natural Flood Risk Management Hierarchy, will be captured within Action Plans for each of the Priority Areas.

By recognising the key sources of flooding, the Action Plans will encourage **more effective work between partners** within each priority area to develop appropriate flood risk mitigation strategies. This will also empower **residents and communities** to take action to mitigate flooding and the County Council will support an approach that considers the implementation of lower cost, simpler measures at the local level first.

The Action Plans will develop short, medium, and long-term approaches to managing flood risk, taking into account the short-, medium- and long-term impacts of flood risk, and will be set up with the input of an active working group comprising the relevant key stakeholders included in Tables 1 above.

Measures in the Action Plans may include the development of flood action groups, property level protection, community maintenance schemes as well as small to larger scale alleviation works if considered necessary.

**Figure 13 – Natural Flood Management Hierarchy**



**Table 10 – Natural Flood Risk Management Hierarchy**

| Steps | Description                                     | Example Details                                 |
|-------|-------------------------------------------------|-------------------------------------------------|
| 1     | Working with natural processes                  | Changing or altering management techniques      |
| 2     | Managing water within the upper catchment areas | Attenuation and woody dams                      |
| 3     | Managing water through the catchment            | Sustainable drainage systems, vegetation growth |
| 4     | Hard engineering measures                       | Flood defence walls/embankments and structures. |

# Conclusions

The Test Lower CMP aims to support a more holistic and co-ordinated approach to flood risk mitigation and water management within communities that are at an increased risk of flooding. By adapting the Hampshire Catchment Prioritisation Tool to the Test Lower catchment area, **6 locations** have been selected as priority areas.

These areas are **Totton North West** (affected by coastal, groundwater, surface water and fluvial flooding); **Totton South East** (affected by coastal, groundwater, surface water and fluvial flooding); **Hythe** (affected by coastal, groundwater, surface water and fluvial flooding); **North Baddesley and Tadburn** (affected by fluvial, groundwater and surface water flooding); **Cadnam** (affected by groundwater, surface water and fluvial flooding); and **Ower** (affected by fluvial, groundwater and surface water flooding).

Flooding within these priority areas comes from **a number of sources**. The interaction of these sources is hugely important to identify measures that can help **manage the risk as a whole**. Further investigations and surveys, followed by hydraulic modelling, where appropriate, may be required for these priority areas as part of the development of an effective Action Plan.

These Action Plans will be developed by further assessing the nature, cause, and effect of flooding for each priority area. The Action Plans will include mitigation measures that seek to reduce the risk of flooding within each group and will be monitored and reviewed on a regular basis.

# Appendix 1 - Data

As part of the CMP, existing asset and flood risk data directly related to the Test Lower catchment area was sourced and reviewed. The datasets represent properties and road assets located within the area, as well as flood risk from different sources of flooding, and records of historic flooding. The datasets used as part of this assessment are presented in the table below.

**Table 11 - Datasets used to develop the Test Lower Catchment Plan**

| Dataset Name                           | Description                                                                                                                                     | Source/Owner                                                                                                                            |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Hampshire historic flooding            | Record of historic flooding in Hampshire.                                                                                                       | Hampshire County Council                                                                                                                |
| Priority Salt Route                    | Strategic road network within Test (Lower) and Hampshire                                                                                        | Hampshire County Council                                                                                                                |
| OS MasterMap topographic layer         | Topographic map of the United Kingdom                                                                                                           | Ordnance Survey                                                                                                                         |
| OS Open Roads                          | Road Network for the United Kingdom                                                                                                             | Ordnance Survey                                                                                                                         |
| Lower super output areas (LSOA)        | Areas used to report national statistics, LSOAs contain 400 to 1200 households each                                                             | Office for National Statistics                                                                                                          |
| Indices of multiple deprivation        | Deprivation score for each LSOA area in England, based on number of indicators, chosen to cover a range of economic, social, and housing issues | Office for National Statistics                                                                                                          |
| Multi-Coloured Manual (MCM)            | Flood and Coastal Erosion Risk Management: A Manual for Economic Appraisal                                                                      | Flood Hazard Research Centre                                                                                                            |
| National receptor database (NRD)       | A dataset that contains (among other things) the location of each property in England and Wales                                                 | Environment Agency                                                                                                                      |
| Flood map for planning                 | Flood risk from rivers and sea (Flood Zones 2 and 3)                                                                                            | Environment Agency                                                                                                                      |
| Risk of flooding from surface water    | Indication of the broad areas likely to be at risk of surface water flooding                                                                    | Environment Agency                                                                                                                      |
| Detailed River Network (DRN)           | Dataset depicting river centrelines within the UK                                                                                               | Environment Agency                                                                                                                      |
| Susceptibility to groundwater flooding | Identifies areas where geological conditions could enable groundwater flooding to occur.                                                        | British Geological Society                                                                                                              |
| Strategic Flood Risk Assessments       | An overview of all sources of flood risk throughout the districts.                                                                              | Eastleigh Borough Council, East Hampshire District Council, Gosport Borough Council, Havant Borough Council and Winchester City Council |

# Appendix 2 - Prioritisation Methodology

## Methodology

The Hampshire catchment prioritisation tool is a GIS based multi criteria analysis tool. A set of nine criteria was considered to assess the risk and impact of flooding at a strategic level. A description of each criterion is summarised in the table below. Further details on the approach can be found in the Hampshire Catchment Prioritisation Tool report (Doc ref: 5151452-ATK-00-XX-RP-G-0002), 26 January 2017.

**Table 12 - Criteria used in the Hampshire Catchment Prioritisation tool**

| ID | Name                                            | Count                                                                                           | Data Source                                                                                                                                      |
|----|-------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Properties at risk of fluvial flooding          | Counts of properties at risk of fluvial flooding                                                | Flood map for planning<br>Ordnance Survey (OS) MasterMap<br>National Receptor Database                                                           |
| 2  | Properties at risk of surface water flooding    | Counts of properties at risk of surface water flooding                                          | Risk of flooding from surface water (RoFSW)<br>OS MasterMap<br>National Receptor Database                                                        |
| 3  | Properties at risk of coastal flooding          | Counts of properties at risk of coastal flooding                                                | As per criterion 1                                                                                                                               |
| 4  | Properties at risk of groundwater flooding      | Counts of properties at risk of groundwater flooding                                            | Susceptibility to groundwater flooding<br>OS MasterMap<br>National Receptor Database                                                             |
| 5  | Historic flooding                               | Counts of records with historic evidence of flooding                                            | Hampshire historic flooding                                                                                                                      |
| 6  | Areas of deprivation, 20% and 40% most deprived | Count of deprived residential properties at risk of fluvial / surface water or coastal flooding | All flood sources (excl. groundwater)<br>OS MasterMap<br>National Receptor Database<br>Index of Multiple Deprivation<br>Lower Super Output Areas |
| 7  | Strategic Road Network at risk from flooding    | Length (m) of strategic roads at risk of fluvial / surface water or coastal flooding            | All flood sources (excl. groundwater)<br>Priority Salt Route<br>OS Open Roads                                                                    |
| 8  | Road Repair costs                               | Repair costs (£) of all roads at risk of flooding                                               | All flood sources (excl. groundwater)<br>OS Open Roads                                                                                           |
| 9  | Present Value (PV) Damages                      | Count of residential properties at risk of fluvial / surface water or coastal flooding          | All flood sources (excl. groundwater)<br>OS MasterMap<br>National Receptor Database<br>MCM Manual                                                |

The assessment was based on a 1 km x 1 km square grid taken from the 2017 Hampshire catchment study and applied within the Test Lower catchment. Each grid square has been given a unique index value based on its vertical and horizontal position within the grid. For each criterion, a score representing the level of impact on a grid square was assigned. Each score was then summed together to indicate the total impact that all sources of flooding have on all the properties, transportation, and other infrastructure assets within the grid square. These scores were thereafter ranked in descending order of total scores, with the lowest rank representing the highest priority. Groups with a total score of 2.0 or higher were then selected as Catchment Priority Areas. This ensured a fair comparison of risk across catchments, while only applying that Catchment Priority Area status to the groups with the most risk and where measures could be most easily justified.

The existing plans, historic flood risk, and policies have been reviewed as part of this assessment, to help inform the selection of priority communities. In addition, the latest Ordnance Survey (OS) building MasterMap, and the

most up-to-date EA flooding outlines (Flood Zones and RoFSW) have been compared with the data used for the Hampshire assessment (2017). No significant differences have been found with the assessment in 2017.

For the Test Lower catchment, grid squares ranked 168 or higher were immediately excluded as the risk of flooding within these areas were categorised as too low for further consideration. The remaining grid squares were subsequently grouped together, where considered appropriate, based on the following criteria:

- Similar location (e.g., small village in a rural area, or same neighbourhood in a city).
- Similar flooding source (e.g., same river branch or surface water flow path); and
- Similar total scores.

In conjunction with the above, the following exclusion criteria has also been applied to consolidate the total number of groups for this catchment:

- Any ungrouped residual grid squares ranked 93 or above have been excluded.
- All other groups comprising more than two grid squares have been retained.

## Limitations and Assumptions

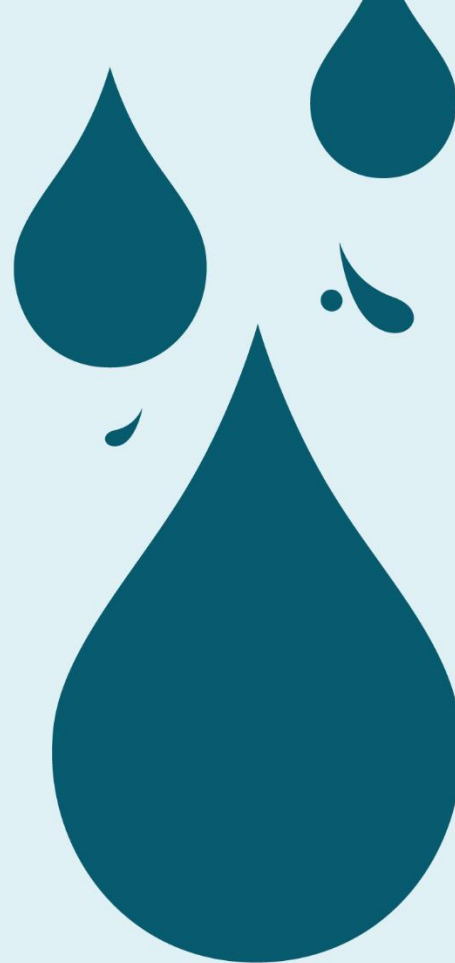
It should be noted that this approach is subject to the following limitations:

- All data located outside of the Test Lower catchment boundary has been excluded as part of this assessment. Hence all 1km x 1km grid squares along the boundary that contain areas that partially reside outside of this boundary will have all datasets related to that area excluded. This will result in a number of grid squares that will be ranked lower than they otherwise would be if all data pertaining to the entire associated area were to be included; and
- Ranking of each grid square is dependent on the weighting and risk factors that are applied to each criterion. The weights and risk factors were agreed in the 2017 Hampshire study.

## Document Review Period

This document should be reviewed every 4 years in terms of changes in flood risk and legislative / best practice updates or sooner if major flooding identifies additional key areas at risk.

**Atkins Limited**  
Atkins the Hub  
500 Park Avenue  
Almondsbury  
Bristol  
BS32 44Z



© Atkins Limited except where stated otherwise